

NEW CANAAN ADVERTISER

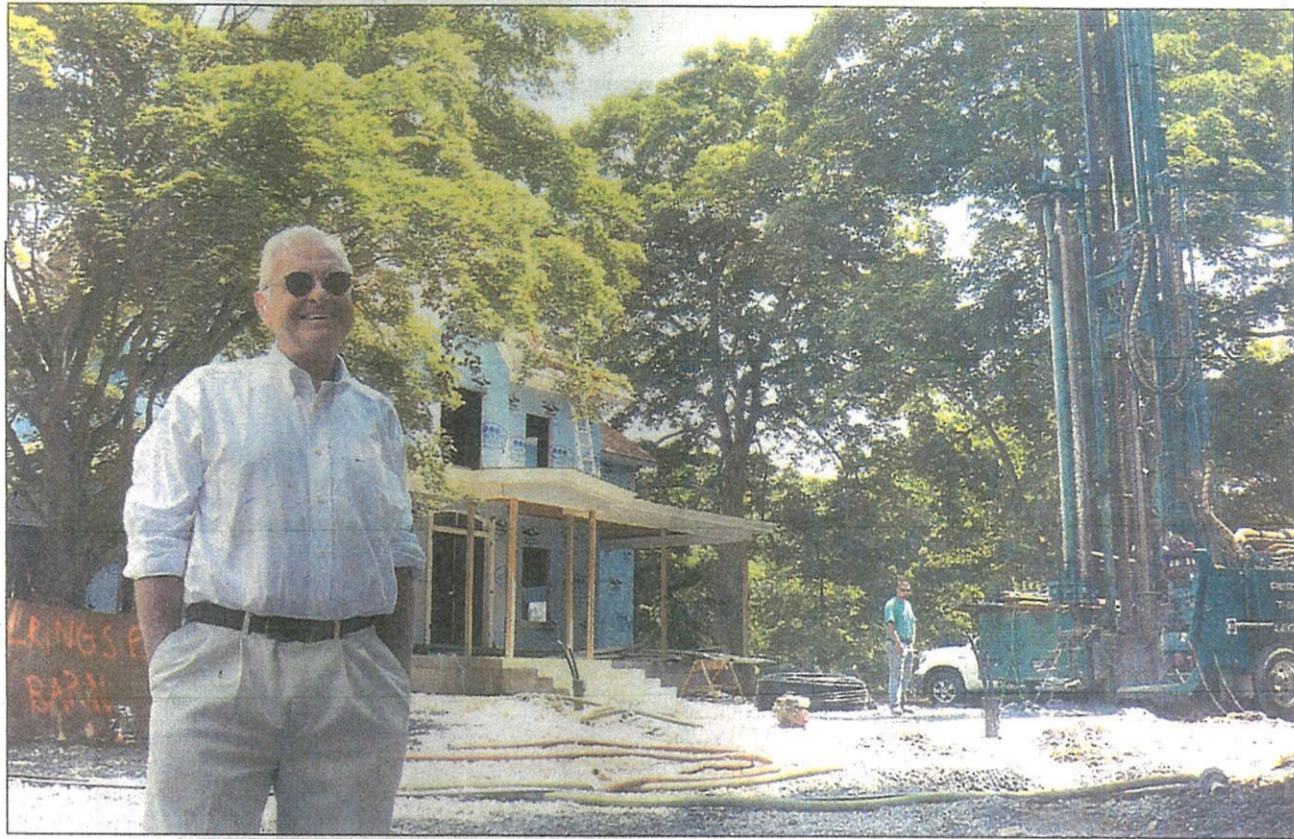
PUBLISHED IN THE NEXT STATION TO HEAVEN SINCE 1908

PAGES • 3 SECTIONS • 101ST YEAR • No. 3

Thursday, August 13, 2009

\$1

Energy tax credits



Local builder Peter Marschalk stands in front of the turn-of-the-century farmhouse his company, Pelamar Inc., is renovating along White Oak Shade Road. The project includes installation of a geothermal heating system.

(Andrew Kersey Photo)

Bringing costs down to earth

By Andrew Kersey
Assistant editor

Reflecting a national shift on energy consumption from the ground up — coupled with federal and state tax credits from the top down — more local property owners are electing to

generate “green” energy and saving money in the long term.

“It just gained in popularity big time,” said local contractor Peter Marschalk of Pelamar Inc., the company in charge of renovating a White Oak Shade Road farmhouse, whose owners have used the opportunity to install a geothermal heating system.

A portion of this year’s federal stimulus bill allows for a 30 percent tax credit with no cap for homeowners who install such systems in 2009 through 2016. Those who put in the systems in 2008 are likewise eligible for the credit, though at a \$2,000 limit.

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Heat:

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A 10 percent credit for the total investment is also available without a maximum for any commercial system installation.

This month, workers began retrofitting the turn-of-the-century farmhouse to heat and air-cool all of its nearly 7,000 square feet using energy from the earth’s temperature 425 feet underground.

“I find this project to be one of the most interesting I’ve ever done,” said Marschalk. “It was very important to the client to preserve the integrity of the property. We were fortunate to have an old house with very good bones.”

Once his workers had finished gutting the entire structure by hand — down to an exterior frame so old it contained “knob and tube” wiring slung through ceramic fixtures — he brought in a mechanical engineer to drill six 425-foot deep boreholes into what used to be the front lawn. A “messy process,” the sometimes ear-

splitting drilling of the holes creates small pools of liquefied granite and ledge rock that temporarily disrupt the surrounding landscape.

“It was sort of a combination of the husband being a practical money man and the wife being very interested in preservation and being green,” he said of the homeowners, who asked to remain anonymous.

This two-in-one incentive is being seized on by local households increasingly mindful of not only their carbon footprints, but their tightening budgets.

“Before the stimulus, people were doing it for environmental reasons primarily,” said Bill Valus, co-owner of Encon, the heating and air-conditioning company responsible for the installation of the heat pump. “But with the tax credit, it’s become more a sense of economics.”

“It’s accomplishing what (President) Obama wanted to accomplish,” he added, “which is to push those people over the edge who were hesitating because of cost.”

The geothermal heat pump system, which takes about

a week to install, can save property owners between 40 and 60 percent on their energy costs, he said, depending on their existing conventional systems. The number of other New Canaan homes with geothermal outfitting currently underway is “about four or five.”

“It’s much more popular for new construction and renovations,” Valus said, adding that “it’s not perfect for every existing home; it doesn’t always make sense.”

For structures with baseboard radiators or steam heating, he said, geothermal energy is not a practical system because it cannot produce hot enough water. The earth’s temperature at 425 feet below its surface remains fairly constant year-round at 52 degrees Fahrenheit. The optimal systems for converting are those which use forced air heating and cooling.

Though Marschalk calls geothermal technology “the wave of the future,” it actually has its roots in the distant past.

The British mathematical physicist and engineer Lord Kelvin came up with the idea for the heat pump in 1852. That concept was further developed by other inventors

Robert Webber nearly a century later, while experimenting with his deep freezer.

According to information on the International Ground Source Heat Pump Association’s (IGSHPA) Web site, when Webber dropped the temperature in his freezer and touched the outlet pipe, he almost burned his hand. Realizing that heat was being wasted, he then ran outlets from his freezer to his boilers and provided his family with all of its hot water.

The same two-part concept is employed in today’s geothermal structures, in which a “closed-loop” system circulates water through small-diameter underground pipes. With the help of the heat pump — which is technically a piece of refrigeration equipment — heat is then transferred to or from an above-ground building regardless of outdoor temperature.

In the summer, warm air in the building is redirected back into the closed-loop or to pre-heat a hot-water tank, thereby cooling the building’s interior.

Most people think it is a free-standing system, said Valus, but geothermal heating actually runs on electricity, though at a much lower level than with a fossil fuel

He estimated that nearly 70 percent of local new construction employs geothermal heating and said his company has been “putting a lot in over the last three or four years.”

Demand spiked even higher once tax credits were introduced. In addition to the federal program, several state grants are available for various energy efficient construction and renovation projects.

Encon is IGSHPA-certified in geothermal design, said Valus, and he recommended visiting the association’s Web site for a complete list of accredited geothermal installers and designers, as there is not yet any regulation on the industry, federal or otherwise.

“The most important thing is that it’s designed properly,” he said. “There are a lot of botched ones. Before, (installers) were cutting corners to get the price down. A lot of contractors were putting in the bare minimum.”

But, with the new tax incentives, combined with a drop in the cost of some building materials, Valus said the general quality of work should increase.

Marschalk viewed “green” and lower-cost energy generation as an integral part of

forward.

“For me, it’s just important to keep up with the new materials and these new systems,” he said, predicting a return to “more modest homes.”

Beginning his contracting career just after the Aral embargo of the late 1970s, he recalled the move then to more energy-efficient homes that incorporated “the green” concept, in which living space was open and shared.

“But instead, the houses were bigger and more elaborate,” he said.

“I do think it will stick in time though,” he continued. “The housing in New Canaan will evolve some, but it’s always going to be a fabulous town and a very desirable place to live if we take care of it.”

For more information on how geothermal heating systems work, visit waterfurnace.com.

To view a listing of state grants for energy efficient construction, go to dsireusa.com and click on the Connecticut link.

For a list of certified geothermal installers and designers, visit igsghpa.okstate.edu and click the “Business Directory” tab.