



GEOTHERMAL



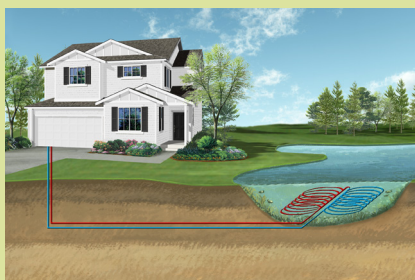
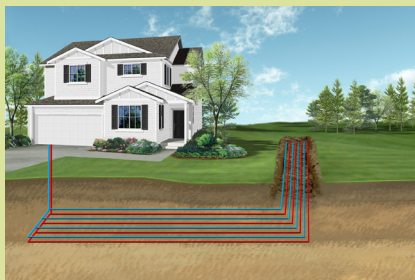
Renewable Energy Beneath Our Feet

Geothermal heating and cooling systems work in harmony with the environment by capturing the renewable solar energy stored beneath the earth's surface. They can make significant contributions to a cleaner environment by saving energy consumption, cutting the use of fossil fuels, slashing air pollution and reducing our impacts to climate change. Geothermal heat pumps systems effectively address one of the most hungry consumers of U.S. energy. Buildings dominate the nation's energy use, devouring over half of our electricity and natural gas. More than 70% of average energy demand for a typical single family home is to meet heating and cooling (thermal) needs. With a geothermal heat pump, that energy use can be cut by 40% to 70%, reaping huge savings on your utility energy bill. And geothermal heat pumps are a renewable, clean energy source that we can all use without the need for additional expensive, fossil-fueled power plants and intrusive electric transmission lines.

A Comfortable Clean Energy Solution

- o Reduces fossil fuel use, and slashes carbon emissions.
- o Harness on-site renewable energy available across America
- o Energy savings for new construction and retrofits.
- o Reliable energy that doesn't need new power plants or transmission lines.
- o The CO2 reduction benefits shrink the carbon footprint of a typical American home by nearly 50%.
- o "Made in the USA" by an innovative industry that is creating thousands of local, skilled jobs across America.

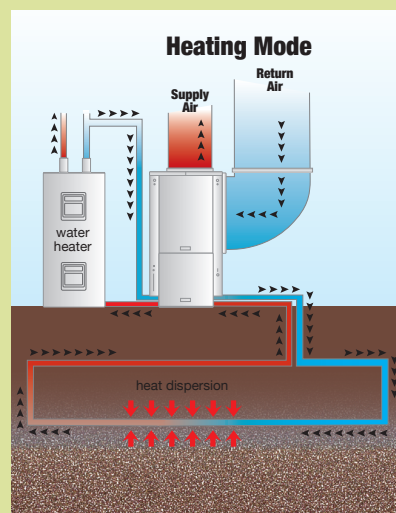
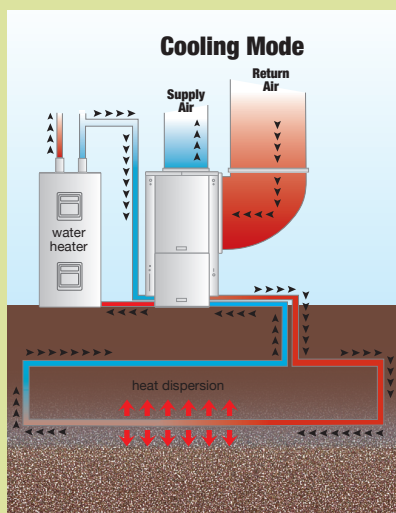




According to the U.S. Department of Energy and the U.S. Environmental Protection Agency, geothermal heating and cooling systems are **the most environmentally friendly way to control the indoor environments** of homes, businesses, and institutional spaces of all sizes. With additional equipment, they can be used for essentially free hot water — and even for heating floors and swimming pools.

How Do They Work?

Geothermal heat pump systems can be sized to heat and cool any building, large or small, in any climate. A series of plastic pipes — called ground loops — are buried beneath the earth's surface where temperatures are constant from 40° to 80° F throughout the year depending upon where you live. The pipes are sealed tight, and connected to the geothermal heating and cooling system inside the building. Water circulates through the underground pipes. There are five types of ground loop installations, shown at left. During the summer months in cooling mode, unwanted heat indoors is transferred outside through the water in the pipes for cooling by the earth. The cool water is then circulated to the geothermal system indoors to provide efficient air conditioning. During the winter months in heating mode, the process is reversed. The earth heats the water circulating through the pipes, which is transferred to the geothermal system indoors to provide comfortable space heating. Hot water can also be provided for little or no additional monthly energy cost.



Geothermal Exchange Organization
www.GeoExchange.org | (217) 572-1261