AIR SOURCE HEAT PUMPS

DELIVERING IMPROVED COMFORT, SAVINGS AND INDOOR AIR QUALITY

MAKE THE SWITCH

Air source heat pumps (ASHPs) are proven to heat and cool homes comfortably all year. They are more energy efficient and better for the environment than traditional systems like furnaces and baseboards. They also improve the comfort and air quality in your home. In winter, ASHPs work by taking heat from the outdoor air and distributing it in your home. During summer, heat pumps cool your home by removing heat from indoor air and moving it outside.

HEAT PUMPS WORK WELL IN ONTARIO'S COLD CLIMATE

Cold climate heat pump technology has been rapidly evolving. More and more households are adopting the technology in northern regions such as Canada, Norway and Finland. The latest cold climate heat pumps even work well when outdoor temperatures are below -20°C. The newest systems have been shown to provide heat more efficiently than conventional systems, even at outdoor temperatures as low as -31°C.

This means that in Ontario's coldest cities, like Thunder Bay, Ottawa, and Sudbury, heat pumps can do more than 90% of the heating work. You might need a backup system to fill in the gaps from time to time.

HEAT PUMPS REDUCE ENERGY USE AND COSTS

Heat pumps are up to three times more energy efficient than other systems like furnaces and electric baseboard heaters. They reduce annual energy use for heating and cooling by an average of 30 – 70%. If your home is currently heated with electricity, propane, or oil, you will see immediate cost savings. If your home is heated with natural gas, a hybrid heating system—using a heat pump and your natural gas system—will still reduce energy costs for most homes in Ontario. Your contractor can help you find the most cost-effective heat pump solution.

HEAT PUMPS REDUCE CARBON EMISSIONS

Heat pumps can reduce your home's carbon emissions by 80 – 95% compared to heating with natural gas. They are a great way to help improve the environment, while also saving money and staying comfortable year-round.

GETTING THE MOST FROM YOUR HEAT PUMP

Improving the insulation and airtightness levels of your home decreases your heating load, keeps your home more comfortable year-round, and reduces energy waste. Reducing your home's heat losses and gains before installation reduces the size of the ASHP equipment needed to keep you comfortable, resulting in a lower up-front cost. Consider an EnerGuide home evaluation provided by an Energy Advisor licensed by Natural Resources Canada. This will give you an EnerGuide rating for your home and an energy efficiency report to help you choose the best energy upgrades to meet your needs.

Sources:

- Government of Yukon. (2023, January 24). *Air Source Heat Pump Pilot Project Technical Report: Winter 2021*. https://yukon.ca/en/air-source-heat-pump-pilot-project-technical-report
- Efficiency Canada. (n.d.). *Facts and myths about heat pumps.* https://www.efficiencycanada.org/heat-pumps-canada/
- Natural Resources Canada. (2022, August 09). *Heating and Cooling With a Heat Pump*. https://natural-resources.canada.ca/energy-efficiency/energy-star-canada/about/energy-star-announcements/publications/heating-and-cooling-heat-pump/6817

PICKING THE RIGHT HEAT PUMP

Talking to a heating, ventilation and air-conditioning (HVAC) professional is the best way to ensure accurate sizing and get the best performance from your heat pump system. Here are four factors to discuss and to consider when choosing the best heat pump to for your home.

Coefficient of Performance (COP)

The COP is a number that describes the efficiency of a heat pump at a given outdoor temperature. The higher the COP at the coldest temperatures in your area, the more efficient it will be at delivering heat. COP can be used to size, compare and select the right equipment.

Heating Seasonal Performance Factor (HSPF)

The HSPF characterizes the average efficiency of an ASHP over a typical heating season. The HSPF is the ratio of heating delivered to electricity consumed over the heating season. A higher HSPF rating indicates higher efficiency. Note: The HSPF is calculated based on the heating season which varies by "climate region". Typically, HSPFs are often reported for Region 4, representing climates similar to the Midwestern US. Most Ontario homes are located in regions 5 and 6. Ask your contractor about options with an HSPF of 7.1 or higher for Region 5.

Seasonal Energy Efficiency Ratio (SEER)

The SEER measures the cooling efficiency of the heat pump over the entire cooling season. The SEER rating is the ratio of cooling delivered to electricity consumed over the cooling season. A higher SEER rating means more efficient cooling.

Sizing

Proper sizing of your heat pump is important to ensure comfort while avoiding wasting energy and money. The size of the heat pump you will need depends on where you live, how well insulated your home is, and the heat pump's performance rating (like the HSPF).