

Will GeoExchange Work for You?

ABOUT

Each year, the sun blazes down on the earth, installing 47% of its energy into the soil to be stored and, without GeoThermal sustainable energy technology, wasted. GeoExchange takes this unused energy that the sun naturally provides, and converts it into a usable form of energy that can be used to heat and cool your home year round. In general, underground temperatures remain between 5°C and 12°C year round; making GeoExchange an effective and available option to provide temperature regulation in your home.

Basic GeoExchange systems are composed of 3 parts; the heat pump, heat exchangers (loops), and in-home distribution devices. Heat pumps are installed inside of the basement or technical room of a home, away from vandalism and nature. The heat exchanger systems are concealed underground or underwater to provide a "heat safe". This "heat safe" stores energy when cooling and extracts energy when heating. Distribution systems consist in the form of air ducts which welcome hot or cool air into your home, or radiant floor tubing that brings hot or cool air up from underneath of your flooring. Both systems are effective and worry-free in regulating temperatures in your home.

Depending on your situation, there are 2 basic types of loops which are available on the market today: the Open Loop and the Closed Loop.

CLOSED LOOP SYSTEMS

Closed loop systems consist of continuous underground piping where both ends are connected to the indoor heat pump, therefore creating a continuous, sealed, *closed loop*. Water or a mixture of water and environmentally friendly anti-freeze continuously runs through the pipes to transfer heat between the heat pump and the earth. There are 3 types of closed loop systems that can be easily and effectively installed in your home, depending on your needs and your property. Read further to see the different types of systems and to easily see which type will serve you and your particular situation best.

Horizontal Ground Closed-Loop System

The Horizontal Ground Closed-Loop System is easily installed and effective. A trench is dug below the frost line on the site of the home. The system is then installed "flat and wide" towards the surface of the earth. There are 2 types of loops that can be used in a horizontal ground system. Regular, straight loops may be used, or coiled polyethylene piping, called *slinky coils*. This choice depends on your specific situation. Depending on the size of the home to be heated, the extremity of the temperatures and the soil in your area, the number of loops and trenches will vary.



Vertical Ground Closed-Loop System

The Vertical Ground Closed-Loop System is similar in design and just as effective as the Horizontal version. Narrow and deep trenches are again dug into the yard of the home or business where the loops are planted vertically into the hole. This is a great system to install if your house is built on a small lot or a large heat exchanger is required. Depth and number of loops is dependent on the size of the system, energy demand, and your temperature requirements.



Surface Water Closed-Loop System

The Surface Water Closed-Loop system is extremely high in heat transfer efficiency. If there is a body of water located on your lot, such as a stream, river, or pond, this in-water installation may be the best route to take. Pipes are run underground to the water source where the loops run horizontally along the floor of the water source. Naturally, water has higher heat transfer capabilities than soil or rock, so this route is effective and recommended if possible.



OPEN LOOP SYSTEM

The open loop system is the simplest and most cost-effective GeoExchange arrangement. Outfitted with two separate pipes that *do not connect underground*, open loop systems do not form a continuous pipe underground. Otherwise known as a “*Pump and Dump*” system, this arrangement has two, separate, vertically installed pipes which run from the heat pump to an underground aquifer. One pipe extracts the water from the ground, taking it to the in-home heat pump which removes all usable energy. Excess energy is later discharged through the other pipe and returned back to the original water source. This method is waste-free and environmentally sound. An open loop system can be easily installed on existing land, under sidewalks, parking lots, driveways, or even beneath your building.



CONSULTING AND ADVICE

For information on where to begin installing GeoExchange in your home, please contact Magnum Project Management. Magnum provides accurate and concise information in easy and understandable terms. Do not allow distance to impede on the availability of GeoExchange in your home or small business. Call now at 1-866-MAGNUM-U, that's 1-866-624-6868 for consulting and references, or click here to visit our contact page for more information.