

GEO THERMAL SYSTEMS



NATURAL RENEWABLE ENERGY.

What is a Geothermal Heat Pump?

Geothermal Heat Pumps (GHP's) are electrically powered home heating / cooling devices which transfer heat to and from the earth via a refrigeration process.

Heat pumps have been in operation for over 50 years and operate on the same principle as your household refrigerator or air conditioner.

- *During winter operation heat energy is absorbed from the ground via underground tubing or by pumping well water to the heat pump. The heat pump mechanism concentrates this energy and delivers it to the home in the form of warm air or hot water.*
- *During summer operation the process is reversed. Warm air is collected from the home and rejected to the cooler earth.*

On most models, domestic hot water is produced any time the heat pump operates.

Geothermal Heat pumps are available for both forced air and infloor heating systems in a variety of output capacities which can accommodate any building design.

The NORDIC® Trademark

Purchasing a NORDIC® brand heat pump is investing in a product which has undergone many years of research and development.

In 1981 Maritime Geothermal Ltd. began manufacturing geothermal heat pumps under the NORDIC® trademark in New Brunswick, Canada. Each year we have improved our product by selecting more reliable and durable components. Our skilled workmen produce some of the finest heat pumps on the market. Every unit is inspected several times during the manufacturing process and run tested in both heating and cooling mode to insure proper operation. Our quality control mandate is to achieve total satisfaction for both the dealer and homeowner.

Each heat pump model is electrically and performance tested in our own CSA certified test lab to the appropriate CSA 446 or CSA 748 standards. This computer controlled facility allows us to test each design thoroughly to ensure maximum efficiency and reliability. Maritime Geothermal Ltd. is the only GHP manufacturer in Canada with it's own CSA certified HVAC test lab.

Through innovation and technical achievement the NORDIC® team is committed to the goal of providing one of the most energy efficient and reliable heat pumps available today.



Renewable Geothermal Energy

Solar heat which has been stored in the earth's crust provides the inexhaustible source of supply energy for a geothermal heat pump. This energy is replenished each year by the sun during the normal cycle of our seasons. There is enough energy stored beneath each building to more than supply it's heating / cooling requirements. All we need do is extract that energy and the geothermal heat pump has been designed to do just that! In a recent study done by the US Department of Energy (DOE), new generation geothermal heat pumps were ranked above all other heating / cooling systems in their ability to conserve energy and reduce CO² emissions. When compared to an electrically heated home, geothermal heat pumps consume less than 1/3 the amount of electrical energy to heat the structure. Consequently the electric utility company generates only 1/3 the emissions which it normally would.

What can you expect from a Geothermal Heat Pump?

Savings: Compared to electric heat, a GHP will save 66% or more on your heating costs.

Comfort: The geothermal heat pump is completely automatic in operation providing heating, cooling and hot water with a centrally located heat/cool thermostat.

Cleanliness: There is no combustion in the home therefore the system is exceptionally clean.

Durability: Geothermal heat pumps have a good track record for long life and can be protected by our 10 year extended warranty.

Reliability: A geothermal system is housed indoors and underground, protected from the harsh elements. With few moving parts the system is virtually maintenance free.

Green Energy: Heating and cooling a home with a renewable energy resource is one more step towards minimizing the environmental threats we face.



Energy Savings Verses Additional Capital Cost

Electric vs. GHP

Purchasing a geothermal heat pump for your home is both a big decision and a sound investment.

A typical 2200 sq. ft. home in New Brunswick will consume 29,900 Kilowatt hours and cost approximately \$ 1794.00 annually to heat. With an energy savings of 2/3 the cost of electric heat, the GHP will cost only \$ 598.00 a saving of \$1,196.00 each year the system is in operation. In a capital cost comparison with electric forced air heat, if the heat pump system cost \$6,600.00 more to initially install, then a the simple payback would be 5.5 years. This payback does not take into consideration the additional value and comfort your home now has as a result of central air conditioning or the additional savings made with the domestic hot water option. The additional monthly payment on an average 25 year mortgage at an interest rate of 7.25% would be approximately \$47 however the average monthly saving would be \$100.00. Therefore the GHP would actually be putting \$ 54.00 extra in your pocket each month.

Wood-oil vs. GHP

When comparing a GHP system to a wood-oil combination furnace the capital cost of the GHP is less than the wood-oil system when total cost including the associated flue is taken into account. In addition, if wood fuel has to be purchased, the GHP will cost less to operate on a daily basis and is far superior to the wood furnace in the areas of cleanliness, safety, ease of use and automatic operation.

Available System Types

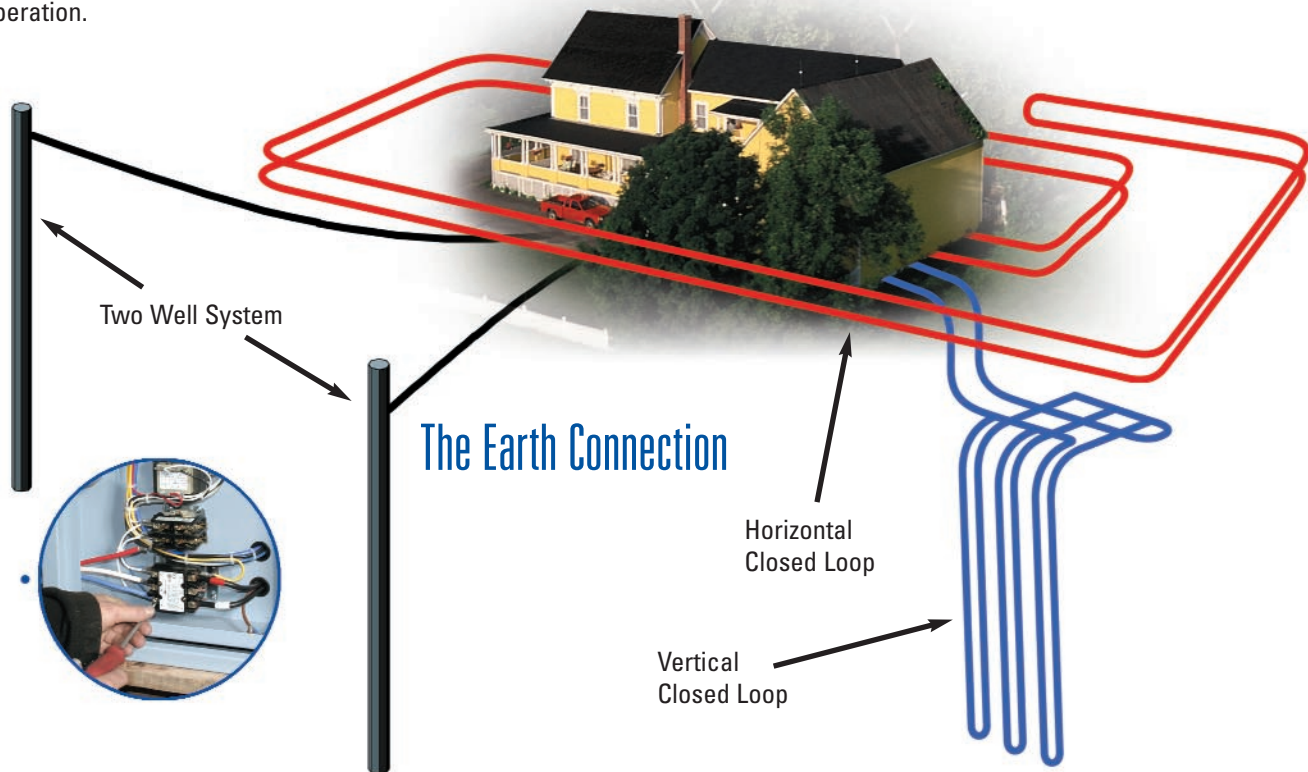
Maritime Geothermal Ltd. manufacturers heat pumps for both ducted air systems and also for infloor hydronic heating. All systems absorb heat from the ground via one of the (3) collector systems shown below. Your dealer will help you decide which is the most cost effective system for your home.

Ducted Systems

NORDIC® "O", "TF", "R" and "DX" series heat pumps are available with outputs from 35,000 to 75,000 Btu's. in both horizontal and vertical configurations. Systems provide heating / cooling and domestic hot water.

Infloor Heating

Infloor heating is fast becoming one of the most popular ways to heat new North American homes and businesses. Maritime Geothermal offers "W" series liquid-to-water heat pumps in output capacities from 12,000 to 500,000 Btu's which are specifically engineered to give very hot output water when compared to heat pumps offered by other suppliers. The extra temperature available from a NORDIC® unit often makes the difference as to whether it is feasible to use a heat pump with heavily carpeted or hardwood floors. Liquid-to-water heat pumps are available in single or three speed (W3) systems for the ultimate in capacity output control.



Geothermal Systems

Natural Renewable Earth Energy

- *High Efficiency Compressor.*
- *Passive or Active cooling.*
- *Quiet Belt Driven Blower.*
- *Long life blower motor.*
- *Baked enamel finish.*
- *Domestic hot water generator.*
- *Quiet water valves.*
- *Suction line accumulator.*
- *Liquid line filter drier.*
- *Digital thermostat.*
- *Long life water coil.*
- *Acoustically insulated cabinet.*



Geothermal Systems

- *Reduce heating costs by 66% since 2/3 of your heat is taken from your own property.*
- *Ecologically sound - the energy source is naturally renewed.*
- *Low maintenance.*
- *Produces all the heat required without back-up heat in most cases.*
- *Clean and quiet with no chance of fire or creosote problems.*
- *Automatic thermostatically controlled operation.*
- *Provides central air conditioning during summer for mere pennies per hour.*
- *Small compact size - can replace most oil, gas or electric furnaces.*
- *Designed and manufactured in Canada for North American conditions.*
- *Standard 1 year guarantee on all parts - additional 48 months warranty on compressor. Extended warranties available.*



Dealer

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