



PROJECT AT A GLANCE

Project Type: Energy, Integrated Building Management Systems

Location: Frankfurt, Germany

Number of Buildings: 1

Total Area: 5,500 m²

Applications:

HVAC

Lighting Control

Chiller Plants

Sunblind Control

Weather Station

Fire Damper Control

Total System Points: 13,500

TAC Partners

Syscontrol GmbH

GTS Control Systems GmbH

KfW

KfW is one of the largest banks in Germany, offering promotional loan programs and development financing. When the time came to build a new global headquarters in Frankfurt, KfW asked architects to design a revolutionary new building that could incorporate the newest energy-saving technologies for an optimal indoor climate and lower energy costs.

The energy system KfW chose is based on an innovative air buoyancy ventilation concept that uses a central exhaust air shaft and area-wise optimized hydraulic alignment. Realizing the solution was highly complex, KfW sought a reputable and reliable building systems integrator who both understood the bank's needs and possessed the right knowledge to meet them. TAC teamed up with German partners Syscontrol GmbH and GTS Control Systems GmbH to guarantee the success of the project.

THE CHALLENGE

KfW wanted an advanced building management system that would integrate different building systems and enable high flexibility to meet future needs and frequent reconfiguration of offices and interior space without any hardware changes. Energy expenditure was another key area that needed to be addressed to ensure a profitable return on investment. Energy-saving calculations were made before the project began and a goal was set of 100 kWh/m² — a saving of over 60% compared to the bank's previous building. Only a LONWORKS®-based open system solution is capable of delivering such radical improvement.

CUSTOMER BENEFITS

- Optimal indoor climate
- Fast return on investment
- More efficient energy consumption
- Smooth integration of multiple systems
- Flexibility in adapting to future office layout requirements

THE SOLUTION

The TAC system monitors, meters and controls 221 offices and a broad range of building functions, including HVAC, lighting, chiller plants, sunblinds, weather station and fire dampers, via data collected from 13,500 points connected to numerous different LONWORKS devices. By integrating all such features into a single system, KfW is able to achieve significant energy and cost savings.

The building skillfully uses natural resources for heating and cooling. At night, cold air is absorbed and drawn up through the central exhaust air shaft to cool interior walls by flowing unhindered through empty offices. The different sunblind slanting options allow the maximum amount of sunlight and heat to enter the building without adversely effecting occupant comfort. Finally, these refinements are automatically controlled by an advanced multifunctional room control unit which combines and assigns all options for temperature, light intensity, sunblinds and fresh airflow to a single memo button that memorizes previous settings.

Also integrated into the LONWORKS network are various sensors and meters that work together with a meteorological weather station to collect and transfer various data such as temperature, wind speed, light intensity, background radiation and energy consumption to the University of Karlsruhe for energy simulation and extensive cost analyses.

THE BOTTOM LINE

In addition to gaining the facility flexibility it required for the future, KfW also benefited from greater and more sophisticated energy control, resulting in a better indoor working climate at a lower cost. The project's resounding success has also meant that KfW's new headquarters today serves as a showcase reference for other customers eager to learn more about the enormous potential of energy savings in buildings.

COMMERCIAL OFFICES

Flexibility in the utilization of office space is of primary concern for commercial tenants. Remodeling, relocation or space expansion within a particular facility can be optimized with minimal changes in existing installations by using TAC Building IT solutions based on LonWorks® technology. This helps to decrease the time required for changes, and thereby enhances the attractiveness of a commercial property. Tenants can be assured that the facility is able to adapt and meet their growing business needs without causing them – or the owners – huge incremental costs for every change. This is all part of Building IT solutions for commercial facilities – designed for economy, operational efficiency and flexibility in space utilization.

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PP-COMM-KFW-US
November 2008

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