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Sun Power

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This fall, a "new" Kentucky home will go to the National Mall. And the UK team that's taking it there hopes that—true to our state song and its older, Bardstown counterpart—the sun will shine brightly on it.

The prototype house is an 800-square-foot, fully equipped, single-story home that uses only solar energy to power it and is designed to achieve net-zero—creating at least as much energy as it uses.

The University of Kentucky is one of just 20 universities chosen to participate in this year's prestigious Solar Decathlon, sponsored by the Department of Energy and held biennially in Washington, D.C.

Since January 2008, a team of literally hundreds of students, faculty, and staff across six colleges and 16 centers at UK has culled through a bevy of design layouts and materials options to settle on just one model, which they began constructing this March. They hope to complete construction and testing on campus in 22 weeks.

In early October, UK's solar house will then travel to D.C. and be reassembled in just four days. There, it will be judged on everything from architecture, engineering, and market viability to its performance, comfort, and livability. Teams will have to prove that, using just solar power, their homes can do what any other real-world home can do—from running TVs and computers to heating water and drying towels under a specified time.

When the house's solar systems are maximized, an estimated 250,000 Mall visitors will literally be able to see its electricity meter running backward.

"Energy efficiency is one of the cornerstones of sustainability, and this real-world project really drives that home," says Greg Luhan, associate dean for research in UK's College of Design and architecture team leader for the project. "To be able to show that you can viably generate electricity using solar energy and broadcast that to the world is a fantastic opportunity for our students."

With a perforated cement fiberboard exterior—chosen because it doesn't degrade—and its roof a massive photovoltaic panel harvesting the sun's energy, UK's home will look strikingly modern. And yet it's grounded in Kentucky traditions. The intricate joinery connecting the exterior panels reminds many of a Shaker box. The exterior decking will be made from Kentucky trees felled by this year's ice storm. Its exterior landscaping on the Mall will be a palette of Kentucky—from tobacco and sumac to tufts of blue fescue and even coal.

At every turn, choices were made to make the house as environmentally friendly as possible: Energy Star appliances, high-efficiency toilets and fixtures, a rain-water collection system, and an energy management system that harvests natural light during the day and controls illumination at

night. Materials were chosen only if they were truly green at every stage of their manufacturing process. Kentucky products were used whenever possible.

UK's house has other, even more breathtakingly innovative, design features that couldn't be divulged at press time. (We didn't want to give the other universities' teams too early a heads-up.) But trust us, they're cool.

The goal was to make the interior of the house adaptable to the people living in it, Luhan says, designing it for the "aging in place" concept—so that you could buy the home as a 20-something and it would still be a livable space for you at 80.

After the Solar Decathlon, the UK team hopes its home will tour the state so Kentuckians can see it firsthand.

Working on the UK solar house has been an "opportunity for immersion into current trends in high-performance building design, and a chance to push the boundaries of conventional building," says Al Ataide, who is in his third year at the UK School of Architecture. "Ultimately, I hope UK's participation will help generate more interest in renewable energy and sustainable design in Kentucky."

KEYWORD EXCLUSIVE: 2009 SOLAR DECATHLON

The 2009 Solar Decathlon competition will take place October 8-16 on the National Mall, with houses open to free public tours October 9-13 and 15-18. The winner is the team judged to have produced the most attractive, effective, and energy-efficient house, as measured by a set of 10 contests.

For a complete listing of the universities participating in the 2009 Solar Decathlon and details on how the houses will be judged, go to [UK solar house](#).