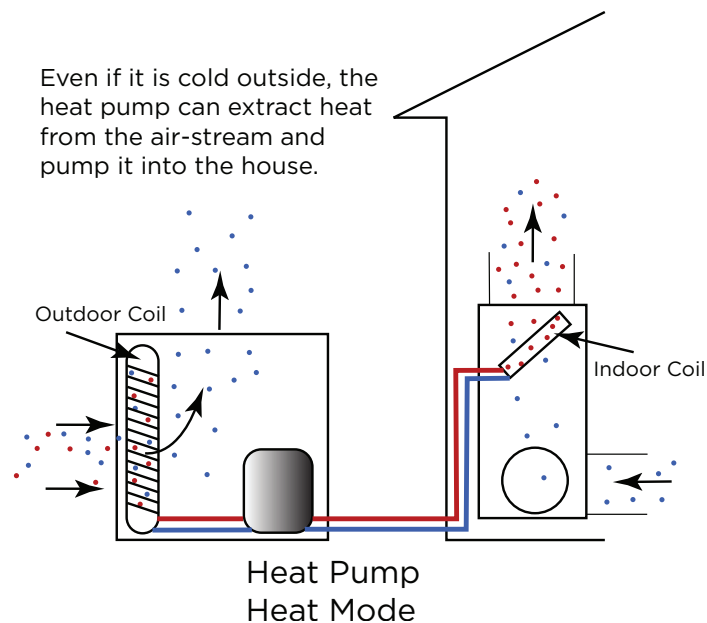


Heat Pump

A heat pump is a device that can gather heat from outside and bring it into the home to heat the home. While a heat pump uses electricity to gather heat, the energy consumption is only a small fraction of the energy it collects. This is the beauty of a heat pump. For every dollar of electrical energy you use, you may gain two dollars of heat energy. It's like getting something for nothing.

The colder it gets outside, the more electricity the heat pump uses. If it gets very cold, the heat pump uses more energy to collect heat than it is able to collect. At this point you would be better to shut the heat pump off and use your backup heating system. This break even point is somewhere around freezing point. This is why you don't see many heat pumps in northern climates. They do work very well in moderate climates though.



It's an Air Conditioner Too

Of course a heat pump can cool the house too. Collect heat from inside the house and pump it outside and the home gets cooler. This is in fact what an air conditioner does. An air conditioner is actually a heat pump that is only set up to work in one direction. A heat pump will pump heat in both directions.

Air-To-Air System

Most heat pump systems are the air to air type. Heat is collected from the air outside. These units look almost exactly like an air conditioning system. In fact, it may be hard to tell if you are looking an air conditioner or a heat pump. Here are a two giveaway clues -

1. The condenser cabinet outside may say in large letters "Heat Pump". In this case it is likely a heat pump.
2. The thermostat will have a setting on it called "E.M. Heat". This stands for emergency heat. In this setting the backup heat is activated. You will not have an E.M Heat setting on an air conditioning system thermostat.

Geothermal System

The main downside to a heat pump is that it is not efficient when the outdoor temperature drops much below freezing. Once you dig down into the ground about six feet, the temperature is fairly stable year round, between 45°F and 75°F. A geothermal heat pump gathers heat from deep in the soil or from deep in a well or lake. With a geothermal heat pump you can gather heat in the winter much more efficiently than you can from the air for the simple reason that there is much more heat available.

You can air condition much more efficiently too. The efficiency of an air conditioning system depends on the outdoor temperature. The hotter it is outside, the harder your air conditioner has to work to pump heat from your house to the outside. Since the temperature deep in the ground is not so hot, it is very easy to pump heat from your house into the ground.

The bottom line is that a geothermal heat pump costs very much less to operate. In fact the year round energy costs to heat and cool are very low. But, as with all good things, there is a catch. The installation cost is very high. This is why we don't see many geothermal heat pumps.

Maintenance

- Do not operate an air to air heat pump in cooling mode if the temperature is below 65°F outside. Do not operate an air to air heat pump in heating mode if the temperature outside is above 65°F. In other words, operate it only in the mode appropriate for the season otherwise damage to the system may result.
- Have the system inspected, cleaned and adjusted annually.
- Change filters at the air handler regularly to protect the equipment.

