

dailypress.com/features/home/garden/dp-life_greenhouse_0618jun18,0,1712314.story

dailypress.com

Living Museum showcases green building design and materials in “Living Green House”

[By Mark St. John Erickson](#)

247-4783

10:26 PM EDT, June 17, 2009

No one will ever live inside the new Living Green House that opens Saturday at the Virginia Living Museum.

But that won't keep home owners, home builders and home designers both near and far from making the modest 650-square-foot structure into a magnet for green-minded pilgrims.

Constructed as a permanent showcase for many of the latest designs, techniques and materials employed in earth-friendly building, the demonstration house is one of the first anywhere in the United States — and the only one of its kind in Virginia, museum deputy director Fred Farris says.

Yet unlike ordinary businesses or homes that incorporate environmentally conscious measures in their construction — then cover the evidence up — the Living Green House is intended to make all of its innovations easy to see and understand.

“Most of this stuff has been out there on the market for years. It's been in the news. People have heard about it,” Farris says.

“But for the average homeowner — and even builders and architects — there's really been no place to go to look at green designs and green products and see how they work — at least not until now.”

Created as part of the museum's ambitious \$315,000 Living Green exhibit, the house required more than 18 months of brainstorming and research — largely because there were so few other examples of structures meant to serve as illustrations of eco-friendly building practices.



“The biggest challenge was not the design or the materials,” Farris says, “but how to make it educational.”

Working with Watershed Architects — an award-winning Richmond firm that specializes in green building — the museum found ways to incorporate more than 30 different environmentally oriented design features, building practices and materials in the relatively small structure.

It then made those elements visible through such measures as exposed heating and cooling equipment and electrical lines as well as cutaway windows that allow visitors to peer inside the unconventional walls.

Among the building’s most prominent features is a solar water heater that provides space heating in cold weather through a radiant heating system in the floor. A passive solar system stores additional heat from the low-hanging winter sun in an interior brick wall.

The structure also employs a geothermal heat pump connected to a 350-foot-deep well for both back-up heating and air conditioning.

“It uses the Earth as a heat sink,” Farris says, “and with savings of 25 to 50 percent over conventional equipment, it’s probably one of the most energy-efficient ways to heat and cool a home.”

Large windows line the loftlike space on the second floor, flooding the building with natural light as well as ventilation. Hanging above those is a canopy of photovoltaic solar panels that not only provides shade when needed but also transforms the sun’s rays into electrical current.

“They’re generating electricity right now,” Farris says, describing how the panels can be adjusted to follow the changing angle of the sun.

“And any excess is rolling right back through the lines to Dominion Virginia Power — which will knock a little bit off the museum’s electric bill.”

Other displays showcase several new types of wall construction, including structural insulated panels that are up to 75 percent more energy efficient and three times stronger than the standard 2-by-4 method.

Though they cost more than conventional stud construction up front, the potential savings and increase in performance can make these innovations an attractive investment for homeowners comparing their returns over the long run.

“It’s hurricane-proof, soundproof and termite-proof,” Farris says, describing another new system of walls built with insulated concrete forms. “It’s also incredibly energy efficient.”

Outside, the Living Green House boasts numerous innovative features, too, including a “living roof” composed of 3 to 4 inches of soil planted with no-maintenance vegetation.

Protected by the plants and soil from direct exposure to destructive sunlight, such roofs have lasted 50 years or more in Europe, Farris says. They also provide substantial extra insulation for the interior living space as well as a natural cooling effect.

“Typically, these roofs are found on the top of office buildings three stories up — and you never see them,” he adds. “So we sloped the roof and brought it all down to a more accessible, touchable level.”

Funded primarily by Newport News plumbing and heating contractor George Goodson as well as the federal Chesapeake Bay Gateways Network, the Living Green House and the adjacent 3,000-square-foot “Conservation Garden” represent a significant new part of the nature and wildlife museum’s environmental education efforts, Farris says.

In addition to the permanent displays, visitors will find a computer kiosk where they can calculate their own carbon footprint. They’ll also be able to talk to a museum educator who can provide additional information about green building designs, techniques and materials.

“We’re losing a lot of our wildlife habitat because of all the resources we consume — and our buildings not only consume 40 percent of the energy used in this country but also produce half of all the greenhouse gases,” Farris says.

“So something like this — which demonstrates the kind of impact you can have by building a green house or office — fits in really nicely with our mission of educating people about conserving those habitats.”

News to Use

What: Living Green House

Where: Virginia Living Museum, 524 J. Clyde Morris Blvd., Newport News

When: Dedication at 11:30 a.m. Friday, Opens

Saturday

Cost: \$15 adults, \$12 children 3-12

Info: 595-1900; www.thevlm.org

Copyright © 2009, [Newport News, Va., Daily Press](#)