

Heating up, cooling costs

Episcopalians save money and the environment with geothermal systems

By Phina Borgeson

Reprinted from *Episcopal Life* March 2009

St. John the Divine in Moorhead, Minn., has been unable to afford adequate heat for more than one day a week in recent winters. The cost of fueling the two natural-gas boilers has skyrocketed. Now, with drilling of geothermal wells to begin soon, the congregation looks forward to making use of the historic building seven days a week.

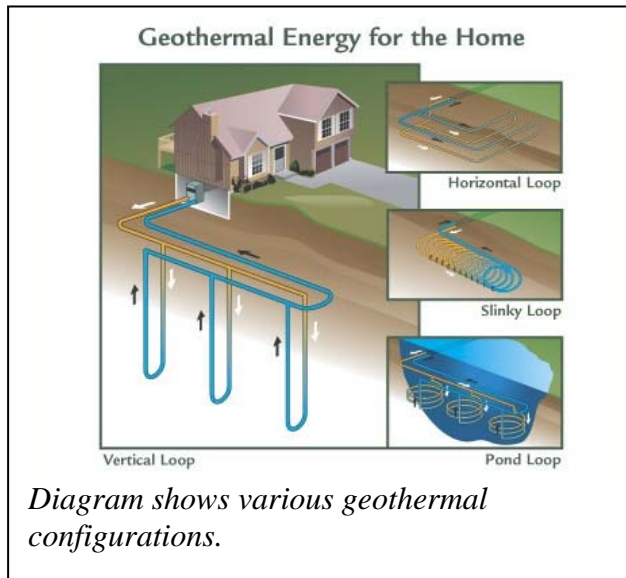


Diagram shows various geothermal configurations.

St. John's, which used to be a small congregation of older Minnesotans, has grown with the presence of Sudanese refugees to a worshipping community of more than 200, said the associate rector, the Rev. Michael Johnson. Rector Alex Kenyi, Johnson and three deacons lead three services every Sunday, one in English, one in the Sudanese Dinka language and one in colloquial Arabic. The need is for more weekday programs and events.

"It's almost like the synagogue of old," said Johnson, "the activity center of the community, a place for family time, to gather the children, to have celebrations, including memorial services, when the whole Sudanese community in the Fargo-Moorhead area gathers here."

With the new geothermal system in place, heating costs will be reduced by at least two-thirds, predicted Johnson. Based on his experience with Lutheran congregations converting their heating systems to geothermal, he estimated that the cost of maintaining the building at a comfortable temperature all day, cooling in summer as well as heating in winter, should be no more than the cost of winter heating on Sundays now. Systems of deep geothermal wells and pumps pull heat from within the earth to warm buildings in winter and in summer send hot air into the cooler earth.

"When the vestry began to explore options for heating," he said, "they realized the solution to the outrageous energy bills was right under their feet."

With grants from the diocese (North Dakota) and the United Thank Offering, combined with a public appeal, most of the estimated cost of \$90,000 for the geothermal installation has been raised.

Complex job

St. John's is not alone in the move to geothermal among Episcopal congregations and institutions. Last fall, General Theological Seminary (GTS) in New York completed the complex work of drilling and putting on line its geothermal wells. Being in a landmark district, and on top of a complex underground city that contains services such as subways, water and Con Edison heat, meant that drilling had to progress slowly and carefully, said Maureen Burnley, executive vice president for finance and operations at the seminary.

There was also a maze of city departments to deal with, though the key permitting department was transportation, since anything that will disrupt sidewalk traffic in New York comes under its jurisdiction. The impact of the project on neighboring historic buildings was another consideration. "Drill rigs are massive and very intrusive," noted Burnley.

GTS's mission is "to educate and form leaders for the church in a changing world," she said. But sometimes the stewardship of the physical plant, the historic buildings that are the seminary's inheritance, "tends to gobble up increasing amounts of money."

The costs for heating and cooling have been growing faster than the rate of inflation, she said. When the cost of maintaining the buildings can be contained, "you have more money for your mission."

Burnley also pointed out the environmental value of the conversion. "Buildings contribute much of the carbon footprint in our world. For those of us who have been blest to inherit real estate, it's our responsibility to reduce that carbon footprint."

Others in the Northeast have been inspired by GTS' example. The Diocese of New Hampshire formed a committee to explore the greening of its congregations after its annual convention in November, said the Rev. Charles LaFond, canon for congregational life.

"We are exploring the digging of geothermal wells in four to five of our congregations to serve as a model both for other congregations and the public," said Bishop V. Gene Robinson. The diocese is pursuing geothermal "for both its financial advantages as well as its environmental witness," he said.

Being good stewards

In St. Paul, Minn., residents of Carty Heights, a 50-unit senior-living complex, have enjoyed geothermal heat and cooling since the building opened in November 2007.

The U.S. Department of Housing and Urban Development covers the cost of utilities on an ongoing basis, so there was not a financial incentive to go geothermal for Episcopal Homes in Minnesota, said Paul Hagen, communications director. "We wanted to put our values to work and be good stewards of the planet."

The actual energy savings have been 40 to 60 percent, even with individual controls in each unit, Hagen said. Every apartment has its own heat pump and thermostat, one of the pluses of the project.

The geothermal system does "make a difference in how residents feel about their residence," said Heidi Crumpler, Carty Heights manager. "Many are quite proud of our efforts to be environmentally friendly. Most understand the impact (or lack of it) [geothermal] has on the environment."

Trinity Commons at Trinity Cathedral in Cleveland has been heating and cooling with geothermal since 2002. During the planning stages of the project, "a member of the committee challenged us to create a sustainable campus," said the Very Rev. Tracey Lind, cathedral dean. A geothermal installation was just one part of the \$10 million building project that included low-water usage, high-efficiency lighting and windows and a reduce-reuse-recycle approach to many materials.

"Architects and contractors learned on our project," said Lind. "It was a first for the city."

Work at Trinity Cathedral served as a model for Cleveland State University, she said. "And our sustainability



General Seminary Executive Vice President Maureen Burnley was joined by other staffers and consultants on the first day of geothermal drilling on Manhattan's Tenth Avenue in August 2007. Photo: GTS

work builds bridges across the faith community, especially with evangelical and more conservative neighbors.”

Inspired by the theology of Angela Merici, a 15th-century Third Order Franciscan, Lind envisioned Trinity Commons as a piazza where, “if we live our lives as community at the crossroads, there we will meet Christ.”

Trinity Commons now sees 40,000 people a year for a variety of events and meetings. Lind described it as “a sacred public space for celebration, culture, charity, commerce, conversation and collaboration in the heart of the city.” It has begun to draw those working toward sustainability in greater Cleveland, with vestry and dean committed to a leadership role in modeling environmental and economic sustainability in rebuilding the city.

“[The project] has changed the life of Trinity Cathedral in every way shape and form,” said Lind, “and it has certainly changed my life. I truly believe that if the Episcopal Church were to claim sustainability as our centerpiece of ministry, we would not only change the face of the church, but the face of America.”

Phina Borgeson is correspondent for science and the environment.