

Home sweet lab: Computerized house to generate as much energy as it uses

Eurekaalert!

In a ribbon-cutting ceremony on Sept. 12, 2012, the U.S. Commerce Department's National Institute of Standards and Technology (NIST) unveiled a new laboratory designed to demonstrate that a typical-looking suburban home for a family of four can generate as much energy as it uses in a year. Following an initial year-long experiment, the facility will be used to improve test methods for energy-efficient technologies and develop cost-effective design standards for energy-efficient homes that could reduce overall energy consumption and harmful pollution, and save families money on their monthly utility bills.

The unique facility looks and behaves like an actual house, and has been built to U.S. Green Building Council LEED Platinum standards—the highest standard for sustainable structures. The two-story, four-bedroom, three-bath Net-Zero Energy Residential Test Facility incorporates energy-efficient construction and appliances, as well as energy-generating technologies such as solar water heating and solar photovoltaic systems.

"Results from this lab will show if net-zero home design and technologies are ready for a neighborhood near you," said Under Secretary of Commerce for Standards and Technology and NIST Director Patrick Gallagher. "It will also allow development of new design standards and test methods for emerging energy-efficient technologies and, we hope, speed their adoption."

Funded by the American Recovery and Reinvestment Act of 2009, which included green technologies among its priorities, the facility was built almost entirely with U.S.-made materials and equipment. Through its Building America effort, the Department of Energy (DOE) provided architectural design, training and management support for this project. Deputy Assistant Secretary for Energy Efficiency Kathleen Hogan represented DOE during the ribbon-cutting.

For the first year of its operation, the lab will be used to demonstrate net-zero energy usage. NIST researchers will use computer software and mechanical controls to simulate the activities of a family of four living in an energy-efficient home. No actual humans will be allowed to enter the house during this time so that researchers can monitor how the house performs, but lights will turn on and off at specified times, hot water and appliances will run—and small devices will emit heat and humidity just as people would.

A solar photovoltaic system will generate electricity to power lights and appliances when weather permits, and excess energy will be sent back to the local utility grid by means of a smart electric meter. The house will draw energy from the grid on days it cannot generate enough on its own, but over the course of a year it will

Home sweet lab: Computerized house to generate as much energy as it uses

Published on Electronic Component News (<http://www.ecnmag.com>)

produce enough to make up for that purchased energy, for a net-zero energy usage.

During the ceremony, Rick Fedrizzi, president, CEO and founding chairman of the U.S. Green Building Council, announced that the Net-Zero Energy Residential Test Facility has earned a LEED Platinum rating.

NIST researchers plan to make data from the net-zero experiment available online so that researchers and the public can follow its progress.

Source URL (retrieved on 03/28/2015 - 12:16am):

http://www.ecnmag.com/news/2012/09/home-sweet-lab-computerized-house-generate-much-energy-it-uses?qt-recent_content=0