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Collegiate Competitors Construct Green Vision of the Future

By Rosanne Skirble
Washington, DC
13 September 2007

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Solar panels power all system in 'Leaf House'

In mid-October, college students from across the United States will come to Washington to compete in the Solar Decathlon. That's a U.S. Department of Energy-sponsored event that challenges students to design, build and operate a house powered solely by the sun.

The entry from the University of Maryland sits on a grassy lot behind the School of Architecture. Team leader and third year student John Kucia joined the '"Leaf House'" project www.solarteam.org about a year ago in a design class. Since then 250 students, faculty members and mentors from the commercial building trades have worked on the house's many solar-powered systems.

Student construction team manager John Kucia says 'Leaf House' will give him an edge in the job market

Among those systems is the radiant flooring, which Kucia says is cheap and efficient. "We have a special panel that converts sunlight into heat into a fluid. We pump the fluid around the floor and it heats the house."

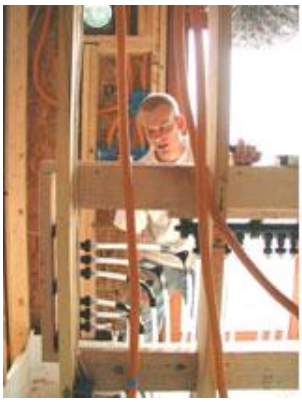
But the solar panels are not yet in place. Kucia motions toward the roof where they will be installed. He says the array will supply enough energy to heat and cool the house, power its lights and run its smart house computer system. "[It] will be examining all the mechanical and electrical components as well as

Students are muscles and managers in solar powered house

windows and doors, the interior and exterior environment regulating the systems of the house."

In other words, lights can be dimmed or air conditioning turned off remotely over the Internet.

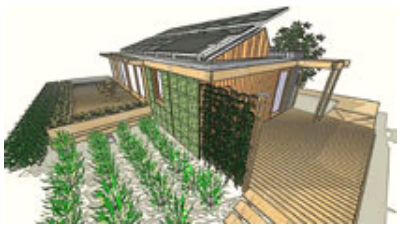
Mechanical engineering student Tyler Sines expects the cooling system (which he helped design) will give the team a competitive advantage.



Engineering student Tyler Sines says 'Leaf House' displays off-the-shelf technology in a new light

He explains that it uses the liquid form of a material commonly found in the tiny packets enclosed with new shoes to keep the footwear moisture-free. "It's the first time," he says, "a desiccant — as its called — has been applied to a home cooling system to suck humidity out of the air."

A homeowner can actually view the cascading desiccant from a showcase built into the wall. Sines says the waterfall-like feature serves both an aesthetic and practical purpose. "You will really see the humidity coming out of the house. You'll see the desiccant being sprayed down. And we will shoot up an air stream to take away all the moisture."



An artist's vision of the south-facing Leaf House green wall

Walking outside, team leader John Kucia explains how one portion of a south-facing wall will help conserve water and reduce erosion of the soil surrounding the house. "We are putting a bunch of planters up on the wall, and when it is fully grown you are going to have a solid wall of nothing but greenery. The gutter systems of our roof will be watering this vertical plant system."

Reflecting the same efficiency of the Leaf House's integrated systems, the student team that designed and built the house works well together, says architecture graduate student Brittany Williams. "We really want to change the way the profession works and allow architects and engineers to work together constantly. It actually makes a more beautiful home, as well as one that is more efficient."

Graduate architecture student Brittany Williams says engineers and architects worked together from the start

Faculty advisor Julie Gabrielli says hands-on experience will help students 20th century problems

Williams believes that what she has learned preparing for the Solar Decathlon will make her more employable. Faculty advisor Julie Gabrielli adds that the students have gained skills that will help them tackle 21st century problems. "I would hope that they would take away from this experience an appreciation for the complexity, but also a confidence that it can be solved when you work with people who have different kinds of knowledge and problems than you."

The University of Maryland "Leaf House" will be trucked in mid-October from its College Park, Maryland, campus to the National Mall in nearby Washington, D.C. There, it will take its place among 20 collegiate entries being judged in the U.S. Department of Energy-sponsored Solar Decathlon.

New house on the block on the University of Maryland campus

Video provided by VOA's Craig Fitzpatrick

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