

Integrated building management

Tangible benefits in efficiency, comfort, safety and security

More than ever, commercial buildings are multi-purpose in use and therefore present building operators with increasingly complex challenges. At the same time, scarcer resources and growing costs demand more efficient operation of properties. To meet these challenges, facility managers, building operators, technical managers, safety and security officers as well as investors and planners rely on building automation systems, which have become standard in commercial properties. Integrated building management, which bundles all disciplines and functions in a single platform, goes one step further. It delivers tangible efficiency benefits, increases comfort and protects people, buildings and assets.

Comfort, security, safety, types of use – requirements for a building involve very different areas. How that impacts the building technology deployed is reflected in energy efficiency. Buildings consume approximately 40 percent of primary energy worldwide, which means increasing energy costs are immediately felt in buildings. Add to that political requirements and new regulations such as the sustainable reduction of CO₂ emissions and greater use of regenerative energy.

Conversely, every effort toward energy-saving in a building has a positive effect. Legislative regulations such as the European Energy Saving Ordinance (EnEV) and internationally recognized quality seals for sustainable construction such as Green Building, LEED (Leadership in Energy and Environmental Design) and DGNB (German Sustainable Building Council) define criteria for sustainability and ecological and energy efficiency over the building's entire life cycle. In addition to operational savings, complying with these criteria in managing properties fundamentally increases their value.

No less complex than ensuring energy-efficient operation are the other building requirements and the systems they involve. Employees in administration and production expect optimal working conditions, including during flexible working hours and with varying room usage. Fire safety and security must also meet equally high standards.

From building automation...

Suitable automated solutions have already been available for building comfort, safety and security. Even today's room and building automation systems yield substantial savings by automatically adjusting heating, air conditioning, ventilation, lighting and shading to current needs. Fire detection systems with powerful sensors detect a developing fire and notify the fire department. Fire safety and security systems can independently trigger appropriate measures, such as activating extinguishing systems, releasing evacuation doors and stopping elevators in a safe position.

Even if the appropriate systems work well on their own, they are separate disciplines that must be managed separately. The problems are obvious. Communication between these systems is rudimentary at best and involves a great deal of technical effort and financial expense. Furthermore, considerable training effort is required when multiple systems are in use. Last but not least, such a complex overall system can delay the implementation of appropriate measures in the event of an incident or alarm.

...to integrated building management

Building management systems are gaining significance as add-ons to actual building automation systems. Particularly in markets with high labor and energy costs as well as increased standards of building performance, such as in the metropolitan areas of Europe, the United States and Asia, it is important to be able to operate and continuously optimize the entire complex infrastructure of a building as easily and uniformly as possible. Siemens Building Technologies Division has a system that has proven itself for years: Desigo.

With its integrated building management concept, Siemens is now taking a decisive step into the future. In contrast to conventional scenarios, integrated building management means the holistic and technically uniform combination of multiple or all disciplines within a comprehensive and user-friendly management platform.

Open interfaces based on industry-standard communications protocols such as BACnet, ONVIF, DALI or KNX are technical prerequisites. They allow for the seamless integration of existing and new systems from various manufacturers into the management platform, along with advanced application programs, subsystems and individual components. The result is either an integrated homogeneous system landscape or a heterogeneous system landscape with a uniform operating layer. Successive expansion and modular add-ons are also possible.

One important aspect of integrated building management is the bandwidth of components and functions because the requirements placed on building automation systems are very different by nature. A property owner with locations all over the world has different responsibilities than a planner or installer equipping a single building. To cover this broad spectrum with a single building management system, it must be extremely flexible in its ability to adapt to any given situation. It needs to cover everything from the building management platform to room operator units, fire detectors and video cameras. And last but not least, the solution needs to comply with international standards – ideally worldwide.

Future-proof with Desigo CC

With its Desigo CC building management platform, Siemens recently began offering a market-ready solution for integrated building management. Implementing integrated building management with Desigo CC offers numerous advantages: greater safety and security, lower costs, better performance and comfort, and an improved company image (see box).

It is important to understand that Desigo CC is not an expansion or enhancement of an existing platform; it was newly designed from the ground up. The result is a platform that integrates and centrally controls multiple or all of a building's disciplines, including heating, ventilation and air conditioning, lighting, shading, room

automation, energy management and fire safety, as well as security functions such as video surveillance and intrusion detection.

Information in real time

As the first platform of its kind on the market, Desigo CC integrates multiple or all disciplines in a building on an equal basis. It displays the status of the disciplines in real time and controls them, including remotely if desired. This creates synergies and saves costs, not only in installation but also when it comes to training because employees need training on a single platform only. As an open platform, Desigo CC supports numerous standard protocols.

The developers paid special attention to clearly structuring the management platform. The intuitive user interface provides a hierarchical system overview as well as context-sensitive areas. They present the most important key data, offer related supplemental information and ensure direct access to all relevant functions. A sophisticated navigation concept guides users step by step through the tasks to be performed. The interface can be configured to ensure users are only able to view information and access functions in line with their role and responsibilities.

Scalable solution

Desigo is flexible enough for individual disciplines as well as complex, networked end-to-end solutions. Thanks to its extensive scalability, the platform is an ideal choice for medium and large commercial buildings as well as large, distributed building complexes and campus infrastructures. Desigo CC can grow along with building management requirements as well as integrate successive additional disciplines.

Desigo CC benefits at a glance

- **Safety** – Desigo CC detects and analyzes anomalies in the building systems and responds proactively and transparently. In the event of a fire, the situation can be verified using video cameras. The ventilation systems can generate overpressure in smoke-free areas and prevent smoke from spreading. The blinds are raised to facilitate access to rooms at risk. The escape route control system is activated. Thanks to integrated control of the disciplines, Desigo CC helps to considerably reduce fire danger and resulting personal injuries and property damage.
- **Costs** – The initial reference installations indicate that integrated building management lowers operating costs by up to 20 percent. It is well known that energy consumption makes up the greatest portion of operating costs. The platform identifies the energy-savings potential of all buildings. This puts the building operator in a position to thoroughly analyze and optimize energy consumption, production, and procurement.
- **Performance and comfort** – When it comes to maximizing productivity as well as competing for employees, qualified experts and top managers, the quality of the work environment plays a vital role. Only properly secured infrastructures guarantee uninterrupted operations.
- **Image** – Comfort and building security and safety directly impact the success and image of a company. Energy-efficient and resource-saving operations not only save costs, but protect the environment, contributing to the positive perception of the company among customers and in public.

Press photos on integrated building management are located at

<http://www.siemens.com/download?PR00356>

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For more information on the Building Technologies Division, go to

www.siemens.com/buildingtechnologies.

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