NURSING HOME GOING GEOTHERMAL

A new building going up in Robbinsdale, Minnesota is just the latest to save money on heating and cooling.

Article by: on Jacobson, Special to the Minneapolis Star Tribune
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Geothermal energy has been around for a long time, but only recently has it become a viable option for energy-efficient construction.

Among the most common users of the technology are nursing home facilities that require a constant rate of ventilation. Owners of these buildings would rather spend more money upfront for the geothermal systems, which use underground temperatures to heat and cool buildings, than wear out traditional HVAC systems. Plus, going geothermal can result in significant savings over time.

"The last four nursing homes we've worked on are all looking at geothermal energy," said Don Hoover of Associated Mechanical Contractors, located in Shakopee, Minnesota.

Associated Mechanical Contractors, along with Benson-Orth General Contractors, is working on the University Specialty Center in Robbinsdale. It's a 96-bed nursing facility developed by the South Dakota-based Good Samaritan Society. Benson-Orth is installing a partial geothermal heating and cooling system as part of the project, which is set for completion in September.

Because of the tight fit at the urban-infill site, there's not room for enough wells to provide complete reliance on geothermal energy. Instead, about 60 percent of its heating and cooling needs will be met through the drilling of wells.

The rest will be supplied through a hybrid HVAC system that taps the geothermal well field first and then switches over to high-efficiency boilers and air conditioners when the system can't keep up with demand.

Benson-Orth President Mike Monson said geothermal well fields are becoming more popular as more becomes known about them and as building owners continue to strive to reduce their carbon footprints.

"I think today that even most private, for-profit developers are looking at them," Monson said. "One big advantage of them is you don't need a rebate or a subsidy to make them economically feasible, whereas with solar energy you have to."

Another plus is that unlike wind or solar, which are intermittent in nature, with geothermal energy "there's a calculable payback for owners who use it. That's

the biggest difference ... and that's why it's cool," he added.

With the hybrid geothermal energy system being used in Robbinsdale, water is pumped into an enclosed series of underground wells connected by a looping series of pipes.

There, the year-round, 45-degree temperatures either heat or cool the water, depending on the season. Then the water is pumped back into the building where it can transfer the energy through a mechanical heat pump.

Geothermal system makers say case studies show that for each $30,000 investment to install them, the system will save $3,000 a year in energy costs until the system has paid for itself in a decade.

A 30 percent federal tax credit is also available for the purchase of geothermal heat pumps, helping increase the return on investment.

In a 2009 study the industry-funded Electric Power Research Institute found that hybrid systems are cost-effective in cases where full geothermal systems are too expensive to install while offering nearly the same benefits. In fact, it found hybrid systems can significantly cut down the initial cost of a full geothermal loop, in some cases by 50 percent or more.

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