

Energy-Saving Renovation

Since its renovation in 1995, Villa Tannheim has been an example of energy efficient old building renovation. ISES continues to improve and expand this performance.

In 2006 ISES initiated an ambitious strategy to expand on the existing energy savings strategies and renewable technologies the building uses.

In addition to the newly opened SolarCarport, ISES will replace its existing gas heater with a new pellet heating system in 2007.



Construction of the SolarCarport began in February 2007.

The International Solar Energy Society

The International Solar Energy Society (ISES) was founded in 1954 with the goal of promoting the use of solar and renewable energy world-wide.

With a network of national and multinational sections, ISES is currently represented in over 50 countries with approximately international and associated 30,000 members. ISES members are active in all aspects of the renewable energy, including academia, research, industry and consulting. ISES strives to provide a network for the renewable energy community world-wide.

The goal of ISES is to support sustainable development world-wide with the intelligent, appropriate use of renewable energy technology. The Society promotes research, development, and application of renewable energy technologies that aid in reducing the damaging effects of energy use, such as greenhouse gas emissions.

International Solar Energy Society (ISES)

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ISES

International
Solar Energy
Society

Villa Tannheim Home of the International Solar Energy Society

An example of energy smart old
building renovation



Energy-Saving Renovation

When ISES decided to move its Headquarters from Australia to Germany the City of Freiburg offered the Society the Villa Tannheim at a charitable price. In addition Mrs. Marta Weeks provided a generous donation making the purchase of the Villa possible. Before the old, historically significant building could be occupied a thorough and energy-saving renovation was required. The aim of the renovation was to reconstruct the outer appearance of the patrician building, maintaining the general appearance, while using renewable energy sources to show how a building can be changed to save energy. The Fraunhofer Institute for Solar Energy Systems developed the energy saving concept, with the result of an annual energy saving of 27 tons of CO₂.

Installations

- Exterior wall insulation
- Transparent insulation made with glass attached to a heat-absorbing background to reduce thermal losses
- Ecologically safe roof insulation, produced from recycled paper, treated to make it inflammable
- Triple glazed windows reducing heat loss by 90%
- Heating and domestic water supported by a roof-top solar thermal system

Other different types of solar energy applications on the Villa property include:

Solar illuminated house number - making it easier to find the building at night

Solar Cooker - this cooker, 120 cm in diameter can be used for cooking year round.

SolarCarport



SolarCarport

The ISES SolarCarport is a shining example of how renewable energy technology can be integrated in the built environment. The design by Freiburg-based solar architect Rolf Disch incorporates the following features:

- The hot-dip galvanized steel frame is 18 by 6.30 meters.
- Totalling an area of 113 m², 108 photovoltaic (PV) modules manufactured by Kyocera, mounted on a diagonal inclination (6° south and 10° southeast), as to maximize sunlight exposure.
- The panels are attached directly to the steel carport frame using the SOLRIF® system.

With a peak capacity of 14.04 kWh of solar electricity, the SolarCarport will save 8.2 tons of CO₂ per year. This is a significant contribution to ISES' goal of Villa Tannheim becoming an example of a CO₂ neutral historical building.

SolarCarport Sponsors

The ISES SolarCarport has been made possible by the generous support of several sponsors. We would like to express our sincere gratitude to these companies for providing the following:

THE NEW VALUE FRONTIER



Kyocera Fineceramics GmbH

<http://www.kyocera.de>

108 PV modules "FL 130T-1A"
and 3 AC converters



Tritec AG

<http://www.tritec-energy.com>

carport steel scaffolding
and all necessary equipment



Ernst Schweizer AG

<http://www.schweizer-metallbau.ch>

SOLRIF mounting system to fix
the PV laminates to the carport roof



Rolf Disch

<http://www.rolfdisch.de>

services in designing, planning
and construction site management

We kindly thank our sponsors for making the SolarCarport a reality.