

First energy self-sufficient multifamily house in the world

ABB technology helps make the world's first multifamily, energy self-sufficient house a reality.

This revolutionary building supplies itself year in and year out with solar energy. This is converted into electrical, thermal and even combustible energy for those winter months when the sun is less intense. This pioneering apartment building was symbolically cut from the grid at its opening ceremony to highlight the achievement.

All the energy that the residents need for living, such as heating, cooking, and washing, etc. is acquired locally from sunlight. Although the building saves on energy at all levels, the residents need not sacrifice comfort. This is achieved through proven technologies and systems that acquire and store energy, as well as innovations that reduce energy consumption. The roof and the entire facade are clad with solar panels and ABB products feed that energy into the house.

"We are proud to be part of this milestone project. ABB-free@home converts these new apartments into intelligent homes and our solar equipment supports the building's self-sufficiency," explained Mike Mustapha, managing director of ABB's Building Products business. "Various functionalities of the building automation system are used to reduce energy consumption while at the same time enhancing comfort. With the goodbye button, for example, all standby appliances are switched off completely when leaving the apartment."

In summer, the energy demand of the nine families for a full 24 hours is covered by just one hour of sunshine thanks to the powerful solar systems. For this purpose, 26 ABB solar inverters convert DC voltage from the solar panels to AC voltage and feed electricity into the in-house network.

Energy that is not consumed immediately by the residents is stored for use at night, during cloudy days and for winter. This is done with the help of batteries for the short-term and a huge thermal store for the long-term. This thermal energy is used in winter for heating.

To help consume less of the precious energy captured by the building the household appliances must work with the utmost energy efficiency. Apart from energy saving washing machines and refrigerators, the ABB-free@home building automation system helps keep energy consumption as low as possible.

For greater comfort and ease of operation, different scenes can be configured into the system so that dimmed dining lights can be differentiated from bright illumination for reading. The system also recognizes light combinations and offers them automatically for selection. If residents, for example, watch TV with the lights dimmed and curtains drawn, the building automation system notes this combination and then provides it as an option.

Thanks to sensors outdoors and indoors, the ABB-free@home building automation system responds automatically to external conditions. If it is too warm in the apartment due to high intensity sunlight on the window pane, the curtains will draw automatically. If a strong wind is blowing that could damage the blinds,



they are drawn up. In this way, the building's automation system ensures not only safety and energy efficiency, but also maximum comfort.

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