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NEWSLETTER

aquaTower in Radolfzell on Lake Constance: First zero-energy skyscraper with CITEL surge protection

The review

It all began when Norman Räffle became aware of the old water tower in Radolfzell on Lake Constance on Christmas Day 1998. At the same evening father and son inspected the condition of the building.

The concept for the aquaTower changed from a mere panoramic café to a restaurant, an office and residential building up to a design hotel with a view over Lake Constance, one of the most beautiful areas in Germany. During the planning period, it was also decided to design the tower to become the world's first zero-energy skyscraper.

During eight years of construction, the building progress was rapidly advanced with a great deal of own work in various sections such as civil engineering, dismantling, structural work and facades.

Electrical engineering

For electrical work the company ELBAG from Stockach was on board respectively in the tower. The managing director, Frank Gora, supervised the project himself and observed the construction of the electrical cabinets, which are the heart of the electrical power distribution. These cabinets also contain all safety-relevant components for the first zero-energy skyscraper worldwide.

We from CITEL supplied the products for the lightning and surge protection.

Lightning and surge protection

As a central protection, ELBAG installed a surge protective device (type 1+2+3) DS134VGS-230 from CITEL in the mains supply. In the sub-distributions, coordinated „Type 2" DS44-230 surge protective devices were additionally installed.

The DS130VG series with 12.5 kA discharge capability per pole is a space-saving and cost-effective solution for buildings with lightning protection classes III+IV and meets the minimum requirements for type 1 lightning arresters according to VDE 0100-534. Thanks to the integrated CITEL VG technology, the DS130VGS, as a type 1+2+3 surge arrester, combines all three protection classes in a single device and thus provides excellent protection against surges and overvoltages for the downstream installation. The DS130VG also complies with the VDN directive and is allowed to be used in the pre-meter area of the feed-in. The DS130VG series is therefore optimally qualified for the installation in residential and commercial buildings.
The surge protective devices of the DS40x series are classified as type 2 arresters due to their surge current discharge capability and are mainly used in sub-distribution boards of electrical systems.

The protection circuit of the DS40x series consists of a combination of high-power varistors with a thermal disconnection unit, fault indication and optional remote signalling. The DS40x series is available for electrical systems with a wide range of operating voltages and mains types and is suitable for DIN rail mounting. The pluggable protection modules enable quick and easy replacement in the case of fault.

We pay special attention to comprehensive support of planning offices and installation companies. Our technically experienced consultants work together with the installers to find the best technical solution for the customer, always taking commercial aspects into account.

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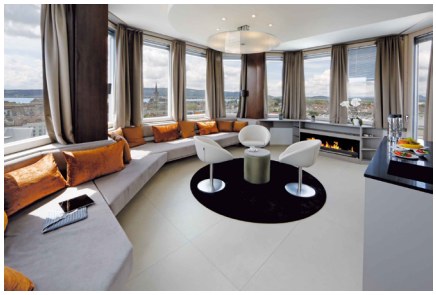
Facts and figures

In many sections of the hotel the latest technology is embedded with numerous custom-made solutions.

- The hotel provides 15 double rooms, one suite and four single rooms. The Zeller-SPA-Suite covers the entiretwelfth floor and offers a spectacular view from the Lake Constance all the way to the Alps. Of course, the other rooms impress with exclusive furnishings, modern technology and highest comfort.
- The tower height was increased from the initial 31 metres to 50.5 metres and has a total number of 14 floors.
- The photovoltaic panels on the facade are rated at a maximum output of 69 kW. Wind turbines are installed on the roof and a hydrothermal plant is installed in the basement.
- The breakfast room is 33 meters above the ground and can be rented for small events and civil weddings.



Altogether an architecturally and technically masterpiece created by Jürgen Räffle.

More infos at
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