



Green living

Reducing CO₂ emissions and energy consumption is on everybody's mind, and 'green' building is a particularly promising endeavor in this regard. In Great Britain, the University of Nottingham and BASF have teamed up to develop a creative energy house that is not only energy-efficient but affordable as well.



How does it feel? The two researchers testing the BASF Energy House are especially impressed by the climatic effect of the 'sunroom'.

This is a unique opportunity to experience energy-saving technologies up close and become familiar with them," says Deborah Adkins, doctoral candidate at the University of Nottingham. She and Nina Hormazábel Poblete, a visiting doctoral student from Chile, are living in the BASF Energy House for one year as part of a project to test out energy-efficient concepts, construction techniques, and technologies. This little residence is the first

of six prototype 'Creative Energy Homes' built on the University of Nottingham campus that employ energy-efficient construction materials made by the BASF Group to meet the low-energy standard. The project was initiated by the University of Nottingham's prestigious architecture department, the School of Built Environment, with the goal of demonstrating a tangible example of innovative and sustainable living. Officially completed in January 2008, the

BASF Energy House was built under the requirements that it had to be affordable – even for first-time homebuyers – and flexible enough to allow duplex and townhouse versions.

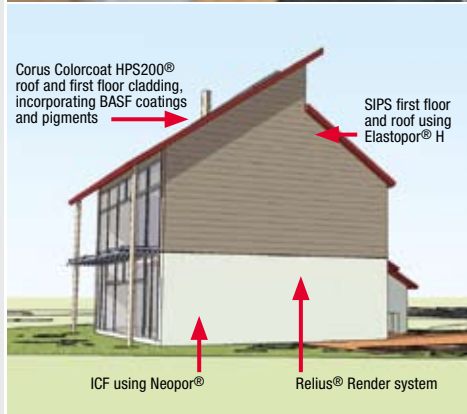
Compact floor plan

The house's environmental parameters are stringent, with CO₂ emissions of close to zero. "That target and efficiency specifications influenced the design of >

■ UV-REFLECTING COATING

Strong partnership

Colorcoat™ Urban is the name of the new product developed jointly by BASF Coatings and its customer Corus Group Ltd, the steelmaker that produced the roof of the BASF Energy House. The coil coating is from the successful Plasticeram® line, containing additional pigments important for heat reflection. UV and corrosion resistance were also further optimized for Corus' Colorcoat Urban product. Together Corus and BASF Coatings developed a broad spectrum of color tones, opening up new building project design possibilities. The roof of the BASF Energy House is done in terracotta so as to fit in visually with the surrounding neighborhood. "The BASF Energy House is a start; we will continue moving forward with roof applications and energy efficiency enhancements," says Anne Heimes-Scheller, BASF's Marketing Manager for Industrial Coatings in Europe. This project showed what we can achieve by combining our own strengths with those of our customers, while additionally joining forces with the larger BASF Group. Several different BASF units contributed an array of innovative construction materials for the BASF Energy House. The BASF Construction Network Team, formed in 2004 as a synergistic bundling of activities for construction industry customers within the BASF Group, contributed to the success of the project.



Modern-looking light gray: Relius, BASF's European building coatings brand, provided a colorful, water-resistant plaster, while Coil Coatings supplied façade finishes for lasting protection and an attractive façade appearance.

the house," recalls British architect Derek Trowell, a specialist in green building. "To reduce costs while remaining energy-efficient we opted for a compact floor plan that maximizes passive solar collection potential." Accordingly, the north, east, and west sides are highly insulated and have small or even no windows. On the south side, glass wall panes on both the

first and second floors ensure sufficient natural light.

The sunroom area

In connection with this, Trowell came up with an ingenious design concept: a parallel wall of ceiling-high glass panes forming a 'sunroom' that can be opened or closed depending on heating or cool-

ing needs. "The sunroom area has an amazingly positive impact on temperature regulation," confirms experimental resident Hormazábel Poblete. "For me, that is the main energy efficiency feature of the whole house." It works hand in hand with the BASF Energy House's climate control system, which utilizes natural ventilation, facilitated by the high ceilings incorporated into the architectural design. Another design priority was achieving effective heat retention in the building interior.

The planners also made sure there would be no excessive heat buildup in the house, which can be a problem es-



Command and control:

Residents control ventilation, heating, and lighting via touchscreen or Internet.

Economical twice over:

The BASF Energy House is designed to lower energy costs at an affordable price.



pecially for top-floor rooms. That is why the BASF Energy House has a steel roof with a new coil coating made by BASF Coatings. This allows it to reflect sunlight, reducing interior heat transfer in contrast to regular roofs, which absorb solar heat. The coating makes use of improved plastisol technology and UV-reflecting pigments. Upper-level rooms thus retain pleasant temperatures despite the BASF Energy House having no air-conditioning due to cost and energy considerations. The roof furthermore is longer-lasting as it is not subject to such high temperatures.

BASF contributed a range of construction materials for sealing and insulating the house. Primary heating requirements were cut significantly, with a biomass heating system helping out during very cold periods. A rooftop solar array takes care of 81 percent of hot water heating needs.

Environmental Big Brother

The two doctoral students are experiencing what day-to-day life is like at home with these techniques and technologies. Building automation systems, for example, provide not only convenience but also more effective energy management.

Monitoring systems track temperature, relative humidity, light, solar intake, and ventilation data. The residents are kept informed of events via SMS, e-mail, and Internet. “It is sort of like having an environmental Big Brother watching you; our activities are tracked precisely throughout the day,” laughs Adkins.

She and her colleague feel quite at home. But are there any disadvantages? Both women agree that keeping things tidy can be a bit of a challenge due to the limited storage space – a challenge shared with many conventional homes. ■

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