References

Energy Efficiency Center



Uponor involvement

3.580 m²

Energy Efficiency Center

The foyer, information centre and conference room at the Energy Efficiency Centre in Würzburg uses the Uponor Klett line for energy-efficient radiant heating and cooling.

Project Facts:

Location
Würzburg, Germany

Completion
2013

Building Type
Office building

Product systems
Radiant Heating & Cooling

Address
Bayerisches Zentrum für Angewandte Energieforschung e. V. (ZAE Bayern)

Website
https://energy-efficiency-center.de/

Project Type
New building

Partners

Homeowner:
Bayerisches Zentrum für Angewandte
Energieforschung e. V. (ZAE Bayern)
Magdalene-Schoch-Str. 3 97074
Würzburg

Designer:
Ebert-Ingenieure GmbH & Co. KG,
Marienbergstraße 94, 90411
Nürnberg

Installer:
Bechert Haustechnik GmbH, Rudolf-
Diesel-Straße 10, 97424 Schweinfurt

The Energy Efficiency Centre is being built on the converted Hubland site not far from the university campus and will provide a unique research and demonstration facility for Germany in a project costing EUR 10.5 million that is funded by the Bavarian Centre for Applied Energy Research (Bayerisches Zentrum für Angewandte Energieforschung e. V. - ZAE Bayern). Uponor is a partner in the pioneering building, which is being prepared for DGNB Silver Certification.

Designed by Thomas Rampp, the 3,580 m^2 building represents a real game-changer thanks to its bright roof membrane. The translucent outer skin spans the multi-layered roof superstructure, providing weather protection. The revolutionary membrane coating is one of several unusual concepts and products being used for the first time.

The aim of the ZAE is that the building should not just present high-tech ideas, but also to conduct a long-term evaluation of solutions that have been combined and optimised under realistic conditions for maximum energy- and cost-efficiency and to investigate and optimise interactions.
The central building controller and an associated research server are continuously supplied with data from 1,500 measuring points for this purpose. In addition, the weather forecast data from the meteorological service in Offenbach and the utilisation levels of conference rooms are also integrated for predictive energy usage.

The scientists are not just focusing on the measurable data, but also the perceptions of the building's users. "The building's sophisticated technology must be intuitive and must enhance well-being", insists Dr. Hans-Peter Ebert, Head of the Department of Functional Materials and Energy Technology. Naturally, this principle also applies to the cooling and heating system used in the two-storey building. The building services engineering planners, Ebert-Ingenieure GmbH Co. KG, consciously chose very different and innovative low-temperature concepts.

The Energy Efficiency Centre uses a steam-based district heating supply. A pipe manifold heat exchanger is used to produce pumped hot water from the district heating network to cover the heating requirements of the central heating system. The building's primary energy requirement of 151 kWh/m^2a is covered using static heating panels and heating registers for the air conditioning system and for producing hot water in periods when the solar energy system is idle. The innovative insulating materials and well-conceived heating concept mean that the building only needs half the primary energy defined for new buildings according to the German government's Energy Saving Ordinance (EnEV).

Uponor Klett underfloor heating is used in the foyer, information centre and conference room to ensure draught-free comfort. However, the EEC is more than just a grand research project. One of the main purposes of the project is to increase public awareness of energy-efficient building services engineering. Hence the building is also to be used for exhibitions. To keep the space as flexible as possible, the architects and building systems engineers chose underfloor heating.

The expert fitters from Bechert Haustechnik GmbH installed a 347 m^2 radiant heating system with 24 heating circuits. Uponor PE-Xa RED Klett pipes, size 16 mm x 1.8 mm, were laid 10 cm apart in the conference room and 15 cm apart in the information centre and foyer area. With a flow temperature of 39.7 °C (return 32.6 °C) the underfloor heating system covers a heat load of 41 W/m^2 in the public areas.

"This new building will be our calling card", emphasises Prof. Vladimir Dyakonov, President of ZAE Bayern, explaining his organisation's aim to offer employees and visitors the best possible conditions.

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