



# CYPRESS

## Complements Efficient Homes at the Solar Decathlon

Cypress was showcased as one of the most versatile, durable and beautiful building materials available at the U.S. Department of Energy's 2011 Solar Decathlon in Washington, D.C. The biennial competition challenged 20 collegiate teams to build homes that were not only innovatively energy-efficient and environmentally-friendly, but functional, comfortable and affordable.

In that spirit, teams from Florida, New York, and Tennessee complemented their high-technology designs with the durability and natural beauty of cypress, as they used the versatile wood in a myriad of applications ranging from siding and decking to paneling and flooring. With the mix of materials and technology incorporated in their homes, the students proved that the future of design is now.

### Team Florida: *FLeX House*

*FLeX House*—a collaboration of the University of South Florida, the University of Florida, the University of Central Florida, and Florida State University—was

envisioned as a starter home for a young, moderate-income couple. The project team paired cypress with cutting-edge technology to build an efficient, 930-square-foot home that reflects Florida's vernacular architecture.



*FLeX House* featured a simple, but consistent palette of materials that seamlessly merged the interior and exterior spaces. On the interior, cypress was used for flooring, paneling, and trim, which helped express warmth and openness. A sliding cypress door was built to offer privacy between the public and private spaces. The exterior featured cypress siding and decking, as well as a shading structure fabricated from cypress louvers to prevent solar heat gain.



"We feel our house serves as an example of how cypress can be used to make a building more environmentally friendly, energy-efficient, and sustainable," said team faculty advisor, Stanley Russell. Because of its natural resistance to weather, insects and decay, "it's an excellent material to use in Florida."

Following the Solar Decathlon, *FLeX House*—now known as the Zero Energy House Learning Center—is expected to return to the University of South Florida campus where it will be used as a research center for students and faculty, and to educate the public about environmentally friendly buildings.

Estimated to cost approximately \$334,200, the home is available for production. And though the prototype was designed for a couple, the modular design can be adapted to different family sizes and site conditions.

### Team New York: *Solar Roofpod*

The City College of New York's *Solar Roofpod* was designed for the under-used rooftops of the City's existing 4- to 10-story residential and commercial buildings. The 746-square-foot home integrated lightweight, renewable and cost-effective materials like cypress, with advanced solar technology to offer those urban dwellers looking for a more eco-conscious living space, access to sun, ventilating breezes and even rain.

The team carefully evaluated a variety of building materials for availability, durability, and cost. And according to team faculty advisor, Christian Volkmann, "We researched materials that could stand up to the various elements we encounter in our region, and in our research we found that most of the historic piers of New York's Hudson River were constructed from cypress. That's some of the best evidence for its durability."



Cypress mullions framed the home's exterior and cypress also was featured as decking and garden beds that wrapped around the home, providing usable space for entertaining and functional space for growing food.

"We are very proud of our *Solar Roofpod*, especially its warm and friendly appearance created by the use of wood," Volkmann said. "Obviously, the people liked our house. We were runner-up in the People's Choice Award."

The *Solar Roofpod* will be permanently placed at the City College of New York campus, where it will be repurposed as a public exhibit and conference room to educate students, faculty, and visitors about sustainable design in an urban setting.

The *Solar Roofpod* already qualifies for construction Type-2 building permits and can be built in New York City for around \$411,300. The modular design can be adapted for larger families and office space.

### Team Tennessee: *Living Light*

The University of Tennessee's *Living Light* home was designed to reflect the historical cantilevered barns of the Appalachian region. For easy transport, the 750-square-foot home was constructed as the center section of a double-drop highway trailer. And to minimize the project's carbon footprint, the team specified cypress, a local wood, in both traditional and non-traditional applications.



"We were mindful of the energy discourse associated with harvesting and transporting materials from long distances," said project manager Amy Howard. "We chose cypress for the feeling of warmth it conveys, in addition to its durability and low maintenance."

Cypress was used for exterior decking, as well as for built-in furniture, storage, and garden beds for crops and habitat. The use of cypress continued through both of the home's entrances as flooring. "The color, density, and natural decay resistance of cypress made it the best choice for a flooring surface that seamlessly transitions from inside to outside," said James Rose, faculty advisor for Team Tennessee.

Cypress flooring also was featured in the home's mechanical room and throughout the bathroom. "The cypress floor units are naturally mildew resistant, warm underfoot, and easily removable for cleaning," Rose noted. "And by using a raised cypress drainage floor, we were able to remove the traditional shower enclosure, which made the space seem much larger."



Following the competition, *Living Light* travelled around Tennessee, educating the public, the construction industry, and policy makers about energy efficiency and production. At the end of the tour, the home returned to campus to be used to collect data, analyze energy efficiency, and test new technologies.

At an estimated cost of \$470,500, *Living Light* was the most expensive entry in the competition. However, the project team chose to incur greater costs to further outreach, education, and research into technologies applicable to both residential and commercial construction.

For more information about the many uses of cypress, please visit [www.cypressinfo.org](http://www.cypressinfo.org) or scan the QR code below with your smartphone.



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Team Florida photos by Jim Tetro/U.S. Department of Energy Solar Decathlon

Team New York photo on first page by Stefano Paltera/U.S. Department of Energy Solar Decathlon; photo on this page by Jim Tetro/U.S. Department of Energy Solar Decathlon

Team Tennessee photo on the left courtesy of the University of Tennessee; photo on the right by Jim Tetro/U.S. Department of Energy Solar Decathlon