

## LTU student energy builds solar house

BY SANDRA ARMBRUSTER  
STAFF WRITER

Phil Plowright recalls the day when men from the Michigan Regional Council of Carpenters walked on site at Lawrence Technological University.

"A student said, this is 'theory and practice meets reality,'" said the assistant professor and licensed architect. The student was envisioning that motto of the university coming to life.

The carpenters — and professional plumbers, electricians and roofers — were bringing real world skills to the LTU students involved in building a house.

Daryl Herbert of Commerce Township seemed to understand. "The fact is, so few students build an entire house," said Herbert, who will graduate after completing a directed study on the project.

But it isn't just any average house.

The house under construction in a parking lot at LTU takes the concept of sustainability to the nth degree. Sustainability means that the building, which uses solar power, won't leave any impact on the power grid, Plowright said.

An 800-square-foot structure, it uses a solar chimney for cooling, and photovoltaic cells and evacuated tube systems for heating water and powering electricity stored in batteries.

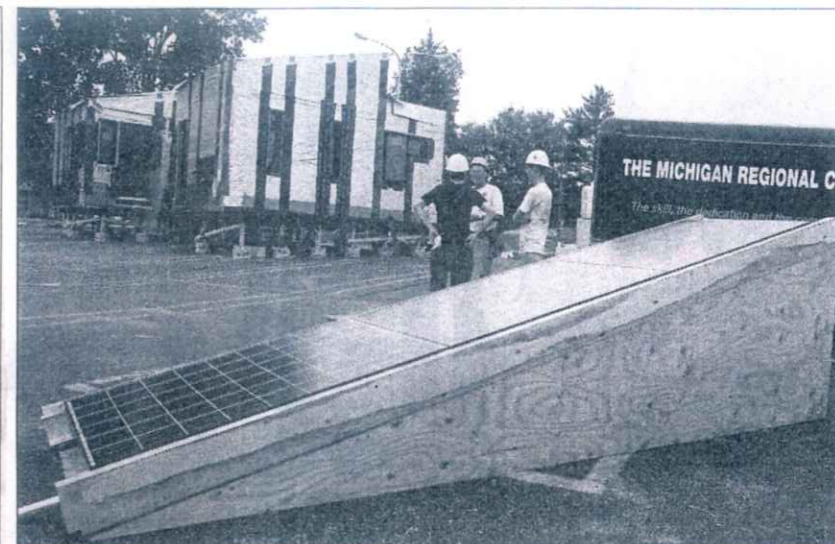
Chris McCarthy of Rockwood, who is beginning his senior year at LTU, was busy leading work on the electrical systems. He said an inverted power solar panel will be connected to 120-volt AC for household use.

It gets better. The exterior panels are made of thick paper. "It's so strong, you could take a hammer to it without damaging it," Plowright said.

Just as Plowright was speaking, a student drove by in a car not much bigger



Carlos Lopez (foreground) of Brazil and Scott Salvaggio of Sterling Heights, both members of the Lawrence Technological University solar house architectural and design team, work on the composite deck of the home.



Several solar panels (foreground) will be used to power the Lawrence Technical University's solar house (background). Students will take the house to Washington D.C. for the Solar Decathlon competition.

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than he was. "That's our car," Plowright said.

The very special car is part of the Solar Decathlon that LTU students, known as "Team ALOeTERRA," are competing in with the house this October in Washington D.C. The competition is sponsored by the federal Department of Energy to "kick start" education on residential application of sustainable energy practices.

Plowright explained that, as part of the competition, students must not only build a sustainable house, they also have to build a house that produces enough energy to power the electric car.

Under construction since January 2006, the internal deadline for finishing the house is Sept. 1. The public will be invited to view it in mid-September. Then it will be broken down and trucked to Washington for reassembly on the National Mall.

That will be no small task, and since it hasn't been done before, no one is totally sure how long it will take. There will be a dry run at LTU that Plowright estimates will take three days.

Cost of transporting the house is estimated at \$50,000.

Plowright explained that it will take three oversized trucks carrying sections of the house, with the required car before and after each, and in some states a police escort that LTU must pay for.

Cost to put the house into production would be about \$200,000, Plowright said, but this model, including the trip to D.C., will cost about \$600,000. The project is still short of its fund-raising goal, but has been helped in large by the best ever alumni and staff giving campaign at LTU. Added to that are the many in-kind contributions.

Tuesday morning the excitement of students, employed for the summer as interns, was palpable. Christina Span of Madison Heights was painting the metal substructure for a 1,100-square-foot outdoor deck. The deck is to become an extension of the living space, as well as provide access to those with physical challenges.

One of the main tasks for Carlos Lopez of Brazil was designing the roof and trellis that will extend over the deck. "The deck is pretty amazing," he said. "It's super exciting. Usually you just do a project and not see it go anywhere. Now we're actually building it on a 1-to-1 scale."

Span agrees that "First, it's a really good learning experience, and it's also really exciting." She just graduated, but

competition before taking a year off from studies and then going to graduate school.

The excitement comes, Span said, from "actually seeing the house built and finding sustainable building systems — things that can be used in homes of the future."

The future of the solar house — and education about sustainability — will continue with plans by the Troy Chamber of Commerce to buy the house and relocate it to somewhere in the city as a demonstration project.

Herbert was installing everything from energy use to air temperature, with the support of DTE Energy for collecting data in real time.

For now, the house, from concept to completion, is a learning experience for the 40 to 50 students who have worked on it.

"What's important is, that students are supervised, but they have to make their own decisions," Plowright said. "They have to be free to make a mistake."

That means if an issue involves esthetics or personal taste, students do what they want, even if Plowright disagrees. If it is a technical matter, Plowright has to then step back to view what led to an error.

The mood of the students "oscillates between incredibly