



The Basics of a Geothermal System

Geothermal systems are not new technology. The first recorded system was installed in 1912, and more than 500,000 systems have been installed since 1980.

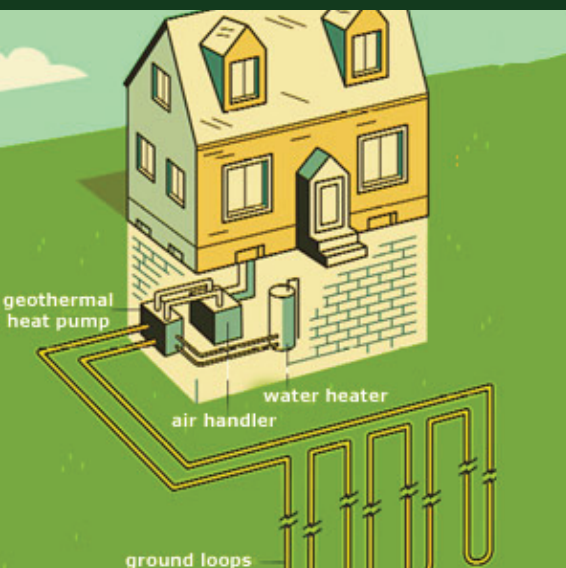
A geothermal system is actually a heat pump. However, the geothermal heat pump is located indoors (where a furnace would be) and is connected to a buried outdoor ground loop. A traditional air-source heat pump is located outside (where your air conditioner would be) and uses an air coil, which is limited by outdoor air temperature.

A geothermal system's heat pump knows no weather because its outdoor ground loop remains at a constant 50-degree (F) temperature buried below the frost line of our Wisconsin climate.

During the heating season, heat is absorbed from the earth and carried to the indoor geothermal unit, where it is converted to usable heat and delivered throughout the home via an ultra-efficient blower and traditional ductwork.

During the cooling season, excess heat is extracted from the home through an evaporator coil in the geothermal unit (like a traditional cooling system), and is carried to the outside ground loop, where it is dispersed to the earth.

As an added benefit, during system operation (both heating and cooling), excess heat generated through equipment operation can be used to supplement the heating of potable water for your home.



Why Geothermal?

With the latest continuing trend of "going green" sweeping the nation, Jeff Horwath Builders offers environmentally friendly, energy-efficient geothermal heating and cooling systems for your new home, installed exclusively through Dave Droegkamp Heating of Hartland.

Why should you consider installing a geothermal heating and cooling system in your new Horwath home?

- **Lower operating costs.** A geothermal system delivers four units of energy for every one unit of electricity, which translates into an efficiency rating of up to 400%. Many homeowners realize savings reaching 70% for heating, cooling and hot water.
- **Unbeatable return on investment.** Because of its amazing efficiency, the investment required for installation of a geothermal system is recovered quickly through significant energy savings.
- **Eco-friendly.** A geothermal system produces no carbon monoxide, carbon dioxide or greenhouse gas emissions from your home, helping to reduce global warming. It is recognized by the U.S. Dept. of Energy and the EPA as the most environmentally friendly way to heat and cool your home.
- **Safety.** There is no use of natural gas, propane or fuel oil by a geothermal system, so there is no combustion, flames, fumes or risk of carbon-monoxide poisoning. Eliminate your dependence on fossil fuels and the worry of rising fuel costs!
- **Quiet.** With a geothermal system, there is no noisy or unsightly outdoor equipment or vent pipes to detract from the appearance of your home and enjoyment of your landscape.
- **Reliable.** Because geothermal units are located indoors, they are not subject to wear and tear caused by seasonal temperature changes or weather.

Frequently Asked Questions

What are the parts of a geothermal heat pump system?

There are three main parts: the heat pump unit, the liquid heat-exchange medium (in the outdoor ground loop) and the air-delivery system (ductwork).

Will existing ducts work with a geothermal system?

Most likely. The installing contractor can determine if any modifications are needed.

Do I need to increase the electric service to my house?

A geothermal unit is powered only by electricity. Generally, a typical 200-amp service will have enough capacity.

Will an earth loop affect my lawn and/or landscape?

Only during installation. Upon completion of installation of the loop system, grass, trees and shrubs can be planted over the loop system. Roots from trees will not affect the loop pipes.

Is the ground loop safe?

Absolutely! A geothermal ground loop circulates plain, safe water in its closed-loop system – nothing that could contaminate your yard.

How long will the loop pipe last?

Closed loop systems use high-density polyethylene pipe, which does not rust, rot or corrode. Actual life expectancy of the pipe is more than 200 years.

Does the unit contain refrigerant?

The geothermal unit contains a relatively small amount of environmentally friendly R410A refrigerant.



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