

GEOTHERMAL ENERGY



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While the name may sound a little "space-age," geothermal technology is very "down to earth." To put it simply, you can use the natural warmth of the earth to heat and cool your facility.

What is a geothermal heat pump?

A geothermal system, also called a ground-source heat pump, works on a simple premise: the earth below a certain depth (the frost line, usually about four-feet deep) is a constant temperature of about 50 degrees throughout the year. Heat is taken from the ground and transferred to the air in your facility during the winter; the process is reversed during the summer.

The loops of piping are buried in the ground on your property, either vertically or horizontally. The ground loop is connected to a pumping module inside your building where a mixture of water and liquid antifreeze is circulated through the system.

As the liquid moves through the underground pipes during winter months, it absorbs heat from the earth. When the heated liquid reaches the heat exchanger, it is converted through the refrigerant process to warm air and is circulated through the building.

To cool a facility in summer months, the system simply works in reverse with the flip of a switch.

Significant energy savings

A geothermal system can lower your heating bills up to 50 percent and lower your cooling bills up to 30 percent when compared to a conventional system. Heat from the ground is free and the only electricity needed is for circulation.

This could mean a payback in as little as two to seven years! And don't forget: ground-source heat is naturally renewable and non-polluting. No precious natural resources are wasted.

For extra energy savings, you can connect your heat pump to your water heating system. When the energy from the heat pump is not needed, it is diverted to your water heater. Therefore, you'll be getting virtually free hot water!

Additional benefits

One system provides both heating and cooling. Because the equipment is self-contained and installed indoors, a geothermal system can have a life expectancy of up to 50 years; most are warranted for up to 25 years.

And that's not all:

- The liquid antifreeze is a non-toxic, non-polluting, biodegradable substance.
 - The piping is specially designed to withstand extreme temperatures.
 - The loops are joined by thermal fusion (melting them together) so there's virtually no chance of the liquid leaking out.
 - There are no noisy "on" cycles with blasts of hot or cold air.
 - No fluctuations in temperature from room to room.
 - No flues to get clogged.
 - No dangers of carbon monoxide poisoning.
- No noisy outdoor air conditioning units – a big advantage in more densely populated areas, such as coastal shore communities.

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