ENERGUIDE

Energy Efficiency Evaluation Report

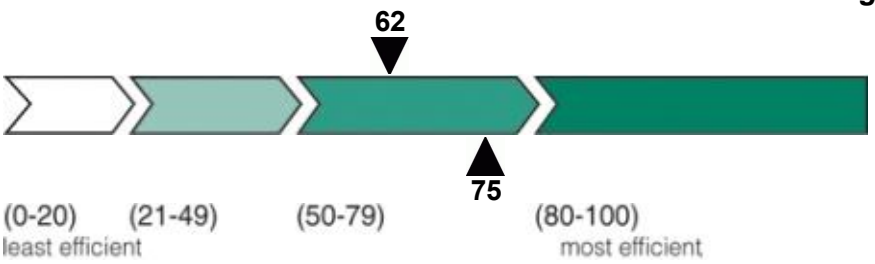
File number: mouland

Property Owner:

David Mouland

Winnipeg, Manitoba

EnerGuide Rating



House type: Single detached

No. of storeys: One

No. of RO for windows: 4
RO = rough openings

Air conditioner: No

Heating system: Electricity baseboard/hydronic/plenum

Domestic hot water: Electricity

Air leakage rate @ 50 Pa: 28.95 ACH
ACH = number of air changes per hour

Equivalent Leakage Area: 1634 cm^2

Congratulations. By obtaining an energy evaluation of your house using the EnerGuide Rating System (ERS), you have taken the first step in smart home renovations. Natural Resources Canada (NRCan) administers ERS, which is used in many provinces and territories as the basis for local or regional programs.

The results of your pre-retrofit energy evaluation show that your house rates 62 points on the EnerGuide scale. If you implement all the recommendations in this report, you could reduce your energy consumption by up to 32% and increase your home's energy efficiency rating to 75 points. The average energy efficiency rating for a house of this age in Manitoba is 45, while the highest rating achieved by the most energy-efficient houses in this category is 84.

By improving your home's energy efficiency rating to 75 points, you will reduce its greenhouse gas emissions by 10.6 tonnes per year.

This document is a roadmap to help you save energy. Please read it carefully, and call the number below if you have questions or if you find any discrepancies with the description of your property.

EnerGuide is an official wordmark of NRCan and is used with permission.

Service Organization:
Telephone: 204-471-4725

Date of evaluation: April 2, 2013
Date of report: April 21, 2014

Certified Energy Advisor: Gio Robson

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Certified Energy Advisor Signature

HOT2000v10.51

1. YOUR HOME ENERGY ACTION CHECKLIST

Energy-efficient upgrades are a great investment that can reduce energy bills while making living spaces more comfortable, increasing property values and contributing to a healthier environment. The sooner you start your retrofits, the sooner you can benefit from the energy savings and other advantages. Visit http://oee.nrcan.gc.ca/homes for more information on energy-efficient homes from NRCan.

This is your checklist of recommended retrofits to improve the energy efficiency of your home.

Retrofits	Potential for Energy Savings *	Potential Rating Improvement
* One (1) star = lowest savings / five (5) stars = highest savings		
AIR SEALING Improve the air tightness of your house by 47 percent to achieve an air change rate per hour of 15.21 at a pressure of 50 Pa.		5.4 points
BASEMENT/CRAWL SPACE INSULATION Increase the insulation value of 100% of the total crawlspace wall surface by a minimum of RSI 4.2 (R-24).		7.0 points
ATTIC/ROOF INSULATION Increase the insulation value of your attic from the current level, which is evaluated at RSI 5.8 (R-32.9), to achieve a total minimum insulation value of RSI 8.8 (R-50).		0.3 points
HEATING SYSTEM Replace your heating system with an ENERGY STAR® qualified gas furnace that has a 94.0% annual fuel utilization efficiency (AFUE) or higher and a brushless DC motor (when installing a CONDENSING furnace for the FIRST time).	–	1.4 points

Recommendations: When replacing ANY of the equipment listed in this report, the new equipment should have an efficiency rating higher than that of the original equipment. For more information on implementing the recommended retrofits, carefully read Section 5, *Recommended Energy-Saving Measures*. You can find information on how to download or order publications referenced throughout this document in Section 7, *Information Resources*.

House as a System: A building is made up of components that work together to form an integrated system. The performance of one component depends on its relationship with other components in the same system. Your ventilation and heating components, construction materials, their assembly and the behaviour of occupants all interact – a change to one affects all others. Changing one component without considering how it affects other components can actually waste energy and money.

EnerGuide and ENERGY STAR®: Many types of residential heating and cooling equipment and major appliances carry an EnerGuide label to help you compare the energy consumption of different models (http://oee.nrcan.gc.ca/energuide). The ENERGY STAR symbol goes one step further and identifies specific models that meet or exceed premium levels of energy efficiency (http://oee.nrcan.gc.ca/energystar). ENERGY STAR is a registered trademark of the United States Environmental Protection Agency and is used with permission.

Products and services: As the homeowner, you are solely responsible for choosing the products and services for your renovations. NRCan does not endorse the services of any contractor, nor any specific product, and accepts no liability in the selection of materials, products, contractors or performance of workmanship. 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, that you obtain all necessary permits, and that you pay applicable taxes for goods and services. In addition, NRCan offers a Web page at http://oee.nrcan.gc.ca/homes/health with important health and safety considerations.

Regional benefit programs: Although the Government of Canada does not offer financial incentives for energy upgrades, a number of provinces, territories, municipalities and energy utilities offer grants, rebates and other benefits for implementing retrofits and reducing energy use. NRCan maintains formal agreements with a number of these organizations to transfer your ERS data with your consent. Personal information in this document is protected under Canada's *Privacy Act*, and will be maintained in a secure personal information bank (NRCan/P-PU-090). For contact information on energy-saving programs across Canada, visit http://oee.nrcan.gc.ca/homes/programs or call 1 800 O-Canada (1-800-622-6232). It is your responsibility, to verify and comply with the terms, conditions and eligibility criteria of these programs. Please note that the renovations recommended in this report are not necessarily eligible for benefits in your province or territory.

Good luck with your energy efficiency upgrades, and don't forget to call the number on the first page once you have completed your work if you would like to obtain a new ERS label showing the improved energy performance.

2. THE ENERGUIDE RATING SYSTEM (ERS)

ERS is a standardized method of evaluating residential energy efficiency lets homeowners compare the energy efficiency rating of their house to similar-sized houses in their region. Since 1998, over one million Canadians have obtained an evaluation for their properties.

The rating considers the estimated annual energy consumption of the property based on an in-depth evaluation of 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 kilowatt hours (kWh) per day; and regional weather data that is averaged over 30 years.

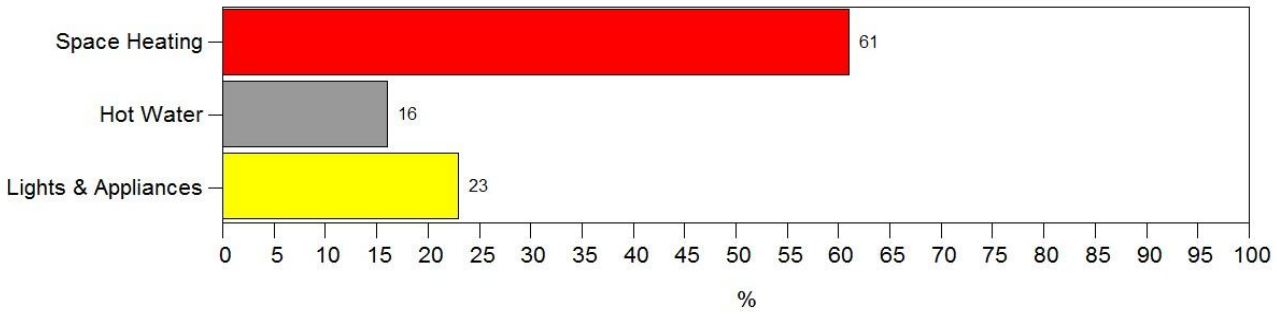
Figures 1 through 3 show the results of your energy evaluation based on the standardized conditions. The results may not entirely reflect your household since your actual energy consumption and future savings are influenced by the number of occupants, their day-to-day habits and lifestyles. However, the results provide an excellent guide to the best improvements for your specific home. Using standardized testing and evaluation conditions ensures that all homes are assessed under identical conditions so that the results can be used to compare other homes, independent of occupancy type. Similar to fuel consumption ratings for vehicles, your energy consumption will vary depending on your personal usage patterns, but the energy rating remains a valuable and informative decision-making tool.

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 building envelope, including the basement and exterior walls, upper floor ceilings, windows and doors. 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 regularly maintenance and upgrades help 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.

Figure 1. Estimated Breakdown of Energy Consumption



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 54% 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 52% by performing all of the recommended upgrades.

Figure 2. Estimated Percentage of Potential Energy Savings

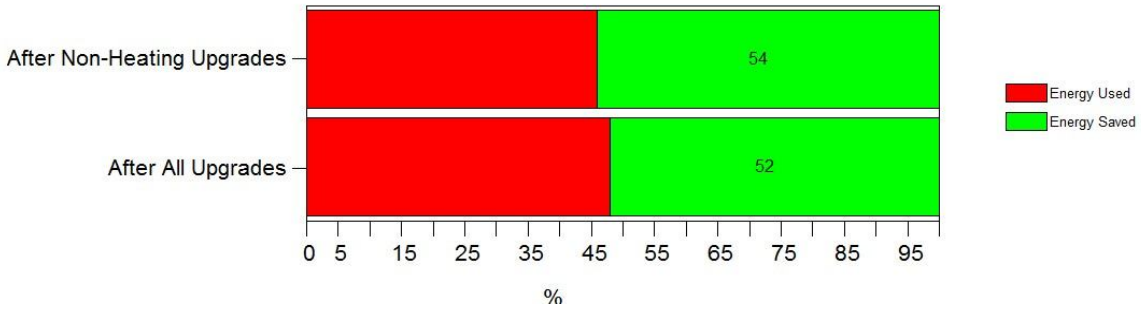
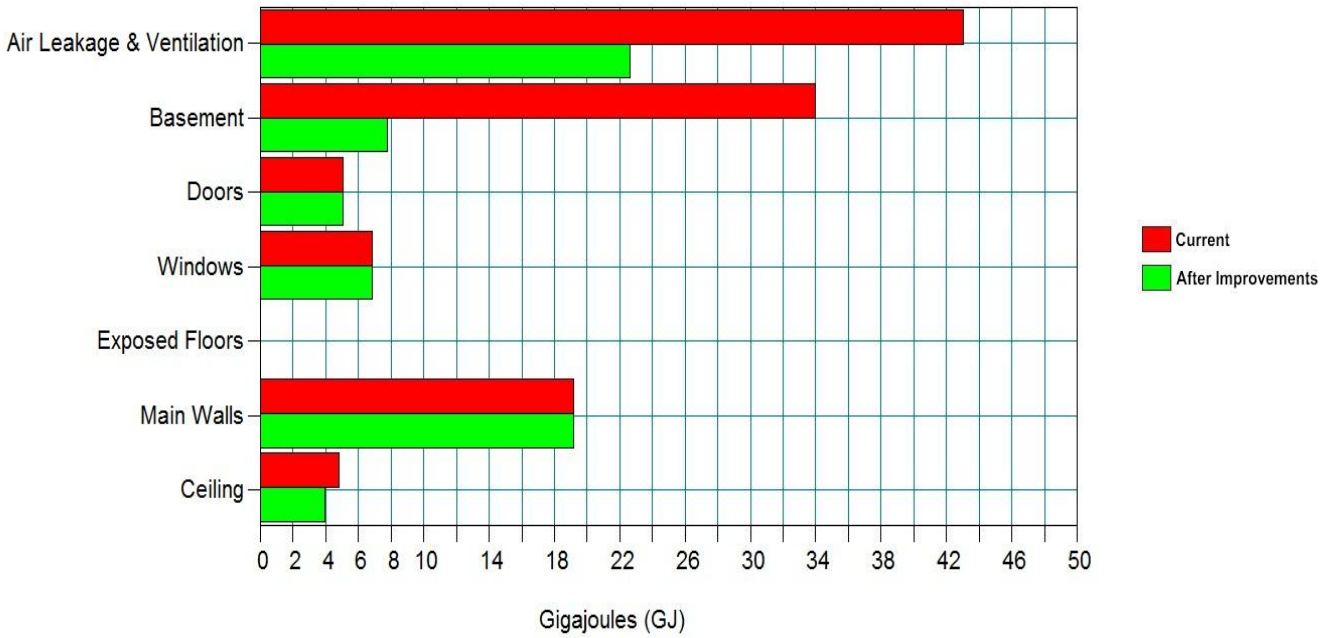


Figure 3 shows where the energy used for space heating is lost from your home. This energy is measured in gigajoules (GJ), which is a Metric term that represents energy use. One GJ is equivalent to 278 kWh of electricity, 26.1 cubic metres of natural gas, 25.8 litres of heating oil or 948,000 Btu. A gigajoule of natural gas can heat enough water for 50 ten-minute showers, a gigajoule of propane can cook 2500 hamburgers, and a gigajoule of electricity can keep a 60-watt bulb continuously lit for six months.

The red bars show the areas 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



Your home's estimated design heating and cooling loads
Design loads are used to size the heating and cooling equipment for your home. The smaller the design loads, the smaller the equipment capacity required to heat and cool your house. If you were to implement all of the building envelope retrofits recommended in the section of this report entitled *Your Home Energy Action Checklist*, it is estimated that your home's design heat load would be 29268 Btu/hour (8578 Watts) and its design cooling load would be 9951 Btu/hour (0.8 tons). However, this is only an estimate based on the data that was collected on your home at the time of the pre-retrofit evaluation. The design heat loss and cooling load can vary depending on different factors, such as the retrofits that you implement and other changes you may make to your home. Prior to having a new heating/cooling system installed, your contractor should perform a heat loss/heat gain 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 http://hrai.ca and click on "SkillTech" and "Certified Installers and Designers", or call 1-800-267-2231.

Important Information Concerning Vermiculite Insulation
Older vermiculite insulation installed in homes may contain amphibole asbestos, which can cause health risks if disturbed and inhaled. If the insulation is contained in the walls or attic spaces and is not disturbed or exposed to the home or interior environment, it poses very little risk. Vermiculite insulation was not detected during the energy evaluation of your home. However, if you find vermiculite insulation during renovations, avoid disturbing it in any way. If you suspect it might be in your home and you plan to undertake renovations (including insulation or air sealing work) that may cause the vermiculite insulation to be disturbed, contact professionals who are qualified to handle asbestos before you proceed with the renovations. For a listing of qualified professionals, look in the Yellow PagesTM 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 http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/insulation-isolant-eng.php or call Health Canada at 1-800-443-0395 to order a copy.

5. RECOMMENDED ENERGY-SAVING MEASURES

Air Sealing
Air seal your home to reduce heat loss, save money and energy, and to improve comfort. Always air seal before adding insulation to a home.

Refer to *Power Smart* Home Comfort & Energy Savings Booklet #1 - Sealing, Caulking and Weatherstripping*(http://www.hydro.mb.ca/your_home/resources/1_sealing_caulking_weatherstripping.pdf).

This upgrade may also be eligible for the Manitoba Hydro Power Smart Residential Loan Program. For more info, see the information on the Residential Loan in the Energy Savings Tips section of this report or visit www.hydro.mb.ca or phone 1-888-MBHYDRO.

IMPORTANT: With fuel burning appliances always ensure adequate Combustion Air supply and Make-Up Air for exhaust devices. Install a Carbon Monoxide alarm whenever fuel burning appliance or attached garage is present. Attic, Wall or Basement/ Crawlspace air sealing will reduce the natural air change rate of your home and you may need to ventilate your home at times.

Crawlspace or Dug-out Basement Insulation
Insulate crawlspace wall and joist header to Manitoba Hydro Power Smart* recommended levels of R24.

Prepare by sloping exterior ground away from foundation and extending downspouts a minimum of 6 feet from your house. Ensure foundation is moisture proof. Install polyethylene sheeting on the crawl space floor and seal its perimeter. Make sure interior surface of crawlspace insulation is airtight across the floor and up the wall to the underside of the main floor sub-flooring. Insulate crawlspace wall and joist header as detailed in the *Power Smart* Home Comfort & Energy Savings Booklet # 2 - Basement & Crawlspace Insulation (pages 29 to 33)* .(http://www.hydro.mb.ca/your_home/resources/2_basement_crawlspace.pdf)

This upgrade may also be eligible for the Manitoba Hydro Power Smart Home Insulation Program or the Residential Loan Program. IMPORTANT: The application for an insulation project must be preapproved by Manitoba Hydro prior to any insulation product being purchased or any insulation measures being started.For more info, see the information on the Residential Loan and Home Insulation Program in the Energy Savings Tips section of this report or visit www.hydro.mb.ca or phone 1-888-MBHYDRO.

Headers
Air seal and insulate your basement and/or crawlspace header to Manitoba Hydro Power Smart* recommended levels

Air seal your basement or crawlspace header before insulating. Refer to *Power Smart* Home Comfort & Energy Savings Booklet #2 - Basement and Crawlspace Insulation, pages 14-17.*
(http://www.hydro.mb.ca/your_home/resources/2_basement_crawlspace.pdf)

Please note that in situations where your home has headers with "cast-in-place" joists, insulating a header to high levels is not a good practice in Manitoba, and lower levels of insulation may be recommended.

This upgrade may also be eligible for the Manitoba Hydro Power Smart Residential Loan Program. For more info, see the information on the Residential Loan in the Energy Savings Tips section of this report or visit www.hydro.mb.ca or phone 1-888-MBHYDRO.

Attic Insulation
Install insulation in accessible attic cavity to R 50 (RSI 8.8) recommended Power Smart insulation levels.

Prepare by air sealing all attic air leakage points, see *Power Smart* Home Comfort & Energy Savings Booklet #1 - Air Sealing*
(www.hydro.mb.ca/your_home/home_comfort/1_sealing_caulking_weatherstripping.pdf) and *#3 - Attic Insulation*(http://www.hydro.mb.ca/your_home/resources/3_attic_insulation.pdf), ensuring proper attic ventilation and adding air chutes at the eaves to reduce potential for ice dams at the roof edge.

This upgrade may also be eligible for the Manitoba Hydro Power Smart Home Insulation Program or the Residential Loan Program. IMPORTANT: The application for an insulation project must be preapproved by Manitoba Hydro prior to any insulation product being purchased or any insulation measures being started. For more info, see the information on the Residential Loan and Home Insulation Program in the Energy Savings Tips section of this report or visit www.hydro.mb.ca or phone 1-888-MBHYDRO.

Manitoba Hydro Power Smart® Online and Print Resources

You can download all of the *Manitoba Hydro Power Smart* Home Comfort & Energy Savings Booklets* referenced in this report, as well as Info Guides and other helpful resources at http://www.hydro.mb.ca/your_home/resources/index.shtml.

If you have a PDF version of this report and you are connected to the internet, simply click on the resource links to download and view them automatically.

If you do not have access to the internet, or would like to have print copies of Manitoba Hydro Power Smart* publications delivered to your mailbox, please phone 1-888-MBHYDRO.

Windows & Doors

When replacing windows and doors for *non-energy savings reasons* (reduced maintenance, security, increased house value or to reduce condensation potential), install replacement ENERGY STAR® performance rated windows and doors for your climate zone.

Weatherstrip and air seal all window air leakage points. See *Power Smart* Home Comfort & Energy Savings Booklet #5 - Door & Windows* (http://www.hydro.mb.ca/your_home/resources/5_doors_windows.pdf). Ensure proper exterior flashing and weather seals are present. Caulk and weatherstrip interior face of windows to reduce drafts and condensation on outer glazing or storm windows. Install interior shrink-wrap film storm window kit in fall and remove in spring (or leave up on any window not opened in the summer - check for holes in plastic film in fall).

A Manitoba Hydro Power Smart Residential Loan may be available if the replacement window is either a minimum double glazed with insulated spacer bar, one low-e coating, argon gas fill and vinyl or fiberglass frames; or triple glazed with insulated spacers separating the glazing layers, and one low-e coating, for wood frames. For more information, see the Energy Savings Tips section of this report, visit www.hydro.mb.ca/your_home/residential_loan.shtml or phone 1-888-MBHYDRO.

Energy Star Natural Gas Furnaces

Install a new direct vent, condensing furnace with a minimum annual fuel utlization efficiency (AFUE) of 94 %.

Refer to *Power Smart* Home Comfort and Energy Savings Booklet #6 - Heating Systems* (http://www.hydro.mb.ca/your_home/resources/6_heating_systems.pdf). When you replace your heating system, ensure that your heating contractor performs a heat loss calculation on your home before you install the heating equipment, to ensure that the system has the correct capacity. Also ensure that your heating contractor knows the ACH,ELA, and Depressurization measurements from the airtightness test if recorded in this report.

It is recommended that you complete the other energy efficiency upgrades recommended in this report before you replace the heating system. Otherwise, your new heating appliance could be oversized. A heating appliance that is grossly oversized operates less efficiently and tends to make the house less comfortable.

For improved savings consider purchasing a furnace with a DC variable speed motor.

Please note that qualifying furnaces may be financed using the Manitoba Hydro Power Smart Residential Loan Program. For more info, see the information on the Residential Loan in the Energy Savings Tips section of this report or visit www.hydro.mb.ca or phone 1-888-MBHYDRO.

HOUSE VENTILATION REQUIREMENTS AFTER INSTALLING HIGHER EFFICIENCY HEATING APPLIANCES: In addition to providing heat, a conventional furnace provides uncontrolled ventilation for your house since it uses air from within your home for the combustion and venting process, and warm house air escapes up and out of the chimney even when the furnace is off. Air escaping up and out of the chimney induces cold, dry air to leak into the home through building openings such as cracks around the walls, windows, and doors. Usually conventional furnaces provide more ventilation than is needed. This wastes energy dollars and can make homes drier in winter then they need to be.

A high efficiency furnace works differently then a conventional furnace. They provide significant energy savings, due to reducing or eliminating the uncontrolled ventilation provided by the conventional furnace. This reduction in ventilation leads to a rise in humidity and changes where air leaks into and out of your home. In most homes this causes no problems, but in some homes can cause problems such as frozen door locks, increased condensation and icing on windows and doors, and between panes of poorly sealed windows. If humidity and/or icing become an issue, the following may help minimize or eliminate the problem: 1.Improve weather stripping and caulking on doors and windows. 2.Use seasonal window insulator kits (clear plastic film over inside windows and frames). 3. Run an exhaust fan for a few hours each day. 4. Install a better, quiet exhaust fan (a 2 sone bath fan is better than average and a 1 sone fan can not normally be heard in a home) controlled by a dehumidistat or timer and connect an Outdoor "Fresh" Air Duct with an adjustable damper to the return air duct of the furnace. 5. Install a ventilation system. For more information refer to *Power Smart* Home Comfort and Energy Savings Booklet #8 - Indoor Air Quality & Ventilation* (http://www.hydro.mb.ca/your_home/resources/8_indoor_air_quality_ventilation.pdf).

Your Home's Airtightness
The airtightness values for your house, measured as **ACH@50 pa** (Air changes per hour at 50 pascals) and **ELA@10 pa** (Equivalent leakage area at 10 pascals), are recorded at the top of this report. 600 square centimetres is a hole about the size of a letter sized (8.5" X 11") sheet of paper. The table below relates ACH@50 pa values to airtightness levels for homes built in Manitoba:

ACH@50 pa Value	Airtightness
Less than 2.5	Tight
2.5 -5.0	Average
5.0 - 10.0	Leaky
10.0 or more	Very Leaky

Depressurization
DEPRESSURIZATION AND COMBUSTION GAS SPILLAGE: CAUTION: exhaust fans, clothes dryers, etc. can depressurize this house to - X.X Pascals.

If this number is higher than 5.0, be aware that this may cause combustion gas spillage which can be a health and safety risk. Consult a licensed heating contractor about the proper provision of make-up air.

If this number is lower than 5.0, adding additional exhaust devices may increase the level of depressurization beyond 5.0 pascals, which may cause combustion gas spillage.

If a number is not recorded here, factors such as high wind or the absence of exhaust devices prevented a depressurization test being performed on your home.

Refer to *Power Smart* Home Comfort & Energy Savings Booklet #6 - Heating Systems, pages 18 to 23.*
(http://www.hydro.mb.ca/your_home/resources/6_heating_systems.pdf).

With fuel burning appliances, always ensure adequate Combustion Air supply and Make-Up Air for exhaust devices to prevent depressurization. It is now recommended that all homes with combustion appliances or an attached garage have a Carbon Monoxide (CO) alarm installed as a safety measure.
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Drain Water Heat Recovery
Install a Drain Water Heat Recovery Unit. Drain Water Heat Recovery (DWHR) systems are very simple devices that pre-heat incoming cold water to your hot water heater by recovering and transfering the heat of hot waste water coming down your central drain stack. They can reduce your hot water energy use and costs by 10-30%. DWHR systems are simple to install and have an average pay back period of 2-7 years.

6. ENERGY-SAVING TIPS

These actions may help you save energy and money:

- Use a timer for your car's block heater. Set the timer so that it turns on two hours before you start your vehicle.
- 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 http://oee.nrcan.gc.ca/energystar/. 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 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 an ENERGY STAR® qualified kitchen or bathroom exhaust fan. To prevent problems with humidity and poor indoor air quality, all bathrooms should have a properly sized exhaust fan and all kitchens should have an adequate exhaust fan. For more information, refer to *Power Smart ® Home Comfort and Energy Savings Booklet #8 - Indoor Air Quality & Ventilation.*
- Install a timer or dehumidistat switch on your bathroom exhaust fan(s).
- Install faucet aerators and low-flow showerheads (rated at less than 9.8 litres per minute [L/min]/ 2.5 gallons per minute [gpm]).
- 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.
- 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.
- **Manitoba Hydro Power Smart* Programs:**

  Manitoba Hydro Power Smart* Home Insulation Program: Are you going to be upgrading insulation levels in your home? Read about Manitoba Hydro's Power Smart Home Insulation Program. You may be eligible for rebates towards the purchase of your attic, wall, crawlspace, or basement insulation. IMPORTANT: The application for an insulation project must be preapproved by Manitoba Hydro prior to any insulation product being purchased or any insulation measures being started. For more info, visit http://www.hydro.mb.ca/your_home/insulation/program/index.shtml or phone 1-888-MBHYDRO.

  Water & Energy Savings Program: Up to 20 per cent of your energy bill can be from heating your water. Install Power Smart low-flow plumbing devices in your home to reduce both water and energy consumption. Through their Power Smart Water and Energy Saver Program, Manitoba Hydro offers free Power Smart Water and Energy Saver Kits that will help you save water and energy, while reducing your carbon footprint.The Water and Energy Saver Kit can save you approximately $27 a year on your residential energy bill. To request a kit, phone 1-877-326-3488 or go to https://www.eco-fitt.com/mbhydro/water_and_energy_saver_program.php

  Manitoba Hydro Power Smart* Residential Loan: Make your home more comfortable and energy efficient with Manitoba Hydro's Power Smart Residential Loan. The loan covers adding insulation, installing ventilation, sealing air leaks, replacing windows and doors, lighting, electrical service and wiring, and upgrading the efficiency of your existing furnace or water heater. IMPORTANT: The application for a Manitoba Hydro Power Smart Residential Loan must be preapproved by Manitoba Hydro prior to any product being purchased or any installation being started. For more info, visit http://www.hydro.mb.ca/your_home/power_smart/residential_loan/index.shtml or phone 1-888-MBHYDRO.

  Manitoba Hydro Power Smart* PAYS Financing : PAYS Financing is a convenient and affordable financing option if you want to make energy efficiency upgrades to your home. The loan covers space heating equipment, insulation, water heating equipment, and toilets. Your monthly payment is less than your estimated annual utility savings, and your monthly payment will be added to your energy bill. The

loan is tied to your property and is transferable from one homeowner to another, or from property manager to tenant. Your contractor or retailer will work with you to determine if your project is eligible for financing and will help you complete the PAYS Financing Agreement. For more info, visit http://www.hydro.mb.ca/your_home/power_smart/pays/index.shtml or phone 1-888-MBHYDRO.

Manitoba Hydro Power Smart* Residential Earth Power Loan: Manitoba Hydro offers homeowners Residential Earth Power Loans of up to $20 000 at a interest rate of 4.9% (initial 5 year fixed term) to cover the additional cost of installing a geothermal heat pump, rather than a conventional heating and cooling system. IMPORTANT: The application for the Residential Earth Power Loan must be preapproved by Manitoba Hydro prior to any product being purchased or any installation being started. For more info, visit http://www.hydro.mb.ca/your_home/geothermal_heat_pumps/loan.shtml or phone 1-888-MBHYDRO.

7. INFORMATION RESOURCES

Publications from Natural Resources Canada (NRCan)
Visit http://oee.nrcan.gc.ca/homes/library or call the order desk at 1-800-387-2000. Start with these publications:

- **Keeping the Heat In –** NRCan's Office of Energy Efficiency offers a booklet to educate you on basic principles of building science and to provide you with guidance in their home retrofit projects such as insulation and air sealing improvements. http://oee.nrcan.gc.ca/homes/keeping
- **Planning Energy Efficiency Renovations For Your Home -** This pamphlet from explains what you should consider when planning energy efficiency renovations, choosing products, doing the work yourself and hiring a contractor. http://oee.nrcan.gc.ca/homes/planning
- **Air Conditioning Your Home –** http://oee.nrcan.gc.ca/equipment/airconditioning
- **Energy-Efficient Residential Windows, Doors and Skylights –** http://oee.nrcan.gc.ca/equipment/windows-doors/18017
- **Heat Recovery Ventilators –** http://oee.nrcan.gc.ca/equipment/ventilators
- **Heating and Cooling with a Heat Pump –** http://oee.nrcan.gc.ca/equipment/heatpump
- **Heating with Electricity –** http://oee.nrcan.gc.ca/equipment/electricity
- **Heating with Gas –** http://oee.nrcan.gc.ca/equipment/gas
- **Heating with Oil –** http://oee.nrcan.gc.ca/equipment/oil

Publications from the Canada Mortgage and Housing Corporation (CMHC)
Visit http://cmhc-schl.gc.ca/en/corp/li or call the order desk at 1-800-668-2642. Start with these publications:

- **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, which includes a draft contract. http://cmhc-schl.gc.ca/en/co/renoho/refash/refash_009.cfm
- **Fighting Mold – The Homeowner's Guide –** If you suspect mold growth in your home, CMHC recommends 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 this guide for information on proper mold identification and cleaning procedures. http://cmhc-schl.gc.ca/en/co/maho/yohoyohe/momo/momo_005.cfm
- **Measuring Humidity in Your Home –** CMHC recommends a relative humidity (RH) level of between 30 and 55% is 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. This CMHC fact sheet provides valuable advice. In addition, dehumidifiers can help reduce moisture levels especially in basements. http://cmhc-schl.gc.ca/en/co/maho/yohoyohe/momo/momo_002.cfm
- **About Your House –** http://cmhc-schl.gc.ca/en/co/co_001.cfm
- **Renovating for Energy Savings –** http://cmhc-schl.gc.ca/en/co/renoho/reensa/reensa_001.cfm

Publications from Health Canada
Visit http://hc-sc.gc.ca/contact/pubs-eng.php or call the order desk at 1-800-267-1245. Start with these publications:

- **Radon – A Guide for Canadian Homeowners –** Radon is a radioactive gas that is colourless, odourless and tasteless. Radon is formed by the breakdown of uranium, a natural radioactive material found in soil, rock and groundwater. When radon is released from the ground into the outdoor air, it gets diluted to low concentrations and is not a concern. However, in enclosed spaces, like houses, it can sometimes accumulate to high levels, which can be a risk to the health of you and your family. http://cmhc-schl.gc.ca/odpub/pdf/61945.pdf
- **Vermiculite Insulation Containing Amphibole Asbestos –** Some vermiculite insulation may contain amphibole asbestos fibres. These products can cause health risks if disturbed during maintenance, renovation or demolition. However, there is currently no evidence of risk to your health if the insulation is sealed behind wallboards and floorboards, isolated in an attic, or otherwise kept from exposure to the interior environment. http://hc-sc.gc.ca/hl-vs/iyh-vsv/prod/insulation-isolant-eng.php

GET STARTED TODAY!

Now that you have this roadmap to improve your home's energy efficiency, you can look forward to enjoying the added comfort of your improved home. Not only can you benefit from increased comfort, you can also save on your energy bills year after year. And don't forget how your retrofits can help the environment.

For more information on energy-efficient homes, including links to programs across the country, please visit http://oee.nrcan.gc.ca/homes.

Good luck with your upcoming retrofits.

AN IMPORTANT NOTE REGARDING INSULATION VALUES IN THIS REPORT

Your Energy Advisor has done their best to measure, record, and model the types and thicknesses of insulation in your foundation, wall, and attic cavities. Advisors do not do invasive testing (ie. drill holes) nor are they permitted to enter attics via dangerous, high, or exterior accesses. Where insulation was not visible or accessible (ie. a sealed/inaccessible attic or in a finished exterior wall with unknown insulation content), your advisor has used a national database in their Natural Resources Canada software of likely insulation levels based on the age and location of your house. They may also have estimated insulation levels based on their observations in the house, their experience, or levels reported by the homeowner.

A Note from your Energy Advisor

Your house has been examined by a qualified energy advisor based on standard conditions. The energy efficiency evaluation report represents the advisor's best judgment, given the information available at the time of the evaluation.

The purpose of this residential energy evaluation is to assess the energy efficiency of your home; it is not meant to replace a full house inspection.

prairieHOUSE Performance Inc. gives guidance on programs, products, and pproaches to help with recommended energy improvements, but unfortunately we do not have a list of contractors that can perform the recommended work. Your energy advisor is also unable to provide you with names of contractors who can do the energy improvements, due to a conflict of interest. If you are planning to hire a contractor, please refer to the information provided on hiring a contractor.