

# Louisiana Home Features Unique GeoExchange Lake Loop



A 2,700 square foot home which sits on the bank of Falls River near New Roads, Louisiana, is heated and cooled with a super high efficiency GeoExchange (geothermal) heating and cooling system. Located in Pointe Coupee Parish, the home was built in 1994 by the owners, Ray and Dottie Mosher. They moved into the three bedroom, two and one-half bath home in July, during south Louisiana's peak cooling season.

"This home has no hot spots or cool spots. It (the GeoExchange unit) is good and quiet. And it is every bit as economical as I thought it would be," Ray Mosher proudly boasts.

Mosher worked for several years with Pointe Coupee Electric Membership Corporation contemplating the type of heating/cooling system to install in their home. Mosher also conferred with Dr. Harry Braud of Louisiana State University's Engineering Department. They decided on a two and one-quarter ton WaterFurnace Premier GeoExchange unit, which also provides hot water for the home.

The GeoExchange application is unique in that the 1,500 feet of polyethylene pipe loops for the system are submerged in False River. This "pond loop" system proved cost effective because no trenches or holes needed to be dug, saving about \$2,000 of the initial cost for installation of a ground

source heat pump.

Normally, "pipe loops" are floated over a deep section of the body of water and then sunk. Because the Mosher home sits on a bank of False River where the water is relatively deep, the loops were sunk next to the sea wall built on the Mosher's shore. Mr. Mosher plans to build a pier over the loops which will give them additional protection from boat propellers and fishing tackle.

"The loops are filled with a small amount of an anti-freeze type of liquid to prevent the circulating liquid from freezing thereby making the entire system safe during off periods," Mosher said.

Dr. Braud notes that the loops contain potassium acetate - the same material used for de-icing aircraft wings. He adds that potassium acetate is the only substance approved by all regulatory agencies for this purpose.

Mosher said Lester LeMoine of LeMoine's Heating and Air Conditioning, Baton Rouge, LA, did the layout of the duct work and installation of the system. "Mr. LeMoine went to great strides to properly size the heat pump and the duct work to guarantee proper air flow and humidity control throughout the home," he said. "We're very pleased with their service and the results."

To ensure that this home, served by Pointe Coupee Electric Membership Corporation, was as

energy efficient as possible, the Mosher's built the exterior walls and ceiling of the home with large, heavily insulated foam panels. The perimeter walls are made of four-inch foam panels while the roof is made of six-inch foam panels supplied by Roy Domangue of Wooden Creations, Inc, Gonzales, LA. The east- and west-facing windows are thermal-break windows while all other windows are double panned.

Mosher estimated that his home cost about \$37 per square foot to build, while an average home costs about \$35 per square foot.

"I put a little money up front, but I think I'll save in the long run," Mosher said. "I looked at costs over a span of time. Electricity costs are bound to go up. Construction cost are bound to go up. With that in mind, we decided to build with the foam panels. A foam home is actually stronger than a regular home. The foam will not deteriorate, and the panels are waterproof," he added.

For the seven- month period of August 1992 through February 1993, the home consumed an average of 1,184 kilowatt hours of electricity per month. Using this average to project the home's annual usage, estimates for energy consumption are approximately 14,208 kilowatt hours annually, with a usage of about 5.26 kWh/square foot/year. The average annual energy usage for a conventional home with a heat pump ranges from 10.04 kWh to 15.45 kWh per square foot.

Using an average retail rate of .09 cents per kilowatt hour, the Mosher's estimated annual electricity expenses are on average \$107 per month.

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