



house. warming

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Eight stops on the Solar Energy Tour today shine light on the latest in green-building techniques

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REAL ESTATE EDITOR

Green is gold in Durham. "La Dolce Vita," an entry in the 2006 Parade of Homes, sponsored by the Home Builders Association of Durham, Orange and Chatham Counties, won first place in its category. Strolling through the \$2.5 million house, visitors can easily see features that make the mansion a winner. But some of its best features go unnoticed by those paying attention only to countertops and faux painting.

"La Dolce Vita" is a solar house and is one of eight stops on today's solar energy tour.

Solar buildings will be open for inspection today across the country in tours organized by the American Solar Energy Society. Clean Energy Durham will kick-off the Durham tour at 9 a.m. at the East Regional Branch of the Durham Library with a celebration and updates on energy-efficient and environmentally friendly materials and systems. Once the buildings on the tour open at 11 a.m., registered tour-goers have the next six hours to visit any or all of the six private residences and two county buildings that showcase green-building techniques.

Dr. Ed Cox is the chairman of this year's tour. An oncologist who practiced in Durham for 29 years, Cox has devoted himself full time to volunteering with the N.C. Solar Energy Association.

"I have an interest in moving society toward sustainable techniques in general," Cox said. "The more efficiently we use energy, the more we can cut down on illness and death that comes from pollution and [we] can slow global warming."

Buildings on the tour show a wide range of how energy efficiency can be expressed, be it in a multimillion-dollar mansion or a wastewater treatment plant. Stops in between show off a Habitat for Humanity house that exceeds Energy Star standards and a Durham Community Land Trust house with monthly energy bills of no more than \$35. A builder will exhibit a healthy house she built for herself. The tour will include a recently constructed solar home and a retrofitted arts-and-craft cottage built in the 1920s.

The Triangle Wastewater Plant, a stop on the tour, is the only LEED-certified wastewater treatment plant in the United States. LEED stands for Leadership in Energy and Environmental Design, and buildings are evaluated and certified based on criteria for four different levels of energy efficiency.

IF YOU GO

WHO: The Solar Tour is sponsored by Clean Energy Durham, affiliated with N.C. Solar Energy Association.

WHAT: Energy experts present the latest green-building techniques, systems and materials, followed by a guided tour of two county-owned buildings and two private residences showcasing green-building applications.

WHEN: Today, Oct. 7. Registration is from 9 to 11 a.m. Presentations by experts is from 9 to 11 a.m. and tours are open from 11 a.m. to 5 p.m.

WHERE: Registration, and the first tour stop, is at the East Regional Branch of the Durham Library, 2111 Wake Forest Highway/N.C. 70, east of U.S. 70.

HOW: Pay \$10 per person or \$15 per carload. NCSEA members pay \$5.



The 1920s cottage renovated by Aaron Lubeck retains its artistry while being more energy efficient.

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GREEN

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Cox is pleased to see builders embracing the new certification. High energy costs in parts of the United States and Europe have shaped the consciousness of homeowners, he said. "Californians use about half the energy per person that we do in the Southeast," he said, because of legislation mandating energy efficiency. Cox would like to see home builders offer only energy-efficient construction options.

And some builders are moving in that direction. Anderson Homes, Cimarron Homes, Drees Homes and Southern Energy Management have formed a partnership to boost public awareness of the benefits of the Energy Star homes that they build. The Co-op Energy Star Initiative they have created is leading a branding campaign to familiarize consumers with Energy Star advantages.

Nine of the 99 homes in the 2006 Parade of Homes were green-built, including "La Dolce Vita."

Rex Bost, whose company, Bost Custom Homes, built "La Dolce Vita," said the owners of the suburban estate are very energy-conscious. So even though, at 8,700 square feet, the home does not buy into the not-so-big-house philosophy, it is a masterpiece of green-building techniques.

The process began with site selection, a wooded lot in a gated community in Durham, just over the Chatham County line. The owners wanted to preserve as many trees as possible, Bost said. Selecting which hardwoods had to go was a painful process.

"Finally, I told them, 'You have to let me cut down some trees if I'm going to build this house,'" Bost said.

The solar panels that sit like an epaulet on the roof of the three-car garage draw in solar energy that is stored in a bank of solar batteries on the ground level of the home. The batteries can provide more than three days of power to the critical systems of the home, should the house go off-grid. Unused power can be sold back to the utility company through the state's Green Power program. A solar water-heating system provides 75 percent of the hot water the owners use.



Bost framed the house in concrete block, which provided the large thermal mass needed for passive solar heat conservation and absorbed noise. He used Isonene spray-foam insulation up to the roof, so that the attic was part of the conditioned space. The high-efficiency HVAC system, properly sized to control humidity, can operate in conditioned space, increasing the life of the equipment. He installed an energy-management system that runs equipment in cycles to avoid peak energy demand periods.

Recycling by renovating

Aaron Lubeck of Trinity Design Build has been going on solar tours for years, fascinated by the technology. Yet it was not lost on the aficionado of historic homes that all of the houses on the tours were new construction.

"There are more existing homes out there than new ones," said Lubeck, who has made a career of renovating historic homes to become energy efficient. "Old houses have huge energy deficiencies, but also have some good things to work with."

In retrofitting a 1920s cottage, Aaron Lubeck of Trinity Design Build added insulation to the walls and installed storm windows over the original windows, preserving their hand-crafted woodwork while pumping up their insulation value. He also added French doors and a skylight for the new kitchen.

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Architects of decades ago understood daylighting — their designs featured large windows and lots of them. The houses were built with renewable resources, as in the hardwood floors, rather than modern synthetics and laminates that outgas.

Old houses, though, often lack adequate insulation. And all those windows of single-pane glass contribute to the problem.

"Our preservation consultant said, 'The first thing you have to keep are the windows.' Our energy consultant said, 'The first thing that has to go are the windows,'" Lubeck said.

In retrofitting the 1920s cottage, Lubeck augmented the insulation from an

R-2 value to an R-30. He added insulation to the walls, and installed storm windows over the original windows, thus preserving their hand-crafted woodwork while pumping up their insulation value. Lubeck would love to have added solar panels or a solar water-heating system, but the house was in the shade of a hundred-year-old oak that was "the biggest oak I've seen that is not on Duke's campus," he said. "That precluded us from active solar activity on the house."

Instead, he focused on the benefits of that tree, that its shade could have the cooling effect of two 2-ton air conditioners running 24 hours a day in the summer.

"We can't run solar hot water heating or solar energy, but that big, old oak is saving a ton of energy by being there," Lubeck said. "That's what we have to deal with that most green builders don't."

Retrofitting an old house for re-use is the ultimate in recycling.

Now, toss this newspaper in the recycling bin, load up a car with friends, and go on the solar tour.

