uponor

Thermally Active Building Systems

Heating and cooling for offices and commercial buildings, cost- and energy-efficient

How the Thermally Active Building (TAB) system works

The advanced combined heating and cooling system for multi-storey buildings

If you think about planning an office or commercial building, you've got to include ventilation, air-conditioning and heating. Each one a considerable task and investment in itself. Now think again: Why not integrate indoor climate systems in the construction from scratch?

The Uponor TAB system utilises the concrete's thermal mass by embedding pipes carrying water for heating and cooling in the building's structure. This way, ceilings, floors or walls contribute primarily to the sensible cooling, and secondarily to the base heating of the building. The embedded pipes activate the concrete core in the building mass for storage and discharge of thermal loads.

While the Uponor TAB system is not an air-conditioner and is not a substitute for a ventilation system, the task of conventional technologies is reduced to a minimum – which helps ensure the best possible indoor environment. In an invisible, inaudible way without draught. That's innovative to the core!

- Operation at temperatures that are close to the ambient environment. Perfect for integration of renewable and free cooling sources – truly sustainable!
- Complies with sustainable building certificates like LEED, BREEAM and DGNB.
- Easy to combine with conventional heating, cooling and ventilation systems.
- Uponor provides technical support, starting at the concept phase of your project.

By day

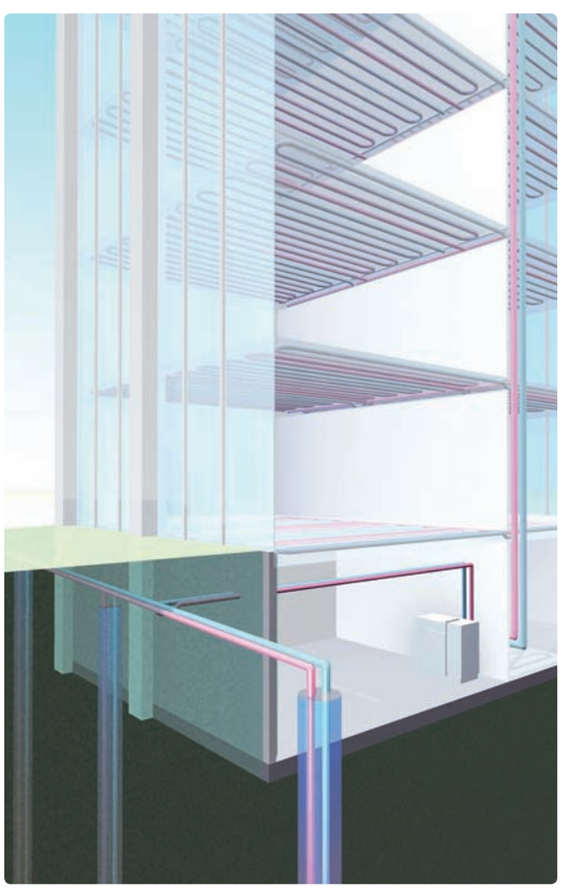
During the day the cooled ceiling slab accumulates the thermal loads from the room or direct sunshine.

By night

During the night the concrete core of the ceiling slab is cooled by the free cooling source or the chiller.

How the Uponor TAB system pays off!

Benefit from the short and long term advantages in terms of comfort, reliability and low energy use



The Uponor TAB systems works perfectly with ground energy sources – a truly sustainable way to supply commercial buildings.

Comfort is ensured by optimal temperatures provided by a silent system that does not circulate air: no dust, no draughts – ensuring a healthy indoor environment. The invisible system also gives freedom of space and flexible indoor design.

The reliability of the Uponor TAB system has been confirmed in more than 1,000 building projects since 1997 – with safely embedded heat exchangers in building constructions.

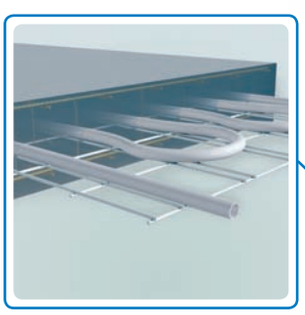
Low energy use is achieved by a mean operating water temperature (18–28°C) that is close to the ambient environment. This increases heat-source efficiency and enables the use of renewable and free cooling sources in accordance with a low-energy design principle.

Last but not least: the Uponor TAB system is cost-effective. This starts in the construction phase and lasts throughout the life of the building.

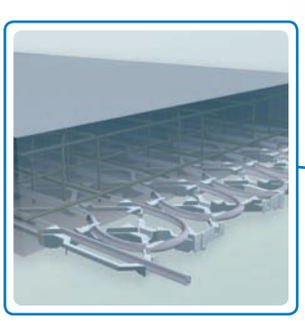
- Low installation costs: 30–50% savings due to smaller refrigeration, smaller heating units and reduced air-conditioning ducting to hygienic volumes.
- Low maintenance and operating costs: Up to 50% savings compared to conventional air-conditioning systems!
- Fast installation and improved quality control due to prefabricated construction technique.
- Perfect for the integration of renewable energy sources.
- Ideally suited for modern sustainable buildings incorporating efficient insulation and solar shading.
- Reduction of building height and fewer materials due to lack of suspended ceilings.
- Invisible system that gives maximum freedom for architectural and indoor design.
- Avoid the “Sick Building Syndrome”: The Uponor TAB system creates neither noise, draughts nor dust.

The Uponor solution for a pleasant

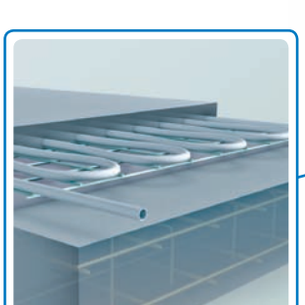
TAB system Contec – a high-efficiency energy concept for perfect indoor climate

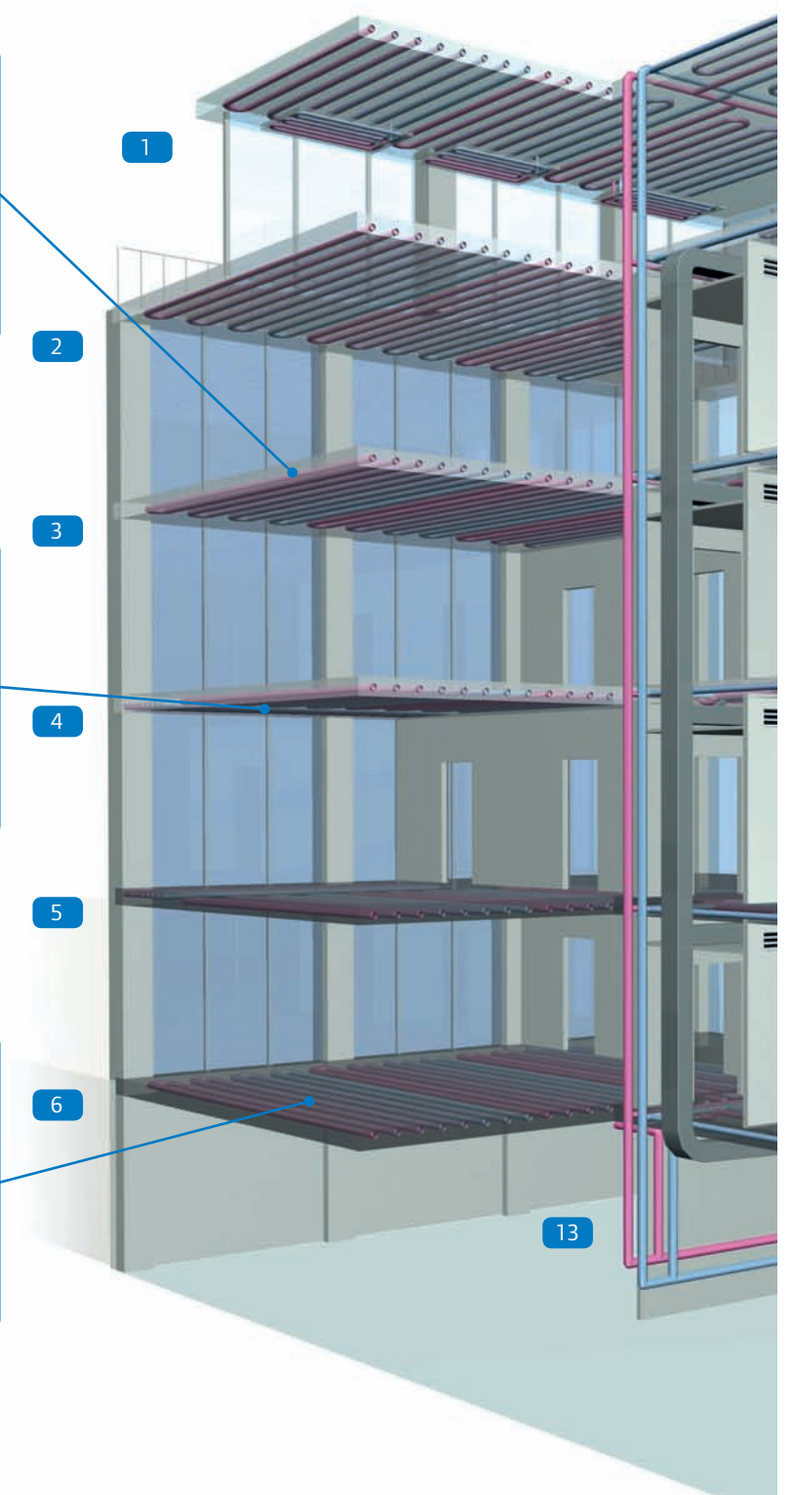


Contec ON – TAB system surface close: High-performing and fast-reacting concept



Underfloor cooling and heating – ensuring perfect indoor climate in winter and summer



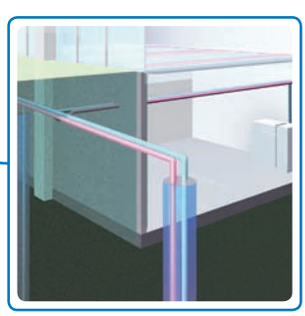


radiant cooling in buildings

Contec TS – TAB system thermal socket: Concept for subsequent connection of an additional cooling panel

Different TAB system combinations to suit all comfort requirements

1. Contec ON High Performance + Contec TS with panel
2. Contec ON Standard Performance
3. Contec + Contec TS without panel
4. Contec + Contec ON High Performance in peripheral area
5. Contec + Underfloor cooling and heating in peripheral area
6. Underfloor cooling and heating
7. Contec ON High Performance + Contec TS with panel
8. Contec ON High Performance
9. Contec + Contec TS with panel
10. Contec + Contec ON High Performance in peripheral area
11. Contec
12. Underfloor cooling and heating
13. Uponor riser, reversed return system and manifolds



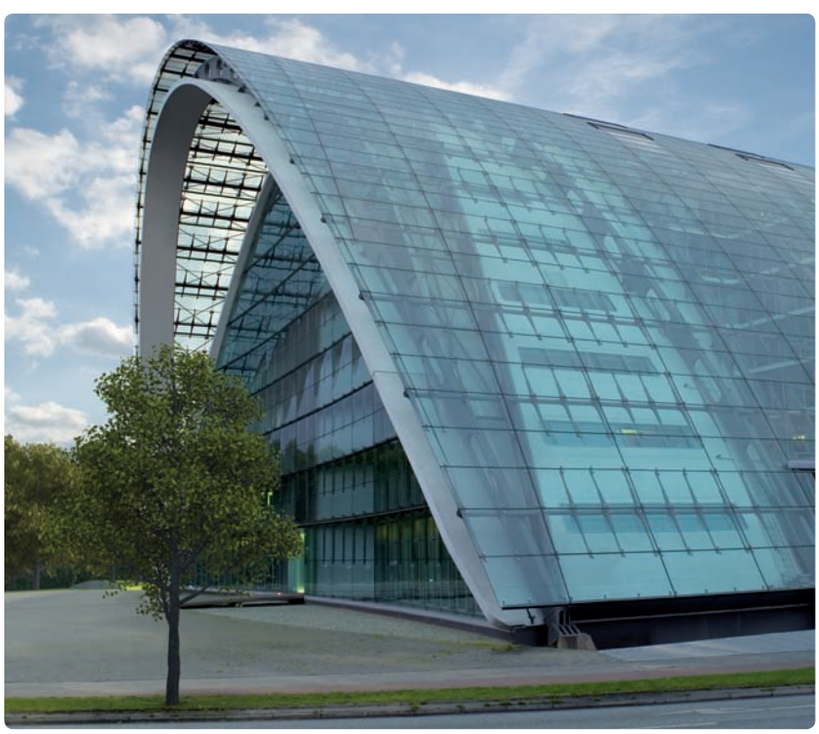
Ground energy source allows for maximum pay-off of the TAB system

Uponor TAB system is suitable for different building types:

- office & commercial
- museum & library
- showroom
- healthcare
- education

Manchester Metropolitan University, United Kingdom

Challenge: Create energy efficient heating and lighting to the BREEAM standard

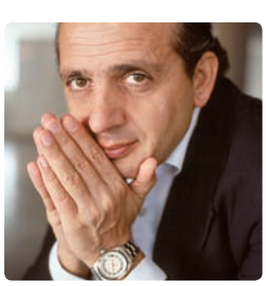


CAFOD Building, United Kingdom

Challenge: Fitting TABS within a challenging environment

Berliner Bogen, Offices Hamburg, Germany

Challenge: Create a most agreeable working atmosphere with maximum architectural freedom.



Hadi Teherani – BRT Architekten LLP, Hamburg:

> Through the use of the thermally-active building system fewer annoying radiators are needed and suspended ceiling panels can be omitted, too.

Dipl.-Phys. Stefan Holst – TRANSSOLAR Energietechnik GmbH, climate engineering company, Stuttgart Munich New York:

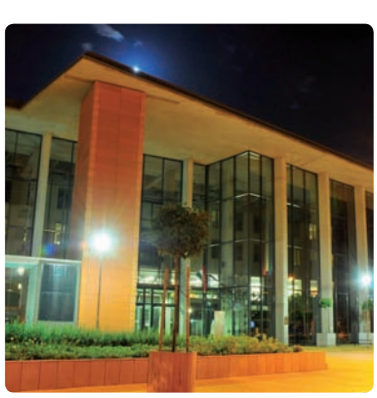
> The thermally-active building system has become a standard for the energy-efficient use of renewable energy for heating and cooling due to the excellent thermal comfort it offers.

Mercedes World, Showroom, Berlin, Germany

Challenge: To provide full architectural freedom to show 300 cars and allow visitors to experience the fascination of Mercedes mobility.

American University, Beirut, Lebanon

Challenge: Cope with difficult, warm climatic conditions and create a system with a relatively free cooling thanks to the Mediterranean Sea.



Semmelweis, Medical University, Budapest, Hungary

Challenge: Install a large TAB system within a very narrow time frame with prefabricated TAB modules.

Main benefits of thermally activated buildings:

- Reliability – trust a proven system
  The Uponor TAB system has been proven in more than 1,000 buildings since 1997 in different climatic regions.

- Low energy – save energy (and money) during operation
  The Uponor TAB system uses free and low value energy in accordance with low exergy design principles.

- Comfort – create a better, healthier indoor environment
  The Uponor TAB system is silent, creates neither dust nor indoor draughts. For a perfect place to live or work.

08/10 – Subject to modifications

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