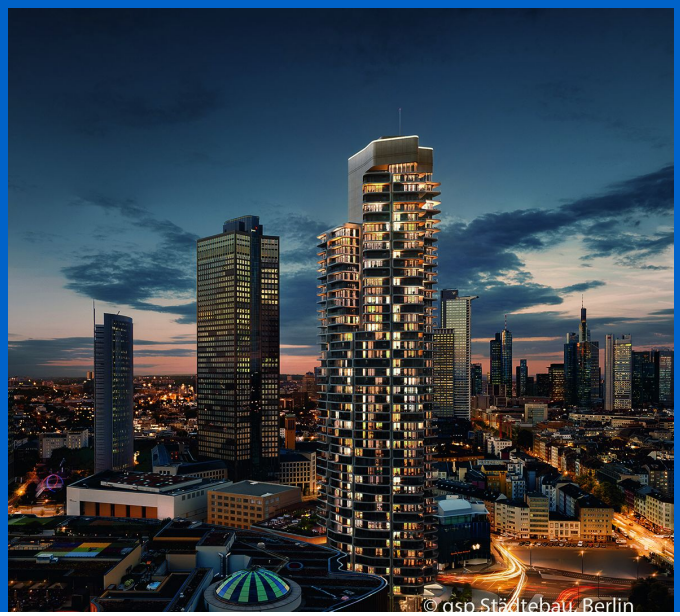
References

Grand Tower



Uponor involvement

- Heat and cold distribution: more than 400 Uponor heat interface units | Underfloor heating: 300,000 metres Uponor Comfort Pipe 16 x 1.8 millimetres

Technology for the journey to the top

More than 400 heat interface units and over 300 km of underfloor heating and cooling pipes for Germany's highest residential complex.
The Grand Tower in Frankfurt, which is now the tallest residential complex in Germany, was completed in June 2020. Inside the building, Uponor has implemented one of the largest contracts in the company's history. More than 400 apartments and penthouses in the building are fitted with Uponor heat interface units (HIU). The main reason for awarding the contract was the high demands placed on the heating and cooling supply of the luxury homes. Thus, the solutions developed specifically for the project ensure optimum individual temperature comfort for residents as well as the clear separation of the primary and secondary networks in the building. The compact units were supplied as a complete package with ready-wired control technology, accelerating work procedures on-site.

In addition, around 300,000 metres of Uponor Comfort Pipe are used for underfloor heating and cooling in the residential high-rise.

Project Facts:

Location	Floor space	Completion
Frankfurt am Main, Germany	41 to 300 m² per apartment	2020
Building Type	**Product systems**	**Number of floors**
Multifamily homes	Radiant Heating & Cooling, Multilayer Pipe Systems, Prefabricated systems	42
Address	**Website**	**Project Type**
Europa-Allee 2 60327 Frankfurt am Main	https://www.mattheusser.de/en/properties/grand-tower/?id=24	New building

Partners

The company gsp Städtebau, Berlin is the investor for this prestigious project:

Client: gsp Städtebau GmbH, Berlin
https://www.gsp-staedtebau.de

Architect: Magnus Kaminiarz & Cie. Architektur, Frankfurt am Main

Building automation planning:
ventury GmbH, Dresden
http://ventury.org/

Building Services: Fachbetrieb Mathias GmbH, Waltershausen
https://mathiasgmbh.de/

Groundbreaking architecture with newest building solutions

The Grand Tower built in Frankfurt's Europa district boasts an impressive, dynamic architecture and exclusive living comfort. The groundbreaking project thus received numerous prestigious awards such as the German Design Award and the International Property Award 2017 in advance.
Indeed, the 47-storey residential high-rise offers occupants a variety of highlights, including a lobby with concierge service, a 1,000 m^2 roof garden and a sundeck at a height of 145 metres. Measuring between 41 and 300 m^2 in size, the apartments offer floor-to-ceiling windows for an impressive view of Frankfurt and the Taunus region.

Transfer points for heat and cold
These high demands in terms of flexibility and comfort are reflected in the heating and cooling supply used in the skyscraper, which is based on a district heating connection with a capacity of 2.5 MW and two chillers installed on the roof, each with an output of 600 kW. The heat interface units serve as transfer points for heat and cold to the living areas. They are supplied with heating and cooling water via the risers and use integrated heat exchangers to ensure clear system separation as well as demand-based energy distribution to the individual consumers. On the lower floors up to the 42nd storey, the residential units are equipped with underfloor heating/cooling and a bathroom radiator, while the upper floors also have cooling ceilings.

Individual living comfort

The separation of the primary and secondary heating and cooling circuits in the residential high-rise has a number of advantages. Residents can use the units to adjust room temperatures to meet their individual needs completely independently of the overall system. This also applies to the automatic switching between heating and cooling mode, which significantly increases living comfort. The six-way ball valve integrated into the decentralised HIU ensures that consumers are reliably supplied with the required flow rate of hot and cold water at all times in both heating and cooling modes.

Because the residential units are decoupled, if there is a malfunction in the complex system, the source of the fault can be identified quickly. If the fault lies in the living area, the remainder of the heating/cooling system will remain fully operational during the repairs. The units also make it easy to retrofit a cooling ceiling, as the necessary connections are already available and retrofitting can be carried out without affecting the rest of the system.

Safe and certified

At the same time, high pressure is required in the risers to ensure reliable distribution of energy in the complex and is effectively balanced by the heat interface units. For this purpose, extensive tests were carried out with the piping used in the solutions in order to have them certified for nominal pressures of up to PN 25. In addition, dynamic differential pressure regulators are used to reduce the system pressure (PN 16) to the optimum level for the secondary circuits during the transfer to the heating circuits.

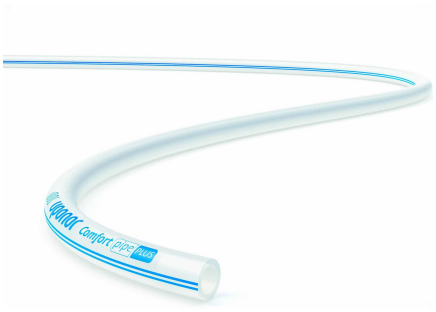
The precise adjustment of the heat interface units to the stringent demands of the building played a major role in awarding the contract. In addition, Uponor provided the project partners with extensive advice and support. The high level of flexibility required in the production of the interface units was also key, as ten units per week had to be delivered to the construction site in the initial phase.

Technology for the journey to the top











The Grand Tower won the following awards:

The Grand Tower won the following awards:

- European Property Award for its architectural language, quality, innovation and sustainability
- iF Design Award, Iconic Award and German design Award for the image book of the Grand Tower