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Posted May 4, 2011

Going For Gold: How Building an Eco-Friendly House led to LEED Gold

by The Sag Harbor Express

By Susan Goldstein

In October of 2005, a perfect storm descended on North Haven—the high tide of a full moon, a nor’ easter coming in from New England, and the remnants of a hurricane arriving from the south. While basements near water are now wisely prohibited by FEMA law, our Sag Harbor Cove house, built more than fifty years ago, had a basement. It flooded, and water rose two inches above the first floor, leaving us with irresolvable mold problems. The only solution? Total renovation.

But somewhere in that storm was the proverbial cloud with a silver lining. While at first I planned only to build a light-filled, modern house, I soon decided to aim higher: to build a house that would meet the LEED standard of the U.S. Green Building Council, which promotes the design and construction of high-performance green homes. In that way, I’d not only improve my property but also do something environmentally friendly.

What’s more, serving on the Save Sag Harbor committee and being involved with the Group For the East End made me very aware of Sag Harbor’s preservationist concerns. I realized building an eco-friendly house would help me do my part in upholding them. My renovation project turned into a challenging five-year adventure that’s about to come to a rewarding close, and I will be able to live in my beloved Sag Harbor home for half the year.

By a stroke of good luck, the architect/engineer I had already chosen, Dominick R. Pilla, was LEED-accredited. Together, Dom and I planned a home that was energy-and water-efficient, with locally reclaimed and sustainably harvested raw materials—a home that would put a minimal amount of stress on the environment. To my delight, we were able to find other local designers and crafts people who shared our vision and carried it out, among them Richard Kissane Builders, landscape architect Tony Piazza, the SRK pool company, designer Richard Mervis and cabinetmaker Will Paulson.

Now, photovoltaic solar panels on my new flat roof convert the sun’s energy into electricity. They produce some or all the power we need in summer for the household and pool. In winter, when we use the house less, we will have an excess of power. It will be fed into the power company grid, and I’ll earn “credits” on my bill.

Solar thermal panels heat the water for our faucets and our pool, which thanks to systems from SKR we clean without using any chemicals.

We limited the area of conventional turf and favored planting in shaded areas, and we used drought-tolerant non-invasive species for ground cover on 40% of the lot. They will be irrigated with harvested rainwater stored in underground cisterns and “grey water” from the dishwasher, washing machine, sinks and tubs. (Since we don’t produce enough grey water to make it cost-effective to recycle for other uses, we get drinking water from a town aquifer).

The heating and cooling is managed through a very efficient geothermal system that uses the constant temperature of the earth rather than outside temperature as the exchange medium. A ground source pump heats the water for radiant heat (through the floor) while providing cool air for cooling. Though the system is initially costly, energy savings make up the difference in less than a decade, and the system won’t need replacing for many years.

Since windows account for about a quarter of all heat gains and losses, we built overhangs, installed argon-filled double-paned windows with low-E coating that keeps such gains and losses minimal, and used insulation that provides nearly twice the barrier that code requires.

Of course we used only Energy Star appliances, low-flush toilets, and other environmentally friendly equipment and material, right down to the glue.

The design strategies, which were the most interesting and fun for me, were also eco-friendly. For example, we rebuilt on the

existing foundation, installed bamboo floors, used soy-based insulation, and used reclaimed cypress for siding. While “recycled” items and products must be destroyed so the parts can be scavenged, we tried instead to work with “reused” or “reclaimed” items and products.

These are generally in their original form, though minor repair and replacement may be necessary, and you can't always be certain of the results. For example, once the cypress siding was dried, installed, sanded to remove nail marks and rust drippings, and then coated with an eco-friendly product (to keep its integrity), it wasn't precisely the color I'd have chosen, but I was happy to make the trade off. You also have to work with limited quantities. I fell in love with a small amount of mindfully engineered French oak flooring with which Richard managed to decorate two large rooms downstairs. I'm overjoyed about the stair treads, coffee and dining room table, statues and benches that Will is creating out of two beloved but failing cherry trees that for years I'd kept standing with a system of cables. He knew just how to cut those trees so they'd serve various uses and continue to be part of our daily lives. To be LEED-certified, you have to earn a certain number of points on a rating system. If you surpass the minimum, you can achieve a silver, gold, and even platinum level. I am proud that we now qualify to apply for a gold.

I started this project to do my part in preserving our world and to show others that it can be done. An increased demand for eco-friendly materials, designs and systems should help drive prices down, and that would make it possible for still others to participate. It's my hope that my dream home inspires others to pursue similar dreams of their own.

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