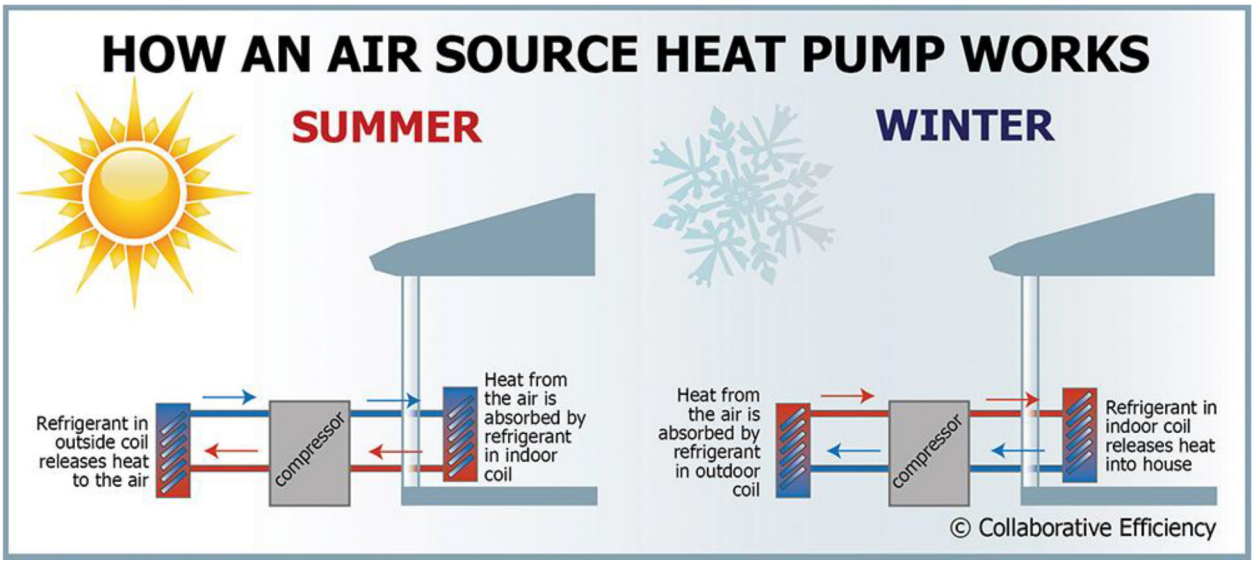
Why Choose a Heat Pump?

Don't let the name fool you, a heat pump is a home heating **and** cooling device that works by "moving" heat from one place to another. Heat is just another word for thermal energy. Different kinds of energy can be converted into thermal energy. Most commonly, our homes are heated by turning either electric energy (in the case of base board heaters) or chemical energy (natural gas) into thermal energy. A heat pump works by simply moving existing thermal energy from one place to another.

Heat naturally moves to cooler places—the easiest demonstration of this principle is what happens when you open a window in winter. The warm air moves outside to where the air is cold, making the room cool down rapidly. Heat pumps reverse this process by taking warm air from a cold area (like outside) and moving it to a warmer area (like your home).

Most of the cost of home heating comes from warming up cold air. For example, if you turn on a space heater, the fan that blows warm air out doesn't use nearly as much energy as the heating element that warms the air. Any electrical heating system relies entirely on electricity to produce and distribute heat. Heat pumps only rely on electricity to distribute existing heat.

In the diagram below, it demonstrates how a heat pump works by pushing a fluid (in this case refrigerant) through a pair of coils. One coil is indoors, the other outdoors. In cooler weather, when you want to heat your home, the outdoor coil acts as an evaporator of refrigerant (a fluid used in many different systems that are meant to change the temperature of a given area) and the indoor coil acts as a condenser. When the refrigerant is turned to gas in the outdoor evaporator coil, it absorbs thermal energy from the surrounding air and then moves to the cooler indoor coil. That coil condenses the refrigerant vapor back into a liquid using compression, and the thermal energy (heat) is released into the indoor air.



Since a heat pump is only moving thermal energy from one place to another and not converting another type of energy into heat (such as electricity or natural gas), it is more efficient than other types of heating mechanisms. **Along with efficiency, a heat pump has the ability to keep your home at a consistent temperature all day and night long**. You will not see a heat pump system constantly turn on and off as a heat pump can regulate temperature changes by working on a "partial load" basis. Think of a heat pump like your car accelerator. It takes more energy to get to a certain speed in your car than

stay there. The heat pump works the same way, once the desired temperature is met - either heating or cooling - it takes less energy to keep it there.
You may not think that heat pumps can work in winter here in Canada, but they do! There is still warm air outside, otherwise we'd all freeze solid as soon as we step out the door. Daikin heat pumps can reliably deliver enough warm air to keep your home comfortable in conditions as cold as -25 degrees Celsius. In fact, the outdoor air only loses about 15% of its thermal energy at sub-zero temperatures compared to a nice summer day. In very cold weather—the kind we rarely see—a backup heat source may need to be used or a low temperature kit installed which will allow the unit to work effectively to -40 degrees Celsius.
There are several kinds of heat pumps: air source, ground source, hybrid, to name a few.
Air source heat pumps draw heat from the air. Ground source (or geothermal) heat pumps draw heat from the ground. Hybrid heat pumps draw heat from two sources, one of which may be a traditional heat source, such as air and a furnace.

The heat pumps you'll most often see in Canada are air source, which can be ducted or ductless (also called mini split). Ducted heat pumps have one outdoor unit and one indoor unit. Heat is delivered throughout your home using ductwork. A ducted heat pump is a good choice for homeowners with an existing ducted system, such as electric or oil forced air systems.
Ducted heat pumps can also be installed in homes without existing ductwork, however, we would recommend a ductless heat pump system if you do not have any ductwork. Your home will need to be retrofitted to accommodate a ducted heating system. Ductless heat pumps, commonly referred to as mini split heat pumps, are another excellent option for many types of homes. Mini split heat pumps are commonly installed in homes that do not have existing ductwork (for example, homes with electric baseboard heat or radiator type of heating) to avoid the cost of retrofitting. Mini split heat pumps consist of one outdoor unit feeding multiple indoor units. The indoor units can be installed virtually anywhere in your home, allowing for highly customizable temperature control in different rooms and areas.
Do heat pumps only provide heating?
Absolutely not. Heat pumps can also provide you with all the cooling that you will require as well as heating. The heat pump system simply reverses the whole process by removing the heat from the indoor air and expelling it into the atmosphere…making the air inside your home feel cooler and more comfortable. The heat pump also has the same dehumidification abilities as a normal air conditioner system. In essence you have the best of both worlds at your fingertips with a heat pump system. You can use the idea of **"set it and forget it"** with your heat pumps system to provide you the consistent home temperatures that you have been looking for.