

Geothermal Heat Pump Frequently Asked Questions

Which HeatSmart installers offer geothermal systems?

Two partner installers offer comprehensive geothermal services for HeatSmart, including site visits, design and installation. You may want a quote from both:

- [Alpine Air](#)
- [Dandelion](#)

Is a geothermal heat pump (GSHP) right for me?

GSHP retrofits can work in many homes. If you answer “Yes” to any of the questions below, a geothermal system may be a good fit for you:

- Do you heat with oil, propane or electric resistance?
- Do you want whole-home central air conditioning and heating in one system?
- Are you concerned about aesthetic changes to your building?
- Do you want the most efficient, environmentally-friendly system available?
- Is your boiler/furnace, central AC system, or existing heat pump system 15+ years old?

Why are geothermal heat pumps considered “clean heating and cooling” technologies?

Geothermal heat pumps are considered to be “clean” heating and cooling systems because they do not create heat, but rather they transfer renewable heat from the ground into your building. This process is powered by electricity, which can also be sourced from renewable sources like solar, wind, or hydro.

Even though our grid is only about 12% renewable today (and getting greener every year), a GSHP system powered by grid electricity will reduce your greenhouse gas emissions from heating by 30-75+%!

**Based on calculations from EPA eGrid data, ISO-NE data, and DOER guidelines.

Can geothermal heat pumps provide hot water?

Whenever the geothermal compressor is operating, there is waste heat produced. That waste heat can be used to produce domestic hot water. Therefore, geothermal systems can be used to provide supplemental heat to your hot water.

Ask your installer how this is set up.

How do the annual maintenance costs of geothermal heat pumps compare to other heating systems?

Geothermal systems do not have higher maintenance requirements than traditional heating and cooling systems, though annual maintenance is recommended to ensure that it functions well over the course of its lifetime.

The ground loop is designed to last for 50 years or more, and no other components are exposed to the elements.

How long do geothermal heat pumps last?

The ground loop piping is designed to last for up to 50+ years. The indoor heat pump unit has a life expectancy of around 20 years, similar to conventional heating and cooling systems. Some pumps, controllers, or other components may require replacement sooner than the indoor unit.

What if I don't have a lot of yard space?

You only need a lot of space for a horizontal ground loop installation. A vertical closed-loop system will require only a few small boreholes and can take up as little space as two parking spots.

How well do geothermal heat pumps work in the middle of winter?

Very well, as the earth maintains a more consistent temperature throughout the winter than the air. As a result, geothermal heat pumps will perform better than air source heat pumps during the coldest parts of winter. In addition, GSHP systems are not exposed to atmospheric conditions and thus do not need to perform more wasteful defrost cycles as with ASHP systems.

Near the end of winter, efficiency may be reduced slightly as the temperature of the ground has dropped.

How far away from the home can the ground source collection system be located?

The typical limit is 100 feet. It must be at least 25 ft from a septic system and 50 ft from a domestic water well.

We've had power outages and expect more. What size generator would be needed to run an GSHP system?

Speak with your installer, as each GSHP system is customized for your home. It is worth noting that furnaces and boilers also require electricity to run, so an alternative for a backup generator for extended power outages could include a wood or pellet stove.

A typical air-handler fan needs less than 500 W, thus in the event of a power outage, the GSHP could be put in a fan-only mode and powered from the generator to circulate hot air from a central wood stove or other backup heater.