

# HOME EXPRESSIONS HOME

## Latest, most efficient heat pumps can cut down bills

Efficient heat pumps cut down bills for home heating and cooling. You have an electrically heat-

ed home and would like to add central air conditioning as well as lower your heating bills. The solution could be a heat pump.

Depending on your family's lifestyle and other factors such as the amount of insulation in your home, you can count on saving up to 30 percent on your electric heating bills with a heat pump compared to an electric forced-air furnace.

### What are heat pumps?

Heat pumps are an application of technology that has been around for some time - the refrigerator. Your refrigerator doesn't make cool air. It removes heat from the food compartment.

The heat pump does the same thing. In summer it extracts warm air from your home. In winter, the cycle is automatically reversed, and heat is extracted from the outside and trans-

ferred into your home.

And don't forget - it not only heats in the winter, but cools in the summer.

### How heat pumps work

As we mentioned earlier, a heat pump moves heat. But it's where it gets the heat, and where it puts it that gives the heat pump its remarkable ability to heat in winter and cool in summer.

In both its heating and cooling phases, the heat pump operates by moving a liquid refrigerant through a system of piping to collect, transport and release heat.

What happens in winter? The refrigerant passes through a pressure control valve where its pressure and temperature are rapidly lowered until it becomes colder than the outside air.

It passes to the evaporator coil in the part of the heat

pump located outside the house. There, a fan blows air across the coil and the heat in the air is absorbed by the refrigerant, turning it to vapour.

The refrigerant vapour is pumped through a compressor, where its pressure and temperature are raised until it is warmer than the air inside the house. Here, air blown across the coil is heated by the hot refrigerant vapour and circulated through the home.

As the refrigerant vapour gives up its heat, it condenses back to a liquid which is pumped back outside to begin the cycle again.

### Summer operation

In summer, the heat pump system becomes a central air conditioner similar to a standard central air unit.

There's no complicated changing of equipment, nor does the heat pump have to perform any complex tasks. It continues to function as before, using a refrigerant to extract heat from air.

But a simple switching mechanism reverses the direction of operation, and instead of heat being extracted from the air outside your home, it is extracted from the air inside your home and pumped outside, leaving your home cool and dehumidified.

### Performance/reliability

How do heat pumps rate in performance and reliability?

Very well indeed. Independent studies conducted in major Canadian cities report that over 85 per cent of present heat pump owners would install one in their next home.

An important factor is proper installation and system design.

All heat pumps should conform to performance testing standards developed by the Canadian Standards Association to govern the installation of all residential air-to-air pumps. The standard sets out the requirements for system design, installation, service, warranty information and customer education. You should also take advantage of the extended warranty programs offered by many heat pump manufacturers.



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