



blue
live.light

June 2009

Issue One

SpotLight

Newsletter of the University of Kentucky 2009 Solar Decathlon Team.

Page One

Solar Team Makes Headway

By Michael Conway

The initial ideas for competing in the 2009 Solar Decathlon started in December 2007 when Donald Colliver, the Project Team Leader and Gregory Luhan, the Architecture Team Leader, wrote a grant to the Department of Energy. In January, Colliver and Luhan learned that their submission was successful. They quickly began to educate University of Kentucky students on how to effectively design solar buildings that could harvest the sun for energy. Over 135 students and 39 design teams across the University submitted models to the team with the top 5 receiving awards.

Since the summer of 2008, Colliver and Luhan have been working to develop one solution



Ross Graham, a UK College of Design student works on the s.ky blue solar house structural frame

from the five designs. Their efforts resulted in one final design of the house for which construction documents were completed in March 2009. Construction also began at that time.

For about a month now, construction has been underway. With the structural frame finished, the team is in the process of putting in the wall structures and conduits. The team hopes that by the end of June the house will be completely watertight. On June 2 their final drawings, communications plan, and graphics are due to the Department of Energy.

Once submitted, the team will continue to work on the construction of the house until it can be tested. In August and September, Gregory Luhan said, "The team will practice taking the house up and down to develop a construction-based choreography, so that every student and team member knows exactly what they will be doing when they get to the Mall."

The house and the team head to the National Mall in Washington D.C. in late September, and drives onto the Mall at midnight on October 1 to begin the Solar Decathlon competition.

Progress Report

Page Two

Bringing it Home

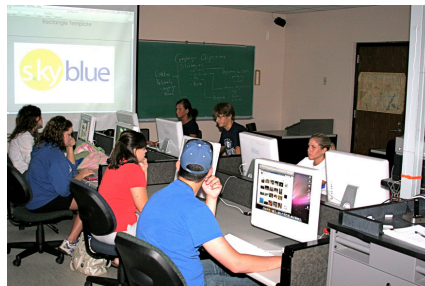
Page Three

Events

Meet the Team

Page Four

Our Sponsors



School of Journalism students create promotional and educational materials for the UK solar decathlon project



SOLAR DECATHLON



By Kentucky. For the World

By Maria Zumdick

The University of Kentucky team wants to broadcast its innovative solar and energy concepts to the world. Using the 2009 Solar decathlon event as a springboard to address local issues that have global implications, the UKY solar decathlon team has incorporated Kentucky ingenuity and products into its design.

The result of this assimilation was a fully-integrated house that has been described by many as a “Shaker Box.” The team liked the Shaker reference because the Shakers, “were very forward thinking in terms of their relationship with the earth. They were also very conscious about the siting of their buildings, their orientation, and their relationships to light,” said Gregory Luhan, the Architecture Team Leader. The team has brought those concepts to bear on their high-performance solarhouse so that, “every detail, every window, and every system, combines to form a holistic, well conceived, project that is net-zero in terms of energy usage,” said Luhan.

Students at the University of Kentucky often visit the Shaker Village at Pleasant Hill, Ky., which is 30 minutes from the UK campus, to learn more about the Shaker’s relationship to light, their use of color to delineate space, and their attention to detail as manifest in their simple, yet elegant furniture. Many of these concepts have been incorporated into Kentucky’s solar house.



Greg Luhan and Maria Zumdick review plans for the house



A model of the house renders a Kentucky landscape as a series of perforations in the siding

The house also references the historic Kentucky breezeway plan, which by design naturally creates airflow throughout the house from all directions. “The planning and orientation of our house allows the whole house to breathe and take advantage of all of the things in nature that are free such as the prevailing winds, solar orientation, and daylight harvesting,” said Luhan. But make no mistake, while this house references the past, it is very leading-edge and forward-looking.

To help bring the spirit of Kentucky to Washington D.C., the team developed a scripting process to render the house’s facades as an integrated and illuminated billboard. Perforation patterns on the exterior of the house depict a Kentucky farm through daytime shadows and at night through light.

Throughout the project the team has featured local manufacturers, products and agencies. The team has collaborated with General Electric at Appliance Park in Louisville to design and integrate new products into the house, which GE hopes to market after the event. Messer Construction and Denham-Blythe, which are area contractors have offered guidance to the project and the solarhouse design has been vetted by local engineering, architecture, interior design, and lighting design firms, to help educate students about what to expect during the design and construction processes.

Clearly, building a quality solarhouse to help address a global crisis is not the University of

Kentucky’s only goal during the 2009 Solar Decathlon. But with their use of local resources, the team hopes to show how Kentucky’s research can be showcased to the world.



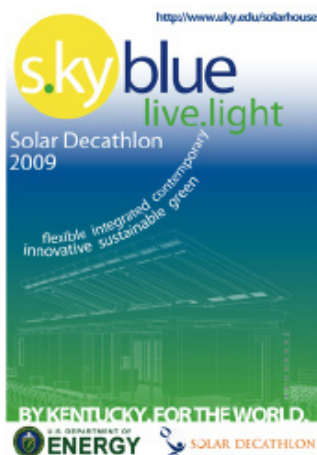
s.ky blue Events

Design and Energy Initiative Exhibition

On May 8, the Solar Decathlon team unveiled a 1"=1'-0" scaled model of the s.ky blue house at the UKY College of Design's Design Energy Initiative (DEI) Exhibition. Along with the model, the team displayed drawings, animations, and full-scale mock-ups of the house and its unique features that the team hopes will make their entry very competitive. The exhibition highlighted five design research projects and initiatives related to sustainable manufacturing. It also showcased the Henderson Project, which featured photographer Frank Doring's wall-sized photographs of a decommissioned coal plant in Henderson, KY. Other key energy-related initiatives featured were Project Aeolus's wind generation studies for the University and a series of coal fly ash furniture prototypes.

Earthdays in the Bluegrass 2009

The Solar Decathlon team participated in the "Earthdays in the Bluegrass 2009", an event that promotes sustainability in Kentucky through a series of events. The celebration lasted throughout the month of April and was held at several locations across the University of Kentucky and throughout Lexington. For Earthdays in the Bluegrass, the team designed a banner featuring several attributes of the s.ky blue house. The banner was hung at the William T. Young Library for over a week.



The s.ky blue banner that hung in the William T. Young Library for Earthdays in the Bluegrass

Meet Jeff Kellow



What are you doing right now at the University of Kentucky?

I am a graduate student now in the Biosystems and Agricultural Engineering program; I earned my BS in Mechanical Engineering here at UK. I am working on the design of the control systems for the house as my Master's Thesis.

What attracted you to the Solar Decathlon competition?

I was drawn to the Solar Decathlon project through conversations with my graduate adviser, Dr. Donald Colliver. Previously, Dr. Colliver was my professor in one of my seminal heating, cooling, and ventilation courses that I took my senior year. I have always been interested in construction and architecture since I was a kid. And when he presented the project to me I saw the Solar Decathlon as an opportunity to learn more about the fields of construction and architecture while advancing energy-efficient practices.

What do you want people to take away from their experience with the s.ky blue solar house?

I hope people come away from the Solar Decathlon feeling empowered to conserve and consume less energy. I hope that every one realizes the choices that we make impact more than just our individual day-to-day living.



SpotLight

Thanks to Our Sponsors



SOLAR DECATHLON



imagination at work



How to Contribute

Monetary contributions may be made two ways: on-line or by check. For online giving opportunities, go to: http://giveto.uky.edu/UK_p/uk.htm. Under Gift Information, type in "solar house" and then follow the instructions to make your gift. To make a gift by check, make it payable to the University of Kentucky, noting on the check that the gift is designated for the Solar House. Send your check to: Sharron Townsend, Director of Development, UK College of Engineering, 253 Ralph G. Anderson Building Lexington, KY 40506-0503. Contributions of materials, equipment or other gifts-in-kind may be made by contacting project leaders Don Colliver at colliver@bae.uky.edu, 859.257.3000 ext.200, or Greg Luhan at gregory.luhan@uky.edu, 859.257.6568. Both can give you the specifics regarding needed materials, equipment, software, etc.