



WCI Communities

A green home in Florida by WCI Communities, the developer building the Claybaker/Klingsic residence.

Green Homes Catch On, But Big Cost Savings Are Tough to Achieve

A Basement Insulated With Old Blue Jeans

By ANNELENA LOBB
November 19, 2005

When retired couple Judith Klingsic and Richard Claybaker decided they wanted to escape the harsh Wisconsin climate, they hoped to find a property in Florida that contained some of the same environmentally friendly features as their current River Falls, Wis., home. Ms. Klingsic, a former educational psychology professor, and Mr. Claybaker, a retired clergyman, bought a home from a developer building a community of homes in Florida that emphasized sustainable construction and other ecologically oriented features.

Ms. Klingsic and Mr. Claybaker are part of a growing population of homebuyers and homeowners who are adopting green building and design methods. Once confined to a small number of people willing to go to great lengths to install costly features such as solar-power systems, the green-home movement has grown substantially in recent years. And unlike the designs of a decade or two ago, the exteriors of contemporary green homes often are indistinguishable from their traditional counterparts.

“If you did a drive-by of our Florida home, you wouldn’t be able to tell that it was built green,” says Ms. Klingsic. “It won’t have any obvious green features.”

The couple hopes to move in next spring. Their new home in the southwest Florida community of Venice includes highly insulated concrete walls and double-panel windows to minimize the effect of the region’s searing sun and humidity; floors made of bamboo, a wood championed by environmentalists because bamboo plants regrow quickly; “marmoleum”

floors -- a biodegradable product made from linseed oil; and a porous driveway, which allows rain to seep into the ground, instead of running into gutters and sewers, where it can tax water-treatment systems.

The four-bedroom home will cost about \$800,000. The couple began with a base price of \$491,900, but incorporating green features and other design elements drove up the price. The most-expensive element was the double-pane windows, Ms. Klingsic says, which cost around \$50,000.

About 61,000 U.S. homes were built in compliance with local green-building standards from 1990 to 2004, 14,000 of those in 2004 alone, according to the National Association of Home Builders. Dozens of groups, from the city of Portland, Ore., to utility companies in Austin, Texas, and Tucson, Ariz., publish guidelines, and the U.S. Green Building Council, an advocacy group, is working with builders in some areas of the U.S. to test new national standards. The guidelines typically emphasize water conservation, reduced energy reliance and the use of local, durable building materials.

Eva Otto, a real-estate agent and developer at GreenWorks Realty in Seattle, a firm that specializes in green homes, estimates that building a home with top-of-the-line features such as solar-powered electricity or advanced moisture-control systems can cost 15% or more than a comparable traditional property. Typically, builders will spend an additional 5% to 10% to include an assortment of green features.

But does that premium actually pay itself back in the form of lower energy and water bills? Proponents say that green features pay for themselves over the long term. They also cite the benefits of having a healthier home and the satisfaction of protecting natural resources. Skeptics contend that upfront costs for green features are out of reach for most people.

It can take decades for a homeowner to recoup an investment in solar panels, which cost anywhere between \$10,000 to \$30,000 to install. Tax credits and rebates offered in several dozen states can lower the cost by 20% to 50%.

Beginning in January, the federal government will offer a tax credit with the purchase of solar panels of up to 30% of the system’s cost, to a maximum of \$2,000.

Most states already offer incentives for renewable energy devices. Utah, for example, will give a tax credit of 25% of the cost for solar, hydroelectric or wind-power systems which provide electricity, up to a maximum of \$2,000. Aspen, Colo., offers a one-time rebate of \$2 per watt for solar panels, up to \$6,000, and up to \$2,000 for installing a solar hot-water heater. A state-by-state list of green-energy incentives is available on a Web site provided by the Interstate Renewable Energy Council (<http://www.dsireusa.org>). Homeowners who qualify for federal and state tax credits on solar panels can receive both, but some states will reduce their benefits for taxpayers receiving the federal credit.

Jack Czajkowski and his wife, Claire



Kate Leger

Carlson, of Hadley, Mass., installed a 2.6-kilowatt solar-energy system for \$26,000 in 2003 in their 3,200 sq. ft. home. Assuming constant electricity costs, it would take about 40 years to recoup the cost of the system, which generates 75% of the home's electricity. "I think electricity costs will spiral upward, however, and we're factoring in for that," Mr. Czajkowski said.

Small-Scale Change

While some homebuyers are electing to build a green-design house from the ground up, far more make small-to moderate improvements to their existing properties, from replacing windows with a more-insulating variety, to trading synthetic materials for plant-based ones in carpets, floors and other surfaces to adopting efficient plumbing technology.

Some consumers are installing more efficient oil- and gas-fired boilers. (Efficiency is measured in units of usable energy extracted from fuel.) Minimum-efficiency gas boilers run at 80%, while newer models operate at about 93%, according to environmental-consulting firm Steven Winter Associates. A household with a yearly gas bill of \$1,000 and an 80%-efficient boiler that replaced it with a 90%-efficient model would see its bill fall by \$130 a year. An efficient boiler might cost between \$2,000 and \$4,000; at these rates, it would take about 15 years to save \$2,000.

In Houston, architect LaVerne Williams advocates using green rooftops on buildings -- mainly flat surfaces planted with diverse flora -- to absorb excessive runoff from rain. So far, green roofs are found mostly in urban areas and on commercial buildings, though some

have sprouted up on residential buildings. In addition to soaking up excess rainwater, green roofs reduce building temperatures and the need for artificial cooling. A green roof costs, on average, between \$9 and \$20 per square foot, depending on the project's complexity.

Another strategy is to design buildings that leak very little hot or cool air -- creating what New York City architect Chris Benedict calls "a tight envelope." Ms. Benedict and engineer Henry Gifford are designing a rental building with 22 units in Manhattan's East Village that they hope will be close to air-tight, which they estimate will lower annual heating costs by about 60%.

To help seal the building, Ms. Benedict used a spray-on insulation made from soil. Green insulation products come many varieties, however: Mr. Czajowski's basement has insulation made from recycled blue jeans. "I don't know whose blue jeans they are," he says. "But we didn't want fiberglass strands falling all over the place."

Rainwater-harvesting systems, which collect water for use in irrigation or even to be purified and used as potable water, are another way to improve a home's water efficiency. In the Seattle area, builder Martha Rose has installed a 3,000-gallon rain cistern made of western red cedar, a local wood, in each of her new single-family homes. Mr. Williams, the Houston-area architect, designs homes that store rainwater in metal or fiberglass tanks.

Want to go green without ripping out the pipes? Consumers can find myriad home items, including off-the-shelf energy-efficient appliances, carpets made of natural and recycled materials and an assortment of compact fluorescent lights. Many people who tear out a major appliance will replace it with an EnergyStar version, says Mr. Winter, the building consultant. Sherwin Williams and other major manufacturers now make indoor paints low in volatile organic compounds. And any number of quick, inexpensive, such as replacing an older shower head with a low-flow model, make contributions. (See a list of energy-efficient home upgrades here.)

Interface Carpets makes a nontoxic residential carpet from recycled plastic bottles that comes in adhesive squares of different colors that can easily be laid down in a solid color or patterns. Reclaimed wood from demolition and salvage projects has been made into everything from countertops to furniture, available from vendors such as the Wooden Duck in Berkeley, Calif. Teragren LLC, Bainbridge Island, Wash., supplies bamboo floors, stair parts and cabinet paneling.

Some green-home advocates say that while replacing rugs and appliances might make a homeowner feel good, the impact on the environment is small. "It's stickier if it's a repair or an adjustment -- does a green bathroom or kitchen make a substantive contribution?" asks Jay Hall, a consultant to the U.S. Green Building Council.

But others contend that every green choice counts. "Green remodeling is good -- it's the low-hanging fruit," says Ms. Otto, the Seattle realtor. "If you're going to stain the floors, use a stain that has no volatile organic compounds. Put weather strips on your door, or insulate the pipes. We're definitely into whole-systems thinking, but if people can only do one thing, at least they're doing that. The aggregate is great."

HERE COMES THE SUN

Many states and the federal government offer incentives for renewable energy devices. Here's a look at some tax credits available for energy-producing solar-panel systems.

Federal	30% of cost, up to \$2,000 (as of 2006)
Montana	100% of cost, up to \$500
Massachusetts	15% of cost, up to \$1,000
Arizona	25% of cost, up to \$1,000
Hawaii	35% of cost, up to \$1,750
Utah	25% of cost, up to \$2,000
Rhode Island	25% of cost, up to \$3,750
New York	25% of cost, up to \$3,750 (after 9/1/2006, max rises to \$5,000)
Oregon	50% of cost, up to \$6,000 (as of 2006)
North Carolina	35% of cost, up to \$10,500
Iowa	1.5 cents per kilowatt-hour
Maryland	20-25% of cost, no cap set yet
North Dakota	3% per year, over 5 years
California	7.5% of cost or \$4.50/MW of rated peak generating capacity, whichever is less

Source: Database of State Incentives for Renewable Energy