

ACCESSORIZE  
*your* HOME  
& GARDEN

*"We do not  
inherit the  
earth  
from our  
ancestors,  
we borrow it  
from our  
children.*

*Native American Proverb*

44 IMAGES & IMPRESSIONS MAGAZINE LLC

## GEOTHERMAL HEATING AND COOLING

### -THE RIGHT TECHNOLOGY, AT THE RIGHT TIME

Everyone knows fossil fuel prices are spiraling out of control. In the US, 9% of our oil imports are used for home heating and hot water production and the cost of heating homes in winter has become an expensive proposition, with no relief in sight.

But why heat your home with oil, natural gas or propane when there is a better, safer, far more efficient way by simply tapping the clean renewable, inexhaustible energy that's in your own backyard, right beneath your feet. It's called geothermal energy and it can provide 100% of your home heating, cooling and hot water without using any oil, natural gas or propane.

Today, there are over 1.5 million homes and businesses in the US now getting all their heating, cooling and hot water from the energy in the earth. The technology is so advanced it makes no sense to install a boiler or furnace in any new construction. Geothermal can be retrofitted into most existing structures. According to the Department of Energy, geothermal is far more efficient and reliable than using furnaces or boilers.

The payback on geothermal is dramatic. Usually under five years in new construction and around seven years for retrofits. This translates to a 15% annual return on the investment by installing a geothermal system. Homeowners pay back the investment with the money they would have paid the oil company. After payback, the savings continue with an average return of over 70%. Even higher as fossil fuel prices increase.

The geothermal concept is easy to understand. Energy in the form heat from the sun is stored in the ground. In the Hudson Valley, the ground 15 feet below the surface is about 53 degrees all the time. This energy can be moved from the ground to the home and back using a direct exchange (DX) geothermal process that's similar to central air conditioning. Except it can be used to both heat and cool the home and make hot water.

DX technology circulates a refrigerant through highly conductive copper "earth loops" that are inserted into bore-holes drilled in the yard (or under a driveway) to a 70 foot depth, then embedded in a protective fine mason sand that enables direct transfer of energy with the Earth.

The heart of the DX geothermal system is the geothermal compressor assembly. Years of research and development have been invested in this elegant technology. Efficiency ratings are exceptionally high, delivering about \$4.50 in heating for every dollar spent in electricity to run the system!

Very little maintenance is required on these systems and they last for decades. Surveys of geothermal system owners show that they rank their systems higher in comfort than do the owners of other heating and cooling systems.

Although not yet familiar to everyone, ground-source heat pumps have been installed for more than 30 years and are recognized as a highly efficient heating and cooling system. Geothermal technology offers a renewable energy solution that's right for almost any home.

*Paul Auerbach, Managing Partner, Total Green LLC*