Giraffe house at Zoo Schönbrunn

by Michaela Fink / 2021-04-01 14:02:56 / International / 3124 / EN

Primary energy need :

42 kWhpe/m².year

(Calculation method : Other)

ENERGY CONSUMPTION

Economical building *Building*

< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Energy-intensive building

Building Type : Other building
Construction Year : 2015
Delivery year : 2017
Address 1 - street : Maxingstraße 13b 1130 VIENNA, Austria
Climate zone : [Dfb] Humid Continental Mild Summer, Wet All Year

Net Floor Area : 440 m² Other
Construction/refurbishment cost : 7 000 000 €
Cost/m2 : 15909.09 €/m²

Proposed by :

ertex solar
Energy Meets Architecture

General information

Renovating the giraffe house at the world's oldest zoo - UNESCO World Cultural Heritage site

From 2015 to 2017, extensive renovations took place at Schönbrunn Zoo's Giraffe House (located in Vienna, Austria), which was originally built in 1828. The old building was gutted, refurbished, and rebuilt, with a large number of innovative measures. This includes the installation of glass-integrated photovoltaics as well as the installation of photovoltaic panels on the flat roof of the visitor entrance. Furthermore, the intermediate storage of thermal energy now takes place in a gravel store. The new indoor area for the giraffes was connected as a winter garden-like building with a photovoltaic roof with modules from ertex solar.

The conservatory is a steel/glass construction. The roof is supported by a substructure that is modeled on a look-a-like umbrella acacia, a typical tree in the habitat of giraffes. Towards the top, the trunk branches out into a total of around 237m² of glass surfaces, in which the photovoltaic cells are distributed and act as insulation from outside temperatures and as a source of shade.

Behind the entire construction is a comprehensive concept, which saves about 8,287kg of CO2 annually and generates about 20,000 kWh of electricity, 100% of which is used to run the zoo. With the glass-integrated photovoltaics (16 kWp) and the flat panels (4 kWp), a total of 20 kWp is available, so that 18,000 - 20,000 kWh of electricity can be produced per year. A 62m³ gravel tank was also installed under the conservatory. With a filling of 122t marble quarry, it is used to dissipate heat on very hot days and to heat on very cool days. With the help of the gravel tank as buffer storage, about 17,000 kWh of heating energy is saved

annually by district heating.

See more details about this project

https://www.zoovienna.at/anlagen/giraffenpark/
https://www.zoovienna.at/unterstuetzen/das-wird-die-neue-giraffenanlage/

Photo credit

ertex solartechnik GmbH

Stakeholders

Contractor

Name : Schönbrunner Tiergarten GmbH
https://www.zoovienna.at/

Construction Manager

Name : Burghauptmannschaft Österreich
https://www.burghauptmannschaft.at/

Stakeholders

Function : Designer

Architect Dipl.-Ing. Peter Hartmann

http://www.arch-hartmann.at/
Architect and Planner

Function : Company

Klenk & Meder GmbH

https://www.klenk.at/
electrical installation

Function : Contractor

ertex solartechnik GmbH

+43 7472 / 28 260 610

https://www.ertex-solar.at/
manufacturer of photovoltaic panels

Building users opinion

The giraffes are liking their new environment very much and visitors from all around the world are enjoying their visit at the giraffe house in Zoo Schönbrunn.

Energy

Energy consumption

Primary energy need : 42,00 kWhpe/m^2.year
Primary energy need for standard building : 1,00 kWhpe/m^2.year
Calculation method : Other
CEEB : -0

Renewables & systems

Systems

Heating system :

- Others
- Electric radiator
- Electric heater
- Electric floor heating

Hot water system :

- Other hot water system

Cooling system :

- Others

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar photovoltaic

Other information on HVAC :

For heating purposes, a gravel tank was built.

Environment

Urban environment

Zoo Schönbrunn is trying to become sustainable and energy-efficient in all their animal housings and buildings. These principles are written down in their own environment policy. Since 2015 the Zoo is certified according to ISO 14001.

The Zoo is conscious of their responsibility for animals, humans and nature, therefore there is a whole environment team working at the Zoo. An important focus of their environmentally conscious activities is the area of energy management. For animals from tropical to polar climates, heating, cooling and water treatment are often very expensive. Through the use of new technologies, alternative concepts and constant monitoring, the Zoo keeps the required energy and raw material input as low as possible.

When procuring feed and feed materials, priority is given to organic products and products of regional origin when possible. This environmental philosophy of the zoo can also be found in the gastronomic offer. Organic products are used as much as possible in the kitchens of the Zoo restaurants.

Waste avoidance and waste separation are a matter of course internally, but the Zoo also tries to make it easier for zoo visitors to follow these principles.

A dedicated team ensures environmental compatibility in all construction projects in planning, construction, and operation and will push for the corresponding implementation.

The Giraffe house has been awarded with the environmental award of Vienna in 2016.

Products

Product

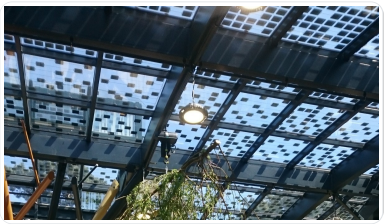
semi-transparent photovoltaic module

ertex solartechnik GmbH

+43 7472 28 260 610

www.ertex-solar.at

Product category : Finishing work / Electrical systems - Low and high current



The installed panels are custom-made insulated glass-glass modules from the Austrian company ertex solar. The whole outside roof area of the giraffe home has been clad with the panels, which amounts to a total of 237m² glass surface. The solar cells with an individual size of 125 x 125 mm have been arranged individually by ertex solar inside the glass panels. With a range of two to sixty-three solar cells per module, this results in a variable degree of transparency between 41 and 91 %. In this way the leaves of an umbrella acacia can be simulated – with an additional view of the real sky.

Costs

Construction and exploitation costs

Total cost of the building : 7 000 000 €

Additional information on costs :

Other information relating to costs are not available to ertex solar.

Contest

Reasons for participating in the competition(s)

The estimated electricity consumption of the zoo is approx. 18,700 kWh per year. With the glass-integrated photovoltaic (16 kWp) and the flat panels (4 kWp), a total of 20 kWp is available, enabling 18,000 – 20,000 kWh of electricity to be generated per year. By using a gravel storage tank as a buffer tank for the heating of the conservatory a minimum of 17,000 kWh of heating energy can be saved. In total, CO2 emissions are increased by approx. 8,287 kg of CO2 per year during the operation of the new giraffe home.

Building candidate in the category

Energy & Temperate Climates

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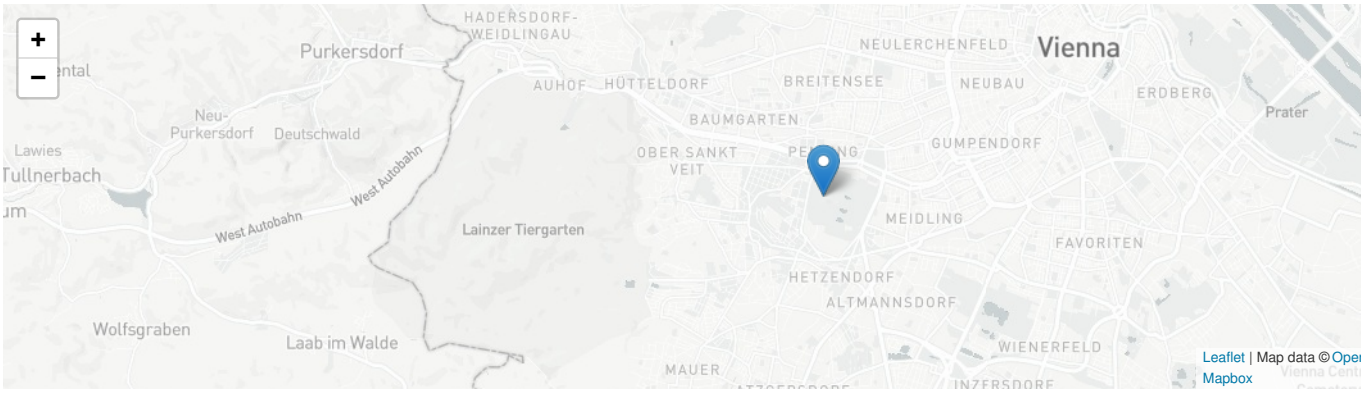

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