MeteoViva

Case Study

Fraport

Property
Headquarter, Building 178

Customer
Fraport AG

City
Frankfurt am Main

Building Size
363,000 sq. ft.

Equipment
Single-room control, air-handling units, radiant ceiling panels, radiant floor heating in the atrium, 39 zones, 173 data points

Saving
HVAC energy costs reduced by 19 percent

Comfortable climate at Frankfurt Airport – thanks to MeteoViva

Fraport AG places great importance on the protection of the environment and looks to reduce the impact of air traffic and airport operations to a minimum. To help achieve these goals, Frankfurt Airport chose MeteoViva to optimize the energy management of its building operations while at the same time improving the indoor climate.

The Project

Commissioned in 2013 and located at the heart of Frankfurt Airport, the new headquarters of Fraport AG accommodates 700 employees. The seven-story office building features a separate floor for the heating, ventilation and air-conditioning (HVAC) equipment, as well as a large atrium. It meets the highest environmental standards and has won DGNB Platinum certification. While offices are equipped with individual controls, the equipment was not always able to deliver the desired climate in all offices, particularly on hot and sunny days.

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„The indoor climate in our modern headquarter has notably improved“

Günter Meyer,
Fraport AG, Head of Central Infrastructure Management (ZIM-FS)

The Assignment

For Rüdiger Schröder, the engineer in charge of the building automation, the new headquarters was the ideal building to put MeteoViva Climate through the „acid test“. He wanted to find out how the energy management could be further optimized with a predictive operation of the HVAC equipment. When the project started in early 2016, the team's objective was to supply the different climate zones with heating, cooling and fresh air, on a just-in-time basis, and minimize HVAC costs. In addition, the team was to deliver improved comfort for the employees.

Implementation

In a first step, MeteoViva's engineers together with the building staff defined a total of 39 zones across the building. Thanks to the modern HVAC equipment and BMS technology, no major technical retrofit was necessary. The only retrofit was the integration of the controls of the atrium facade slats into the BMS to allow for their predictive operation. MeteoViva Climate receives measured values and delivers optimized control values to the BMS using the existing BACnet infrastructure via a secure VPN connection to the Fraport data center. A second connection was established to the LON network used for single room controllers. Installation and commissioning took only four months.

Conclusion

In the first year of operation, the energy costs for the building were reduced by 19 percent compared to the prior year. This is equivalent to a reduction of 248 tons in carbon emissions. At the same time, the indoor climate was notably improved and complaints now belong to the past. And with the improved comfort, the leasing management has improved its own customer service. In addition, the MeteoViva Cockpit also facilitates the monitoring of the building's operation from the central control room. Finally, MeteoViva Climate allows for the detection of errors at an early stage, shows current energy consumption, as well as forecasted energy flows.

Based on this first positive experience with MeteoViva, Fraport AG placed a second order only three months after the start of this first operation. MeteoViva now also helps optimize the operation of Firehouse 4 at the Northwest Runway. There, MeteoViva engineers mastered another challenge: the free standing building is designed as a passive house with 24-hour operations; a real challenge, even for optimization experts.
In the opinion of Günter Meyer and Rüdiger Schröder, these 2 projects have proven it is possible to control buildings in a predictive and energy-efficient manner. Fraport AG is now evaluating the deployment of MeteoViva Climate in additional buildings.

More information at:
www.meteoviva.com