

HEAT PUMP SYSTEMS

Designed to make heating and cooling more efficient.

Thake Home Comfort Centre



Owner Cindy Dopson

I grew up in the small town of Westport, Ontario, helping with the family TV, Radio and Appliance Store. The need to change and adapt to new technology was evident as the business progressed from a very retail type of service to one that involved refrigeration and farm milk cooler service throughout rural Eastern Ontario

In 1995, myself and my husband Chris took over the business and expanded into the heating and cooling industry, concentrating on promoting the newest technology in that area.

Besides HVAC installs, Thake Home Comfort Centre also supplies and installs Home Standby Generators, Propane Tanks, and offers filling of Propane Tanks.

When away from the business, we enjoy spending time on our farm, where we raise Clydesdale and Shire horses and well as grow cash crops.





What is a Heat Pump?

The easiest and most relatable way to explain an air to air heat pump is to think about an appliance we all have in our homes – a refrigerator.

As our refrigerators cool the inside of “the box”, there is heat given off either through a coil at the back or one underneath. This process happens through the use of a “pump” – the compressor, which circulates refrigerant that evaporates &/or condenses.

Reverse the flow of refrigerant – and the “box” would actually be heated and the coil give off cooling.

If you think of your house as the “box” it helps us to understand how a heat pump works .

There are many things that need to be taken into consideration when purchasing a new heating system for your home.

Your house – the size, style and location of your home will affect the system that will be most efficient for your home.

Your plans – is this going to be a cottage, rental or your forever home? This information will help determine what kind of budget you may want to spend on your project.

New homes have the advantage of being able to choose just how they want their home to be heated.

Radiant floor, forced air or a combination of the two may be used, and how the system is fueled is also flexible – i.e. Gas (Natural or Propane), all electric or again a combination.

Your Plans –

Choosing a fuel can also depend on your location – do you have access to Natural Gas? Does your area experience many power outages? Can a Propane Truck deliver fuel to you year round?

If you are planning to go with solar power, or have a Home Standby Generator installed, a gas back up heating source may make sense both economically and from a practical sense.

Are you a “snowbird” or only use the property seasonally? This is also a factor to be considered as some of our higher efficiency systems do need more monitoring. Is the person checking your property able to do that?

Is this your forever home?

**What to
consider
when
purchasing
a new
heating
system**

Budget

Typically the more efficient a heat pump system the more expensive. However, we do recommend that in regards to heat pumps, it is best to go as efficient as your budget allows.

How do you come up with a budget figure? This really depends on some of the factors we first discussed and deciding between the “wants” and “needs” for you and your home.

i.e. – we may really want a radiant floor heating system – but if we are not prepared to do major renovations in an existing house – that may not be realistic. So, what else might be best?

Before you write off any type of system, make sure you talk to your contractor and get a “budget” figure on the different options. There are usually at least two options for any install.

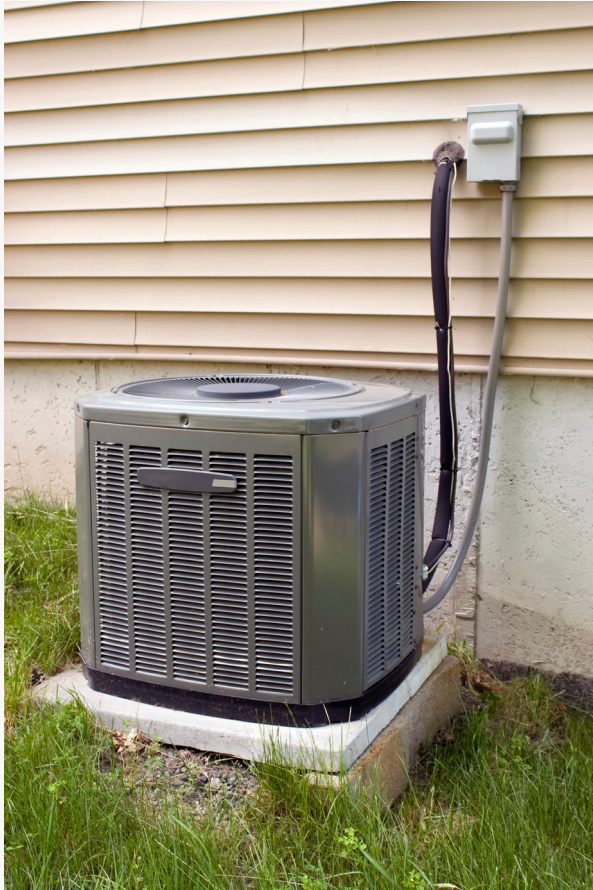
- Traditional
- Ductless
- Geothermal
- Air to Water



How do you know which one would work best?

The right type of heat pump for your space.

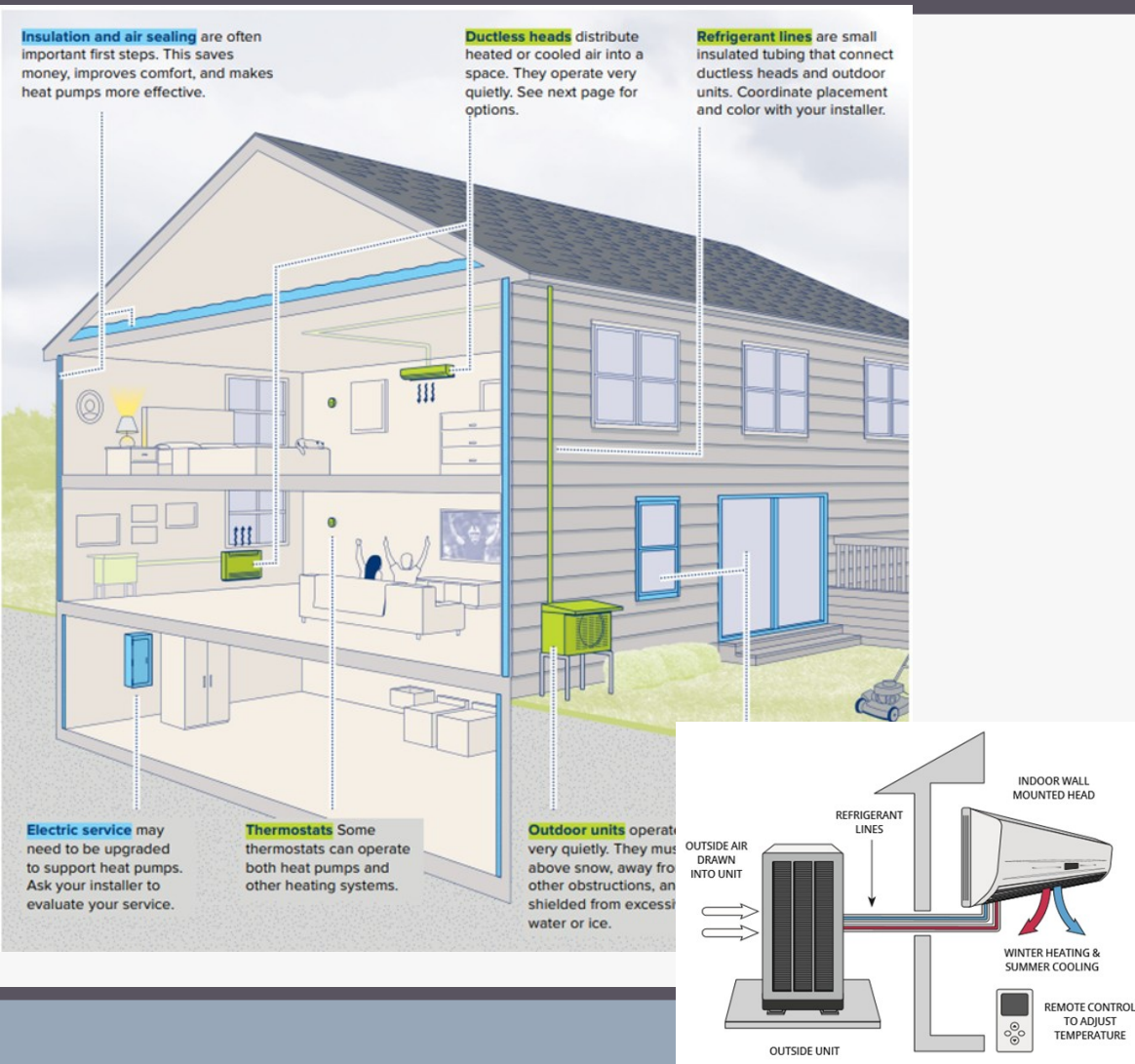
Traditional



Traditional Air to Air Heat Pump

- Can work with any forced air system – propane furnace, electric air handler, etc.
- Very recently has become less popular as the “high efficiency add on heat pumps” that qualify for Rebate Programs have taken over this market.
- If you already have one – debatable whether you should upgrade?

Ductless



Ductless Systems have been widely used for many years, starting off as air conditioning units only, then becoming more and more efficient as heat pumps. Many systems now will heat efficiently to -30 Celcius.

A ductless system consists of the condensing unit which sits outside and then inside coils that move the air. The indoor portion is most commonly mounted on a wall, however, there are options for cassette style (down through the ceiling)

Ductless systems offer very controlled zone heating and cooling and have applications anywhere there is no ductwork, as a supplement to radiant heat, and in homes where ductwork does not meet the needs of all rooms. Especially the upper floors of older homes!

Geothermal

The ground is able to maintain temperature consistency because it absorbs 47% of the sun's heat as it hits the Earth's surface. Geothermal systems are able to tap into this free energy with a series of underground pipes called an earth loop.



Geothermal: Types of Loops.

The three most common types of “loops” are:

VERTICAL CLOSED LOOP – bore holes are drilled vertically and a closed loop of pipe recirculates a mixture of water and liquid heat transfer fluid. Instead of using air as the medium to get rid of heat or cold – these systems use the fluid which circulates at a steady temperature below ground.

Horizontal Closed Loop:

This system is identical to the vertical, except that the tubes are laid horizontally in long trenches – approximately 4 to 6 feet underground. This is typically much less expensive than drilling, but requires a large property with adequate soil depth.

Open Loops:

Although as a contractor we are not keen on any open loop systems, there are many of them out there. These systems use a water pump to pump water from your well, through the system inside your house and then the water drains back into a well that has been drilled to act as the drain.

Geothermal systems can provide radiant floor heat, forced air heating and cooling or a combination of the two.

Air to Water



Air to Water systems have been around for a number of years and are one of the few options we have for offering Canadian made equipment.

These systems have an outdoor unit which uses heat pump technology to heat or cool water which is then circulated into the house. Storage tanks and circulating pumps make this an ideal system where there is a desire for radiant heat or a combination with forced air. They are also quite adaptable to having rads added in specific areas to provide zone temperature control.





What to expect from your high efficiency system?

With high efficiency systems you can expect to see measurable financial savings on your overall utility costs.

However, you should also be aware that these are systems that do require more customer attention.

I try to compare these new systems to using a phone – our old rotary dial phones lasted forever, worked without any service and were simple to use. Our new cell phones offer us many more features but are NOT going to last as long, especially without updates and occasionally shutting them off or even removing the battery to help them reset.

At the time, these efforts on our part are often seen to be an inconvenience, but how happy are we to be back on-line, or have all those contacts at our fingertips?

So yes, your new system may need to have software updates or be “rebooted” but the efficiency is worth the small troubles.

Questions you should ask your contractor before installing

How long is the warranty? What is actually covered?

What does a 10 year warranty cover? Are just parts covered, or labour too? Will you need to pay for shipping, travelling time or a warranty processing fee? Be sure to understand the details and ask about registering your product? Your contractor may do all that for you, but still good to know.

Maintenance Requirements –

Be sure to have your contractor go over the system with you. Are there filters to be changed? If so, how often? Be sure to make note of the sizes needed and where you can buy them.

What should you watch for?

Heat pump out door units will frost up during the heating season – so you may see that or even some “steam” coming off as they defrost. During cooling season they can produce lots of water as the condensation runs off the inside coils – is there a pump you should check occasionally?

Is your contractor qualified and reliable?

If you are looking at using a contractor you have no personal knowledge of either through past work they have done for you or referrals from family or friends, don't be afraid to ask for credentials.

Are they licensed? Do they carry liability insurance, are their workers covered by WSIB?

Can they give you a couple referrals from jobs they have recently completed?

ACRONYMS

SEER – Seasonal Energy Efficiency Ratio

This rating is related to the cooling side of systems. The higher the rating the more efficient the system is when cooling your home.

HSPF – Heating Seasonal Performance Factor –

This rating is related to the heating side of systems, and again a higher rating means a more efficient system.

COP – Coefficient of Performance –

This is a ratio between the rate that a heat pump transfers thermal energy (in kW) and the amount of electrical power that is required to do the pumping.

A COP of 3 means that the heat pump uses 1 kW of electrical energy to transfer 3 kW of heat. And yes, a higher number means a more efficient system.

THANK YOU



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