

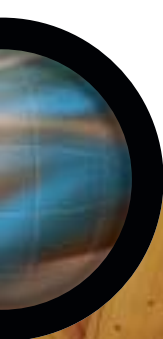
GEOEXCHANGE

ALL THE COMFORTS OF HOME HEATING
AND COOLING FOR 25% TO 50% LESS



GEOEXCHANGE®





GEOEXCHANGE

THE ENERGY-WISE WAY TO LIVE

Whether you're building a new house or considering a new heating and cooling system for your present one, consider the economical and environmental advantages of geexchange technology.

It is the world's most advanced, most cost-efficient heating, ventilating and air conditioning (HVAC) system for a new or existing home.

Geexchange is an increasingly popular choice, especially for new home construction, but it's as old as the earth itself.

By tapping into the relatively constant temperature of the earth below the frost line, geexchange heats and cools your home at significant savings — 25% to 50% savings when compared with traditional systems.

Geexchange technology also offers you greater levels of home comfort and control. A lot less maintenance.

Enhanced home resale value. And the endorsement of the US Department of Energy (DOE) and the Environmental Protection Agency (EPA).

So read on. The more you learn about geexchange, the more comfortable, cost-efficient and environmentally conscious your home can be.

ALL THE COMFORT OF HOME OUT OF THE GROUND

Geexchange is a simple technology that uses the earth's renewable energy to provide high-efficiency heating and cooling. In winter, the system draws heat from the ground and transfers it to your home. In summer, it extracts heat from your home and transfers it to the ground. Hardware consists only of a heat pump connected to a series of small-diameter pipes buried underground. A water solution circulating through the pipes carries heat between the ground and the heat pump.

THE HIGHEST EFFICIENCY OF ANY HVAC SYSTEM

There isn't a single more efficient HVAC technology than geexchange. Oil and gas systems require fuel for heat and a separate air conditioning system for cooling. Geexchange provides both in one system.

The EPA confirmed the superior efficiency of geexchange, finding that even on a source fuel basis — accounting for all losses in the fuel cycle including electricity generation at power plants — geexchange systems average 40% greater efficiency than air source heat pumps, 48% greater efficiency than gas furnaces, and 75% higher efficiency than oil furnaces. Today's best geexchange systems outperform the best gas technology, gas heat pumps, by an average of 36% in the heating cycle and 43% in the cooling cycle.

YOU'LL NEVER RUN OUT OF HOT WATER

A geexchange system won't leave you cold when it's time to bathe or do the dishes or laundry. In summer, your hot water is virtually free — produced by the excess heat extracted from your home when the system is in the cooling cycle. Year-round, these systems make hot water abundant and up to 30% less expensive, by reducing the amount of electricity or gas consumed by your hot water heater.



A NEW CONSTRUCTION SOLUTION

OPERATING ESTIMATE / COST COMPARISON

RESIDENCE: St. George, Utah
TOTAL AREA: 3,067 sq. ft.

HVAC Systems	Annual Heating	Annual Cooling	Annual Hot Water	Total Cost
Propane furnace/electric AC	\$839	\$592	\$337	\$1,768
Gas furnace/electric AC	314	592	122	1,028
Air source heat pump	218	592	183	993
Geexchange system	64	166	98	328

Rates based on electricity @ \$.046/kwh, natural gas @ \$.055/therm and propane @ \$1.40/gallon.

THE BEST ENVIRONMENTAL CHOICE

OUTDOORS AND IN

There are many other reasons why geexchange is your best choice for home heating and cooling. Chief among them: minimal environmental impact.

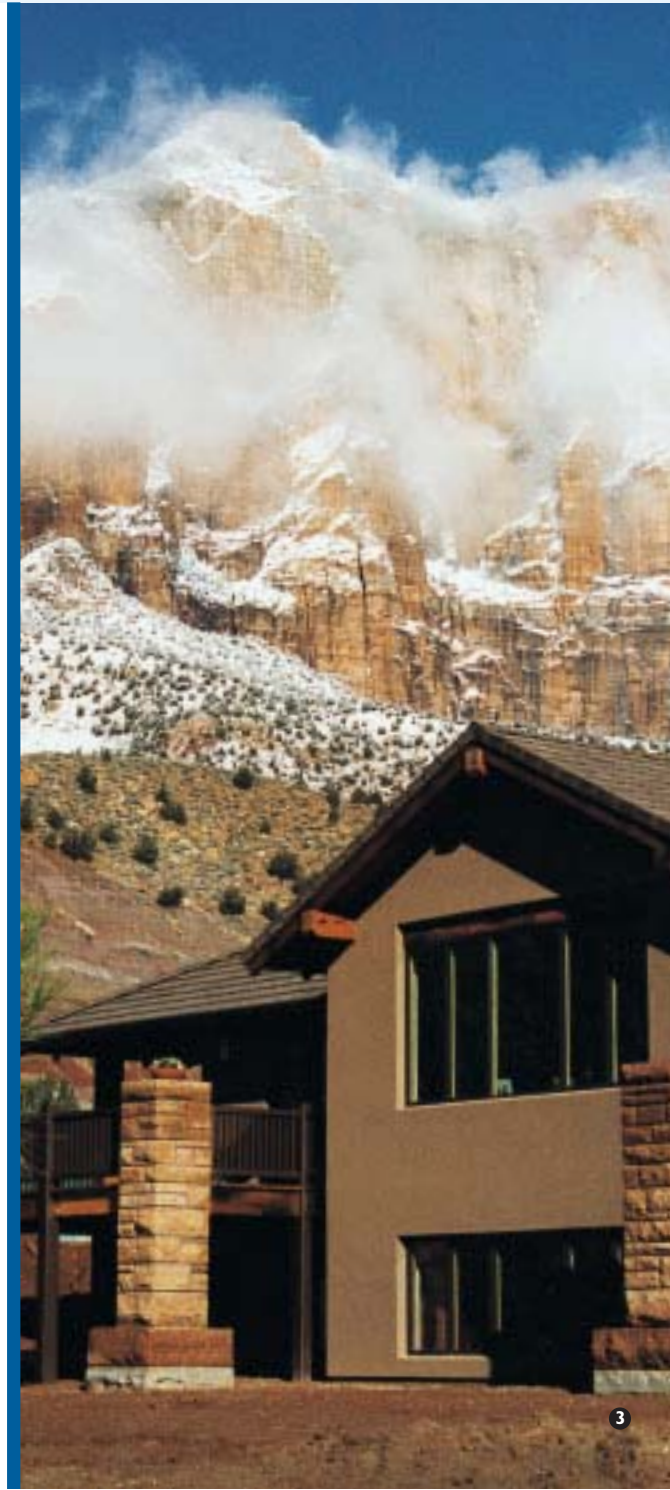
PRESERVING NATURAL BEAUTY AND RESOURCES

No one would ever guess there's a heating and cooling system in your yard. Geexchange preserves the natural beauty of your property. The network of pipes can be hidden under your lawn, a garden, even your driveway. The geexchange unit is also out of sight — housed inside, protected from the weather.

The sealed pipes circulate water or a non-toxic solution of water and anti-freeze that never comes in contact with the earth. And, unlike traditional technologies such as gas, oil and propane, geexchange produces no combustion or smoke. That helps lower greenhouse gases, carbon dioxide and sulfur dioxide emissions into the atmosphere, as well as pollution concerns over storage tanks in-ground.

Geexchange systems significantly reduce our dependence on the earth's finite supply of fossil fuels, and help keep our blue skies blue.

→ Gifford Park
Springdale, UT





Log home, Victor, MT

INSIDE, AN ATMOSPHERE OF PEACE AND QUIET

Living with a geoechange system is an exceptionally quiet and comfortable experience. No noisy furnace. No fuel lines in your home. No worries about soot, fumes or carbon monoxide, either. Geoechange systems offer unsurpassed indoor air quality, operate as quietly as a refrigerator, and are so compact they can be installed in an attic, basement, or small closet.

TWO KINDS OF GEOEXCHANGE SYSTEMS

The most common geoechange system, a closed loop, circulates water or a mixture of water and non-toxic antifreeze through a continuous loop of sealed pipes buried, vertically or horizontally, under your property.

An open loop system also uses pipes, but draws water directly from a well, nearby lake or pond. The water is then pumped through a heat exchanger, which extracts the thermal energy and then returns the water to the source.

Both closed and open loop systems use heat pumps to transfer thermal energy into your home and deliver it into individual rooms via heat ducts. In the summer, the system works in reverse. Return air vents remove hot air from each room and send it to the heat pump, which transfers the excess heat back to the earth where it dissipates underground.

Other types of geoechange systems include standing column wells, community loops and hybrid systems.



Closed Loop Vertical System



Closed Loop Horizontal System

TALKING WITH YOUR BUILDER

ABOUT GEOEXCHANGE

Many builders are familiar with geexchange heating and cooling. If yours is not, he or she will be pleasantly surprised to learn that the technology has been around since the 1940s. And that it has proven itself over many years in hundreds of thousands of homes, commercial buildings and offices, hospitals, schools and universities.



“Geothermal energy is a key selling point for homes, and more buyers will want these systems once they realize the benefits.”

— Casey Margeneau, Realtor

ReMax Distinctive

Oakton, VA

AT HOME IN ALL TYPES OF HOUSES

Geoexchange systems are found in all types of housing, from luxury and middle-class homes, to townhomes — even in Habitat for Humanity homes.

Initial system costs have declined to where they are on par with traditional systems. More builders and heating and cooling contractors are making geoexchange technology available. And innovative installation techniques are also enabling them to install ground loops more quickly (often in one day) and for lower costs.

There are many sources of information on residential geoexchange applications. You or your builder can learn more by calling the Geothermal Heat Pump Consortium at 1-888-255-4436 toll-free or visiting our web site at: www.geoexchange.org.

LESS COMPLEXITY, MORE COMFORT

You need not be a rocket scientist to understand and appreciate the technology behind geoexchange heating and cooling. It employs basic plumbing equipment — pipes, pumps, valves, heat exchangers, fans and compressors. Routine maintenance consists of changing the air filters. There's no furnace or chimney to clean. And since there's no flame, geoexchange systems operate at lower temperatures, which helps the components last longer. The underground pipes, for example, are warranted by some manufacturers for up to 50 years.



↑ Habitat for Humanity,
Moore County, NC



Lee's Summit, MO

Comfort is constant in a home with geoechange technology. Humidity levels are ideal. There's no "blast" of hot air or "cold blow." Temperatures don't fluctuate. Thermostats don't need to be adjusted. You just set it, and forget it. A geoechange system ensures precise temperature control in every room, yet consumes far less energy than traditional systems.

A GROWING BASE OF KNOWLEDGEABLE EXPERTS

Today, there is a strong infrastructure of geoechange equipment manufacturers, and contractors skilled in installation, operation and maintenance. You can find them in the Yellow Pages or through your local electric utility. A list of manufacturers may be found on the geoechange web site at: www.geoexchange.org.

These people can help answer any questions you or your builder may have regarding loop design, ductwork, equipment, ratings and warranties, proper system sizing, design, construction and insulation standards and more. All to help you enjoy the most comfort and efficiency for the life of your home. As an added measure of

confidence, geoechange systems have earned ENERGY STAR® certification by the EPA and DOE.

AVAILABLE FINANCING AND MORTGAGE INCENTIVES

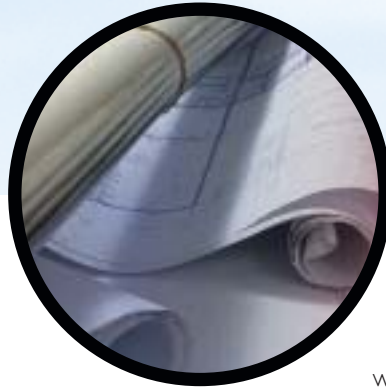
Many banks and lending institutions now permit home buyers to qualify for larger mortgages if they're purchasing a home that utilizes a geoechange system. The reduction in monthly energy bills more than offsets the slightly higher mortgage payment. The greater predictability of those monthly energy costs enables home buyers to plan their finances better. And over time, a geoechange system can add considerable market value to the home.



↑ East Hampton, CT

GEOEXCHANGE IS RIGHT FOR RETROFIT SITUATIONS, TOO

You don't need a new home to see up to 50% savings and greater comfort from geexchange technology. Simply replacing your current home's old heating and cooling system can accomplish it. Here are some good ideas before you do.



SOME TIPS ON FINDING AN INSTALLER

- Go with a pro. Make sure your system is installed by professionals who are accredited by, and follow procedures established by, the International Ground Source Heat Pump Association (IGSHPA).
- Ask for references from other homeowners or communities where the contractor has installed geexchange systems. Then visit or call these references.
- Expect an evaluation so your contractor can make the best recommendation. This should include checking ducts, insulation and other features for energy efficiency.
- Get written cost estimates from two or three contractors. Ask for a breakdown between equipment and labor and get clarification on any questions.
- Get a written contract (including all terms, costs and start-stop dates) and a written guarantee (on the system and the installation).

INSTALLATION IS SIMPLE, NEAT AND QUICK

- The ground loop can be installed with minimum disturbance to your existing lawn or landscaping.
- Loop boreholes or trenches are refilled as part of the installation process. The area can quickly be replanted with grass, shrubs or trees.
- Once the ground loop is installed, you can typically forget about it. No maintenance is required for the life of the loop.



↑ Galesville, MD

“It’s a healthier, more comfortable home to live in while using perhaps half the energy of a conventional house.”

— Dr. Palmer, Homeowner
East Hampton, CT

“The energy bills are even lower than I anticipated, and the comfort level is much greater... I never dreamed I could heat and cool my home for 69¢ a day!”

— Keith Swilley, Homeowner
Panama City, FL



WHY YOU SHOULD LEARN MORE

Geexchange is the earth’s most efficient, most environmentally responsible heating and cooling technology for homes and buildings. For a world of good reasons.

It is unrivaled for economy — comparable to traditional systems in first-installed-costs and vastly superior over the long term — with energy cost savings of 25% to 50% annually. It offers precision control of comfort levels, with no temperature variations. Its simplicity ensures years of reliable performance with much less maintenance than traditional systems.

Heating and cooling homes with geexchange also enables parents to teach the lesson of environmental stewardship to their children by example, utilizing a limitless supply of natural energy with no impact on the environment. Or on the world’s dwindling supply of fossil fuels.

To learn more about the very real benefits of geexchange heating and cooling for your home, contact the Geothermal Heat Pump Consortium toll-free at: 1-888-ALL-4-GEO (255-4436) or visit our web site at: www.geoexchange.org.

A PERFECT FIT FOR RETROFIT

OPERATING ESTIMATE / COST COMPARISON

RESIDENCE: Oklahoma City, OK
 COMPLETED: 1996
 TOTAL AREA: 2,300 sq. ft.
 OLD SYSTEM: Gas fired heat, electric air conditioning
 NEW SYSTEM: Geexchange

HVAC Systems	Annual Heating	Annual Cooling	Annual Hot Water	Total Cost
Propane furnace, electric AC	\$1,443	\$507	\$476	\$2,426
Gas furnace, electric AC	653	507	228	1,388
Air source heat pump	380	419	476	1,275
Geexchange	189	258	228	675

Data provided by ClimateMaster, Oklahoma City, OK.

“We’ve yet to hit \$300 a year for heating and cooling. With geexchange, you’re money-ahead from the day you move in. And the comfort is superior — never a variance of more than 2 degrees from your thermostat set point.”

— Terry Proffer, Homeowner

Montrose, CO

GEOEXCHANGE ADVANTAGES

- Cuts heating and cooling costs 25% to 50%
- Increases comfort and control
- Preserves home aesthetics and beauty of land
- Simpler design, maintenance and operation
- Environmentally friendly technology

The Geothermal Heat Pump Consortium, Inc.
(GHPC) is a nonprofit organization whose goal is
to advance the use of geexchange heating
and cooling systems.

701 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC • 20004-2696



PH: 202-508-5500 • 888-255-4436
FX: 202-508-5222 • www.geoexchange.org

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