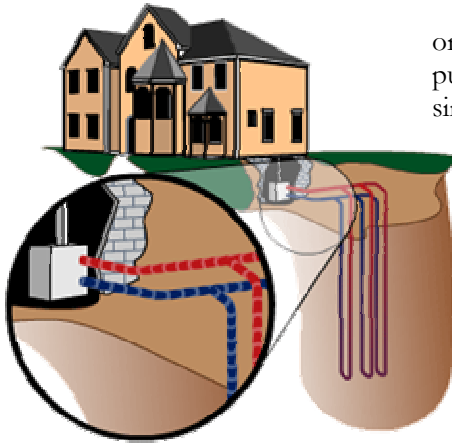


# Geothermal Heating & Cooling



## What is it?

Geothermal refers to a type of **heat pump** that uses the ground or ground water as a heat source and heat sink, rather than outside air.

Ground or water temperatures are more constant and are warmer in winter and cooler in summer than air temperatures.

Geothermal heat pumps operate more efficiently than conventional or air-source heat pumps.

## How does it work?

Geothermal heat pumps (sometimes referred to as GeoExchange, earth-coupled, ground-source,

or water-source heat pumps) have been in use since the late 1940s.

Geothermal heat pumps (GHPs) use the constant temperature of the earth as the exchange medium instead of the outside air temperature. This allows the system to reach fairly high efficiencies (300%-600%) on the coldest of winter nights, compared to 175%-250% for air-source heat pumps on cool days.

While many regions experience seasonal temperature extremes, a few feet below the Earth's surface the ground remains at a relatively constant temperature. The GHP takes advantage of this by exchanging heat with the earth through a ground heat exchanger.

Geothermal heat pumps are able to heat, cool, and, if so equipped, supply the house with hot water.