



Your Energy Audit



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Home

Sample NYSEERDA
15 Glenwood St
Albany, NY 12203

Audit Date

Jul 2, 2015
3:01 pm

Audited By

Sandy Michaels
New York Testing
123 Bell Street
Albany, NY 12203
sandy@snugghome.com



Don & Margery -

Thank you for inviting us to do an energy audit on your beautiful home! We've kept your concerns in mind during our inspection and testing. Let's discuss the recommendations found in this report and see what works best for you.

Thanks,
Sandy

Inside Your Report

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We listened to you!

As our client, we want to make sure we are addressing all of your concerns for your home. If we have missed any concerns in this report, please let us know right away.

Concerns

Air Leaks

Air leaks have been noticed around the window frames, and especially around the front door.

Heating system is old

Furnace needs to be replaced for additional comfort and health & safety issues.

Kitchen gets too hot

The primary culprits are the large number of halogen can lights. Replacing these lights with new efficient bulbs will dramatically reduce the heat created by the lighting.



Solutions for Your Home

Totals

Cost

\$ 20,854

Estimated Savings

\$ 1,801 per year

This is an estimate of how much you could save starting in Year 1. Savings will only increase as energy prices rise over the years.

Impact of upgrades

Energy Reduction 42%

Carbon (CO2) Savings 9 tons

Equivalent cars removed from the road 1.9/yr

Call us today to ask a question or discuss the next step!

Details	Installed cost	Approximate annual savings	SIR*
Seal Air Leaks	\$1,015	\$142.43	2.8
Attic Improvements	\$1,883	\$140.17	2.2
Cooling System	\$3,355	\$183.8	0.8
Heating System	\$6,288	\$263.68	0.8
Thermostat Set Points	\$170	\$197.02	12.7
Upgrade Water Heater	\$1,223	\$72.75	0.9
Upgrade Lighting	\$77	\$238.91	21.9
Insulate Walls	\$5,508	\$493.01	2.7
Refrigerator	\$1,336	\$68.86	0.9

* SIR is the Savings to Investment Ratio. Simply put, if the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again. This metric is used to help prioritize the recommendations by financial merit.



Seal Air Leaks

AIR LEAKAGE

Installed Cost

\$ 1,015

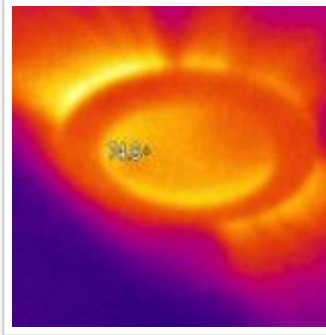
Energy Savings

Approx. \$ 142

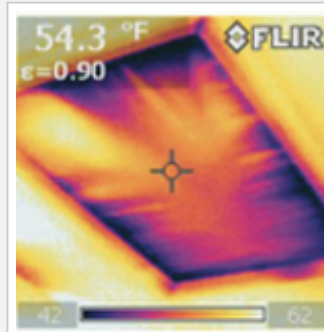
Why it matters

Air sealing is typically the most cost effective improvement you can make to your home. To properly seal out air leaks, a large fan called a blower door is used to depressurize your house. This makes air leaks easy to find, so corrective measures can be taken. A good air sealing job will dramatically increase the comfort of your home and help you save significant energy.

Good air-sealing and a continuous air barrier between the attic and the home's conditioned (living) space are important, not only to save energy and reduce fuel bills, but also to prevent moisture problems in the attic.



Air leakage at Can Lights:



Air leakage at Attic Hatch:



Seal Air Leaks

AIR LEAKAGE

Installed Cost

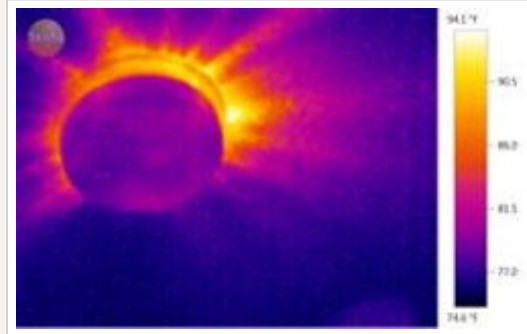
\$ 1,015

Energy Savings

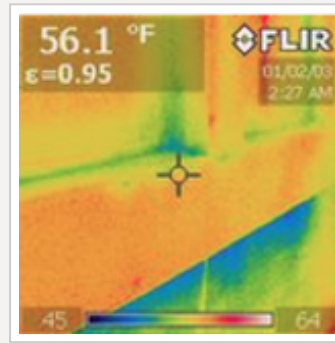
Approx. \$ 142

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Air leakage at Smoke Detector:



Air leakage at Windows:

Now & Goal

Details

Now

Goal

Blower Door Reading	3,628 CFM50	2,540 CFM50
Wind Zone	2	N/A
N-Factor	15.0	N/A
Equivalent NACH	0.67 NACH	0.47 NACH
Conditioned Air Volume	21,546 ft ³	N/A
Effective Leakage Area	204 in ²	143 in ²
Equivalent ACH50	10.1 ACH50	7.1 ACH50



Attic Improvements

ATTIC

Installed Cost

\$ 1,883

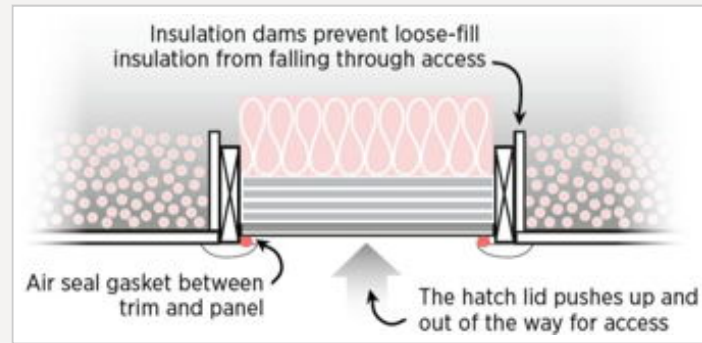
Energy Savings

Approx. \$ 140

Why it matters

Adding insulation to your attic can lead to a significant reduction in your utility bills. This process is often combined with careful air sealing of the ceiling from the attic side to ensure the new insulation perform at its maximum level.

The current level of insulation in the attic is low and uneven. Taking the R Value to a consistent 49 will vastly improve the comfort and efficiency of your home.



Insulate the Attic Hatch: Openings used for access to the attic such as access panels, doors into kneewalls, or dropdown stairs should be air sealed and insulated.

Now & Goal

Details	Now	Goal
Attic Roof Absorptance	0.92	0.92
Attic Roof Emissivity	0.90	0.90
Modeled Attic Area	1,197 ft ²	1,197 ft ²
Attic Insulation	10 R Value	49 R Value
Radiant Barrier?	No	No



Cooling System

COOLING SYSTEM

Installed Cost

\$ 3,355

Energy Savings

Approx. \$ 184

Why it matters

Install a more efficient air conditioner or evaporative cooler. Depending on the age of the unit, substantial savings may be gained by replacing it with an Energy Star rated appliance. If it doesn't quite make sense to replace your air conditioner now, be prepared to choose a high efficiency Energy Star unit (14 SEER or higher) when it finally wears out.



If you choose to install / upgrade an AC unit, consider installing an ENERGY STAR rated or higher efficiency unit (14 to 20 SEER). Keep the pad on which the AC unit sits level, shaded and maintain at least one foot from the home and any other obstructions.

Now & Goal

Details	Now	Goal
Cooling Equipment 1		Central AC
Cooling Capacity 1	24,000 BTU/h	24,000 BTU/h
% of Total Cooling Load 1	100 %	100 %
Cooling System Manufacturer 1	Unknown	Unknown
Cooling System Efficiency 1	10.0 SEER	17.0 SEER
Cooling System Model Year 1		2015



Heating System

HEATING SYSTEM

Installed Cost

\$ 6,288

Energy Savings

Approx. \$ 264

Why it matters

Install a more efficient furnace, boiler or heat pump. Depending on the age of the unit, substantial savings may be gained by replacing it with an Energy Star rated appliance. If you're heating with gas, look for a sealed combustion unit. They're much safer since the exhaust pathway from the unit is sealed and goes directly outside. If it doesn't quite make sense to replace your heating system now, be prepared to replace it with a high efficiency Energy Star unit when it finally wears out.



Upgrade your furnace to a 95-98% efficient, sealed combustion system. You will only be losing 2-5 cents per dollar of heating and you will reduce your risk of carbon monoxide poisoning.

Now & Goal

Details	Now	Goal
Heat Pump Inverter 1		No
Heating Equipment 1		Furnace
Heating Energy Source 1	Natural Gas	Natural Gas
% of Total Heating Load 1	90 %	90 %
Heating Capacity 1	0 BTU/h	50,000 BTU/h
Heating System Efficiency 1	68 AFUE	98 AFUE
Heating System Manufacturer 1	Unknown	Unknown
Heating System Model Year 1		2015
Heat Pump Inverter 2	No	No
Heating Equipment 2	Electric Resistance	Electric Resistance
Heating Energy Source 2		Electricity
% of Total Heating Load 2	10 %	10 %
Heating Capacity 2	100,000 BTU/h	100,000 BTU/h
Heating System Efficiency 2	100 AFUE	100 AFUE
Heating System Manufacturer 2	Unknown	Unknown
Heating System Model Year 2		2015



Thermostat Set Points

THERMOSTAT

Installed Cost

\$ 170

Energy Savings

Approx. \$ 197

Why it matters

Installing a programmable thermostat (or correctly setting the one you currently have) will help you to use less energy when you're not at home or when you're sleeping.



The location of your thermostat can affect its performance and efficiency. Read the manufacturer's installation instructions to prevent "ghost readings" or unnecessary furnace or air conditioner cycling.

To operate properly, a thermostat must be on an interior wall away from direct sunlight, drafts, doorways, skylights, windows, vents and fans. It should be located where natural room air currents—warm air rising, cool air sinking—occur. Furniture will block natural air movement, so do not place pieces in front of or below your thermostat. Also make sure your thermostat is conveniently located for programming. Energy.gov.

Notes to Homeowners

The improved thermostat settings are the industry standard for energy efficiency. Try these settings to see how they match with your comfort zone, adjust by small degrees if necessary.

Now & Goal

Details	Now	Goal
Heating Setpoint High	68 °F	68 °F
Heating Setpoint Low	68 °F	62 °F
Cooling Setpoint High	75 °F	85 °F
Cooling Setpoint Low	75 °F	78 °F



Upgrade Water Heater

WATER HEATER

Installed Cost

\$ 1,223

Energy Savings

Approx. \$ 73

Why it matters

High efficient hot water heaters save energy and are safer due to carbon monoxide. Older units run the risk of leaking. Consider replacement if your hot water heater is 13 or more years old.



Tankless water heaters are typically about 20% more efficient than tank-style heaters. If you have hard water, we do not recommend tankless units because minerals from the water can precipitate out inside the heat exchanger, leading to increased maintenance costs.

Now & Goal

Details	Now	Goal
DHW Fuel	Natural Gas	
DHW Type	Standard tank	
DHW Age	21-25	
DHW Location	Garage or Unconditioned Space	
DHW % Load	100 %	100 %
DHW Manufacturer	Unknown	Unknown
DHW Model Year		2015
DHW Energy Factor	56 EF	82 EF
DHW Energy Star	No	Yes

Upgrade Lighting

LIGHTING

Installed Cost

\$ 77

Energy Savings

Approx. \$ 239

Why it matters

Replacing incandescent bulbs with CFLs or LEDs will save significant energy and replacement costs over time.



Upgrade lighting to CFLs or LEDs. Replace incandescent light bulbs used more than an hour per day with compact fluorescent light bulbs (CFLs), and replace other bulbs with lower-Wattage standard incandescent bulbs. CFLs typically reduce lighting energy use by 75%.



Can lights should be replaced with new LED lights. This will reduce heat gain, save on energy, and prevent any heat related issues with the attic insulation.

Now & Goal

Details

Now

Goal

of Incandescents

38

4

of CFLs or LEDs

7

41

% CFL or LED

16 %

90 %



Insulate Walls

WALLS

Installed Cost

\$ 5,508

Energy Savings

Approx. \$ 493

Why it matters

Insulating your walls can lead to a significant reduction in utility bills. This is done by drilling small holes in the wall cavities either from the inside or outside and filling the space with cellulose, fiberglass, or even foam insulation. If it's time to replace your exterior siding, then be sure to ask your contractor about adding a layer of rigid foam underneath the new sheathing of 1" or more.



Insulate exterior walls:

By "dense packing" cellulose insulation in your wall cavities, air leaks and drafts will be dramatically reduced. To install the insulation, contractors will lightly pry up a few rows of siding on your house and temporarily remove it. They will then drill a 2" hole in the sheathing for every wall cavity. A blower pushes cellulose insulation at high speed through a hose into the holes, filling the wall cavity. Great care is taken to ensure the cellulose fills into every part of the wall.

Now & Goal

Details	Now	Goal
Exterior Wall Siding	Wood/Fiber Cement siding	
Exterior Wall Construction	Frame	
Wall Cavity Insulation	0 R Value	13 R Value
Wall Continuous Insulation	0 R Value	0 R Value
Modeled Wall Area	2,517 ft ²	N/A



Refrigerator

REFRIGERATOR

Installed Cost

\$ 1,336

Energy Savings

Approx. \$ 69

Why it matters

Old refrigerators can often cost twice as much to operate as a new refrigerator. Energy Star units can use half the energy as older, less efficient models.



Now & Goal

Details

Now

Goal

Refrigerator Energy Star

No

Yes

Refrigerator Model Year

1990

2015

Refrigerator Manufacturer

Unknown

LG

Refrigerator Usage

840 kWh/yr

461 kWh/yr

Refrigerator Model

LSFS213

Health & Safety

What's This?

These tests are recommended by the Building Performance Institute (BPI). They can help identify potential health and safety concerns in your home.



Install a Low Level Carbon Monoxide Monitor

CO detectors are highly recommended in homes with fuel-burning appliances. The detectors signal homeowners via an audible alarm when CO levels reach potentially dangerous levels.

MOLD & MOISTURE

Moisture control is the key to mold control. Molds need both food and water to survive; since molds can digest most things, water is the factor that limits mold growth. Molds will often grow in damp or wet areas indoors. Common sites for indoor mold growth include bathroom tile, basement walls, areas around windows where moisture condenses, and near leaky water fountains or sinks. Common sources or causes of water or moisture problems include roof leaks, deferred maintenance, condensation associated with high humidity or cold spots in the building, localized flooding due to plumbing failures or heavy rains, slow leaks in plumbing fixtures, and malfunction or poor design of humidification systems. Uncontrolled humidity can also be a source of moisture leading to mold growth, particularly in hot, humid climates.

ELECTRICAL

Have an electrician look at the wall plugs that are located near a water source, to see if a GFCI (ground-fault circuit interrupter) is recommended.

CAZ (combustion appliance zone) test results:

Air Filters

ADDITIONAL NOTES

About this section

Additional notes are miscellaneous items that deserve a mention in your home's report.

These mentioned items are not included in the cost or savings of your project.

Why it matters

A dirty filter will slow down air flow and make the system work harder to keep you warm or cool — wasting energy. A clean filter will also prevent dust and dirt from building up in the system — leading to expensive maintenance and/or early system failure.
EnergyStar.gov



Check your filter every month, especially during heavy use months (winter and summer). If the filter looks dirty after a month, change it. At a minimum, change the filter every 3 months.

Water Sense

ADDITIONAL NOTES

About this section

Additional notes are miscellaneous items that deserve a mention in your home's report.

These mentioned items are not included in the cost or savings of your project.

Why it matters

On a national scale, if every home in the United States installed WaterSense labeled showerheads, we could save more than \$2.2 billion in water utility bills and more than 260 billion gallons of water annually. In addition, we could avoid about \$2.6 billion in energy costs for heating water. EPA.gov.



Save water and protect the environment by choosing WaterSense labeled products in your home.



Showering is one of the leading ways we use water in the home, accounting for nearly 17 percent of residential indoor water use—for the average family, that adds up to nearly 40 gallons per day.



Rebates & Incentives



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The 10% cashback incentive

When you complete energy efficiency upgrades through the Home Performance with ENERGY STAR program, you will be eligible to receive 10 percent of the cost of eligible upgrades back (up to a maximum of \$3,000) after the work is complete.

Your contractor can help you verify that your upgrades qualify for this incentive.

For a full list of energy efficiency improvements that qualify for 10% cash back, download this PDF:

bit.ly/ny-eligible-measures

Assisted Home Performance with ENERGY STAR grants

Depending on household income you can qualify for a grant of up to \$5,000 to cover up to 50 percent of the cost of energy efficiency upgrades. In most New York State counties, a family of four with a household income up to about \$65,000 will qualify.

Two- to four-unit residential buildings with additional income-eligible households can qualify for a grant of up to \$10,000.

To learn more go to: <http://bit.ly/ny-assisted-3>

Get low-interest financing! Two options:

Option 1: On-Bill Recovery Loans with a 3.49% interest rate

An On-Bill Recovery Loan allows you to have your loan payments built into your utility bill. You'll have no extra bills each month and nothing new to keep track of. Even better: your monthly payments will be calculated not to exceed the expected amount your energy upgrades will save you on energy costs. So your energy savings cover most or all of your payment. Interest rates are subject to change.

When you rent or sell your home, you will have the option to transfer the unpaid balance of loan to the new owners or tenants. If you do choose to transfer the balance, you'll be required to provide notice to the new owner or tenant.

On-Bill Recovery Financing requires a declaration to be signed and filed by NYSEERDA. The declaration is not a lien on the property but is recorded to provide notice to others of the obligation under the loan note.

Customers of the following utilities are eligible for On-Bill Recovery Financing: Central Hudson Gas & Electric, Con Edison, Long Island Power Authority, NYSEG, National Grid (upstate NY customers only), Orange & Rockland, and Rochester Gas & Electric.

Option 2: Smart Energy Loans with interest rates as low as 3.49%

Smart Energy Loans offer affordable interest rates, flexible terms and simple repayment options. Paying for a Smart Energy Loan is similar to any other conventional loan. You make monthly payments to NYSEERDA's loan servicer by check or automatic bank withdrawals. The current interest rate is 3.49% if you pay via automatic bank withdrawals. Interest rates are subject to change.

To apply for financing visit Energy Finance Solution:

<http://bit.ly/ny-financing>



About financing

The loan scenario(s) listed are examples only and are not a formal offer of financing. Rates, terms and closing costs and eligibility requirements may vary.

Financing

Powersaver 203(k) Streamline

Mortgage loans for those looking to purchase and renovate, or refinance and renovate a home. \$3,500 of the loan has to go towards qualifying energy upgrades. Low closing costs.

Terms & Conditions

Minimum Loan	\$ 3,500
Maximum Loan	\$ 35,000
Min. Cash Down	\$ 0
Rate	4.00%
Term	360 months
Min. FICO Score	640
Closing costs	N/A

The Math

Job Cost	\$ 20,854
Cash down	\$ 0
Loan amount	\$ 20,854
Your loan payment: (4.00% @ 360 months)	\$ 100
Estimated energy savings	\$ 150
Estimated net monthly savings	\$ 50

Call Lindsay Olsen at 801-803-5495 or email lindsay.olsen@wjbradley.com to apply today!

Elevations Loan - 5 yr

Terms & Conditions

Minimum Loan	\$ 500
Maximum Loan	N/A
Min. Cash Down	\$ 0
Rate	3.80%
Term	60 months
Min. FICO Score	580
Closing costs	N/A

The Math

Job Cost	\$ 20,854
Cash down	\$ 0
Loan amount	\$ 20,854
Your loan payment: (3.80% @ 60 months)	\$ 382
Estimated energy savings	\$ 150
Estimated net monthly cost	\$ 232

Free energy advising to help you through the process and low interest rates for 3,5,7,10 and 15 year terms.



About the metrics

These metrics are for the whole house in a pre and post-retrofit state.

The 'Baseline' savings numbers will likely not be the same as the actual energy consumption of the home. These numbers are weather normalized and then projected based on the Typical Meteorological Year for the past 30 years (TMY30). In other words, this is the energy consumption of the home for a typical year, not the year that the utility bills were from.

Metrics

Metric	Baseline	Improved	Saved
Fuel Energy Usage <small>therms/year</small>	2,602	1,450	1,152
Electric Energy Usage <small>kWh/year</small>	16,252	10,963	5,289
Total Energy Usage <small>MMBtu/year</small>	316	182	134
Fuel Energy Cost <small>\$/year</small>	1,886	1,051	835
Electric Energy Cost <small>\$/year</small>	2,968	2,002	966
Total Energy Cost <small>\$/year</small>	4,853	3,053	1,800
CO2 Production <small>Tons/year</small>	23.7	14.4	9.3
Payback <small>years</small>			10
Total Energy Savings			42%
Total Carbon Savings			39%
Net Savings to Investment Ratio <small>SIR</small>			1.7
Net Annualized Return <small>MIRR</small>			7.0%

Heating & Cooling Load Calculations

Heating Load <small>Btu/hr</small>	70,003 <small>Base</small>	51,544 <small>Improved</small>
Cooling Load: Sensible <small>Btu/hr</small>	40,425 <small>Base</small>	30,096 <small>Improved</small>
Cooling Load: Latent <small>Btu/hr</small>	1,022 <small>Base</small>	1,003 <small>Improved</small>
Winter Design Temperature	7° <small>Outdoor</small>	70° <small>Indoor</small>
Summer Design Temperature	85° <small>Outdoor</small>	75° <small>Indoor</small>



Tech Specs

Property Details

Year Built:	1928
Conditioned Area:	2,394 ft ²
Includes Basement:	No
Average Wall Height:	8.5 ft
Floors Above Grade:	2.00
Number of Occupants:	2.0
Number of Bedrooms:	4.0
Type of Home:	Single Family Detached
Front of Building Orientation:	East
Shielding:	Normal
Tuck Under Garage:	No

Appliances

Dishwasher Energy Star:	No
Range Fuel Type:	Natural Gas
Dryer Fuel Type:	Electricity
Clothes Washer Type:	Top Load
Clothes Washer Energy Star:	No
Dishwasher Installed?:	Yes

Refrigerators 1

Refrigerator Age:	22-24
Refrigerator Size:	19-21
Refrigerator Energy Star:	No
Refrigerator Usage:	840 kWh/yr

Lighting

% CFLs or LEDs:	N/A
Total # of Light Bulbs:	45

Attics 1

Insulation Depth:	1-3
Insulation Type:	Cellulose

Walls 1

Walls Insulated?:	No
Exterior Wall Siding:	Wood/Fiber Cement siding
Exterior Wall Construction:	Frame

Foundation

Crawlsp	Crawlspace is uninsulated, open, or
Insulatic	vented
Foundation: Basement:	50 %
Foundation: Crawlspace:	50 %
Foundation Above Grade Height:	2.0 ft
Basement Wall Insulation:	None or Bare Walls

Windows 1

Window Type:	Double pane
Window: North Area Percent:	20 %
Window: East Area Percent:	20 %
Window: South Area Percent:	20 %
Window: West Area Percent:	20 %
North Overhang Depth:	2 ft
East Overhang Depth:	2 ft
South Overhang Depth:	2 ft
West Overhang Depth:	2 ft

Doors 1

Door 1 Type:	Wood
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Doors 2

Door 2 Type:	Wood with Storm
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Air Leakage

Blower Door Reading:	3,628 CFM50
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Heating & Cooling 1

System Name:	Central
System 1 Type:	Both
Heating Energy Source:	Natural Gas
Age of Heating Equipment:	16-40
% of Total Heating Load:	90 %
Dual Equipment:	Furnace / Central AC
Age of Cooling Equipment:	16-20
Cooling Capacity:	24,000 BTU/h
Heating System Efficiency:	68 AFUE
% of Total Cooling Load:	100 %
Duct Location:	Basement (unconditioned)
Duct Insulation:	No Insulation
Duct Leakage:	15% - Somewhat leaky

Heating & Cooling 2

System Name:	Baseboards
System 2 Type:	Heating
Heating Equipment:	Electric Resistance
Age of Heating Equipment:	16-40
% of Total Heating Load:	10 %
Heating Capacity:	100,000 BTU/h



Tech Specs

Thermostat

Programmable Thermostat Installed:	No
Heating Setpoint High:	68 °F
Heating Setpoint Low:	68 °F
Cooling Setpoint High:	75 °F
Cooling Setpoint Low:	75 °F

Water Heating 1

DHW Fuel:	Natural Gas
DHW Type:	Standard tank
DHW Age:	21-25
DHW % Load:	100 %
DHW Location:	Garage or Unconditioned Space
DHW Temperature Settings:	High (140-150 F)
DHW Energy Star:	No

Pool & Hot Tub

Pool:	No
Hot Tub:	No

Electricity

Provider:	Easter
Highest monthly summer electric bill:	341
Lowest monthly electric bill:	136

Primary Fuel: Natural Gas

Highest monthly winter natural gas bill:	250 Dollars
Lowest monthly natural gas bill:	57 Dollars

Contractor Contact Information

Sandy Michaels
New York Testing
BPI Certified
123 Bell Street

Sample NYSERDA • 15 Glenwood St Albany, NY 12203



Glossary

Annual Fuel Utilization Efficiency (AFUE) The measure of seasonal or annual efficiency of a residential heating furnace or boiler. It takes into account the cyclic on/off operation and associated energy losses of the heating unit as it responds to changes in the load, which in turn is affected by changes in weather and occupant controls.

Annualized Return The return an investment provides over a period of time, expressed as a time-weighted annual percentage. This is the equivalent annual interest rate you would get if you put the same amount of money spent on the energy upgrade into a savings account.

Asbestos Asbestos is a mineral fiber that has been used commonly in a variety of building construction materials for insulation and as a fire-retardant, but is no longer used in homes. When asbestos-containing materials are damaged or disturbed by repair, remodeling or demolition activities, microscopic fibers become airborne and can be inhaled into the lungs, where they can cause significant health problems.

British Thermal Unit (Btu) The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit; equal to 252 calories.

Carbon Monoxide (CO) A colorless, odorless but poisonous combustible gas with the formula CO. Carbon monoxide is produced in the incomplete combustion of carbon and carbon compounds such as fossil fuels (i.e. coal, petroleum) and their products (e.g. liquefied petroleum gas, gasoline), and biomass.

Cashflow When financing energy efficiency improvements, cashflow is the difference between the average monthly energy savings and the monthly loan payment.

Combustion Appliance Zone (CAZ) A contiguous air volume within a building that contains a combustion appliance such as furnaces, boilers, and water heaters; the zone may include, but is not limited to, a mechanical closet, mechanical room, or the main body of a house, as applicable.

Compact Fluorescent Light bulb (CFL) A smaller version of standard fluorescent lamps which can directly replace standard incandescent lights. These highly efficient lights consist of a gas filled tube, and a magnetic or electronic ballast.

Cubic Feet per Minute (CFM) A measurement of airflow that indicates how many cubic feet of air pass by a stationary point in one minute.

Carbon Dioxide (CO₂) A colorless, odorless noncombustible gas that is present in the atmosphere. It is formed by the combustion of carbon and carbon compounds (such as fossil fuels and biomass). It acts as a greenhouse gas which plays a major role in global warming and climate change.

Energy Efficiency Ratio (EER) The measure of the energy efficiency of room air conditioners: cooling capacity in Btu/hr divided by the watts consumed at a specific outdoor temperature.

Energy Factor (EF) The measure of efficiency for a variety of appliances. For water heaters, the energy factor is based on three factors: 1) the recovery efficiency, or how efficiently the heat from the energy source is transferred to the water; 2) stand-by losses, or the percentage of heat lost per hour from the stored water compared to the content of the water; and 3) cycling losses. For dishwashers, the energy factor is the number of cycles per kWh of input power. For clothes washers, the energy factor is the cubic foot capacity per kWh of input power per cycle. For clothes dryers, the energy factor is the number of pounds of clothes dried per kWh of power consumed.

Heating Seasonal Performance Factor (HSPF) The measure of seasonal efficiency of a heat pump operating in the heating mode. It takes into account the variations in temperature that can occur within a season and is the average number of Btu of heat delivered for every watt-hour of electricity used.

Heat Recovery Ventilator (HRV) / Energy Recovery Ventilator (ERV)

A device that captures the heat or energy from the exhaust air from a building and transfers it to the supply/fresh air entering the building to preheat the air and increase overall heating efficiency while providing consistent fresh air.

Light Emitting Diode (LED) Lighting An extremely efficient semiconductor light source. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved physical robustness, and smaller size.

Modified Internal Rate of Return (MIRR) This is your return on investment. Roughly speaking, if you invested the same amount of money for this project (listed on this report as the total cost) into a bank account, your equivalent interest rate from all of the energy savings would be the MIRR.

N-Factor A factor of how susceptible your house is to wind, influenced by weather patterns, location, and the number of floors in the home. Used in the calculation of NACH.

Natural Air Changes per Hour (NACH) The number of times in one hour the entire volume of air inside the building leaks to the outside naturally.

Payback Period The amount of time required before the savings resulting from your system equal the system cost.

R-Value A measure of the capacity of a material to resist heat transfer. The R-Value is the reciprocal of the conductivity of a material (U-Value). The larger the R-Value of a material, the greater its insulating properties.

Radon A naturally occurring radioactive gas found in the U.S. in nearly all types of soil, rock, and water. It can migrate into most buildings. Studies have linked high concentrations of radon to lung cancer.

Rim Joist In the framing of a deck or building, a rim joist is the final joist that caps the end of the row of joists that support a floor or ceiling. A rim joist makes up the end of the box that comprises the floor system.

Seasonal Energy Efficiency Ratio (SEER) A measure of seasonal or annual efficiency of a central air conditioner or air conditioning heat pump. It takes into account the variations in temperature that can occur within a season and is the average number of Btu of cooling delivered for every watt-hour of electricity used by the heat pump over a cooling season.

Savings to Investment Ratio (SIR) A ratio used to determine whether a project that aims to save money in the future is worth doing. The ratio compares the investment that is put in now with the amount of savings from the project.