



## **Geothermal energy to heat, cool Charlestown liquor store**

**January 19, 2011**

**By Peter B. Lord, Providence Journal  
Journal Environment Writer**



In the basement of the new eco-friendly Charlestown Package Store building, David Mitchell, left, senior project manager with Alares, Megan Moynihan, Oyster Works architect, and Andrew Baer, Oyster Works project director, explain the energy system. The Providence Journal / Kathy Borchers, Photographer

**CHARLESTOWN, R.I.** — When The Charlestown Package Store reopens this spring, customers will see that the original hole-in-the-wall business has been replaced by a much larger structure with a two-story, timbered lobby.

What will be less obvious is the specially designed geothermal system that will heat, cool and dehumidify the new building without burning a drop of oil or gas.

The system will rely on three wells that will draw water from 450 feet underground, where the temperature is 45 to 55 degrees year-round.

In winter, a heat pump raises the temperature to heat the building. In summer, the water supplies air conditioners to cool the building. All year, the water cools beer and wine storage areas.

The reliance on a relatively old technology — geothermal — as an alternative to fossil fuels raises a question: Why does such an energy-efficient system attract so little public attention, especially compared with solar and wind power, as people seek alternatives to fossil fuels?



“The sexiness of solar and wind — it just isn’t there with geothermal,” says Connie McGreavy, executive director of the Rhode Island Chapter of the U.S. Green Building Council. “Maybe people have trouble grasping it because they can’t see it.”

Even those in the industry aren’t sure why geothermal doesn’t get more attention.

“Nobody ever talks about geothermal,” says Hazard Stewart, owner of Newport Geothermal. He says his company has installed about 20 systems in Rhode Island. Customers range from the owners of single-family houses to larger commercial buildings. It’s easier to install a system with a new house, but Stewart says he has retrofitted old houses as well.

With federal tax credits, a geothermal system can pay for itself in two or three years, Stewart said. “I think there are a lot of misconceptions that this is all more difficult than it is.”



Cabinet maker John DeMetrick builds racks for wine that will be cooled with geothermal energy

One believer is Jason E. Kelly, executive vice president of the Moran Shipping Agency. Two years ago, Kelly was converting the old Rhode Island Medical Society building near the State House into a hub office overseeing 20 other offices around the world that provide shipping agents in major ports.

Kelly was using “green” techniques throughout the renovation, and his architects introduced the concept of geothermal. He was sold.

Two 1,500-foot wells were drilled in the narrow space between the building and the sidewalk. The wells provide a steady supply of groundwater with temperatures ranging from 46 to 50 degrees.

Kelly says that the two wells have provided all the energy that was needed to completely heat and cool his building for the last two years. During the coldest month last winter, his utility bill was \$31, and that was to heat hot water, a separate system.

The company is pleased with its investment, Kelly said, but although he’s fielded some inquiries about the installation, he hasn’t seen them lead to any similar projects, and he finds that surprising.

“A lot of people think this technology is in its infancy, and it’s just not,” says Kelly.



---

In Charlestown, all of the complex innovations sprang from two themes among the owners and the builders — a love of wine and a strong interest in green building.

The Charlestown Package Store between Routes 1 and 1A in Cross Mills had been run by the Walsh family for decades. Jon Maldon, a businessman in Connecticut, and his sister, Jane Gross, are Walsh descendants and decided to buy out their family's business several years ago.

Maldon said he and his sister had fantasized for years about owning a wine shop. They introduced new wines, started accepting credit cards and got to know their clientele in Charlestown. They soon knew they needed a bigger building.

They talked to one regular customer, Megan Moynihan, an architect who had relocated from New York to Charlestown. Moynihan's husband, Andrew Baer, has family with deep roots in town. They opened an architecture, design and project management firm called Oyster Works.

Moynihan liked talking wine. But soon, the three were discussing plans for a new store.

Baer said he decided geothermal was the best energy source for the building, so many design considerations followed from that. He estimated the extra costs of the green measures was about 11 percent. In a recent tour of the work site, Baer and Moynihan showed off their innovations.

Much of the large parking lot is built with blocks that allow rainwater to drain into the ground. A large advanced septic system was installed, lessening the chance that pollutants will make their way underground to the nearby Ninigret Pond.

The building's siding looks like wood shingles, but actually it's recycled PVC.

Hot water from the geothermal heat pump is pumped through radiant heat tubes in the floor. They will be covered by wide, white pine planks. The walls and roof are made from insulated panels that are 8 to 10 inches thick.

Much of the lighting is provided by light-emitting diodes that are controlled by touch pads.

Maldon said it has been estimated that it will take five years for energy savings to pay off the cost of the geothermal equipment. After that, it will cost very little for heating and cooling.

"Also, it was just the right thing to do," he said. "It makes a lot of sense."

Maldon said he is pleased that they decided to use local tradespeople and buy as many materials as possible locally. As many as 112 tradespeople have worked on the job, and all but 7 were from South County, Baer said.

The specially designed geothermal system was provided by a Massachusetts firm called Alares LLC.



---

As an added benefit, Maldon said that with more storage space he can order beer and wine in the volumes that will let him lower prices. He hopes to host wine tastings and other events. And he hopes his new building will be a marketing tool.

“Hopefully, from a marketing standpoint, people who enjoy the environment will come because it’s a green shop,” he said.

The Oyster Works team has created a blog which tracks the progress of construction:  
<http://charlestownpackagestore.oysterworks.net/>