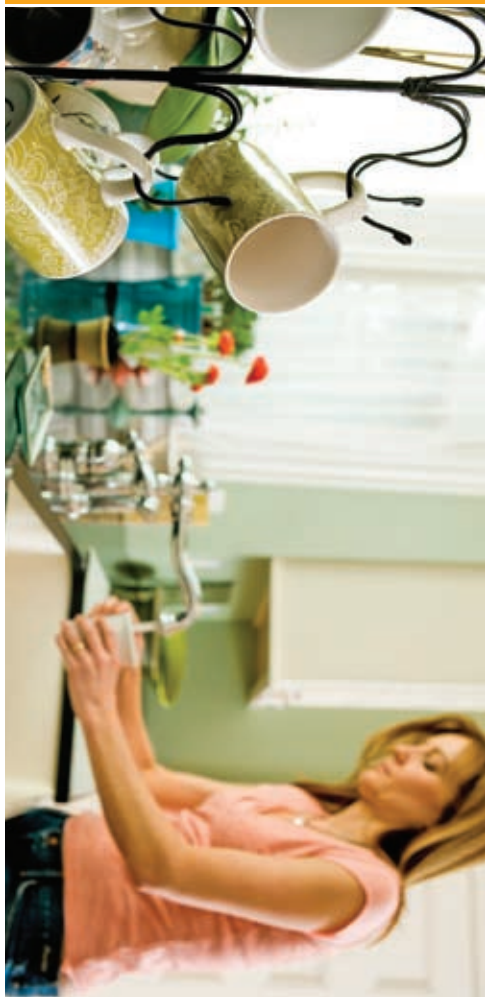
GEOSOURCE

GEOTHERMAL SOLUTIONS

commercial

residential



industrial

environmental

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technology

GeoSource Energy Corp. (GeoSource) is a geothermal design/build contracting company providing geothermal consulting, design, and design/build with **GeoExchange**[SM] technology (ground source heat pump) for large residential, commercial, and institutional projects. Our company can provide consulting, engineering design, drilling, supply and installation of a geothermal system. **GeoSource**, provides over 35 years Engineering expertise. Our personnel have certification in International Ground Source Heat Pump Association (IGSHPA) and Canadian **GeoExchange**[SM] Coalition (CGC). Our staff includes; Mechanical Engineers/Technicians, Electrical Engineers/Technicians, Fabrication Specialists, Certified Well Drillers, and Certified Fusion Welders. We have on-going research with the University of British Columbia, Physics dept.

geothermal system

Components of a **GeoExchange**[SM] (geothermal) system:

A. Engineered Underground Earth Loop System: Sealed polyethylene (PE) piping carrying an anti-freeze solution (methanol or propylene glycol) buried in the earth, connected to a Heat Pump. Ground Loop Systems involve either vertical or horizontal underground loops, or in wells filled with ground water. Multiple buildings and/or facilities can also be linked together to a single system configuration designed by **GeoSource**.

B. Ground Source Heat Pumps (GSHP): Refrigeration equipment that uses electrical energy to transfer heat from one place to another. The heat from the anti-freeze solution in the loop system is extracted within the heat pump. The refrigerant is compressed, raising the temperature level in excess of 40°C (104°F). This heat is transferred to air by means of a refrigerant-to-air heat exchanger within the heat pump unit.

C. Air Delivery System: Duct work is used to deliver tempered air from the heat pump to the building. The air transferred through the heat exchanger, within the heat pump unit, is distributed through the duct work in the building.

heating

GeoExchange[SM] is a technology of geothermal energy transfer through an underground piping system connected to the building equipment. **GeoExchange**[SM] technology taps into the endless solar energy absorbed by the earth. This thermal energy stored below the earth's surface can be within 10° C (50° F) of the average annual temperature at just 10 - 20 ft (3 - 6 m) depth.

cooling

In the Winter season, the natural heat of the earth is extracted through underground piping system to heat the building. In the Summer season, the process is reversed, extracting the heat out of the building into the underground piping system to achieve air-conditioning.

advantages

Most efficient compared to natural gas, oil, wood, electric.

Quietest Systems available. Eliminates noisy outside air-conditioner for split system.

Improves aesthetics of building. Eliminates exterior wall venting and vent stacks through roof, improving building envelope weather tightness.

Mechanical Rooms in commercial buildings are much smaller.

Eliminates Cooling Towers and Boilers.

Longest Equipment Life due to smaller equipment constant operating cycles.

Lowest Operating costs.

Lowest Maintenance costs.

Lower GHG (Green House Gas) Emissions by 66%. Eliminates Carbon Monoxide (burning gas).

Environmentally clean.

Zone-controlled heating and cooling in multiple-tenant buildings.

Increases equity on building.

The design and installation of a geothermal system requires expertise from engineers, drillers, contractors, equipment manufacturers and distributors, which creates more jobs benefiting the economy.

*"**GeoExchange**[SM] or geothermal heat pump systems transfer solar heat from the ground to warm or cool buildings and to heat water. They are considered to be the most energy-efficient, environmentally clean, and cost-effective space conditioning systems available".*[1]

[1] Natural Resources Canada, Earth Energy, Ground-Source/ Geothermal Heat Pumps, **GeoExchange**[SM], 2002

"Canada is committed to reducing its Greenhouse Gas Emissions by 6% from 1990 levels between 2008 and 2012. Greater use of renewable energy and increased energy efficiency are considered key to limiting GHG emissions. Natural Resources Canada has classified Geothermal as a renewable technology, along with solar, wind, and biomass".[2]

[2] Natural Resources Canada, Earth Energy, Ground-Source/ Geothermal Heat Pumps, **GeoExchange**[SM], 2002

"Data from governments in both Canada (Natural Resources Canada) and the United States (Environmental Protection Agency) indicate that Geothermal Systems are the most environmentally friendly space conditioning technology on the market today".[3]

[3] Earth Energy Society of Canada, 2002

financing

GeoSource can build a **GeoExchange**[SM] lease (utility) dedicated to large scale residential, institutional and commercial buildings. We would apply a lease concept to the provision of **GeoExchange**[SM] technology by providing a turn-key installation and operation of geothermal systems, and delivering service to building owners through long term lease (utility) contracts at fixed rates. The company, which would totally finance the costs of the underground energy systems and building equipment, would reserve the right to review the installation cost estimates prior to financing.

In addition to large dedicated single-project systems, the company may specialize in district systems where diversity of use is an important component of energy efficiency. These large projects include commercial, residential, and industrial buildings accessing the same **GeoExchange**[SM] energy extraction system.

Energy-efficient equipment is more cost-effective than other models, it not only saves energy, it also saves money. Even though the installed costs (purchase price plus installation) and the payments needed to finance them (principal and interest) are higher, the difference can be offset by lower energy bills. With the present rising costs of energy, the spread between Conventional System (Natural Gas) against a Geothermal System (Ground Source Heat Pumps) will increase dramatically as the price of gas increases more rapidly than electricity.

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