1600 East Willow Street

GeoComfort Geothermal Systems

Illinois Clean Energy community foundation

How Geothermal Works

Your own backyard has the potential to be an energy source for heating and cooling comfort. Outdoor air temperatures fluctuate throughout the year with the changing seasons. Ground temperatures about four to six feet below the Earth's surface remain relatively moderate and constant all year. That's because the Earth absorbs 47% of all the heat energy that reaches its surface from the sun. A geothermal system circulates a water-based solution through a buried loop system to take advantage of these constant temperatures. A single piece of equipment has the ability to heat and cool your home, while providing some or all of your home's hot water as well. Geothermal systems can save you 30% to 70% on your monthly utility bills.

Positive Cash Flow

Although there is additional expense for the installation of a Geothermal system you will see immediate savings. The energy savings you will identify from a Geothermal system will pay for itself in no time.

The Heart of the System: Geothermal Loops

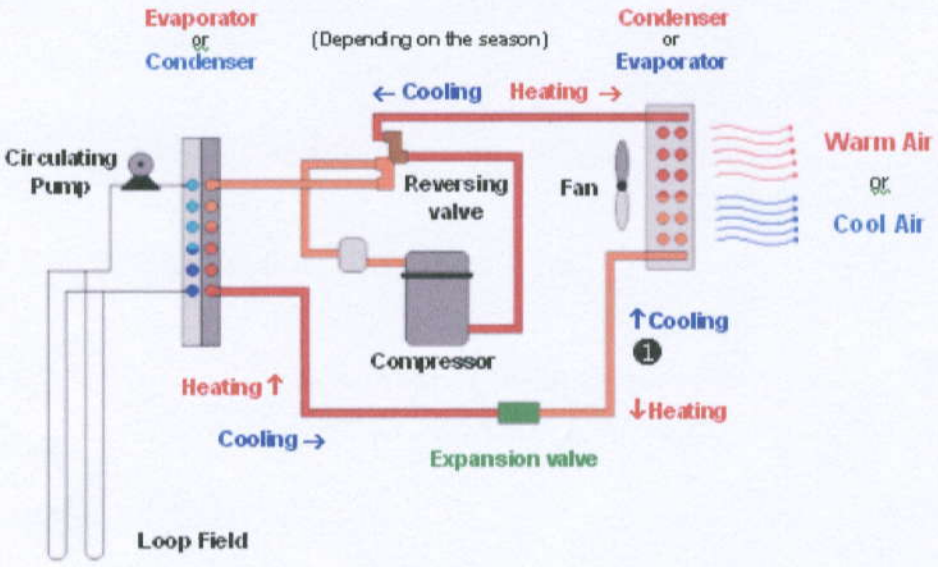
The loop system is the heart of geothermal technology. These loops will deliver over 300% efficient comfort and savings for many years into the future. Based on the survey conducted on the City of Kankakee Geothermal project the decision to implement vertical loops would be the best option. A drilling rig was used to bore holes at of depth of 200 feet. A U-shaped coil of high density pipe, with a estimated warrenty of 50 years, is inserted into the bore hole. The holes are then backfilled with a sealing solution. Installing a geothermal loop system is like getting a 30% to 70% discount on energy for the life of the building. Note: One loop is equvalent to a 1 ton air conditioning unit. The City of Kankakee's building is utilizing 10 Geothermic loops.

Heating Cycle

During the heating cycle, the fluid circulates through the loop extracting heat from the Earth. The heat energy is transferred to the geothermal unit. The unit compresses the extracted heat to a high temperature and delivers it to the City building through a normal duct system.

Cooling Cycle

For cooling, the process is simply reversed. Because the earth is much cooler than the air temperatures on a hot day, the geothermal system removes heat from the building and deposits it into the earth. The fluid is cooled by the ground temperatures and returned to the unit for cooling the building.



10 loops installed at 200 feet deep.

Loops are terminated in the field and tied to the Geothermic system inside the building.

City of Kankakee, Home Appliance Plumbing and Heating and the Illinois Clean Energy Foundation working together to do the right thing for our community and our environment.

Operational Cost Evaluation

Conventional System Estimated Usage

Month	Monthly kWh Usage	Average Hourly kWh Usage
December 2007	14657	19.70
January 2008	14657	19.70
Feburary 2008	14657	19.70
March 2008	14657	19.70
April 2008	14657	19.70
May 2008	14657	19.70
June 2008	14657	19.70
July 2008	14657	19.70
August 2008	14657	19.70
September 2008	14657	19.70

Geothermal Estimated Usage

Month	Monthly kWh Usage	Average Hourly kWh Usage
December 2007	8928	12.00
January 2008	8928	12.00
Feburary 2008	8928	12.00
March 2008	8928	12.00
April 2008	8928	12.00
May 2008	8928	12.00
June 2008	8928	12.00
July 2008	8928	12.00
August 2008	8928	12.00
September 2008	8928	12.00

Geothermal Actual Usage

Month	Monthly kWh Usage	Average Hourly kWh Usage	Percent Savings
December 2007	5535	7.44	62.24%
January 2008	8211	11.04	43.98%
Feburary 2008	11486	16.50	16.23%
March 2008	7934	10.66	45.87%
April 2008	4268	6.13	68.87%
May 2008	4197	5.46	72.26%
June 2008	4729	6.36	67.74%
July 2008	5230	6.81	65.43%
August 2008	4711	6.54	66.79%
September 2008	5230	7.26	63.13%

Note: Calculations are based on Comm Ed's actual billings

Average percent savings between Convential HVAC vs. New Geothermic HVAC System **57.25%**

Overall Cost Savings between a Conventional HVAC System and Geothermic HVAC System

Month	Hourly kWh Savings	Monthly kWh Savings	Monthly Cost Savings
December 2007	12.26	9122	$697.82
January 2008	8.66	6446	$493.10
Feburary 2008	3.20	3171	$242.57
March 2008	9.04	6723	$514.29
April 2008	13.57	10389	$794.74
May 2008	14.24	10460	$800.17
June 2008	13.34	9928	$759.48
July 2008	12.89	9427	$721.15
August 2008	13.16	9946	$760.85
September 2008	12.44	9427	$721.15

Cost savings based off of Comm Ed's current rate of 7.65 cents a kWh at this building.

Total 10 Month Savings	**$6,505.33**
Yearly Savings	**$7,806.40**

Payback Based On Entire Geothermic HVAC Investment

5.57 **Years**

Percent of Annual Fossil Fuel Emissions Reduction: 100%

Working together to do the right thing for our community and our environment.