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Students build solar house

Students gear up for solar competition on National Mall

By: Ben Block

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A three-room house stands on stilts down the road from the College Park Metro Station, awaiting its journey from College Park to the National Mall in Washington to a farm outside of Dickinson, Md.

With only six days remaining until their deadline, the 2005 Maryland Solar Decathlon Team, a group of more than 100 engineering and architecture students, is working from dawn to dusk to finish their two-year-old project.

They are creating a fully-functional solar house to compete against 17 universities from around the world in the U.S. Department of Energy's Solar Decathlon.

The contest's winner is decided according to 10 categories based on design, comfort and adequate utilities. The house must rely entirely on solar energy.

The winner receives no prize, except bragging rights.

"Just to say that you've got the best solar house in the competition ... and having our work displayed on the Mall is good enough for us," said Rob Murray, the team's project manager.

The university also competed in the first Solar Decathlon in 2002, finishing in fourth place. Following the competition, the house's roof fell off, and after a night's rain the house was ruined and sold in pieces.

This year, the house has found a home. Following the competition, the house will be donated to Red Wiggler Community Farm, a sustainable farm employing adults with developmental disabilities such as Down Syndrome, autism and mental retardation.

"The house really echoes our mission; it's about sustainability, about taking care of ourselves," said Wood Woodroof, the farm's executive director and founder. "The house will be self-sufficient. Our hope is that we're helping people to become self-sufficient through our program."

The house is a display of cutting-edge energy-efficient technology and design.

Outside, cedar siding surrounds the house, and 51 solar panels cover an arching roof, designed to reflect the path of the house's energy source, the sun.

Inside, when completed, the floor will be covered in bamboo and heated using hot water pipes evenly displaced underneath the floor. Sixteen windows line the north and south walls, painting the white walls with sunlight. The master bedroom, living room and kitchen will all be complete with energy-efficient furniture and appliances, such as a magnetic stove top that heats up when metal touches it.

"It's a constant battle to make sure we're making progress," said Murray, a civil engineering major who graduated in May. "I didn't know anything coming into this, just came out thinking it would be pretty simple, but it exploded in scope."

"Everybody here is learning. Everybody's grown a bit," Murray said.

Most of the students who have participated in the project have received credit either through the A. James Clark School of Engineering or the School of Architecture. Due to the longevity of the project, many students have become graduate students or, like Murray, have graduated.

"He's basically delaying his life for this," said Johnny Price, a junior mechanical engineering major, about his teammate.

The project began in spring 2004 when Ralph Bennett, a professor of architecture, gave his graduate students the assignment to design the solar house. The class created eight different designs, and the Solar Decathlon Team voted for their favorite.

"Having architects and engineers work together is not easy, but they made it work," Bennett said.

The students began construction this summer. They created the foundation, floor and walls all on their own.

"It's a chance to do a lot of things I'd never learn anywhere else," said Dan Vlacich, a graduate electrical engineering student.

However, eventually the team realized they needed professional construction help.

"It'd be nice to do it all by ourselves, but considering the time constraint, we didn't have the time to make mistakes," Murray said. The team partnered with Whiting-Turner Contracting Co. to gain the help of experienced craftsmen, plumbers and electricians.

Even with the aid of the construction company, the students are doing the bulk of the work by themselves.

"The students have done everything: architectural design, technical design, finances, construction site management, you name it," said Kaye Brubaker, the team's faculty adviser. "With a project like this, they could have so many problems, but they gelled together, rose as a team and made a gorgeous house."

The project cost about \$300,000, Brubaker said. Funding came from the Maryland Energy Administration, alumni, the Office of the Provost and the engineering and architecture schools.

On Wednesday the house will be placed onto a house-moving truck and driven to the National Mall to compete in the decathlon. Their house, and others from Canada, Puerto Rico and Spain, will be on display to the public from Oct. 7-16.

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