

# Guelph Greener Homes

## Efficiency upgrade measures

### Things to consider

- ✓ Visit the [guelph.ca/greenerhomes](http://guelph.ca/greenerhomes) Guelph Greener Homes program website to familiarize about the program rules, eligibility requirements, application process and documentation requirements, and list of eligible retrofits/upgrades under the program
- ✓ Complete a pre-retrofit and post-retrofit home energy assessment (referred to as EnerGuide evaluation) conducted by a Certified Energy Advisor registered with Natural Resources Canada
- ✓ Obtain quotations or bids from at least three independent contractors who are qualified, properly licensed, and insured
- ✓ Check out other funding programs, including the Canadian Greener Homes Loan and Canadian Greener Homes Grant/Home Efficiency Rebate Plus, for additional sources of loans and/or grants to supplement the financing sought from the Guelph Greener Homes program

This measure has the potential to

**Reduce heating costs by 10-40%**



### Insulation \$ \$1.50 - \$6 per square foot

Heat loss occurs through the building envelope and accounts for majority of building heat losses.

Increasing the home insulation (insulation value is measured in R-value or RSI) can reduce these heat losses and improve airtightness thereby also reducing energy consumption for heating

Potential insulation locations to consider include attic, roof, exterior wall, floor, and basement.

Insulation types include

- ✓ Batt or blanket
- ✓ Loose fill
- ✓ Reflective foil insulation
- ✓ Cementitious foam
- ✓ Spray foam
- ✓ Rigid board

### Air-sealing \$ \$1,500 - \$2,000

Air can leak through holes in the building envelope (that is through gaps in walls, windows, roof, etc.). In winter, cold air leaking into a home or heated indoor air leaking to the outside results in additional heating requirement. Similarly in summer, hot air leaking into the home from outside or conditioned air leaking to the outside results in additional cooling requirement.

Air leakage control can be achieved with weatherstripping and caulking.

With proper air-sealing  
**Save up to 10-20% of energy costs where energy loss occurs**



up to **25% of the heat loss** in your home is through windows and doors



### Windows and doors \$ \$1000 - \$5000+ per window

To reduce heat loss through the building envelope, windows and doors can be retrofitted with caulking and weatherstripping or can be replaced with new more energy efficient models.

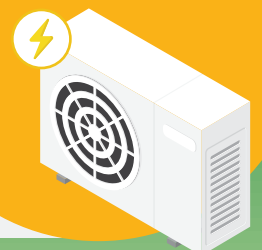
Energy-efficient windows and doors are built to insulate better, and equipped with features that help prevent heat loss in the winter, and heat gain in the summer. U-Factor is a rating for measuring a window's resistance to non-solar heat flow and the lower U-Factor, the better its insulating properties.

### Air source heat pumps \$ \$15,000 - \$25,000 per heat pump

Air-source heat pumps are far more efficient than traditional heating systems and operates by extracting heat from a source such as from air outside the home and moving this extracted heat into the home using electricity, resulting in much reduced greenhouse gas emissions as electricity is a relatively cleaner fuel.

The same heat pump can also work in reverse mode, moving heat from inside the home to a sink such as the air outside the home, thereby providing cooling to the home.

**Heat pumps** normally operate at an efficiency ranging between **200% to 300%**

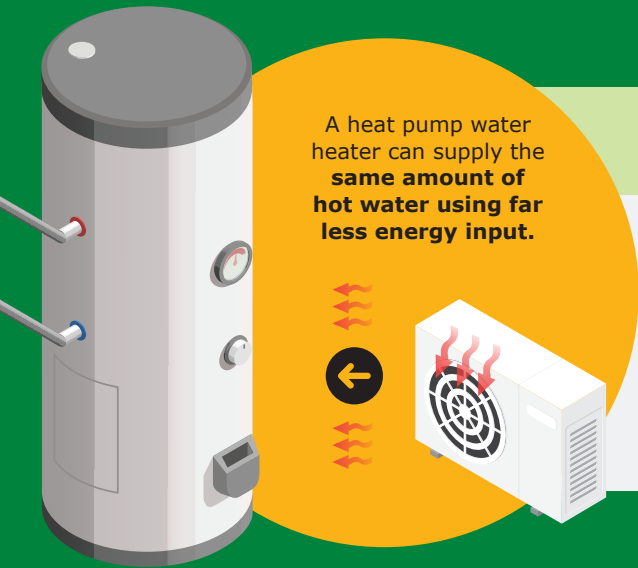


Contact us



[guelphgreenerhomes@guelph.ca](mailto:guelphgreenerhomes@guelph.ca) • 519-822-1260 extension 3984

Accessible formats available upon request



A heat pump water heater can supply the **same amount of hot water using far less energy input.**

## Heat pump water heater

\$ \$2500 – \$5000

A heat pump water heater (HPWH) utilizes heat extracted from air (typically air in a basement, garage, or mechanical room) and transfers it to a tank of water. A HPWH powered by electricity also results in reduced greenhouse gas emissions.

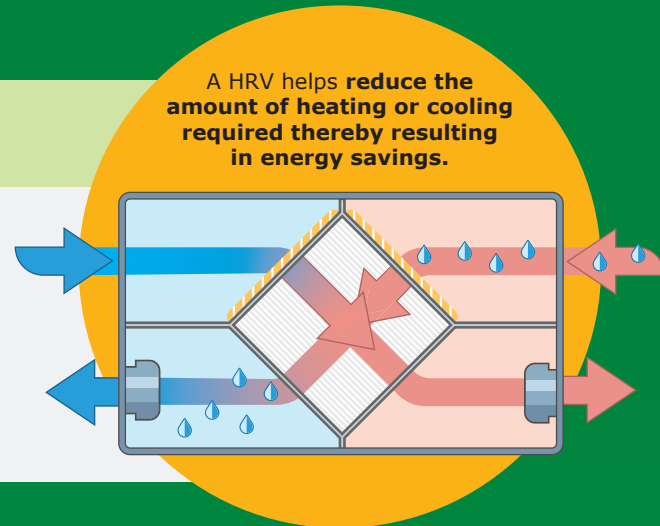
Some HPWH models have an electric heating element as backup to meet hot water demand if the heat pump is not able to meet the full heating needs of the home.

## Heat recovery systems

\$ \$2000 – \$5000

A heat recovery ventilator (HRV) is a mechanical ventilation device that replaces home indoor air with fresh outdoor air.

In process of replacing the air, during the heating season, the HRV captures heat from the outgoing air to preheat the incoming outdoor air. During the cooling season, the exchange process reverses with the HRV removing some of the heat from the incoming outdoor air and transferring this to the outgoing air.



A HRV helps **reduce the amount of heating or cooling required thereby resulting in energy savings.**

### Did you know?

Generated electricity can be used to offset home electricity usage!



## Solar photovoltaic

\$ \$2.25 – \$2.80/Watt

A solar photovoltaic (PV) system converts the sun's energy into direct current (DC) electricity.

As homes commonly use alternating current (AC) electricity, an inverter is used to convert the DC from the solar PV panel to AC form.

When the solar PV system produces more electricity than the home needs, the excess electricity can be exported<sup>1</sup> to the grid in exchange for a credit applied to your monthly bill.

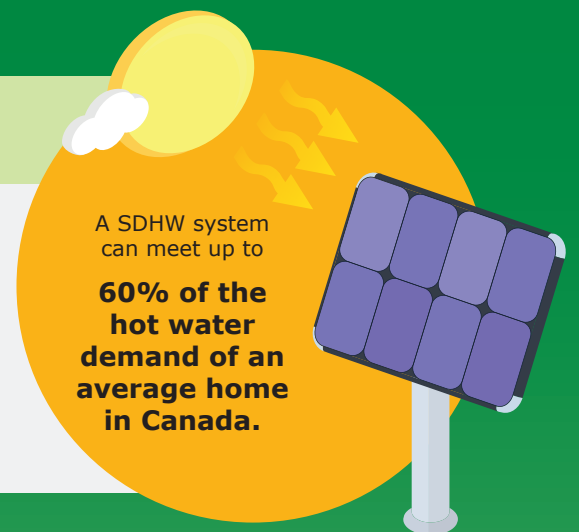
## Solar hot water systems

\$ \$6000 – \$8000

A solar domestic hot water (SDHW) system uses the energy from the sun, captured using a collector, to generate hot water.

In general, there are two types of SDHW systems, active systems which utilize circulating pumps and controls, and passive systems which depend on natural convection for circulation of water through the system.

Typically, SDHW systems require a well-insulated storage tank that connects to the collector and a backup system to meet demand during cloudy days or when demand exceeds the SDHW capacity.



A SDHW system can meet up to **60% of the hot water demand of an average home in Canada.**

### Why should you care?

- ✓ Reduce GHG emissions and make your home more comfortable
- ✓ Energy and utility cost savings
- ✓ More affordable low carbon retrofits for your home

### Contact us



guelphgreenerhomes@guelph.ca • 519-822-1260 extension 3984

Accessible formats available upon request

Estimated costs are provided only as a general reference, are pre-tax and pre-rebate, do not include potential upgrade to electric service or ductwork, and can vary based on the complexity of work, equipment brand, warranty, equipment specifications and features, and equipment configuration.

<sup>1</sup> For eligible installs, this is permitted under the Net Metering Program