

ENERGY WISE

Heating/cooling options



A GSHP, also referred to as a geothermal heat pump, is an electrically powered heating and air conditioning system that uses the earth's ability to store heat in the ground. The ground a few feet below the surface has a very stable temperature throughout the year, depending upon the location's annual climate. A GSHP system uses that available heat in the winter and puts heat back into the ground in the summer. A GSHP system differs from a conventional furnace or boiler by its ability to transfer or "pump" heat, versus the standard method of producing heat. As energy costs continue to rise and emissions become a concern, GSHP systems may hold a solution to address both of these concerns.

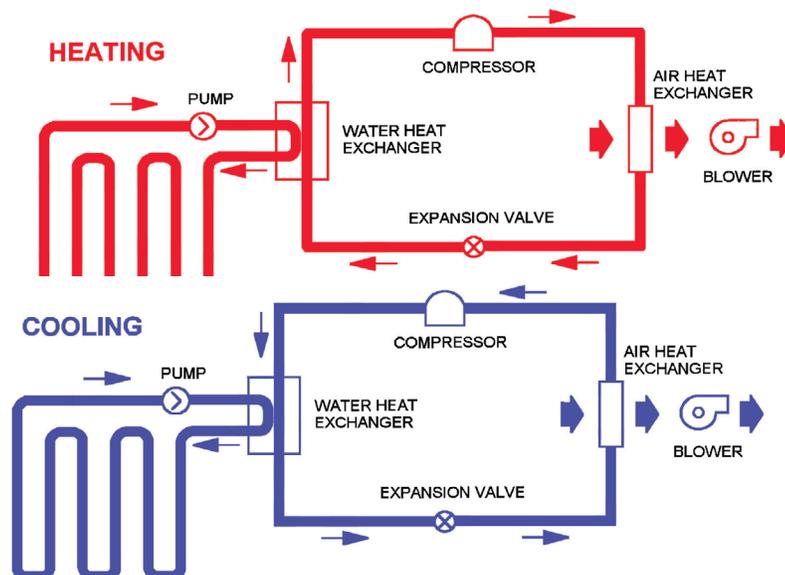
GROUND SOURCE HEAT PUMP

Why install a ground source heat pump system?

Although ground source heat pumps (GSHP) require a larger initial investment than other heating and cooling systems, they provide the most efficient heating and cooling system available. While fuel costs rise, ground source heat pumps will pay back your investment with huge savings. For either new construction or to replace old forced air systems where there's already ductwork, a GSHP conserves energy to save you money. A complete heating and cooling system operates at up to an average of 350 percent efficiency.

How does the ground source heat pump work?

- Water/anti-freeze solution circulates through a series of ground loop pipes buried six to eight feet in the ground.
- Ground loops transfer heat; underground temperatures remain stable. In the heating mode, heat pumps use a typical refrigeration system to extract heat from the ground loops, concentrate the heat and circulate heat through standard ductwork.
- The system reverses in summer to provide air conditioning and uses standard ductwork to circulate cool air.
- \$400 per ton rebate for qualifying heat pump systems installed in 2021. Rebate application must be submitted to qualify.



For environmentally friendly heating and cooling, a heat pump is the natural choice.

Here in Minnesota & Wisconsin, temperature changes are a big part of our local climate. But just 10 feet underground, the temperature is about 50 degrees year-round. Ground-source heat pumps, also called geothermal heat pumps, take advantage of this consistent temperature.

A ground-source heat pump consists of a network of plastic pipe buried underground. Non-toxic antifreeze solution circulates through the pipes, then to the heat exchanger inside the GSHP. In summer, the liquid inside the tubing collects heat from the building and rejects that heat into the ground. In the winter, it collects heat from the ground and brings it indoors.

Discover the benefits of a ground-source heat pump:

- 300-400 percent energy-efficient – the most energy-efficient heating and cooling system available
- All working parts are located indoors
- Much quieter than conventional A/C
- Hydronic floor heating option available – no need for a boiler
- Maintenance-free underground pipes are designed to last 50 years.

COST COMPARISON	
Propane	12.49¢/kWh residential rate
70% Efficient standard unit	Equivalent to 67 cents/gal. propane
95% Efficient high-efficiency unit	Equivalent to 91 cents/gal. propane
Natural Gas	12.49¢/kWh residential rate
70% Efficient standard unit	Equivalent to 73 cents/therm natural gas
95% Efficient high-efficiency unit	Equivalent to 99 cents/therm natural gas

GSHP systems may qualify for Interruptible Heating/Cooling rate of 6.4¢/kWh Sept. - May and 11¢/kWh June - August providing:

1. An operational whole-house fossil fuel backup heating system is present.
2. The GSHP equipment is compatible with and properly wired for the following heating and cooling season control strategy:
 - Heating- continuous interruption, max 12 hours/day, 400 hours/heating season.
 - Cooling- approximate 15 minute cycled interruption, max 6 hours/day, 200 hours/cooling season.

CONTACT US

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