References

# aquaTurm Radolfzell



**Uponor involvement**

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## aquaTurm Radolfzell

The former water tower in Radolfzell was converted into the zero-energy design hotel aquaTurm, with the Klett and Smatrix Base solutions from Upanor being used for heating and cooling.

In the aquaTurm Radolfzell, the world's first zero-energy high-rise building, an optimally coordinated combination of energy efficient surface temperature control systems and the intelligent Uponor Smatrix Base regulates temperatures to ensure a comfortable room temperature all year round. The design hotel created from the construction material of a water tower which is more than 60 years old entirely supplies itself with energy with the help of solar and geothermal power, wind power and photovoltaics, and sets new standards in terms of environmental friendliness in the industry.

**Project Facts:**

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| Location | Completion |
| Radolfzell, Germany | 2018 |
| Building Type | Product systems |
| Hotels | Radiant Heating & Cooling |
| Website | Project Type |
| https://aquaturm.de | Renovation |

**Partners**

Investor and building owner
The Räffle Family

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The buildings offer 20 luxurious and comfortably furnished rooms and suites, whose quintuple-glazed windows provide breath-taking views of Lake Constance and the Swiss Alps. The rooms and the fully-glazed breakfast room, which can be found in the 11th floor of the 50m high tower, are equipped with the easy-to-lay Uponor Klett wet installation system for underfloor heating and cooling.

aquaTurm – the zero-energy design hotel is a trailblazer for sustainability in the hotel industry

With its pioneering energy efficiency, the 14-storey aquaTurm seamlessly aligns itself with the environmentally-friendly tradition of the former Green Capital of Radolfzell am Bodensee. The conversion of the water tower into a zero-energy design hotel was supported by the German Federal Ministry of the Environment as a demonstration building and took over eight years in total. For example, as part of this conversion, the Räffle Family, who executed this project completely on their own as investors and building owners, equipped the building with a passive house façade with 1,000 photovoltaic modules and a solar thermal system. With approximately 32,000 kWh/a, this covers around half of the overall heating needs of the building. A highly-efficient modulating water heat pump helps with the heating and cooling of the premises.

Uponor Klett wet installation system wins over clients with its quick installation

Inside the hotel, the owner family have opted for the comfortable and energy efficient method of radiant heat for surface heating. To be able to furnish the hotel rooms and the breakfast rooms quickly and comfortably, the developers chose to use the Klett wet installation system. The solution makes it possible to carry out a quick one-person laying as the spiral-shaped pipes, which are wrapped with hook and loop technology, are simply impressed onto the corresponding mounting sheet and intermesh with the adhesive foil. To ensure the optimal stability and strength of the system, Radolfzeller's showcase project uses particularly durable rolling dollies. These have been specially developed for high-pressure loads in hotels or exhibition spaces.

Energy efficient and controlled heating with Uponor Smatrix Base

The rooms of the aquaTurm are not just heated, but are also cooled by the surface heating system. An Upanor Smatrix Base control module, which is equipped with a cooling function as standard and which can switch between the different modes by an external signal, was installed on each floor of the hotel. When cooling is required, the regulation provides reliable protection against dropping beneath the dew point in order to avoid any damage being caused to the construction materials by condensation. In addition, the intelligent auto-balancing function regularly adjust the mass flux in each heating circuit to the changes in the system or in each room. In this way, consistent ground temperatures, quick response times and a high level of energy efficiency are all guaranteed.

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