PcVue

SUCCESS STORY

PASSIVHAUS STEFFEN

Optimized energy performance of an ultra-low energy building using PcVue.

This trend-setting building is a clinic for physical therapy. It also houses the offices of the builder, Steffen Holzbau. All of the efficiency systems are monitored from a PcVue BMS system with remote WebVue access linked to BACnet controllers and communication.

As a specialist in design of wooden buildings, Steffen Holzbau planned and built the facility in cooperation with Sanichaufer based in Luxembourg - where the building is situated - and the contractor GIGA-Automation of Saarbrücken in Germany. GIGA-Automation is a PcVue Solutions Certified Partner which provides integrated building management systems (IBMS) in Germany and Luxembourg.

The BACnet network was developed to rigorous specifications: PcVue for the operator workstation and control system, DDCs from SAIA Burgess with native BACnet communication and a Menerga Control System for the swimming pool and therapy controls.

The building conforms to the Passivhaus standard for energy efficiency with minimum ecological footprint. The clinical and administrative areas have been optimized for ultra-low energy usage across several kinds of heating and cooling.

Two central ventilation systems provide sterilized air to both areas. The cooling and heating plant uses special convector systems built into the floors and arranged in front of the window surfaces.

The ventilation is equipped with efficient heat recovery systems and adiabatic cooling. There are approximately 50 m2 (550 ft2) of solar panels on the roof for hot water production and heating support. As backup for the solar water heating (140 kW) both the ventilation and the pool heating are assisted by woodchip boilers (100 kW) and an oil-burning system.

The high-grade steel therapy pool has a water treatment plant installed to ensure water quality. The pool is equipped with a countercurrent feature and underwater massage nozzles. Space heating and dehumidifying of the swimming-pool area are achieved with a special air handling unit.


BUSINESS OBJECTIVE

Optimize energy efficiency with minimum ecological footprint

PcVue combines the data from those systems and from 65 sensors at various points in the façade, roof and outer surface of the building to measure temperature and in some cases humidity.

The results are sent to a laboratory for evaluation to assess the influence of external conditions on the internal environment and thus help to optimize the building´s energy performance.

For complete control of the clinical and office areas the BACnet EDE-File Import process populates the PcVue database automatically. The BACnet communication gives access to 2,000 BACnet I/O points in total.

The project also includes BACnet Scheduling for the pool heating cycle. Historical data will be archived using Microsoft SQL Server. Reporting is via SQL Server Reporting Services (SRSS) for data exchange with scientific institutions, including spreadsheet export for the energy analysis.
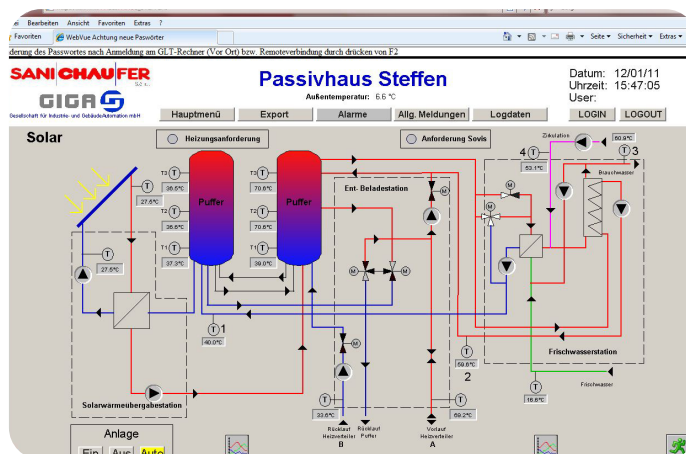
KEYS TO SUCCESS

- Automatically populate PcVue's database using BACnet EDE-File giving access to 2,000 I/O points

- Include BACnet scheduling for the pool heating cycle

- Archive monitored points with SQL Server and use SQL Server Reporting Services (SRSS) for data exchange with scientific institutions for energy analysis

RESULTS

Solution with PcVue optimizes energy usage in an ultra-low energy building

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