Into the future with solar living: A building as an energy source

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Every good house has a roof. Solar Decathlon Team Austria has also heard of this wisdom – which is why LISI received her "headgear" today. Four ceiling modules make up the roof – crowned by sparkling photovoltaic modules. Deep into the night, the crane placed one module at a time.

The Solar Decathlon is the world's most challenging sustainable building university-level competition and is sponsored by the U.S. Department of Energy. A team of Austrian research institutions has entered the competition with the high-tech "LISI - Living Inspired by Sustainable

Innovation" energy-plus house, which generates more energy than is consumed by its occupants.

The biennial Solar Decathlon competition seeks out [energy](link) self-sufficient buildings for the homes of the future. As in an Olympic decathlon, entries are judged in ten categories which, in addition to [energy efficiency](link), include living quality, design and affordability. The houses will be exhibited in Irvine/California in October.

Fabric facade

The "LISI - Living Inspired by Sustainable Innovation" [house](link) is Austria's entry to this global solar competition, contributed by the Solar Decathlon Team Austria a consortium of Austrian research institutions led by the Sustainable Construction Group at the Institute of Architecture and Design at Vienna University of Technology. Wood accounts for around 96 percent of the structure. The capturing of incident sunlight and photovoltaic cells on the roof make the house a net energy supplier.

In addition to the enclosed living area, LISI has open patios, over and around which fabric panels and awnings can be arranged as needed or desired. In summer, the fabric screening provides protection from strong sunlight, while in winter it is removed to allow the house to let in the sun's warmth. Its flexible design means LISI can adapt to its occupants' needs.

The starting point for the design is the rising global demand for compact, affordable and energy-efficient homes in the suburban area. The house is designed in such a way that, with slight adjustments to the thermal insulation, it can be used in any climatic zone.

Multimedia living

The Institute of CreativeMedia/Technologies, the Media Technology Bachelors Program and the Digital Media Masters Program at St. Pölten University of Applied Sciences are contributing their skills in interactive technologies and in video and audio production to the project.

LISI's future occupants can expect smart home automation systems: for instance, an interactive user manual makes use of audiovisual scenarios to show occupants how to make best use of the house's energy streams under changing conditions.

Exhibition in California and Austria

The LISI energy self-sufficient house was erected this summer by Lake Weissensee in Carinthia, Austria, and in recent weeks has been packed into containers and shipped to California. Starting September 22, the house is rebuilt there for the week of the competition when 300,000 visitors are expected.

LISI was also exhibited during European Researchers' Night, an event that took place on September 27, 2013 in more than 300 European cities. The event represents an opportunity for research institutions to present their projects to the general public. Solar Decathlon Team Austrias' contribution was a detailed 1:20 scale model of LISI. A live video stream to the building site in California gave visitors of the event in the City of St. Pölten / Lower Austria the opportunity to put questions to the team on location in the US.

Provided by St. Polten University of Applied Scientists