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## Geothermal Could Save on Fuel Costs in the Long Run

by *Judy Silberstein*

(October 30, 2005) When Sam and Nathalie Orans, a Larchmont, thirty-something couple, moved into a 4000 square-foot home on Sackett Drive last December, everything had been remodeled except the heating system, which was old and partially inoperable. That got the couple thinking about geothermal. "It was a big house and we felt a geothermal system would help us reduce our impact on the environment – and our wallets," said Sam Orans.

The savings on the pollution side are immediate. Even with a new gas furnace, estimates are that the Orans house would have produced a yearly pollutant load of 14,663 pounds of carbon monoxide; 110 pounds of sulfur dioxide and 51.7 pounds of nitric oxide. The geothermal system produces: 0 (though the electric utility does produce pollution in powering the blowers and pumps).

"I also no longer have combustible gases running in the basement and that reduces the chance of carbon monoxide poisoning dramatically," pointed out Mr. Orans, reflecting the sensitivity of a 23-year volunteer with the Larchmont Fire Department.

The economic advantages will take a little longer, though Mr. Orans pointed out, "In hindsight, the economics are going to be even better than we thought – given the projected high price of natural gas for this winter," he added.

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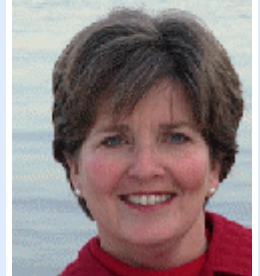
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**Historic Preservation IS Green:  
Intersecting Preservation &  
Sustainability**

**at the Jay Heritage Center in  
Rye,**

**on Friday, November 18  
Registration is 8:45 am;  
Event from 9-1**

**This free event, co-sponsored by the Westchester County Historic Preservation Advisory Committee and the Westchester County Historical Society, is for planners, architects, members of land use boards, and home owners looking to apply green technology while preserving the historic character of their homes.**

**The installation of a geo-thermal heating and cooling system in the 1838 Jay House will be the topic of one presentation by architect Doug McKean, from Beyer Blinder Belle, the firm that restored Grand Central Station.**

**To attend: contact Jeffrey Williams, Westchester County Planning Department's historic preservation planner, at (914) 995-2412 or email him at [jaw5@westchestergov.com](mailto:jaw5@westchestergov.com).**

There were significant upfront costs and they will take a while to recoup, he said. The process required extensive digging for wells and the installation of a series of pipes filled with glycol – a biodegradable, food-grade antifreeze. The system uses the constant temperature of the ground, which averages around 50 degrees in this area, to provide either cooling or heating, as needed, in much the way a refrigerator's heat pump works. In the summer, the system's heat pump extracts heat from the house and sends it looping out to the relatively cool earth; in the winter, the pump extracts heat from the relatively warm ground and sends it into the house.

At the Sackett house "we dug four wells – each over 400 feet deep," said Joseph Spoletti, who with partner Kirk Bellanca owns Envirotec, the company that installed the Orans' system. If you have a large back yard, you can save significantly by laying the pipes out horizontally, explained Mr. Spoletti. On the other hand, there are advantages of vertical drilling, which needs almost no space. "It could go in your driveway," said Mr. Spoletti, who has worked on projects

as small as 1800 square feet and as large as the Westchester Country Club.

Among the larger homes adding geothermal (though not necessarily with Envirotec) is the 1838 Jay House, just over the border from Mamaroneck in Rye. According to Kate Kelly, a Larchmonter who volunteers at the Jay Heritage Center, the Aresty family of Mamaroneck recently donated sufficient funds to fully restore the mansion, and a geothermal heating and cooling system is being added using funds from a federal grant. An upcoming conference on "green preservation" is being held at the Jay Center (see box).

For those without a generous grant, the upfront cost can be a factor. For the Orans family, the system was approximately 33% more than a conventional system. "Either way we had to buy a furnace, but the extra expense was for drilling the wells, and the piping and pump," Mr. Orans explained. Originally he expected it would take 6 to 8 years to pay back the additional cost of a geothermal system. Now, with natural gas prices projected to increase sharply this winter, he estimated the payback could be as early as 3 to 5 years.

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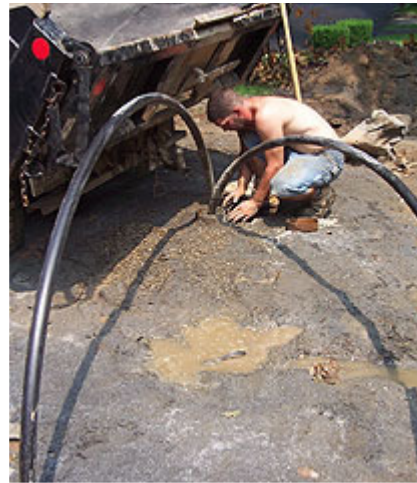
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**Installing geothermal at the Orans house: upfront expenses are for extensive drilling and pipe laying. Savings for the environment and the budget come later. Photos courtesy of Envirotec.**

**"If you're using oil heat, geothermal could save you \$2,300 per year in a 4000 square-foot house, even with a new high-efficiency oil system" said Mr. Spoleti, who was using October 2005 fuel prices for his estimate. If you've got natural gas, the savings would be \$1,700. It's the equivalent of taking two large SUV's off the road, estimated Mr. Spoleti.**

Adding the geothermal system was only the first step, said Mr. Orans, who teaches pre-school at Sarah Lawrence and manages Quisisana, his family's resort in Maine, during the summers. Next, "I'm looking to solar for electricity," he said. A solar system wouldn't be efficient for heating, especially since the home is shaded by the large trees of the adjacent Leatherstocking Trail, but Mr. Orans estimates solar could knock 83% off his electric bill. And unlike geothermal, solar systems are eligible for tax breaks that cut the installation costs by up to 50%.

**As a further step, Mr. Orans would like to encourage others to use geothermal, solar and other environmentally-friendly technology. Using his own experience as a model, he's already convinced one friend to install a geothermal system in a home now under construction in Mamaroneck.**

"It's not that I'm that big of an environmentalist," said Mr. Orans. Nathalie Orans drives a hybrid Toyota Prius, which offsets the gas impact of the family's other car - a GMC Yukon needed for hotel duties, he admitted.

"It's an interest in not standing still with construction," he said. "There are newer technologies that by now have been around and proven themselves and yet don't seem to be being put to use in our area," he said.

**Want to hear more about geothermal? Sam Orans is happy to provide more details: email [sosamso@aol.com](mailto:sosamso@aol.com) or contact Mr. Spoleti or Mr. Bellanca at [envirotec@optonline.net](mailto:envirotec@optonline.net) Or attend the Jay Heritage Center conference on November 18.**

Commentary:Larchmont Lady Behind Front Lines

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