

Insulated Undulation at the University of Kentucky's Sky Blue House: Solar Decathlon

To see how the newest innovations in solar power and energy efficiency can be incorporated into homes, we headed down to the Solar Decathlon on the National Mall in Washington, D.C. The competition, run by the Department of Energy (and sponsored in part by Popular Mechanics), pits 20 college teams against one another in a showdown of architecture and engineering.

By Harry Sawyers

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At first glance, the exterior of the [University of Kentucky's Sky Blue](#) house appears perforated with a seemingly random series of holes. Lit at night, though, the machine-milled pinpoint holes in the cement fiberboard cladding evoke the rolling landscape of the Bluegrass State. It's a moving sight. During a visit to the home, PM overheard one Kentucky engineer ask of another, "Is this the Lido deck?"

Inside, a clerestory window around the home's perimeter lightens up the rich wood paneling covering most of the indoor walls. On larger windows, electronic tinting kicks in when sensors detect rapid temperature gains. Faculty architecture team leader Greg Luhan calls the concept "daylight harvesting," with all the control of the crop that the phrase implies. Triple-insulated glass maintains a constant indoor temperature, along with walls insulated to a total of R-60. As Luhan puts it, "Essentially, the house is a cooler."

Optimal photovoltaic output per hour: 13 kilowatts.

2009 SOLAR DECATHLON TEAMS



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