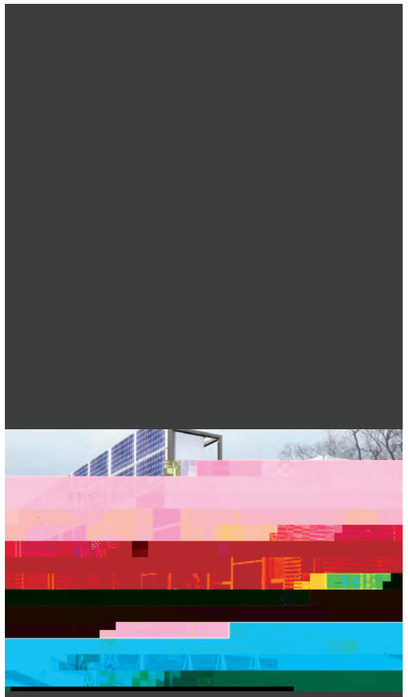

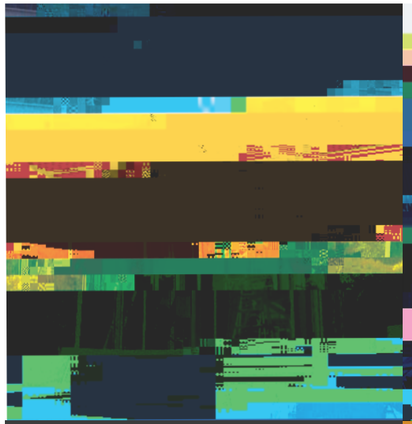

utzero

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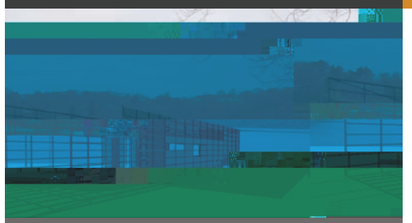

OUR VISION

UT Zero is a multidisciplinary team with the goal to develop new technologies for zero energy building for the University of Tennessee and the state of Tennessee. Our desire is to promote zero net energy consumption and zero carbon emission technology. Our mission is to bring students and faculty from various programs together to collaborate on UT Zero Energy projects.

UT Zero Energy House

The UT Zero Energy House is a multidisciplinary project with the goal of creating new sustainable housing prototypes that are capable of producing their own power. The UT Zero Energy House combines the best researchers, engineers and architects in Tennessee to develop, design and build the home of the future.

This project will offer research and development in architecture and engineering for the building sector and combines the areas of material science, engineering and architecture to solve immediate problems as well as provide revolutionary concepts for new applications. Architecture and design requires a broad synthesis of knowledge and disciplines: design, construction, sociology, science, and engineering. It is important to build bridges and to recognize that it takes a variety of disciplines and experience to push science forward. This initiative will develop new technologies with a clear architectural view point and therefore provide a fast track for new concepts to be transferred to architectural applications.

In the design of future residential and commercial architecture, energy efficiency (along with social, cultural, demographic and economic issues) has to be considered as a more and more decisive factor. Threatening climate changes and the recognition that our fossil energy sources are finite has caused global calls to lower CO^2-emissions. They are the starting point for a rethinking on several levels. The sun and the energy it emits thereby play a central role. Especially in the energy supply of buildings, solar power can be used in many ways. With our Research focus on

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UT Zero Energy House

Performance Architecture:

Beyond Effciency and Optimization

Architecture & Design

Performance Based / Sustainable Design
Evolutionary Optimization
Digital Architecture and Environmental Studies

Materials Science and Engineering / ORNL

New Building Materials and New Technology of Construction
Phase Change Materials (PCM)
Coatings & Colorants, Aérogel / V

The Facts

- 240 SF Modular Unit
- Best Technologies Available
- Solar Decathlon 2011 Entry
- Prototype 01 is s test for the students understanding to connections and new construction methods

Funding

- Offce of Research
- Science Alliance UT School of Engineering
- College of Architecture
- Finnforest Wood Products
- Pieramids Foundation Systems Inc.
- Other grants

Solar Decathlon 2011

The Solar Decathlon is a competition in which universities compete to design, build, and operate the most attractive, effective, and energy-effcient solar-powered house. The Solar Decathlon is also a public event demonstrating the powerful combination of solar energy, energy effciency, and the best in home design. The frst large project for the UT Zero Energy House is to enter into the Department of Energy's 2011 Solar Decathlon Competition. The backbone of this competition will be how well we communicate between the various departments involved and make an effcient product to complete the tasks assigned.

Prototype 01

UT Zero Energy House Prototype 01 with Energy Plus Facades, Translucent Solar Cells embedded in Windows. This project advances new construction techniques and solar energy development as a multidisciplinary team project. Our summer course will fnish the Prototype as a piece to use, test and display as an engineered student collaboration.