

*A natural
choice for
cooling and
heating*

Air Source HEAT PUMP



MVEEC

Minnesota Valley Electric Cooperative

Your Touchstone Energy[®] Cooperative 

*Invest in economical,
worry-free heating and
cooling for all seasons!*



Central Air Conditioner vs. Air Source Heat Pump

Can you tell the difference between a central air conditioner and an air source heat pump? On the outside, the units look the same. However, on the inside of the unit, there is a distinct difference.

Both units cool and dehumidify your home or office exactly the same, but the central air conditioner has no heating mode like an air source heat pump. The air source heat pump contains a reversing valve which moves heat the opposite direction from the cooling mode. By switching the thermostat to heat, the air source heat pump becomes a primary source of heat for your home at half the cost of the most efficient gas furnace.

Enhance Your Furnace

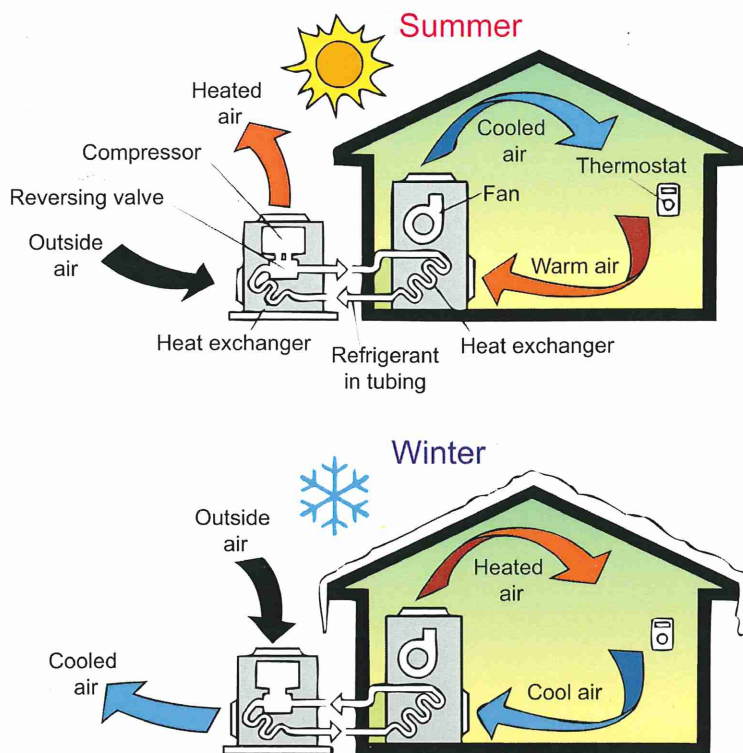
Enhance your gas furnace by installing an Air Source Heat Pump (ASHP) instead of a central air conditioner. Not only will an ASHP keep your home or office cool, it will also heat your home until the outdoor temperature goes down to about 20 degrees above zero. This saves you on the cost of running your gas furnace to heat your home.

Moving Heat vs. Making Heat

Unlike a furnace, which creates heat by burning gas and sending the unburned portion out the vent or chimney, an ASHP (in the heating mode) will move heat from Point A to Point B. An ASHP can move about four times more heat at 47 degrees than the energy it takes to operate it. When the temperature is 17 degrees outside, the heat can move over 2.5 times more than it takes to operate the system.

Economics

Using an ASHP that operates on MVEC's low Energy Wise electric rates is equal to paying approximately 37 cents a therm for natural gas or 40 cents a gallon for propane with a 90 percent efficient furnace. You still need a gas furnace for temperatures lower than 15 degrees above zero. An ASHP combined with a gas furnace gives you a "Dual Fuel" system, which qualifies for our best Energy Wise rates. You can also install an electric plenum heater to a gas furnace and ASHP. This allows you to run your heat on electricity in colder temperatures or until you are cycled off for a peak load time.



Dual Fuel System

A dual fuel system has two types of heat available for your home or office. The primary source is electric – a plenum heater, ASHP, cove heater, electric boiler, baseboard, etc. The second source is fossil fuel – gas, oil or propane. Dual fuel gives you the option to use your fuel of choice: electric or fossil. With this system, MVEC offers a competitive advantage with electricity as your fuel of choice.

Reduce Gas Costs

An ASHP can heat your home or office down to 15 to 20 degrees above zero – until it can no longer keep up with its heat loss. At lower temperatures, the plenum heat steps in. If MVEC needs to shed load due to high peaks of system usage, the gas furnace will continue to operate, keeping your home warm. Once the peak time has passed, the system automatically switches back to low-cost electric heat. This type of dual fuel program allows you to save money with low Energy Wise electric rates.

Energy Wise® Off-Peak Programs

Energy Wise programs were created to help reduce peak draws on the electric system. While you are on this program, MVEC occasionally may switch your electric heating or cooling system off to reduce energy usage during a peak. Generally, the peak period lasts four to eight hours. For participation in these programs, MVEC members receive reduced electric rates or bill credits.



SEER for Cooling and COP for Heating

In the cooling mode, your ASHP is measured just like a central air conditioning unit. The higher the Seasonal Energy Efficiency Ratio (SEER), the more efficient the unit is.

In the heating mode, the ASHP is measured by Coefficient of Performance (COP). This is the amount of energy it takes to operate the heat pump versus the amount of energy the heat pump moves at a certain temperature from point A to point B.

The Bottom Line:

An ASHP saves you money because you won't have to run your gas furnace very often to heat your home. By including a plenum heater with your gas furnace, you can reduce gas consumption up to 95%.

An ASHP will pay for itself in gas savings. An air conditioner can only cool your home and won't save you a dime!

Sizing the Unit

Air Source Heat Pumps are sized by the ton (there are 12,000 BTUs per ton), and that's the amount of cooling capacity. When purchasing an ASHP, have your heating and cooling contractor size the correct ASHP for you. If your home or office is sized for a two-ton central air conditioning unit, you should size an ASHP for 2.5 ton — preferably a half ton larger to help with the heating load.

Heat Pump Thermostats

At the time of purchase, your contractor will make sure your ASHP has a compatible thermostat. The thermostat runs your gas furnace and/or electric auxiliary heat, as well as your ASHP. The gas furnace will start only if the ASHP can not keep up. This point of operation is called the balance point. These adjustments are made on the ASHP's thermostat. However, on some ASHPs, the adjustment is made on the outside unit.

Interface Kits

Interface kits determine what unit or combination of units are needed to provide heat to your home. All heat pumps require the use of an interface kit. These kits vary depending on the model purchased. There are two interface kit options available — all inclusive with the thermostat or as a separate item wired in between the gas furnace, electric auxiliary heat, the outdoor unit and the thermostat. The interface kit has an option for low temperature cut out (the lowest temperature you want your heat pump to operate at). If the outdoor temperature is below 20 degrees, it will automatically bring on the auxiliary heat (this may be gas or electric resistance heat) to satisfy the temperature needs in your home.

Defrost Kit

All heat pumps come with a defrost kit to operate at outdoor temperatures below 35 degrees. The defrost system melts ice off the coils to keep the efficiency of the unit as high as possible. When your defrost kit melts the ice from the coils, your furnace will continue to run for a short period, keeping your home at a comfortable temperature.

Crank Case Heater

The crank case heater keeps oil and refrigerant from separating in cold weather. Most heat pumps will need some type of heater for the compressor at times of extreme cold. Manufacturers have done a great job in insulating the compressor area and some models may not require this feature.

Installation & Maintenance

- Install ASHP at least 10" above the pad — this prevents ice jamming and damage to the outside coil
- The unit must be level for optimum performance
- Direct sun should not affect the cooling performance on the larger outside coils
- Place the ASHP in an area secluded from the wind at least 24" from walls or shrubs
- Never install an ASHP under a deck that has 8 foot or less overhead clearance if your ASHP is open on top
- Remove all heavy snow and ice before operation — if there is a large build-up of ice on the outdoor fan, the ice must be removed before operation



Why install old technology like an air conditioner when you can have an efficient unit that cools and heats?!

Swimming Pool Heat Pumps

Electric swimming pool heat pumps are available to heat your pool for a fraction of the cost of gas or propane if installed on MVEC's money-saving Energy Wise rates.



Contact your energy specialists at:

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