

Serenity Series

Geothermal Systems
Product Guide

GeoComfort[®]
Geothermal Systems

www.geocomfort.com





Welcome to GeoComfort

You're considering an investment in a geothermal system. We understand that the number of available options can be overwhelming. Your knowledgeable GeoComfort dealer can help guide you into making the decision that is right for you. When contemplating a geothermal heating and cooling system, there are a few things to consider:

The loop:

The loop system enables the geothermal system to capture the free heat stored in the earth during the winter and to use it as a heat sink in the summer. There is a misconception that significant land is required to support a geothermal system. Where space is limited, a vertical loop may be used, versus the typical horizontal loop. Additionally, nearby bodies of water such as ponds or lakes can be utilized for the loop. Domestic well water can also be used with an open loop. GeoComfort dealers and loop installers are highly trained and will recommend the loop type that best meets your needs.

Positive cash flow:

Due to the loop installation costs, a new geothermal system will typically have a higher upfront cost versus a conventional system. However, that is only half of the story. Geothermal systems have significantly lower operating costs, which are realized from the very first

day the system is in operation. Given the difference in utility costs, with a geothermal system you actually have positive cash flow every month. With escalating fossil fuel prices, this gap is expanding quickly. Many homeowners see a system payback in as little as two to five years.

System	Fuel Cost	Mortgage Cost ¹	Total Owning Costs ²	Additional Fuel Costs	Total Additional Monthly Cost ³
GeoComfort	\$102	\$93	\$195	\$0	\$0
14 SEER Heat Pump	\$162	\$61	\$223	\$60	\$28
93% Efficient Natural Gas	\$169	\$56	\$225	\$67	\$30
80% Efficient Fuel Oil	\$243	\$56	\$299	\$141	\$104
93% Efficient Propane	\$287	\$56	\$343	\$185	\$148

¹ Portion of the mortgage for the heating/cooling system

² Total owning cost = fuel cost plus mortgage payment

³ Total monthly savings includes fuel savings plus increase in mortgage payment for geothermal

Replacing an existing system:

Needing a new system in an existing home doesn't preclude a geothermal system. GeoComfort offers systems for retrofit applications as well as new construction. In fact, one type of geothermal unit allows you to upgrade your existing furnace, by working with it to "turbo-charge" its efficiency, rather than replacing it altogether.

Reflecting your lifestyle:

A heating and cooling system that complements the way you live shouldn't be too much to ask. You're a responsible adult; you save for the future, you're concerned about the environment, and you value your family's comfort. GeoComfort geothermal systems are three to four times as efficient as conventional systems. They do not rely on fossil fuels which can harm the environment and they offer unsurpassed comfort through better air purification, dehumidification and more consistent air temperatures. We think that makes us responsible too.

The extensive range of the GeoComfort product line ensures that whatever your needs, there is a GeoComfort system that will provide you with the high performance you want and the peace of mind you deserve.

How it all Works

Fundamentally, geothermal systems work differently than ordinary heating and cooling systems. Conventional systems have to produce heat by burning some type of fuel, typically propane, natural gas or fuel oil. Geothermal systems don't create heat; instead they collect and distribute it.

First, you should realize that the earth absorbs and stores nearly half of the sun's solar energy. As a result, at a depth of six feet it maintains a fairly constant temperature of 45 to 70 degrees F. The geothermal system taps into that free, renewable energy and puts it to work.

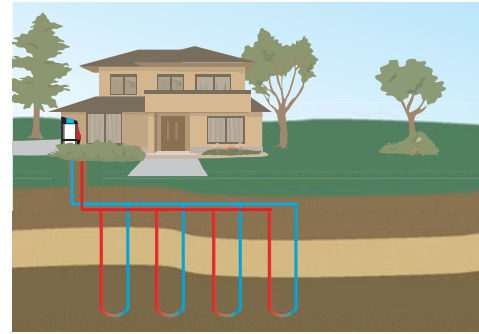
The earth's natural heat is collected in the winter by a series of pipes called a loop system (see below). Fluid circulating in the loop system carries this heat to the home, where it is compressed and released to raise the inside temperature.

In the summer, this process is reversed in order to cool the home. Heat is drawn from the home, rejected to the loop and absorbed by the earth. The result is a comfortable home all year round. Since most of the energy used for heating and cooling is free from the earth, geothermal systems are the most efficient and environmentally friendly systems on the market today.

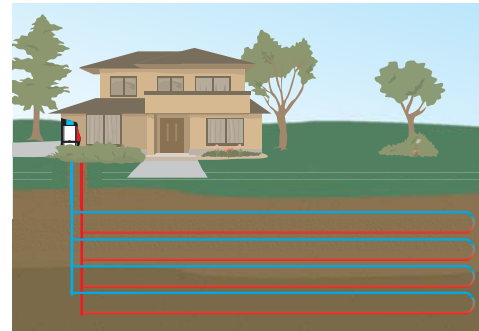
The Heart of the System: Geothermal Earth Loops

The heat exchanger also known as the loop system, captures the stored solar energy in the ground and delivers it back to the geothermal system in the house. There are 4 different types of loops.

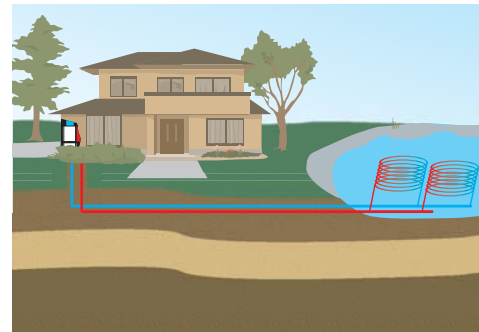
Your loop system is the heart of geothermal technology. Regardless of the option you select, it will deliver over 300% efficient comfort and savings for many years into the future. Your local geothermal dealer will help you select the proper loop system based on a site survey and by conducting a detailed energy analysis of your home. Installing a geothermal loop system is like getting a 70% discount on energy for the life of your home.



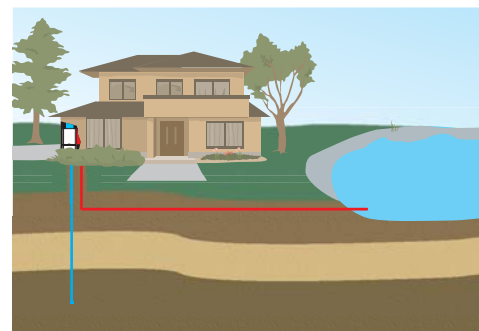
Vertical Loop: This loop is used mainly when land area is limited and in retrofit applications of existing homes. A drilling rig is used to bore holes at of depth of 150 to 200 feet. A U-shaped coil of high density pipe is inserted into the bore hole. The holes are then backfilled with a sealing solution.



Horizontal Loop: This is the most common loop used when adequate land area is available. Loop installers use excavation equipment such as chain trenchers, backhoes and track hoes to dig trenches approximately 6-8 feet deep. Trench lengths range from 100 to 300 feet, depending on the loop design and application.



Pond Loop: A pond loop is an option if a large body of water is available within approximately 200 feet of the home. A ½ acre, 8 to 10 foot deep body of water is usually adequate to support the average home. The system uses coils of pipe typically 300 to 500 feet in length. The coils are placed in and anchored at the bottom of the body of water.



Open Loop: This system can be installed if an abundant supply of high quality well water is available. A typical home will require 4 to 8 gallons of water per minute. A proper discharge area such as a river, drainage ditch, stream, pond, or lake must be present. Check for local restrictions before selecting a specific discharge method.

Why GeoComfort Geothermal Systems?

- **No other geothermal brand currently offers a complete R-410A product line.** That means regardless of which system is right for you, you can be assured that the refrigerant is **environmentally friendly** and **won't deplete the ozone.**
- Unit for unit, GeoComfort systems have **higher heating capacities** than our competitors. That means less reliance on supplemental heat and ultimately **lower heating costs** when compared with other geothermal brands
- Only GeoComfort split systems have AHRI (Air-Conditioning, Heating, and Refrigeration Institute) **certified air handler matches** for every model. That means **better performance** and guarantees the operating efficiency of the system, which is a requirement for many rebate and incentive programs.
- GeoComfort only uses **Copeland scroll compressors** in their heat pumps. This proven compressor technology ensures **better reliability** due to fewer moving parts. The inherent design of the scroll compressor requires less energy than other compressors to do the same amount of work, resulting in **higher efficiencies.**
- GeoComfort units are assembled using **stainless steel nuts and bolts** as opposed to the screws used as the industry standard. Our **superior craftsmanship** ensures a lifetime of solid construction.
- All GeoComfort units come equipped with an oversized copper or cupro-nickel rifled coaxial water heat exchanger for increased surface area, providing significantly **higher efficiencies** than required by Energy Star® or ASHRAE (American Society of Heating, Refrigeration, and Air-Conditioning Engineers) standard 90.1.
- All of our units have **coated air coils** which prevent corrosion for long life and reliability.
- A **Hybrid heating** system is possible with GeoComfort split systems. In combination with a new or existing natural gas/oil/propane furnace, the split system will provide all of the air conditioning for the home, as well as 80-90% of the heating requirements. The system switches over to the furnace in extreme cold temperatures for the remaining 10-20% of the time, providing **optimum comfort and efficiency** even for existing homes.
- GeoComfort is the **only** geothermal brand where each and **every heat pump meets the stringent Energy Star rating requirements.**



- 1 GT Series:**
Sets the standard for energy efficiency and comfort
- 2 GT Combo:**
Everything the GT Series offers plus the additional luxury of radiant floor heat
- 3 GS Series:**
Geothermal benefits in an economical system
- 4 Split System:**
The versatile hybrid system turbo-charging conventional systems
- 5 GW Series:**
The most extensive line of Water-to-Water units available. Perfect for radiant heat or chilled water air conditioning.



- **Hot Water Generator** is an option with all GeoComfort units. This allows you to capture free unused heat, **typically cutting hot water costs by 50 – 60%.**
- **ECM blower motors are standard** on all GeoComfort two-stage (GT Series) equipment. These variable speed motors ensure quiet start up and operate at a **fraction of the cost** of a conventional blower motor.
- The GeoComfort combination unit features a **hydronic heating function.** That feature allows a **single unit** to provide forced air heating, forced air cooling, and in-floor radiant heat. The fact that only one unit is required **reduces installation costs and minimizes system maintenance.**
- GeoComfort brand has the **broadest residential product offering** in the industry, **matching any application.**
- **Recycled,** sound deadening blue jean material is used in the GeoComfort unit for cabinet insulation, as opposed to the industry standard of potentially harmful fiberglass insulation. This enhances the already **quiet operation** of a GeoComfort geothermal system.
- Our powder-coated, **heavy gauge steel cabinet** is typically two to four gauges thicker than our competitors, ensuring **solid construction that lasts a lifetime.**
- A **durable stainless steel drain pan is standard** on all GeoComfort systems. This means no corrosion and a long life span.
- **Every GeoComfort water-to-water unit is reversible,** offering chilled water air conditioning **standard** with the system. Unlike with some other geothermal units, you will never have to invest in a supplementary air conditioning unit in addition to your geothermal system.
- GeoComfort has a **two/five/ten year standard warranty** (2 year labor allowance/5 year all internal parts/10 year complete refrigerant circuit components). That is the best warranty of any geothermal brand. An **optional 10 year parts and labor warranty** is also available.

At GeoComfort we pride ourselves in providing the best solutions to your heating and cooling needs. If you have additional questions regarding our industry leading geothermal products, visit us at www.geocomfort.com or contact your local GeoComfort dealer.

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