

### Energy efficiency as competitive advantage

**Nowadays, hospitals have to be more than just a hospital. Along with offering the best possible patient care, it is also necessary to use energy in a sustainable and environmentally friendly way, to reduce costs and at the same time guarantee the highest level of security and reliability. Modern building technology can prove to be a true competitive advantage in this regard and can lead to energy savings of over 25 percent.**

The healthcare sector is today faced with great challenges. On the one hand, the medical offering and patient care options are constantly being improved and new technologies are being introduced on an ongoing basis. On the other hand, the associated cost explosion is increasingly burdening both public and private investors and is having a negative impact on health insurance premiums. Increasing life expectancy and the rise in the amount of chronic illnesses are not making the situation any easier.

The increasing privatization or private financing of hospitals also serves to increase competition. The fight for solvent private patients is already underway. These patients expect not only high quality medical care from a clinic, but also place increasing value on comfort and environmental friendliness. Hospitals must also excel in sustainability and energy efficiency nowadays.

Those responsible for building technology in hospitals are thus faced with having to prove themselves in this environment of increasing competition.

#### **Hospitals use a lot of energy**

Hospitals are amongst those buildings with the highest energy consumption. Since they are in operation 24 hours a day, 365 days a year, they have a constantly high demand for electricity and heating and require a lot of energy for water heating, ventilation and air-conditioning.

Fossil fuels are predominantly used for heating and for the provision of hot water, whilst electrical energy is used for lighting and ventilation. The two areas combined are responsible for approximately 75 percent of a hospital's total energy costs. Hospitals in Germany consume on average approx. 300 kW thermal and over 100 kW electrical energy per square meter, per hour.

## **Key factor building technology**

This situation leads to two fundamental requirements that clinics now must fulfill:

- Constant cost pressure forces ongoing streamlining of operations whilst at the same time being faced with increasing requirements.
- Hospitals must use energy sustainably and combine energy efficiency with comfort and safe energy supply.

Building technology is a key to success, as modern building automation systems ensure comfort and hygiene and allow economical operation and high energy efficiency. Thus, cutting-edge building and security technology is a vital cornerstone for the running of an efficient hospital. In order to continue to meet increasing requirements with regards to environmental friendliness, energy supply, security and profitability, the systems have to be increasingly integrated in a building. By networking all systems in the technological infrastructure, as is provided by the Siemens with its Total Building Solutions (TBS), the highest level of comfort, optimal safety, security and maximum energy efficiency is ensured. Only once all building technology systems work perfectly together, from heating, ventilation and air-conditioning, access control, CCTV, intrusion and fire detection to alarm and evacuation systems, can the systems show their full potential.

However, many hospitals have old systems in need of renovation. Thus considerable saving potentials are left untapped. Practical examples show that savings of 25 to 40 percent can be achieved by implementing the appropriate renovation measures.

## **Savings of over 25 percent**

The Klinikum Bremerhaven Reinkenheide in Germany is a showpiece for energy efficiency in a hospital. The hospital was opened in 1976, and with its 680 beds has managed to position itself as a leading therapy and diagnostic center. However, over the years the building technology systems' performance and efficiency have increasingly deteriorated, especially with regard to energy consumption. In 2004 alone, approx. two million Euros were spent on primary energy.

All building technology facilities, including the heating infrastructure, cooling system, medical compressed air system and steam sterilization system, were renewed using around 120 measures and a new building automation system with a management system and energy optimization systems was introduced.

These measures meant that energy consumption could be reduced by more than 25 percent. The Klinikum Reinkenheide has saved 520,000 Euros in energy costs and has reduced CO<sub>2</sub> emissions by 4,130 tonnes per year since the renovation. With these savings, the investment in the framework of an Energy Saving Performance Contracting with Siemens will have paid for itself within twelve years.

Evidence shows that with an Energy Saving Performance Contract from Siemens, energy consumption can be reduced by up to 25 percent. With only part of the guaranteed savings, the investments have