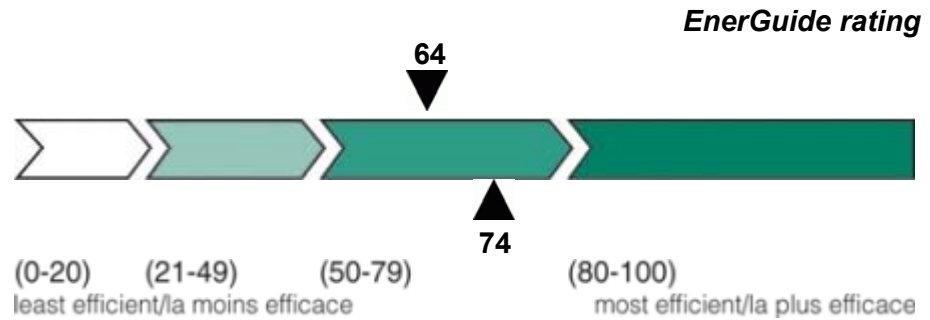


Energy Efficiency Evaluation Report

House file number: 9900D00001

Household, John,
123 Main St.,
Ottawa, Ontario,
K1K 1K1



- Your house currently rates 64.
- If you implement all of the recommendations, you could reduce your space heating energy consumption by up to 28% and increase your home's energy efficiency rating to 74.
- The average energy efficiency rating for a house of this age in Canada is 70.
- By achieving 74, your home would rate in the top 30% of this group of houses.

Home Energy Action Checklist

Recommendations

These activities qualify for an incentive (up to a maximum total incentive value of \$5000):

Replace your gas furnace with an ENERGY STAR qualified furnace that has a 92.0% annual fuel utilization efficiency (AFUE) or better, with a DC variable-speed motor.



1

\$XX.xx

Replace your wood-burning appliance with a model that meets either CSA-B415.1-M92 (Performance Testing of Solid-Fuel-Burning Heating Appliances) or the U.S Environmental Protection Agency (EPA) wood-burning appliance standards (40 CFR Part 60).



5

\$XX.xx



Replace your domestic hot water heater with a tankless gas water heater that has an energy factor (EF) of 0.8 or better.	★★	4	\$XX.xx
Install a grey water heat recovery system.	★	6	\$XX.xx
When installing new cladding on your exterior walls, increase the insulation value by RSI 1.8 (R-10).	★★★	2	\$XX.xx
Increase the insulation value of the basement walls to RSI 4.2 (R-24), full height.	★★★	3	\$XX.xx

*Note: The incentive indicated is the amount eligible for each unit replaced.

Energy Savings Tips

Although these actions are not eligible for an incentive, they will help you save energy and money:

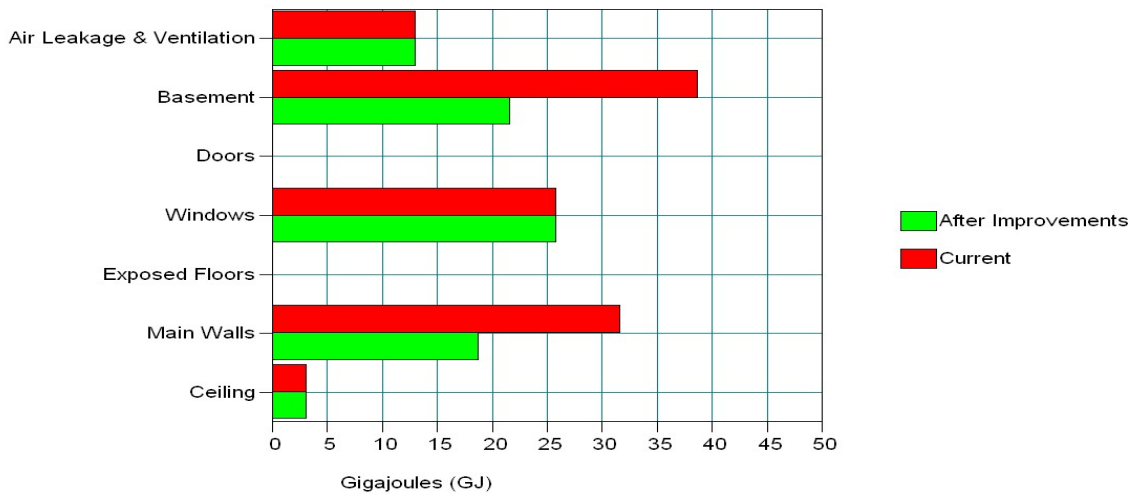
- Install and use programmable electronic thermostats (Encourage the building occupants to set the heating temperature to 20°C while they are at home and 17°C at night and when they are away). For each degree of setback, up to 2 percent can be saved on the heating bills.
- Insulate the first two metres of the hot and cold water pipes with insulating foam sleeves or pipewrap insulation. By doing so you will save on your water heating costs and will reduce your water consumption. Besides saving energy, water will arrive at the faucets warmer or colder. Insulating cold water pipes will also avoid condensation from forming on the pipes. This prevents dripping on ceiling tiles or the basement floor. For a fuel-fired water heater, maintain a 15-centimetre (6-inch) clearance between the water piping insulation and the vent pipe.
- Install a timer on the pool pump.
- Use a timer on the outlets being used for the cars' block heaters. Set the timer so that it turns on two hours before vehicles will be started.
- Install ENERGY STAR® qualified kitchen or bathroom exhaust fans.
- Install a timer on the bathroom exhaust fan(s).
- Install low-flow showerheads (rated at less than 9.8 litres per minute [L/min]) and faucet aerators.
- Fix leaky faucets and outside hose bibs.
- When replacing lighting, appliances, electronics and office equipment, look for ENERGY STAR® labelled products. ENERGY STAR® labelled products use less than half as much energy in standby mode (i.e. when they are turned "off"). For more information, go to energystar.gc.ca. You can also look for the EnerGuide label to help you select the most energy-efficient model.
- Replace light bulbs with energy-efficient ones, such as compact fluorescents. They last longer and reduce electricity consumption.
- Install a photovoltaic system, which will supplement the building's energy use with an environmentally friendly source of electricity.
- Install a wind-powered generation system, which will supplement the building's energy use with an environmentally friendly source of electricity.
- Install a solar wall system to supplement the building's space heating, which will ease the load on the primary heating system.

- Encourage the building occupants to plug home office equipment into a power bar that can be easily turned off when equipment is not in use. Refer to the fact sheet *Standby Power – When “Off” Means “On”* for information on standby losses

Estimated Heat Loss

Figure 1 shows how the energy used for space heating actually gets used in the heating of your home. A long red bar indicates where you are losing more energy; a short red bar indicates areas where you are not losing as much energy. Your energy advisor has taken into account both your future renovation intentions and the potential for savings identified in the graph below, in making their recommendations in this report. The larger the difference between the red and the green bars, the more potential for improvement exists.

Figure 1. Estimated Annual Heat Loss

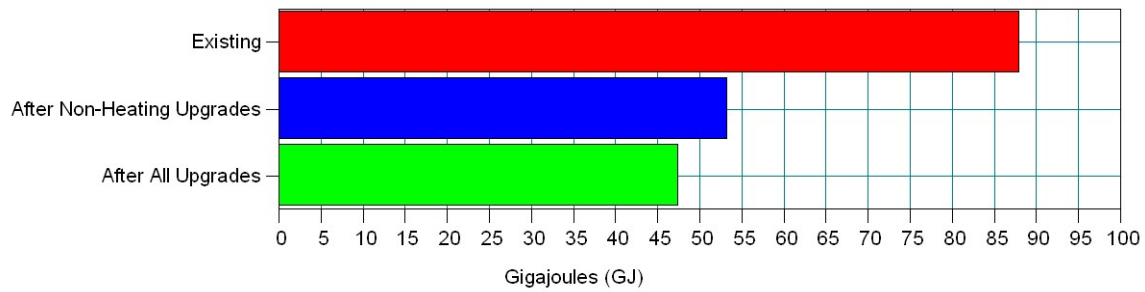


Space Heating Energy Consumption

Figure 2 shows the estimated amount of energy used for the space heating of your home in gigajoules (GJ), where 1 GJ is equivalent to 278 kilowatt-hours (kWh). The following describes the meaning of each bar:

- The top bar shows your current estimated space heating energy use before any upgrades.
- The middle bar shows the estimated space heating energy use, assuming you performed all of the upgrades recommended in this report, excluding space heating system upgrades, if any were recommended. It is estimated that you would save up to 40 percent by performing all of the recommended non-space heating system upgrades. The bottom bar shows the estimated space heating energy use if you were to implement all of the upgrades recommended in this report, including any space heating system upgrades, if any were recommended. It is estimated that you would save up to 46 percent by performing all of the recommended upgrades.

Figure 2. Estimated Annual Space Heating Energy Consumption



A Broader Outlook

By reducing the amount of energy you use at home you reduce the production of greenhouse gases such as CO₂. Small improvements by all of us will help Canada's efforts to combat climate change and protect the environment. Together we can do it. By improving your home's energy efficiency to the potential rating noted above, you will reduce your home's production of greenhouse gas emissions by **2.1 tonnes** per year.

Additional Upgrade Information

Basement / Crawl space insulation

For information on insulating basements and crawl spaces, refer to chapter 5 of the publication entitled Keeping the Heat In.

Wall insulation

For information on insulating exterior walls, refer to chapter 6 of the publication entitled Keeping the Heat In.

Heating systems

When you decide to replace your heating system, ensure that your heating contractor performs a heat loss calculation on your home prior to installing the heating equipment to ensure that it has the correct capacity. In addition, it is recommended that you complete the other energy efficiency upgrades recommended in this report before having your heating system replaced, otherwise your heating appliance could be oversized. A heating appliance that is grossly oversized will operate less efficiently and tend to make the house less comfortable. For information on heating systems, refer to the publications entitled Heating with Gas, Choose the Right Condensing Gas Furnace, Heating with Electricity, Heating with Oil or Heating and Cooling with a Heat Pump. For information on ENERGY STAR® qualified space heating appliances, go to energystar.gc.ca.

Combustion spillage

The result of the quick depressurization test which consists of turning on all exhaust equipment (exhaust fans, clothes dryer, central vacuum system, etc.) indicates that the use of these exhaust devices may cause combustion products from your fuel-burning appliance(s) to be drawn into your home. We strongly recommend that you install a Carbon Monoxide (CO) detector in the home as per local requirements. Also, we strongly recommend the installation of a smoke detector if you do not already have one per floor. If you wish to discuss this issue further, please contact the service organization listed on the EnerGuide label.

Air conditioning

If you decide to have a new central air conditioning system installed, ensure that your air conditioning contractor performs a heat gain calculation on your home prior to installing the equipment to ensure that it has the correct capacity. An air conditioner that is grossly oversized or undersized will operate less efficiently and tend to make the house less comfortable. For information on air conditioning, refer to the publication entitled *Air Conditioning Your Home*. For information on ENERGY STAR® qualified air conditioners, go to energystar.gc.ca.

Ventilation (Critical month greater 0.2ACH)

Based on the results of the blower door test, at a minimum, the exhaust fan(s) should be used during the months between October and April in order to ensure good indoor air quality is maintained when natural air infiltration in and out of the home is reduced and it is not practical to open windows. Refer to chapter 8 of the publication entitled *"Keeping the Heat In"* for additional information.

Things you should know

Home Energy Efficiency Publications

Natural Resources Canada publishes a variety of publications that can help you improve the energy efficiency of your home. These publications are available online at oee.nrcan.gc.ca/publications. You can also obtain a copy from your energy advisor or by calling 1-800-387-2000.

Hiring a Contractor

Before you have any work done by a contractor, you should request quotations in writing from professional contractors and obtain a written contract. Canada Mortgage and Housing Corporation (CMHC) has a very useful fact sheet on this subject, *Hiring a Contractor*, which includes a draft contract. This publication is available online at www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_009.cfm or you can order it by calling 1-800-668-2642. The CMHC Web site is a useful renovation resource. It has a number of renovation planning fact sheets available online at no cost. A number of excellent in depth publications are also for sale.

House as a System

Your energy advisor has recommended an approach for improving your house's energy performance based on the principle of a "house as a system." This principle recognizes that a change made to one component of a house can affect other components and that the comfort, health and safety of occupants, as well as the long-term integrity of the structure, must be primary considerations any renovation. For example, it is recommended to replace your heating equipment after the insulation retrofits have been implemented to avoid having an oversized heating appliance that will not operate at its optimum efficiency.

Ventilation System

It is important that you periodically maintain your heat recovery ventilator (HRV) to avoid problems, ensure its effectiveness and prolong its life. Natural Resources Canada's publication *Operating and Maintaining your Heat Recovery Ventilator* has a chapter on how to maintain an HRV.

Insulation

Protect and cover all foam insulation with a minimum of 12.5 mm ($\frac{1}{2}$ ") drywall on the interior to reduce flame spread and smoke generation in the case of a fire. To reduce skin and eye irritation from fibres and dust when working with all insulation materials, wear loose-fitting clothes with long sleeves and tight cuffs, work gloves, a hard hat and proper footwear. To avoid inhaling dust and

fibres, use goggles and a half-mask respirator with a particulate filter while handling insulation. Wash your clothing separately after use.

Humidification

Health Canada recommends a relative humidity (RH) level of between 30 and 55 percent. If you have a furnace with a humidifier, ensure that it is regularly cleaned and maintained, and that the humidistat is set at an appropriate humidity level. You can use an hygrometer to measure relative humidity. CMHC has a fact sheet that explains how to calibrate a hygrometer. This publication is available from CMHC Web site or by calling CMHC. See the "Hiring a Contractor" section above for coordinates.

Mould

If you suspect mould growth is in your home, it is recommend that the mould damaged area(s) be cleaned thoroughly or removed and properly disposed of. To control and reduce the potential for mould growth, maintain indoor humidity levels at appropriate levels, and remedy water infiltration and leakage issues. Refer to the Canada Mortgage and Housing Corporation fact sheet About Your House: Fighting Mold — The Homeowners' Guide www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/momo/momo_005.cfm) for information regarding proper mould identification and cleaning procedures.

Burn it Smart!

"Burn it Smart!", a program of the Government of Canada, provides information to help you use your wood heating system safely and efficiently while reducing the wood smoke emissions that can affect the environment and your health. For information, go to www.burnitsmart.org.

Vermiculite and Renovation

Older vermiculite insulation installed in homes may contain amphibole asbestos. If the insulation is in the walls or attic spaces and is not disturbed, it poses very little risk to the health of the occupants. However, if vermiculite is found during a renovation, or if you suspect it might be in your home and you plan to renovate (including insulation or air sealing work), contact professionals who are qualified to handle asbestos before you proceed with the renovation. For a listing of qualified professionals, look in the Yellow Pages™ under "Asbestos Abatement and Removal."