

## 1930s home goes green

August 5 2009

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A 1930s house built in 2008 is about to undergo the first of three energy efficiency upgrades which will ultimately convert an energy inefficient house into a zero carbon home designed to meet the Government's 2016 CO<sub>2</sub> targets for all new housing. The results of this research will be relevant to millions of householders across the UK.

The University of Nottingham had to seek special planning permission to build the house to 1930s specification. Over the next two weeks it will be upgraded with cavity wall insulation, loft insulation, draft proofing and double glazing together with a host of other energy saving devices and equipment.

The three year research project is being led by experts from the School of the Built Environment together with the energy firm E.ON.

Dr Mark Gillott, who is leading the research, said: "The house provides us with a unique test facility to measure the exact cost benefit, energy efficiency and carbon reduction figures achieved through the various upgrade measures we are implementing over the next two weeks — valuable information when deciding on which of the many energy efficiency measures are the most cost effective."

The 1930s semi is an icon of its age. Three million were built and they are still a major part of our current housing stock.

The E.ON 2016 House is the most comprehensive 'big brother' study of its kind. This 1930s style house bristles with more than 100 sensors to

monitor [energy use](#), temperature and humidity, making it one of the most sophisticated research houses in the world.

The house was designed as a typical 1930s semi — with open fires, single glazed windows, inefficient gas or electric water heating and no insulation. For the last eight months Changhong Zhan, a research fellow at the University, and his family have been living there while researchers monitored their [energy consumption](#) and the building's energy loss.

He said: "In general it's a bit uncomfortable living in the E.ON House. We have no central heating, only electrical heaters. To save electricity and money we tried to stay in one room, normally the dining room, and turned off electrical heaters in other rooms. If we moved into other room we would feel cold, especially when having a bath or a shower. When we went out we had to check that each electrical heater was switched off. A hot-water bottle was often used at night to keep warm and save electricity. To prevent cold air coming into the room, we squeezed papers into gaps of windows and doors."

Dave Clarke, Head of Research and Development at E.ON said: "Recently we've been attempting to find out where the house was losing hot air by pressurising the building and then attempting to monitor where the worst of the heat loss was. What we found was that we simply couldn't pressurise the house — there were so many leaks that, as soon as we pumped air in, it was coming out.

"This might be the extreme example but millions of us live in homes like this. Our homes are responsible for almost a third of the CO<sub>2</sub> emitted in the UK, so any benefits we identify here could go on to lower the bills and the carbon footprint of millions of families."

Once the upgrade is complete the project team will be back to assess the benefits of the low carbon technologies which can be fitted to existing

homes, and the impact of using natural resources such as the sun, wind and rain.

The work will be carried out from Monday August 3 2009 to Friday August 14 2009.

The E.ON 2016 [House](#) is part of the Creative Energy Homes project which has seen a total of six new homes built on University Park. Green Close showcases innovative state-of-the-art energy efficient housing of the future. The project is testing of different aspects of modern methods of construction including layout and form, cladding materials, roof structures, foundations, glazing materials, thermal performance, building services systems, sustainable and renewable [energy](#) technologies, lighting systems, acoustics and water supply. The project aims to stimulate sustainable design ideas and promote new ways of providing affordable, environmentally sustainable housing that are innovative in their design.

Source: University of Nottingham ([news](#) : [web](#))

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