

# Green design

## Environmentally conscious builders think green

BY JANA SOELDNER DANGER

Perhaps it is because of the rising cost of fossil fuels. Or a response to messages like Al Gore's *An Inconvenient Truth*. For whatever reason, green design, the concept of architecture and construction that makes as little impact as possible on the environment, is getting more attention.

Mitch Kunik of Affiniti Architects in Boca Raton is currently designing Solaris, a development of 25 homes in Port St. Lucie, to be as energy efficient as

possible. The designs combine traditional techniques that maximize natural cooling, and combine solar power and computer technology that controls and monitors nearly every function in the homes to reduce the need for energy.

Roofs, built from recycled metal, will have banks of solar panels that will produce much of the required electricity. Motion detectors and timers will automatically turn off lights, and a computer will adjust room temperatures to be higher when people are not at home and lower when they return.

Circulation pumps activated by motion detectors in bathrooms and kitchens will produce instant hot water, avoiding the waste resulting from running the tap while water heats up. Computers will control motorized blinds to change position with the angle of the sun.

The homes will have a Caribbean-style appearance. In addition to high-tech features, they will incorporate elements of passive architectural design that have been used for decades, especially in the years before central air conditioning was common. "It starts with the footprint of the house," Kunik said. "Instead of using all the land to build, you minimize the footprint. That allows more landscaping so water is better retained, and there are more open areas for ventilation."

Houses are oriented to take advantage of natural breezes and mitigate the sun from the main areas of the house. "Overhangs and trellises are used to shade windows from the sun, and trees are planted where they provide shade but don't block the wind," Kunik said.

Some simple and readily available green techniques include tinting windows to minimize heat from the sun, and painting with light colors to reflect heat. "There are now organic paints available based with materials like lime and milk," said William Waters, vice president for design at Coscan Homes.

Metal roofs are more expensive, but they're also more energy efficient than tile or shingles, Kunik said. "A metal roof has no mass to store heat, and air moving across it cools it naturally."

Green design includes using indigenous building materials. "When you build with materials

manufactured close to the job site, it means less labor and transportation are required," Waters said.

That can be a challenge in South Florida, where nearly everything is built with concrete. "We don't have the steel here that's required to reinforce concrete," Waters said. "But we do have a lot of recycled steel. People are also looking at fiberglass and other materials to reinforce concrete, which wouldn't meet the code for high rise construction, but would be possible with low rise."

In Europe, innovators are using organic materials like wheat straw and hay bales as reinforcing agents, Waters added.

In addition to solar power, geothermal power is an alternative to traditional energy sources for air conditioning, Williams said. Water below the earth remains at a constant temperature, and designers can create an exchange of heat and cooling in an underground pipe instead of a traditional chiller. The method also avoids the use of chemicals necessary with chillers, Williams added.

When choosing a lot for a home, the prospective buyer would be wise to think about how the home

will sit and how it will affect views. "The west side of a house typically absorbs more heat from the sun, so it's better to have fewer windows there," Williams said.

Green design also involves avoiding waste during construction. "If you design a home to use wood in the size it's typically manufactured, you don't have to cut it off and waste it," Kunik said. "Builders also can have recycling bins on their job sites instead of dumpsters."

Unfortunately, green design comes with a price tag. "It generally costs about 15 percent more to do things to be green," Kunik said. "If you hold the house for more than five years, you start to offset the costs with energy savings."

Some developers consider green design and building a marketing tool to attract buyers who are environmentally conscious. That trend was more prevalent before the current softening of the real estate market, Kunik said. "Right now, the market is fixated on cost," he said. "There's an additional cost to green design and building, so people do it out of a sense of moral obligation or for long-term savings."

When using green design, houses are oriented to take advantage of breezes and mitigate the sun from the main areas of the house.



PHOTO'S COURTESY OF AFFINITI ARCHITECTS IN BOCA RATON



Loggias provide natural cooling with shade and also by blocking direct sun rays from entering the house.



Covered terraces offer outdoor living space and block the sun from the home's interior.

manufactured close to the job site, it means less labor and transportation are required," Waters said.

That can be a challenge in South Florida, where nearly everything is built with concrete. "We don't have the steel here that's required to reinforce concrete," Waters said. "But we do have a lot of recycled steel. People are also looking at fiberglass and other materials to reinforce concrete, which wouldn't meet the code for high rise construction, but would be possible with low rise."

In Europe, innovators are using organic materials like wheat straw and hay bales as reinforcing agents, Waters added.

In addition to solar power, geothermal power is an alternative to traditional energy sources for air conditioning, Williams said. Water below the earth remains at a constant temperature, and designers can create an exchange of heat and cooling in an underground pipe instead of a traditional chiller. The method also avoids the use of chemicals necessary with chillers, Williams added.

When choosing a lot for a home, the prospective buyer would be wise to think about how the home

Green design, the concept of architecture and construction that makes as little impact as possible on the environment, is getting more attention these days.