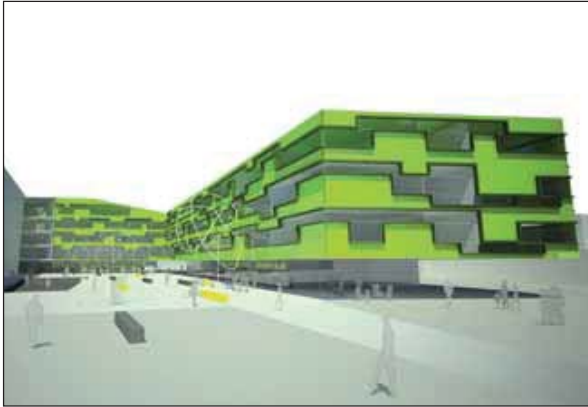


Diploma with a global standard

Study proves that building automation with KNX is worthwhile

Winner
KNX Award 2012
Category
Young Award



Design of the new school centre: The study recommends the KNX worldwide standard for building technology

The thesis of two students at the St. Pölten polytechnic in Lower Austria is not only the successful conclusion of their studies, but also a study of the school centre building project. Using a sample class, the electrical engineers tested which energy saving potentials can be achieved at different levels of the building automation. The focus lay on the individual room control with KNX. The result: there is a 30 percent saving in thermal energy compared to circuit control. If the window monitoring is also interlinked with the heating valves, a saving of 38 percent can be achieved. If you transfer the result to the entire school centre with 200 classrooms, con-

siderable cost savings can be predicted. The study by Lukas Thallauer and Harald Zeller, under the supervision of their tutors Ing. Gerhard Hinterhofer and DI Gunter Speer, was presented with the Young Award.

Recommendations to the school centre

The Department of Electrical Engineering has been running a KNX training centre for several years, where future technicians can obtain the coveted certificate. It is apparent that the concept study is based on the worldwide applied standard. It incorporates room occupancy, window monitoring, weather conditions, recording of data with the Jung Facility Pilot,

evaluation and optimisation calculations. The aim was to calculate the savings potential and the payback period of the investments. In addition to the installation of KNX components, a Jung Facility Pilot is used for building management with the option of remote monitoring. This reduces the control expenditure of the facility manager as shown by the example of window monitoring. The following were also evaluated: the use of an integrated KNX/DALI lighting control system with emergency lighting and evacuation route lighting, a blind control system with a central weather station, control functions based on the classroom occupation from the timetable, reduction in the room temperature by activating the standby mode via presence sensors. The requirements for thermal energy are sent to the primary control.

The study sees benefits through a reduction in the fire load as a result of an optimised electrical installation with increased flexibility for changes in use and optimisation of the functions.

The achieved result speaks for itself, particularly due to the heating functions with associated weather influences, room occupancy and window states. It is therefore possible for any investments to be paid back within five years. In addition, the study recommends that the new school centre should implement the lighting control including emergency and evacuation route lighting, blind control, several terminals for the building management system as well as media control in the ballroom with KNX.

Main points of the thesis:

- Recording of the classrooms
- Calculation of the energy savings
- Additional costs through KNX
- Economic calculations
- Integral concept for all the building services

Companies involved

Building owner:

BIG Bundesimmobilien-gesellschaft m.b.H. Austria

Planing and system integration:

Department of Electrical Engineering, Ing. Gerhard Hinterhofer

Area of application:

School

Functions:

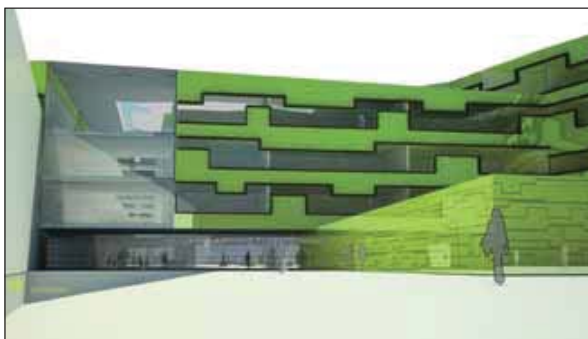
- Lighting
- Heating
- Monitoring
- Energy management
- Audio/video
- Visualisation
- Interfaces to other systems
- Remote monitoring/control

Scope

Number of KNX devices: 10

Costs:

4000 euros



Design of the new school centre: