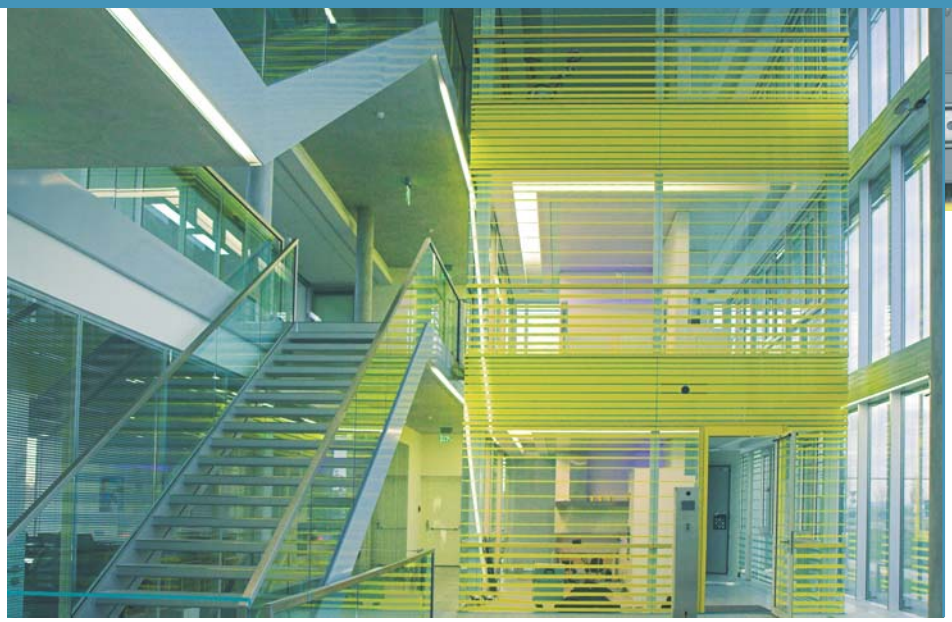
# Building the future with today's technology


**"Zentrum Zukunft," ("Future Center") located in the ecopark at the A1 motorway near Cloppenburg, Germany, is intended to illustrate future requirements for domestic buildings in terms of energy supply, communication and automation. In early 2005, EWE with the support of the University of Applied Sciences of Oldenburg, Ostfriesland and Wilhelmshaven, invited architecture students to develop ideas for such a building as part of a design competition.**



EWE opens "Zentrum Zukunft" ("Future Center") energy house at ecopark.

The panel was particularly impressed by the design developed jointly by two of the students. The automation of the complete energy and communication structure of "Vision Wohnen" ("Vision Living") was achieved using standard I/O components and the CX Embedded PC from Beckhoff.

The almost cubical building consists of three zones: the energy center, seminar rooms with state-of-the-art presentation equipment and a three-storey living area. The energy center utilizes advanced heating, cooling and power facilities that simultaneously generate electricity and heat via an air conditioning system based on solar energy or a Stirling motor and a fuel cell. "Future sustainable energy supply systems will be based on central, combined heat and power installations," Robert Münning of EWE said.

**Enhanced comfort and increased energy awareness**

Claas Loewenstein of EWE building management illustrates the technical trends for the homes of tomorrow: "In the future, there will be little visible technology in houses." A central installation core that runs through all three levels of the building forms the electronic and energy heart of 'Vision Wohnen' at 'Zentrum Zukunft.' All data points required for building automation are connected directly to the Beckhoff Bus Terminal system. The I/O components distributed at the individual levels are linked via Ethernet to the central PC controller, in this case a CX1020. Rooms can be defined as required and quickly adapted to the lifestyle habits of the occupants.

RGB LEDs are available for effect lighting that can be controlled separately in small groups via EIB terminals. Other lamps for indirect lighting can be controlled via DALI terminals. A wide range of equipment such as RFID readers, LCD monitors, mirror displays and microphone switches can be operated via KL6001 and KL6031 serial interface terminals. Motor drives deal with lowering and covering of LCD monitors, adjusting the height of the kitchen worktop and the desk or adjusting the headboards and foot sections of beds and lounge furniture.

The high flexibility of the e-core system means it can continuously be updated to reflect the latest state of the art trends. Outdated technology can easily be replaced with the newest developments. "The focus is on enhanced comfort and increased energy awareness," Loewenstein said. Examples include an intelligent refrigerator that is integrated with an energy management system or a wall mirror that can display messages.

**One user interface for building services, media and telecommunications**

Networking of technical devices will be even more important in the future. "Media, building services and telecommunications will be controlled via a single user interface," Loewenstein explained. For example, an alarm system will no longer have to be installed locally, but could instead be installed on a server in the EWE computing center. Only the sensors for reporting broken glass, smoke or intrusion to the central alarm system will be installed locally. Operation can take place via a monitor in the house or a mobile phone.

**Realizing visions for the future with standard technology**

According to EWE's CEO Dr. Werner Brinker, the company intends to offer training on energy efficiency and new media at "Zentrum Zukunft" for market partners, schools and universities, builders and trade contractors, architects and engineers, local authorities and relevant associations in order to prepare them for the technologies of the future.

The building management system at "Vision Wohnen" was implemented by Detlef Coldewey GmbH, based in Westerstede, Germany. "Good cooperation with an experienced integration partner such as Coldewey, with whom we had already completed other projects in the past, is an important factor for us as a control equipment supplier," said Georg Schemmann, Building Automation Manager at Beckhoff. "The additional costs for installing the building control not only pay off in terms of enhanced comfort and safety, intelligent technology literally pays for itself through significant energy savings."

→ EWE AG, Germany **www.ewe.de**

→ Detlef Coldewey GmbH **www.coldewey.de**