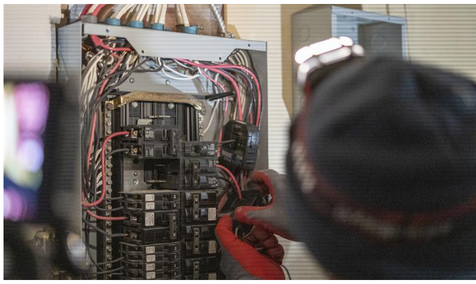


Carver Place Retrofit

Understanding your new home systems

envirocentre Retrofit Accelerator

MULTIFAITH Housing Initiative

The retrofit project

This home retrofit project upgraded all 63 units at Carver Place.

The goals of this project are to make your home:

- More comfortable
- More energy efficient
- Better for your health
- Better for the planet

So what changed in your home?

Before

- No space cooling
- Natural gas furnace
- Natural gas water storage tank with pilot
- High air leakage

After

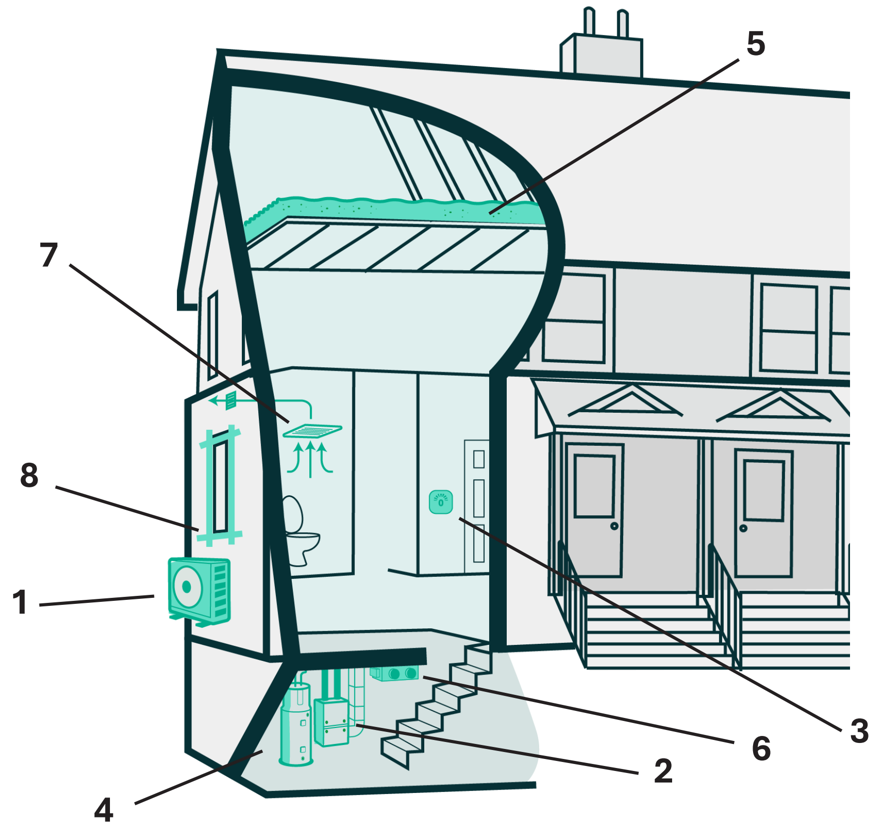
- **Air-source heat pump:** efficient heating and cooling
- **Energy recovery ventilator:** brings in fresh air and improves indoor air quality
- **Advanced hot water heater system:** upgraded for energy efficiency
- **Bathroom fan:** automatic moisture control
- **Smart thermostat:** to better control your home's temperature
- **Attic and basement insulation:** better temperature stability
- **Furnace:** back-up heating source in the winter
- **Air sealing:** reduces drafts and energy loss

How the house works now

The upgrades in your home were chosen to work as a complete, energy-efficient system. Each retrofit plays a unique role, but they are most effective when used together.

These retrofits increase the comfort of your home, use less energy and make sure the indoor air is healthy.

How each retrofit measure works and why it was needed:



1. **Air source heat pump**
   How it works: Instead of generating heat by fuel, a heat pump moves heat between the inside and outside of your home using electricity. In the winter, it takes heat from the air outside (even when it's cold) and brings it inside. In summer, it moves heat outside to cool your home.
   Why it matters: Heat pumps provide efficient heating and cooling all year, with less energy and fewer emissions than traditional furnaces or portable air conditioners.

2. **Furnace (back-up heat)**
   How it works: When temperatures drop very low and extra warmth is needed, the gas furnace kicks in automatically to support the heat pump.
   Why it matters: Keeps your home comfortable in the coldest weather.

3. **Smart thermostat**
   How it works: Lets you program and adjust your home's temperature directly or from your smartphone.
   Why it matters: Keeps your home at a steady, comfortable temperature while reducing energy waste.

4. **Advanced hot water system**
   How it works: Uses hybrid heat pump technology to extract heat from the surrounding air and warm your water.
   Why it matters: Provides reliable hot water while lowering your energy use.

5. **Attic and basement insulation**
   How it works: Slows heat loss in winter and heat gain in summer, and creates a barrier around your living spaces.
   Why it matters: Keeps the temperature stable, reduces energy waste, and lightens the load on the heat pump.

6. **Energy recovery ventilator (ERV)**
   How it works: Pulls stale, humid air out and brings in fresh air. In winter, it recovers heat from outgoing air to warm incoming air. In summer, it helps keep cool air inside while removing moisture.
   Why it matters: Because your home is tightly sealed and insulated, the ERV is important for maintaining healthy air without losing comfort.

7. **Bathroom fans**
   How it works: Exhausts moist air directly outside.
   Why it matters: Prevents mold and condensation, keeping bathrooms fresh.

8. **Air sealing**
   How it works: Cracks and gaps around windows, doors and walls are sealed to stop unwanted air leaks.
   Why it matters: Blocks drafts, improves comfort and boosts the efficiency of all other retrofits.

Why these changes matter

Healthier air: Cleaner indoor air means fewer pollutants and less mold risk.

Comfort: Better, stable temperature control in every season.

Energy savings: With these upgrades, your home now uses 40 per cent less energy.

Resiliency: Able to keep stable temperatures longer during power outages.

Environment: Almost 90 per cent fewer greenhouse gas emissions.

How to keep things running smoothly

Using your heat pump and thermostat

Set it and forget it:

Set your preferred temperature and let the system do the rest.
Heat pumps work when the setting is consistent.

- Use the heating or cooling setting depending on the season. Avoid the "auto" setting.
- Keep windows and doors closed to maintain comfort and efficiency.

What heating feels like

Heat pumps provide steady, gentle airflow. It may not feel as hot as a traditional furnace, but it keeps your home just as comfortable.

For detailed instructions, see the [Ecobee Thermostat Manual]

Turning the thermostat higher or lower won't heat or cool your home faster.

Hybrid heat pump water heaters

For best performance:

- Space out heavy hot water usage when possible (for example, back-to-back showers, laundry and dishwashing).
- Expect the basement to feel cooler — this is normal.
- A gentle operational hum is normal and not a sign of a problem.

Energy recovery ventilator (ERV) system

- Let it run. This keeps your air fresh and removes moisture.

Vents, airflow and moisture tips

- Don't block vents or units with furniture, carpets or other items
- Keep the attic hatch closed. The eye hooks help prevent heat loss in winter and keep cool air in during summer.
- Keep windows and doors closed when systems are running.
- Use bathroom and kitchen fans when cooking or showering to reduce humidity.

Seasonal maintenance tips

Spring

Preparing for warmer weather

- Vacuum and wipe down vents to remove dust.
- Inspect your smart thermostat and test cooling mode.
- Clear leaves, dirt and debris around outdoor heat pumps.

Summer

Keeping cool efficiently

- Set your thermostat to cooling mode, not auto.
- Make sure outdoor heat pump units are clear of vegetation and debris.
- Use your smart thermostat's "eco" or "away" settings when not home.
- Close blinds or curtains during the hottest part of the day to block sun heat.

Fall

Preparing for colder weather

- Inspect your smart thermostat and test heating mode.
- Carefully clear leaves from around outdoor heat pump units.

Winter

Staying warm and safe

- Set your thermostat to heating mode, not auto.
- Keep the outdoor heat pump free of snow and ice buildup.
- Avoid blocking vents with furniture or belongings.

What’s normal and when to call for help

Normal equipment sounds and behaviour:

- Gentle fan or humming from the heat pump.
- Defrost mode:
  - In cold weather, the heat pump may enter defrost mode to clear frost from the outdoor unit.
  - You may see “defrost” or a snowflake/ice symbol on the thermostat display (symbols vary).
  - This cycle lasts up to 10 minutes. Do not adjust the thermostat while the system is in defrost mode.
- Outdoor unit steaming in winter – part of the normal defrost cycle.
- Outdoor condensation draining.

What to look out for

- Unusual noises, such as loud grinding, banging or scraping.
- Inconsistent temperature, or if your heat pump struggles to maintain the set temperature.
- Sudden loss of heating or cooling when there is no power outage.
- Persistent burning smells.
- Water pooling inside your home (outdoor drainage is normal; indoor leaks are not).

Safety precautions

- **Furnace and heating equipment:**
  If you smell gas, leave the home immediately and call emergency services. Do not try to fix it yourself.
- **Electrical safety:**
  Do not attempt repairs or modifications to electrical parts. Always contact the Multifaith Housing Initiative maintenance team.
- **Ventilation:**
  Keep energy recovery ventilators and bathroom fans clear and unobstructed. This helps maintain good air quality and reduces mold risk.
- **Snow and debris removal:**
  Carefully remove snow, ice, leaves or debris around outdoor units without damaging equipment or electrical connections.
- **Moisture control:**
  Use bathroom fans during and after showers to prevent moisture buildup, which can lead to mold and health issues.
- **Smart thermostats:**
  Only use the controls as instructed. Do not tamper with wiring or internal settings.

Energy consumption and energy bills

Why your utility bills may look different

Your electricity use will increase because your new systems (heat pump, ERV and water heater) run on electricity. You'll also be using more electricity to cool your home in summer.

However, your natural gas use will drop significantly, especially in winter, since the heat pump now provides most of your heating needs and the furnace runs less often.

Ways to save money on your electric bill

- Choose reasonable thermostat settings.
- Keep windows and doors closed to reduce energy loss.
- Use curtains or blinds in summer to block heat from the sun.
- Using fans properly to stay comfortable without overcooling.

What to look for on your energy bills

Whether you receive bills online or on paper, check these key details:

1. **Billing period dates:** Start and end dates for meter readings (compare month to month).
2. **Total consumption:** Hydro Ottawa shows electricity usage in kilowatt-hours (kWh). Enbridge shows gas use in cubic meters (m^3) or gigajoules (GJ).
3. **Total cost:** The amount due for the billing period.
4. **Previous balance and payments:** Shows how your account balance is calculated.
5. **Meter reading type:** Note if the reading is actual or estimated (actual is more accurate).
6. **Usage graphs or comparisons:** Many bills show usage compared to previous months or to average households.

4

Previous balance $153.00

Payment 2025/09/22 $153.00 CR

Account number

n.12345678901234567890

5

Meter number

OTT123456

Meter reading current

7896.24

Meter reading previous

6925.59

Usage kWh / m³

970.65

2

Account history

6

Month	Hydro Consumption (kWh)
Sept	912.67
Aug	1,127.81
Jul	1,089.52
Jun	803.18

1

3

Bill Date	Due Date	Amount Due
2025-10-05	2025-10-29	$161.14

*Data presented is for illustrative and educational purposes only.

Tracking bills without online access

If you get paper bills:

1. **Check each bill:** Look for billing period, consumption and total cost.
2. **Record key details monthly:**
   - Billing period dates
   - Electricity used (kWh) from your Hydro Ottawa bill
   - Gas used (m^3 or GJ) from your Enbridge bill
   - Amount due for each energy type
   - Any notes on the bill about estimated reads or unusual activity
3. **Keep bills organized:** Store bills in a folder or box.
4. **Watch for patterns:** Compare current and past bills. Sudden changes may point to equipment issues or changes in household use.
5. **Ask for help:** Contact your Housing Manager or support worker with questions. Bring your bills and notes for review.

Resources

- Ontario Energy Board – understanding your electricity bill
- Ontario Energy Board – understanding your gas bill

Energy use tracking tip

Use the thermostat's Ecobee app to see heat pump runtime. This helps you understand when your energy use is highest.

FAQs

How do the new heating and cooling systems feel?

With a heat pump, you'll experience a steady, comfortable indoor temperature. Heating feels less "hot" than traditional furnaces but more consistent. Cooling is similar to central air conditioning, with less humidity. The system runs quietly and often for longer periods to maintain even comfort.

How should I use the thermostat?

For best efficiency and comfort, pick your preferred temperature and avoid frequent or drastic adjustments. Heat pumps work best at steady settings. Do not use the "auto" setting. Instead, set the thermostat to cooling or heating mode depending on the season.

Can I turn off the heat pump or ERV when I leave the house?

It's better to keep them running at a moderate, stable setting instead of turning them off. This helps the systems run efficiently and keeps your home comfortable.

Will the heat pump work during extreme cold?

Yes. The heat pump works in very cold weather, but the natural gas furnace may turn on when needed. This happens automatically. In winter, the system may also enter a defrost cycle, temporarily pausing heat — this is normal.

How does the ERV help me save energy?

By recovering heat from outgoing air, the ERV reduces the workload on heating and cooling systems, lowering your energy use.

Why is my electricity bill higher?

The new equipment (except the back-up furnace) runs on electricity instead of natural gas. Since your home didn't have central cooling before, you may also notice more electricity use in summer. But these systems are more efficient than window air conditioners, so the increase is usually lower. In winter, your electricity use may rise because the heat pump provides most of your heating, while the natural gas furnace is used less. You should see a noticeable drop in your natural gas bill. By following energy-saving tips, such as using the thermostat wisely and keeping doors and windows closed, you can stay comfortable while reducing waste.

Contact information

Equipment issues:

Contact the Multifaith Housing Initiative maintenance team at maintenance@multifaithhousing.ca

Problems with the data collection sensor or questions about the research project:

Contact Chris Baldwin, Project Manager, CABER at Christopher.Baldwin@carleton.ca

Questions or concerns?

Contact EnviroCentre at retrofitaccelerator@envirocentre.ca

envirocentre Retrofit Accelerator

MULTIFAITH Housing Initiative

This document was created with support from:

Government of Canada Gouvernement du Canada