

Published: Monday, February 8, 2010

Home project in Madison takes the Connecticut Zero Energy Challenge

By Sandi Kahn Shelton, Register Staff



MADISON — For months now, people strolling down Middle Beach Road — a popular beach-front walk for many folks — have noticed an interesting sign in the yard where an elegant beach cottage once faced the Sound.

The sign reports that the house, which is owned by Woodie and Ellen Weiss, has been torn down and the one being rebuilt on the site is an entrant in the Connecticut Zero Energy Challenge.

Architects and designers have been asked to create homes that reduce their impact on the environment and help combat the rising cost of energy. Some 18 buildings have entered the design-and-build competition taking place between May 2009 and Dec. 1, 2010. The contest will show how it's possible to build a super high-efficiency home that uses nearly zero energy. Homes will be judged based on the Home Energy Rater index, based on energy-efficient features.

Russell Campaigne of CK Architects in Guilford has taken up the challenge with pleasure. His firm — a company he owns with his wife, Mary Jo Kestner — has always been committed to designing sustainable buildings that stand the test of time and are assets to their communities. In fact, he and the Weisses had already decided to work together to design a sustainable house when news of the contest came up.

“We haven't changed our design around the challenge,” says Campaigne. “We're just lucky that the homeowner is interested in educating people about how this can be done. And it is attainable.”

The new house will have 4,300 square feet, with an additional 330 square feet of conditioned basement space. Best of all, it has six bedrooms — enough to accommodate the influx of family and friends who visit the shoreline.

“But the Weisses only need about 2,000 square feet of the house for their normal use,” Campaigne says. “So we’ve designed it so that whole sections of the house can be shut down when not in use.”

Campaigne has made use of photovoltaic panels to capture heat from the sunlight, as well as geothermal heating and cooling systems. The entire house is being wrapped in what is essentially a big blue blanket, called Thermomass, he says, which keeps out the humidity inherent in the harsh shoreline environment. The solar thermal system will generate about 120,000 BTUs per day, enough to provide all of the domestic hot water needs during the summer months.

The result: the actual energy costs if the house is only occupied by the owners will be — are you ready for this? — zero dollars per year. And if, for some reason, all six bedrooms are in use for an entire year, the energy bills would even then only be \$900 per year.

Having that kind of energy efficiency is, of course, terrific, but another important factor to Campaigne was the look of the house.

“The most important thing was to make it look normal, not like some space-age thing,” he says. “The old house was very traditional in its appearance, and we wanted to integrate the new systems so the house would look historically accurate.”

Best of all, the house is so energy-efficient that it will even qualify for rebates, he says. “The government is giving tax credits to people,” he says. “So it’s not just a matter of doing the right thing, from a political or ethical point of view. People can achieve a real payback return.”

He points out that spending an additional \$8,000 during construction for 2 inches of insulation on wood frame buildings will result in an immediate \$12,000 savings on the heating and air conditioning system required for the building.

“We now know scientifically what works and what doesn’t, when it comes to saving energy, and just how much it saves,” he says. “We’re not rule-of-thumb-ing it any more. People think it’s windows, but insulation is the best return on your investment.”

Woodie Weiss, the owner of the home, lives nearby and so he visits the site just about every day, because he’s so interested in the building process. He’s always been fascinated with energy-saving measures, he says, with using fluorescent and LED bulbs. He’s the type of person who keeps trying new things. And now the idea of having a zero-energy-using home intrigues him.

“I think it’s great,” he says. “I’m really happy. To have a house like that, that consumes so little fossil fuel, will be wonderful.”

The Weisses have kept the sign up in the front yard, even through the construction, because they love to see how passers-by stop and read. “I like the idea of letting people know what we’re doing,” he says.

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