

# Warm earth

*St. Martin Heritage group saves money through geothermal technology*

By Rich Redman

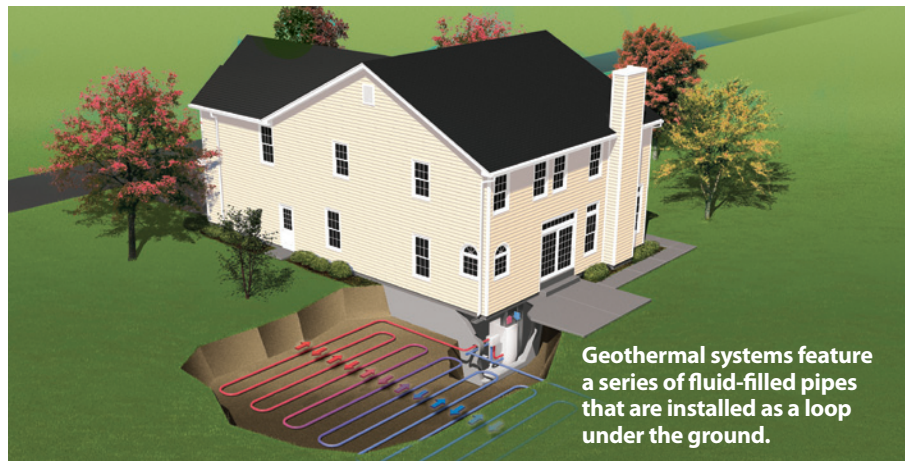
“**T**he land” was part of the reason that a group of frugal and hard-working German immigrant farmers settled in the 1850s among the rolling hills southeast of what’s now Chilton. So it’s only fitting that “the land” plays a unique role today in helping local families cost-effectively maintain a stately former Catholic church building as part of the St. Martin Heritage Park in Charlestown.

For the past three seasons, St. Martin has been heated and cooled by geothermal technology, which was installed by Advanced Custom Geothermal LLC of Kiel.

How does geothermal work?

“Geothermal is based on the principle that, while outdoor air temperatures fluctuate with the changing seasons, underground temperatures don’t,” says Dan Walsdorf, who owns ACG with Sean Steffes. “In this part of Wisconsin, about 6 to 8 feet below the ground, the temperatures are typically about 50 degrees year round.”

To harness the steady temperature from the earth, a series of fluid-filled pipes are installed as a loop under the ground. In winter, the fluid absorbs stored heat from the earth and carries it indoors. The indoor unit compresses the heat to a higher temperature and distributes it throughout the building. In summer, the system reverses, pulling heat from the building, carrying it



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through the loop and putting it back into the relatively cooler earth.

Geothermal systems do not burn fossil fuel to generate heat. Instead, they transfer heat to and from the earth. Once installed, the annual cost is for electricity to operate the geothermal unit’s fan, compressor and pump.

How did a geothermal unit end up in St. Martin? After the church closed its doors in 2005 when six parishes were combined into Good Shepherd parish in Chilton, area residents formed a non-profit organization to preserve the building (which seats 225), its 3,200-square-foot social hall and its six-acre grounds in honor of their German heritage. The vision of the Friends of St. Martin Heritage Park was to create a place for weddings and other intimate gatherings, as well as large community events.

But the cost of heating and cooling was an issue. The hilltop church, built

in 1876 of limestone from a nearby quarry, had no insulation except in the attic. Powering the two oil furnaces needed to keep the building at just 38 degrees when there were no events scheduled was costing more than \$4,000 per year.

The organization connected with Advanced Custom Geothermal and saw the value of geothermal technology in action. ACG installed a WaterFurnace Synergy 3D heat pump when it built its 4,200-square-foot headquarters and shop in 2008. The group’s total energy bill for 2011, for example, was \$1,637, which includes all heating and cooling, hot water, equipment and lights – about 40 percent less than one would expect for just heating alone.

So the group ordered a 6-ton geothermal unit, but kept the oil burners and 500 gallons of fuel as back-up. Since the system was installed in November 2008, operating costs for the



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**Advanced Custom Geothermal LLC installed a geothermal heating and cooling system at St. Martin Heritage Park in Charlestown, which is in Calumet County.**

building have been about \$1,400 a year, saving about \$2,600 annually. With total installation costs estimated at \$20,000 (although some of that was offset by volunteer labor), they are expecting a payback in about eight years.

“It’s been very comfortable,” says Joe Heimann, a board member who also lives nearby. “Now, we keep the church at about 50 in the winter and we have air conditioning in the summer. If a bride wants it cool for her wedding, we can take it down to 65 degrees in that big old building when it’s 85 to 90 degrees outside.”

Their success convinced them to put a geothermal unit in the adjacent social hall, as well.

“We’ve had no regrets,” says Roger Woelfel, president of the St. Martin Heritage Park Board of Directors. “Dan explained how everything works and walked us through it all.”

Scott Niesen, territory manager for WaterFurnace International, with whom ACG is affiliated, notes a growing trend toward geothermal

installations in Wisconsin.

“It’s difficult to put a number on how many we have, but I estimate that it’s growing about 8 percent per year,” he says. “The biggest hurdle is knowledge. When people really understand it and see how it works, they usually decide that they can’t afford not to do it.”

Board Vice President Don Pfister

was so impressed he hired ACG to install geothermal in the new house he built a couple of years ago.

“I’m sure it has saved us a fair amount although since it’s a new house, there are no bills to directly compare with,” he says. “It was a no-brainer for me, knowing that this kind of heating and cooling will cost less than any other way.” **1**

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