

ecoENERGY

Retrofit Homes

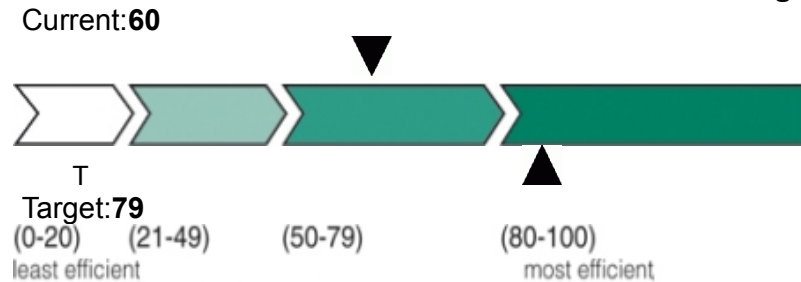
Energy Efficiency Evaluation Report

File number: 7B01D00400

Property Owner:

Mr. Bob Smith
12345 Arbutus Pl.
Surrey, British Columbia
V4N 1W5

EnerGuide Rating



House type: Single detached
Main energy source: Natural gas
No. of storeys: Two
Heating system: Furnace
No. of RO windows: 19
RO = rough opening
Domestic hot water: Natural gas
Air conditioner: No
Air leakage rate @ 50 Pa: 4.93 ACH
ACH = number of air changes per hour
Equivalent Leakage Area: 1534.0 cm²

The results of your pre-retrofit energy evaluation show that your house rates 60 points on the EnerGuide scale. If you implement all of the recommendations in this report, you could reduce your energy consumption by up to 49% and increase your home's energy efficiency rating to 79 points. The average energy efficiency rating for a house of this age in British Columbia is 67; whereas the highest rating achieved by the most energy-efficient house in this category is 84.

Did you know that when you reduce the amount of energy used in your home, you also reduce the production of greenhouse gases (GHG) such as carbon dioxide? By improving your home's energy efficiency rating to 79 points, you will reduce its GHG emissions by 1.8 tonnes per year!

Remember that you have up to 18 months from the date of this report to complete your renovations and qualify for an ecoENERGY Retrofit - Homes grant. So the sooner you start your renovations, the earlier you will see the energy savings. And let's not forget how reduced energy consumption helps protect the environment.

Note: If you notice any discrepancies with the above description of your home, contact your service organization immediately.

Service Organization: Mr Home Inspector Ltd.
Telephone: 604.837.3603

Certified Energy Advisor: Daniel Fedosenko

Date of evaluation: March 24, 2008
Date of report: March 24, 2008

Certified Energy Advisor Signature

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1. YOUR HOME ENERGY ACTION CHECKLIST

This is your checklist of recommended retrofits to improve the energy efficiency of your home. Included are the federal grant amounts that you could receive as well as information on the potential for energy savings and EnerGuide rating improvement. For more information, read the 'Recommended Energy-Saving Measures' section of this report and the NRCan brochure entitled *Retrofit Your Home and Qualify for a Grant!* found in your ecoENERGY homeowner kit. Before undertaking upgrades or renovations, find out about the appropriate products and installation techniques, and ensure that all renovations meet local building codes and by-laws.

Note: Some provinces and territories offer complimentary grants and other incentives for reducing energy use in the home. Refer to your local government for information on other energy-saving programs or visit ecoaction.gc.ca and follow the links to ecoENERGY Retrofit's "Grants and incentives" Web page or call 1 800 O-Canada (1-800-622-6232).

Retrofits	Federal Incentive	Potential for Energy Savings *	Potential Rating Improvement
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These upgrades qualify for a federal grant up to a maximum total incentive value of \$5,000:

* One (1) star = lowest savings / five (5) stars = highest savings

BASEMENT/CRAWL SPACE INSULATION

Increase the insulation value of 100% of the total crawlspace wall surface by a minimum of RSI 1.8 (R-10).

\$400



5.9 points

HEATING SYSTEM



15.0 points

Replace your heating equipment with an ENERGY STAR® qualified gas furnace that has a 92.0% annual fuel utilization efficiency (AFUE) or better, equipped with a DC variable-speed motor.	\$500
Install an ENERGY STAR® qualified air-source heat pump.	\$400

WATER CONSERVATION — 0 points

Replace 3 toilet(s) with low-flush or dual flush toilet (s) that meet(s) the minimum requirements.	\$150
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Natural Resources Canada (NRCan) reserves the right to revise the grant amounts, as required.

2. THE ENERGUIDE RATING SYSTEM

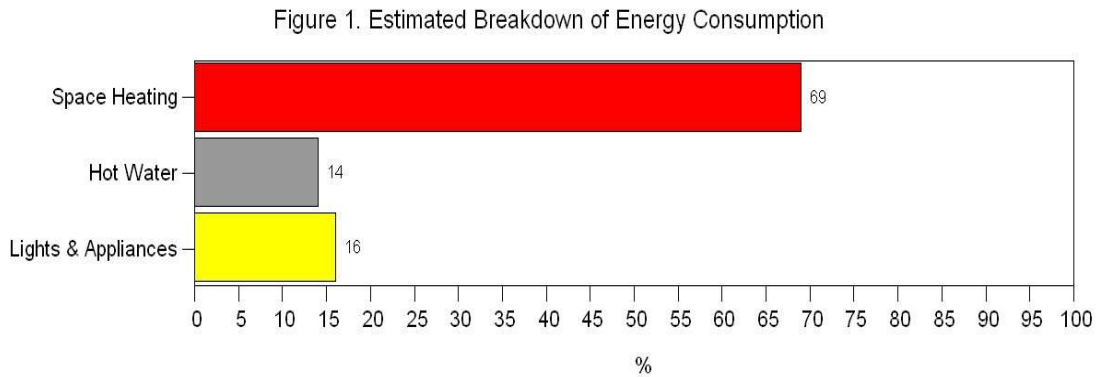
The EnerGuide rating system is a standardized method of evaluation that lets homeowners compare their house's energy efficiency rating to similar sized houses in similar regions. The EnerGuide rating considers the house's estimated annual energy consumption based on an in-depth evaluation of the house's characteristics such as location, size, equipment and systems, insulation levels, air tightness, etc. In addition, standardized conditions are used when calculating the rating in order to compare the efficiency of one house to another. These conditions include: a complete air change approximately every three hours; four occupants; a fixed thermostat setting of 21°C on main floors and 19°C in the basement; average hot water consumption of 225 litres per day; average national electricity consumption of 24 kWh per day; and the regional weather data that is averaged over the last 30 years.

Figures 1 through 3 show the results of your energy evaluation based on the standardized conditions. The results may not entirely reflect your household since your actual energy consumption and future savings are influenced by the number of occupants, their day-to-day habits and lifestyles.

3. ENERGY CONSUMPTION

Houses lose heat to the outdoors during the heating season primarily through air leakage and conduction, such as the transfer of heat through the basement and exterior walls, ceilings, windows and doors (the 'building envelope'). Canada's demanding climate and modifications made to the house, such as drilling holes in walls for new wiring, pipes and lights, all play a part in reducing the efficiency of the building envelope over time. Houses need to be regularly maintained and upgraded to ensure greater energy efficiency, comfort and savings.

Figure 1 breaks down your house's estimated annual energy consumption for space heating, hot water and lights and appliances.



4. SPACE HEATING ANALYSIS

Figure 2 shows the estimated percentage of energy used for the space heating of your home.

The right side of the top bar shows the percentage of energy you could save if you were to implement all of the upgrades recommended in this report, excluding changes to the space heating equipment. You could save up to 21 percent by performing all of the recommended non-space heating system upgrades.

The right side of the bottom bar shows the percentage of energy you could save if you were to implement all of the upgrades recommended in this report, including any space heating system upgrades. You could save up to 71 percent by performing all of the recommended upgrades.

Figure 2. Estimated Percentage of Potential Energy Savings

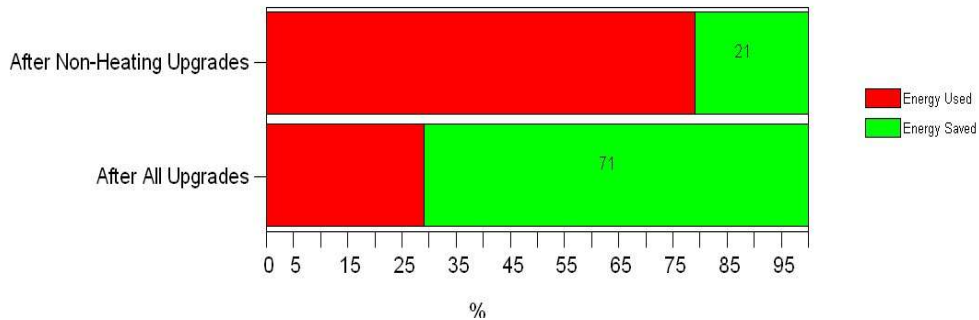
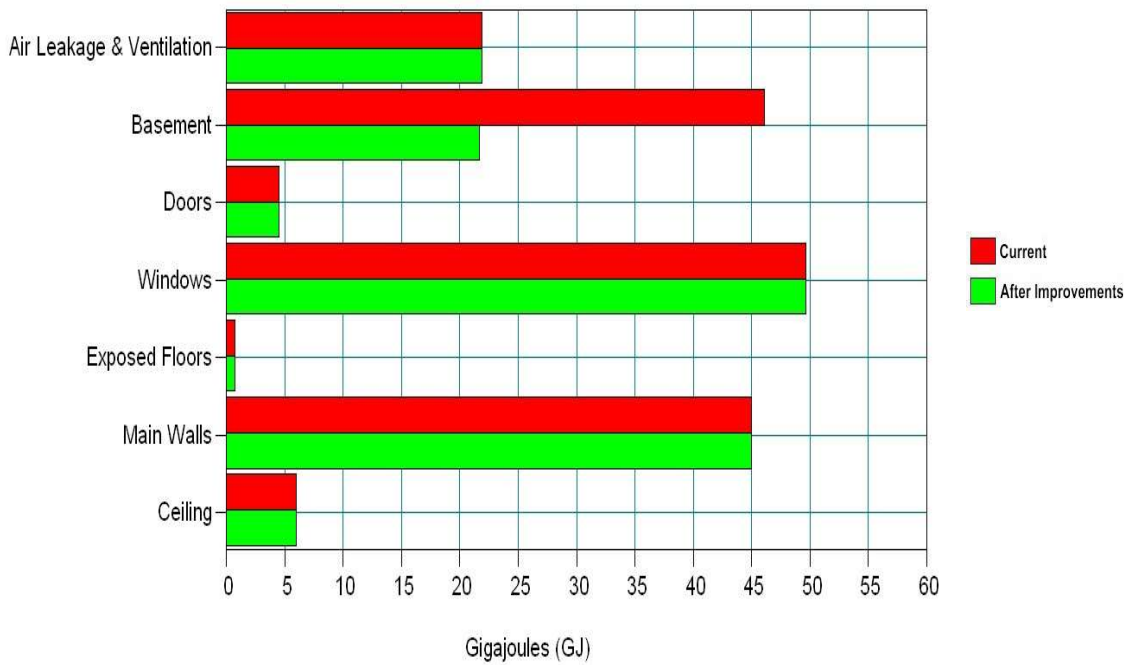


Figure 3 shows where the energy used for space heating is lost from your home. This energy is measured in gigajoules (GJ), where 1 GJ is equivalent to 278 kilowatt-hours (kWh) or 948,000 Btu/hour.

The red bars show the areas of your home where you are losing energy now. The longer the bar, the more energy you are losing. The green bars show the estimated energy loss after you complete your renovations. The larger the difference between the red and the green bars, the greater the potential for energy savings and comfort improvements.

Figure 3. Breakdown of Heat Loss through Building Envelope



5. RECOMMENDED ENERGY-SAVING MEASURES

Foundations - General

Foundation heat loss can account for 20 to 35 percent of a home's heat loss. A well-insulated foundation can improve home comfort, air quality, structural integrity, and energy efficiency.

Before insulating, first check for moisture in your foundation walls. Tell-tale signs are: staining or mould growth; blistering, peeling paint; efflorescence, a whitish deposit on the surface; spalling or surface deterioration; condensation on walls and metal objects; and a musty smell.

Repair water leaks through the floor and walls, caused by cracks, holes and construction joints. You should also control humidity levels and there should be appropriate damp-proofing or waterproofing on the foundation walls to prevent moisture from wicking through the foundation wall.

To prevent moisture problems, slope the ground away from the house exterior and direct eavestrough downspouts away from the foundation. Maintain and seal sumps and sump pumps, and install sewer backup equipment, if required.

The type and condition of your foundation will determine if you can insulate from the outside or from the inside. Exterior insulation is the preferred but more costly method. Foundations of rubble, brick, stone and concrete block are best insulated from the exterior. However, you may wish to have an engineer verify your foundation's structural integrity before undertaking any work.

Poured-concrete foundations can be insulated from either the outside or inside, providing there are no serious water or structural problems. Preserved-wood foundations, made with sheathing and studs, are generally insulated by filling in the stud space. Slab-on-grade foundations are typically insulated on the exterior edge. Occasionally, they are insulated on top of the slab and under the floor finish. Basement- and crawl-space insulation upgrades are eligible for ecoENERGY Retrofit - Homes grants. The grant amounts vary depending on the insulation values added and the surface area insulated. Go to *Your Home Energy Action Checklist* in this report to see the recommended insulation value for your foundation and the eligible grant amount. Taking photos of the foundation during installation and showing them to the energy advisor during the post-retrofit evaluation is recommended, to ensure that you receive full credit for your installed insulation. For more information about insulating foundations, as well as insulation materials, their properties and their installation methods, consult NRCan's publication entitled *Keeping the Heat In* and Canada Mortgage and Housing Corporation's *About Your House* and *Renovating for Energy Savings* fact sheets.

Ventilation

Install silent one or two bath fans with dehumidistats set to 45% year round to properly ventilate your home.

Heating System

If you are considering replacing your heating system, it is strongly recommended that you follow these important steps first:

Complete all of the other energy efficiency upgrades, such as air sealing and insulation, because this will likely result in the need for a smaller and less expensive heating system. It will also help prevent potential discomfort in your home caused by oversized equipment.

Next, ensure that your heating contractor performs a heat loss calculation on your home to determine the capacity and distribution flows for the new equipment. The contractor should hold current certification for Heat Loss/Heat Gain Calculations from the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI). For a list of certified contractors, visit www.hrai.ca and click on "Canadian Certification List" under *SkillTech* Training. In Québec, contact la Corporation des maîtres mécaniciens en tuyauterie du Québec (CMMTQ) at 1-800-465-2668 or visit www.cmmtq.org.

6. ENERGY-SAVING TIPS

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

Install and use a programmable electronic thermostat (set the heating temperature to 20°C while you are at home and 17°C at night and when you are away). For each degree of setback, you can save up to 2 percent on your heating bills.

When replacing lighting, appliances, electronics and office equipment, look for ENERGY STAR® qualified products. ENERGY STAR® qualified products use less than half as much energy in standby mode (i.e. when they are turned "off"). For more information, go to <http://energystar.gc.ca>. You can also look for the EnerGuide label to help you select the most energy-efficient model.

Replace your light bulbs with energy-efficient ones, such as compact fluorescents. They last longer and reduce electricity consumption.

Insulate the first two metres of the hot and cold water pipes with insulating foam sleeves or pipe wrap 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 the ceiling finish 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.

Use a timer for your car's block heater. Set the timer so that it turns on two hours before you start your vehicle.

Install an ENERGY STAR® qualified kitchen or bathroom exhaust fan.

Install a timer on your 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.

Plug your 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.

7. INFORMATION RESOURCES

Home Energy Efficiency

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 or by calling the order desk at 1-800-387-2000.

Renovation Publications

Canada Mortgage and Housing Corporation (CMHC) maintains a large number of renovation planning fact sheets that are available at no cost. There are also some excellent in-depth publications for sale. Visit cmhc-schl.gc.ca or call 1-800-668-2642 to order your material of interest.

Hiring a Contractor

Before you have any work done, request quotations in writing from professional contractors and obtain a written contract. CMHC has a very useful fact sheet on this subject, *Hiring a Contractor*, which includes a draft contract. Visit cmhc-schl.gc.ca or call 1-800-668-2642 to order.

Mold

If you suspect mold growth in your home, it is recommended that the mold damaged area(s) be cleaned thoroughly or removed and properly disposed of. To control and reduce the potential for mold growth, maintain indoor humidity at appropriate levels, and remedy water infiltration and leakage issues. Refer to the CMHC fact sheet *About Your House: Fighting Mold - The Homeowner's Guide* for information on proper mold identification and cleaning procedures. Visit cmhc-schl.gc.ca or call 1-800-668-2642 to order.

Humidity Control

A relative humidity (RH) level of between 30 and 55 percent is recommended in the home. If you have a humidifier or dehumidifier, ensure that it is regularly cleaned and maintained, and that the humidistat is set at an appropriate humidity level. You can use a hygrometer to measure relative humidity and the CMHC fact sheet *Measuring Humidity in Your Home* gives good advice. In addition, dehumidifiers can help reduce moisture levels especially in basements.

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 & Removal'. For information on vermiculite

insulation that contains amphibole asbestos, refer to the Health Canada fact sheet *It's Your Health - Vermiculite Insulation Containing Amphibole Asbestos*. Visit hc-sc.gc.ca/iyh-vsv/prod/insulation-isolant_e.html or call Health Canada at 1 800 443-0395 to order a copy.

GET STARTED TODAY!

Now that you have the tools to improve your home's energy efficiency, you can look forward to enjoying the added comfort of your ecoENERGY improved home. Not only will you benefit from increased comfort, you will also save on your energy bills year after year. And let's not forget your reduction of greenhouse gases!

Remember, you have up to 18 months to complete your retrofits and qualify for an ecoENERGY Retrofit - Homes grant.