Case Story – Hotel Bulwar

Advance technology and exclusive interior in historical building

35 years of experience means you can rely on Danfoss

www.heating.danfoss.com
The cooling system is based on passive solutions and is supported by compressors. It means that the comfort provided by air conditioning is based mainly on renewable energy and, only if necessary, is backed up by technical devices said Robert Zbierański.

In 1819-1822, for Prussian infantry and artillery, a complex of military barracks was build, along the Vistula river. The object has been called “Barracks of Racławice” ever since, constituting a part of city fortifications. What was interesting in the aspect of its military functions, was a so called “bomb pillow”. It was a “blind” storey of the building, ca. 2 m high, filled with a mixture of clay, sand and ashes, situated between the third and fourth floors of the building. It had defensive function, being supposed to keep bombs in itself, during eventual air raid. In 1921-1938 the building served as a dormitory of the technical college.

Since 1993, when the dormitory was moved away, it fell into ruin. In 2001 the City decided to sell the building, with the aim to adapt it to a hotel. Teams of architects and conservation officers worked long on a project, that made it possible to combine history of the building with requirements of modern hotel of highest standard.

Hotel Bulwar**** of Torun is situated on the picturesque embankment of the Vistula river, opening the famous panorama of Torun, which is inscribed on the World Heritage List of UNESCO. Standing next to the Lean Tower, medieval fortifications and imposing gothic buildings, it lets us breathe in the long history of Torun. Enjoy a stunning view of the magnificent monuments of the City, boulevard meandering along the Vistula river or city bridge bathed in light at night.

Friendly climate and unique atmosphere of the hotel had been reached through a range of innovative solutions in the area of heating and ventilation. Individual steering makes it possible to create comfort in every room, according to our guests’ expectations and requirements. Carefully developed systems ensure comfort not only while resting in our spacious hotel rooms. They also create an unforgettable atmosphere in the whole hotel. We know that it is important for our guests to enjoy silent, fresh and comfortable rooms during various kinds of meetings and events.

Bulwar hotel has been equipped with modern systems for central heating and air conditioning based on renewable energy sources.

Fact box
- **Property:** Hotel Bulwar
- **Location:** Torun, Poland
- **Energy source:** ground source heat pumps, solar panels, gas boiler (auxiliary heater)
- **Functions:** Heating, Hot Water and Cooling (Passive and Active)
- **Control:** Building Management System
- **Danfoss units:** DHP-R 42 kW x 5 and KBH water heaters x 2

Additional energy is produced by solar panels that support operation of the heating system, increase the temperature in geothermal wells and are used for preparation of domestic hot water. Such a configuration of energy sources can increase the temperature of geothermal water beyond the level achieved in traditional systems. In consequence, the coefficient of performance of heat pumps (COP) and financial savings resulting from their application are significantly higher. Further reduction of operational costs has been achieved by recirculation of excess heat into geothermal wells. In comparison with traditional water-based cooling systems that release the extracted energy into the atmosphere, the financial savings can be as high as 30%.

One of the most notable advantages of this system is relatively low process temperatures when the system is operated in heating mode. In case of cooling, the temperatures are slightly higher than normal - approximately 14°C. In consequence, operational costs of the system can be substantially reduced. The cooling system is based on passive solutions and is supported by compressors. It means that the comfort provided by air conditioning is based mainly on renewable energy and, only if necessary, is backed up by technical devices said Robert Zbierański of Ro-Instal company.

Domestic hot water with a temperature of 55-60°C is prepared by heat pumps operating at high COP in two double shell KBH containers. The initial heating is provided by condenser units, and the final temperature is obtained using hot cooling agent from compressor units. The temperature in second water tank is maintained by the master pump controller which also controls the operation of central heating and chilled water circuits. Because of cascade configuration, in which the heat pumps are operated, it is relatively easy to obtain hot water with different temperatures for heating, air conditioning and other domestic purposes. Proper adjustment of the system’s thermal output based on the actual energy demand can be guaranteed only by a hydraulically balanced system that is insensitive to pressure fluctuations and is equipped with flow adjustment devices. To meet these requirements,
Because of modern technological solutions such as solar panels and heat pumps, the hotel will substantially reduce the amount of harmful atmospheric emissions of which the absence will improve the quality of air in the Old Town area. Additionally, the energy saving technologies will reduce the hotel’s operating costs.

“Since the beginning of the project we paid special attention to the preservation of historic climate of the site. The old building, which is now used as a hotel, has been restored taking into account all its architectural details. The new parts of the building have been designed so as not to disturb its unique environment. It was our idea to create a building that forms an integral element of the Old Town and, at the same time, can offer the highest level of comfort. In short: advanced technology, elegant interior and old architecture combined” - said Mr Ryszard Urbanis, the investor. Hotel Bulwar is a prominent example of historical site revitalization and application of modern technologies that can guarantee the highest level of comfort and a minimum impact on the building’s environment.