

Lockport housing project installing geothermal heating system

With electricity too costly, the Lockport Housing Authority turns to an alternative heating source at Autumn Gardens

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Lockport Housing Authority modernization coordinator Jeff Haag, left, monitors the progress as Kevin Bush of Nothnagle Drilling, Henrietta, works on the early phases of a geothermal heating and cooling system at Autumn Gardens. Robert Kirkham/Buffalo News

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LOCKPORT – A 72-unit public housing project in the City of Lockport, which has been expensively heated with electricity for more than 40 years, will soon make use of the earth’s underground warmth for its heating and cooling needs.

Autumn Gardens, 788 E. High St., is in the process of being converted to a geothermal heating and cooling system, said Kevin A. Bancroft, executive director of the Lockport Housing Authority.

“We needed to do something,” Bancroft said. “The cost of electricity, which has been used since the project was built, is not sustainable any longer.”

“These buildings were designed in the very early 1970s, when everybody thought we were going to have all this inexpensive hydropower and nuclear power and electricity was going to be the cheapest source of energy on the whole planet. That just didn’t happen,” said Charlie Melonic, director of operations for Buffalo Geothermal Heating, the contractor on the new project. “It just turned out to be a really, really bad gamble.”

“The only other alternative would be natural gas, and there is no natural gas on-site currently, so natural gas would have to be brought on-site from the road. Also, with natural gas, we’d have to add onto each building a boiler room with the boilers and the hot water,” Bancroft said. “By the time we figured the infrastructure cost for adding onto the buildings, the piping to reach each apartment, a separate heater for each apartment, the costs weren’t that far apart.”

Bill Nowak, executive director of the trade group NY-GEO, said the \$1.7 million price tag for the geothermal project includes carpentry, lighting and other construction work. The actual geothermal portion would cost about \$600,000, he said.

In addition, the New York State Energy and Development Authority has approved aid to the project. Spokesman Peter Constantakes said the Housing Authority will receive a \$68,400 grant

when the project is completed, plus another \$25,200 if it shows a savings of at least 29 percent in energy costs in the first year of operation.

Jens Ponikau, a board member of NY-GEO, predicted a 70 percent savings. He called Autumn Gardens “a picture-perfect site” for geothermal.

Bancroft said, “Down the road, we’re hoping to recoup 50 to 75 percent savings on what we’re spending now on electricity.” He said the annual savings could work out to \$40,000 to \$50,000 a year, depending on the weather.

The Housing Authority has experience with geothermal, having converted its office building to that source last year, Melonic said.

Geothermal service also will provide cooling, enabling tenants to eliminate window air conditioners, for which they are charged extra, Bancroft said. “These are baseboard electric heaters, so there is no ductwork, nothing to bring a central air system in.”

There will continue to be an electricity cost connected with heating and cooling, because of the heat pumps necessary to bring the geothermal air into the building.

Drilling on the site began Aug. 17. Buffalo Geothermal Heating has 270 days to complete the project, Bancroft said. Drilling should be done by early October, Melonic said. Ponikau said some apartments could begin to receive geothermal service this winter.

“We’re actually not drilling for anything. It’s a heat transfer medium,” Melonic said. “We treat it like an abandoned well. We drill a 6-inch diameter hole down, in this case 225 feet per hole. Then we run two 1¼-inch plastic pipes down through, connecting with a U-bend at the end, and we grout the entire thing with a high thermal-connectivity grout, which will completely seal the entire thing.

“What we’re left with is a probe in the ground from which we can extract or inject heat, based on what we need.”

Normally, the company can use a horizontal pipe about 8 feet deep for a small project. The exceptional depth at Autumn Gardens is needed to tap a larger surface area because of the size of the complex being heated, Melonic said.

“We’re using the heat that’s been stored in the earth by the sun,” Melonic said.

“We’re not going for the deep earth temperature. It’s probably about a 50-degree stable temperature down there where we’re going.”

Geothermal heat pumps use refrigerant and an electric compressor to move “the ground’s relatively constant temperature,” Melonic said. Tenants will receive a console temperature control that they can set for comfort. The geothermal system also will be used to heat hot water.

Water with a methanol-alcohol antifreeze will be circulated through the system to move the warmth – or in summer, the coolness – into the buildings.

Nowak said Autumn Gardens becomes the third public housing project in New York State to acquire a geothermal heating system. The others are in Manhattan and Yonkers.

The authority is funded entirely by the federal government, except for the rents paid by tenants.

But funding from the Department of Housing and Urban Development has been steadily decreasing, Bancroft said, so changes were needed at the three-building complex, which is 100 percent full.

Most of the residents are senior citizens who meet federal income limits for eligibility.

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