Always perfect temperature. Efficient space cooling systems for office, commercial and residential buildings.
Building cooling systems are becoming increasingly important: growing demands for comfort, the large-scale use of glass in architecture and, not least, ongoing climate change are posing major challenges for designers, architects and public authorities. Uponor offers the latest heating and cooling solutions and products for all application needs – from single-family homes to large industrial areas.

**Heating and cooling in one system**
The main advantage of Uponor systems lies in their ability to supply both heating and cooling with very little additional cost: a single integrated system provides both heating in the winter and cooling in the summer without creating the drafts or noises typically associated with conventional air conditioning systems. Uponor offers products in complete and entirely compatible solutions – one of the reasons why the company is currently seen as one of the most important global providers in the areas of space heating and cooling, installation systems and piping systems.

**Our Goal:**
Keeping the Temperature Comfortable.

The right system for every project: Uponor systems and their applications.

<table>
<thead>
<tr>
<th>Project type</th>
<th>Uponor Capillary Mats</th>
<th>Uponor Contec</th>
<th>Uponor Contec ON</th>
<th>Uponor Contec TS</th>
<th>Uponor Comfort Panel</th>
<th>Uponor Siccus SW</th>
</tr>
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<tr>
<td>New buildings</td>
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<td>Exposed concrete ceiling</td>
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<td>Plaster ceilings</td>
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<tr>
<td>Exposed concrete wall</td>
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<td></td>
</tr>
</tbody>
</table>

**Cooling period:**
May to October

**Main cooling period:**
June to September

February | March | April | May | June | July
Efficient Teamwork: Uponor Systems for Perfect Cooling.

Uponor Contec: Thermally Activated Building Systems (TABS) with heat storage capability.
With this system you can use the storage capacity of concrete ceilings for cooling and heating.
Page 4

Uponor Contec ON: High-performance thermal activation of component surfaces.
A system for high thermal performance with fast controllability and load compensation.
Page 6

Uponor Contec TS: Thermal energy from the power outlet.
For providing thermal energy through optional heating/cooling panels.
Page 8

Uponor Comfort Panel: Highly efficient cooling system.
Cooling system for suspended ceiling structures, applicable also for renovation.
Page 9

Uponor Capillary Mat system: Flat, fast, universal.
A system ideally suited for low panel thicknesses and high cooling/heating power in drywall and plaster constructions.
Page 10

Uponor Siccus SW: Lightweight stud wall elements for fast assembly.
An energy distribution system specifically designed for use in drywall constructions for cooling and heating.
Page 12
Uponor Contec: Thermally Activated Building Systems (TABS) with heat storage capability.

Environmentally sound construction is a trend, given that ecologically sustainable concepts are an increasingly necessary basis for new construction projects. Uponor Contec / Thermally Activated Building Systems (TABS) solution is the ideal choice for cost-saving and environmentally benign construction. By using Uponor Contec, you can save up to half of the investment and operating costs of conventional air-conditioning systems.

**Uponor Contec – The principle**

The Uponor Contec system utilises the storage capacity of the concrete elements for heating and cooling buildings. In terms of cooling, cold water flows through the pipes integrated in the structure to keep the temperature of the building comfortable during the day. Cooling or low temperature heat energy generated from night air or geothermal sources is stored in the building structure at night by the Uponor Contec energy distribution system.

Economical cooling and heating – Thermally Activated Building Systems for office and commercial areas
**Highlights**

- Best user acceptance with low investment and operating costs
- Optimum use of renewable energy sources
- The components of the system are virtually maintenance-free
- Complete freedom thanks to flexible room design

**Recommended use**

New building: Office and commercial architecture

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**Low investment and maintenance costs**

The energy generators can power additional peak load systems during the day, which in turn lowers the required capacity of the air conditioning and heating systems and thus the investment and operating costs. Uponor Contec normally covers the basic load and is even capable of satisfying all heating and cooling energy needs if the building is optimally designed for that purpose.

The efficiency of Uponor Contec is influenced by the following factors:

- Factory-assembled modules equipped with Uponor piping for uninterrupted installation and fast construction times
- Standards-compliant pipe positioning guarantees high power output
- Optimal pipe positioning with the optional retaining bracket method patented by Uponor
- Uponor PE-Xa pipe with external 20 x 2 mm protective jacket
- Patented system components such as ceiling routing elements for formwork-safe pressure testing and special pipe brackets for module assembly

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**Uponor Contec**

<table>
<thead>
<tr>
<th>Flow temperature</th>
<th>Flow temperature</th>
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</thead>
<tbody>
<tr>
<td>16/20°C</td>
<td>30/26°C</td>
</tr>
<tr>
<td>Approx. 40 W/m²</td>
<td>Approx. 25 W/m²</td>
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<tr>
<td>Room temperature</td>
<td>Room temperature</td>
</tr>
<tr>
<td>26°C</td>
<td>20°C</td>
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</tbody>
</table>

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**Thermally Activated Building Systems with Uponor Contec**

Installation modules ensure that the pipes are properly spaced.

**BOB – the Balanced Office Building, Aachen, 2,000 m²**

**BETONDECKE BETONDECKE**

**DEUTSCHES PATENT**

EP 0 957 317 A2
DE 39 06 729 C1

**WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES.**
Uponor Contec ON: High Thermal Output and Quick Controllability.

Thermally Activated Building Systems use the thermal mass of a building to create an active heat storage system. The inertia of the mass helps absorb temperature fluctuations through the course of a day and thus ensures that the temperature remains comfortable. To enable a quick response time to load fluctuations or high heating and cooling outputs, we recommend systems that contain near-surface pipe modules such as Uponor Contec ON.

**Highlights**
- Increased output and quick adjustment to changes in use
- Balancing of peak loads / compensation of load fluctuations
- Improvement of the microclimate of workstations located near windows
- Replacement of secondary heaters / hybrid heating and cooling system
- Custom user access and room temperature control where required

**Recommended use**
New building: Office and commercial architecture

**Fast-acting system for peak load coverage**
Uponor Contec ON plastic pipe brackets ensure that the height of the pipes on a plane a few millimetres above the ceiling base remains accurate and, at the same time, serve as a spacer for the bottom reinforcement. When using Thermally Activated Building Systems with heat storage capability, we recommend connecting an additional system that is capable of quickly controlling peak load coverage and, if necessary, individual room tempera-tures. Contec ON is the perfect choice for this.

WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES.
**Contec ON – Installation**
The factory-assembled pipe mounting modules are installed directly onto the customer’s ceiling boarding. Contec ON acts as a spacer so that you can place the bottom reinforcement on the modules. The modules can now be connected to the distribution lines. Contec ON is also available with fibre reinforced cement stands, which make it easy to use with exposed concrete.

**Uponor Contec ON – Standard and high performance models**
Two versions of Uponor Contec ON are available: a standard model for full-area installations and a high-performance model for installation in perimeter areas where extremely high power is to be transferred to a small surface. Depending on the design temperature and model selection, this results in heating and cooling capacities ranging from approx. 40 to 70 W/m².

**The Perfect Couple – Uponor Contec and Uponor Contec ON**
To achieve the goal of instantaneous load coverage, the full-area installation of Uponor Contec ON requires that sufficient energy be available as soon as loads arise. Renewable energy sources can be used in this case. The economical use of natural cooling sources is the major strength of storage-capable Thermally Activated Building Systems. It enables the energy stored overnight to be provided during the operating hours of the building. One clever solution is the combination of Uponor Contec at night and Uponor Contec ON during the day to cover peak loads “just in time.”
Uponor Contec TS: Thermal Energy from the Power Outlet.

Uponor Contec TS expands the concrete core activation system to include a thermal outlet that allows you to connect additional external and freely-suspended cooling/heating or peak-load elements directly to the concrete ceiling. To connect thermal outlets that are not integrated in the concrete ceiling, an adapter plug (available for purchase as an accessory) is required.

**Highlights**
- Optional provision of additional thermal energy
- Flexibility in use of space/planning security
- Subsequent activation without draining the system

**Recommended use**
Ideal complement to Uponor Contec in areas with partially higher cooling needs

**Uponor Contec TS – Installation**
Uponor Contec TS is installed directly on the ceiling boarding of the customer and set in concrete together with the distribution lines. The system features an automatic cut-off device that allows you to activate the outlet subsequently by means of an adapter plug without first having to drain the system.

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**View from below after set in concrete**

**View from below with removed installation plate**

**View from below with installed connection adapter**

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**View from below: peak load element with Contec TS connection adapter**

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**Uponor Contec TS**

Optional material

Approx. 200 kg/h or 850 W/unit at 4 K temperature difference

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WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES.
The Uponor Comfort Panel is a suspended ceiling system that is primarily used for cooling. The system is based on a thermally active ceiling panel that is covered by an insulating layer and which is designed to be quickly and easily inserted into the exposed metal rail substructure of a conventional suspended ceiling.

The use of quiet cooling in the form of suspended cooling panels or Thermally Activated Building Systems is becoming more and more prevalent because of their simplicity and efficiency compared to air conditioning systems. The

Uponor Comfort Panel is suitable for use in both renovated and new buildings. It is available in the dimensions 617 x 1242 mm (625 grid) and 595 x 1195 mm (600 grid).

**Great flexibility and efficiency**

The panels are connected using factory-assembled plug fittings that can be joined together with plug-in couplings. For the purpose of energy distribution, Uponor offers an extensive product range that allows the custom installation of cooling ceiling panels. In accordance with the DIN EN 14240 testing standard for cooling ceilings, a cooling capacity of 44 W/m² is provided at a temperature difference of 8 K or higher. At a temperature difference of 10 K, the Uponor Comfort Panel reaches a capacity of 55 W/m².

In terms of sound absorption, combining this system with standard mineral fibre boards that cover 70% of the surface results in a sound absorption level of A11w = 0.45, and thus sound absorption class D. By comparison, normal ceilings covered with standard acoustic plaster result in an average A1 value of around 0.4.

**Highlights**

- Panels with factory-installed plug connectors
- Quick and easy installation
- Compatible with existing metal rail substructures
- Better sound absorption than with acoustic plaster

**Recommended use**

Office buildings, renovated or new buildings

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**Uponor Comfort Panel**

<table>
<thead>
<tr>
<th>Flow temperature 15/17°C</th>
<th>Flow temperature 32/28°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 55 W/m²</td>
<td>Approx. 46 W/m²</td>
</tr>
<tr>
<td>Room temperature 26°C</td>
<td>Room temperature 20°C</td>
</tr>
</tbody>
</table>
The architecture of a building has always set the limits of heating and cooling concepts. But that is now a thing of the past. The Uponor Capillary Mat system can be used to implement innovative projects that would be impossible using conventional cooling ceiling systems. In short: With the Uponor Capillary Mat system, designers and architects can achieve results that would otherwise involve a great deal of time and cost.

**High heating and cooling capacities**

If you install a system with 16 x 2 mm standard pipes on a 1 m² area (150 mm pipe spacing), then the pipe heat exchange surface measures 0.34 m² per m². If the 4.3 x 0.8 mm Uponor Capillary Mats are installed on the same area, the heat exchange surface of the pipes is 0.68 m² per m² – a 100% increase. This explains the high heating and cooling capacities of the system at relatively moderate flow temperatures.

- Low panel thickness of only 6 mm, quick installation via intelligent plug connectors
- High efficiency through large transfer surface
- Low flow temperatures
- Very dynamic controller behaviour
- Ideally suited for use with renewable energy sources

**Recommended use**

Residential, office and commercial buildings, renovated or new.

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WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES.
Perfect Fit – Every Time
Due to the near-surface position of the capillary mats, response time is usually only a quarter of the time required in conventional systems. As a result, appropriate control technology can be used to adapt the system dynamically and individually to suit existing heating and cooling requirements. The Uponor Capillary Mat system can easily be integrated into a system engineering concept by means of system separation, which prevents oxygen from entering the system via the capillary tube mats. System separation also prevents dirt and grime from entering the mats and thus ensures reliable and long-term system operation. The system is available with mat widths of 300, 600 and 1,000 mm and lengths of 1 to 5 m, in 20 cm increments each.

F-SB Uponor Capillary Mat system
The tubes of the F-SB Uponor Capillary Mat system are integrated in a polystyrene grid and can be attached to any smooth surface, regardless of whether it is on the wall or ceiling. The mats are simply pressed into the plaster and then primed. This installation method limits panel thicknesses to only 6 mm.

O-SB Uponor Capillary Mat system
If uneven wall or ceiling surfaces make the installation of conventional piping systems difficult or even impossible, then the O-SB Uponor Capillary Mat system is the right choice for you. Its flexible mats with variable spacing brackets allow for faultless mounting on any uneven surface, making this system the ideal choice for installation under plaster or in drywall constructions.

Uponor Siccus SW is the ideal choice for use in commercial buildings. It can serve as a secondary system for peak load compensation, particularly in building areas where high cooling and heating capacities are required and sufficient wall space is available.

**Combinable system with fast response times**
The system is suitable for use in both new and renovated buildings and can easily be combined with Uponor Contec system for Thermally Activated Building Systems or the Contec ON near-surface system. Because its pipelines are located close to the wall surface, the Uponor Siccus SW system is capable of extremely fast response times. If used for cooling, the system functions in a manner very similar to a cooling ceiling. You can also improve the heating and cooling capacity of the system, which is rated at approx. 45 W/m², by using drywall panels with optimised heat conducting properties.

**Highlights**
- Only one system component for fast installation
- No additional panel thicknesses required
- Even surface temperatures due to specially formed aluminium plates
- System with fast response time and control options

**Recommended use**
Commercial areas – offices or administrative buildings, especially during renovation work

 WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES.
Quick and easy installation

The Uponor Siccus SW stud wall element was specifically developed for installation in drywall constructions. It consists of a rigid aluminium support element with integrated omega-shaped pipe ducts that secure the pipes in place. The elements are preassembled in the factory using the Engel-method crosslinked Uponor PE-Xa piping at 14 x 2 mm. Connection lines for efficient installation are already included. Weighing only about 2.4 kg each, the elements are light enough to allow one person to install the system. Quick and easy installation is also made possible by the consistent spacing of the profiles in a stud wall (625 mm according to DIN 18181).

The Uponor Siccus SW does not require separate thermal insulation. The support element is simply glued onto the CW profiles of the wall construction. The pipelines are located in the cavity of the wall, which means drywall panels can be attached directly to the CW profiles in the usual manner.
Our objective: Promote innovation
Knowledge is the fuel of the modern world. We always strive to expand our knowledge, keep our eyes on the market and continuously enhance our products and services. We do so because we know that success only comes to those who drive innovation and incorporate the latest trends and developments into technologies ready for the market.

Uponor: Expertise meets experience
When we talk about expertise, we do so based on the experience and capabilities of a global market leader. Whether for traditional single or multi-family homes, complex industrial buildings or other projects, Uponor space heating and cooling systems always keep you one step ahead in terms of project consulting and implementation. The reason for this is simple: our many years of pioneering work and implementation experience provide you with the optimal solution for all of your space and application needs.

Our focus: Not just products, but solutions
We work together with you to develop solutions that will help you complete your projects. Our experienced experts offer custom-tailored concepts and can assist you with their vast range of expertise. From design and consulting to comprehensive service, Uponor gives you everything you need from a single source.

Uponor: Always there, always close by
In our line of business, theory and practice are often so far apart that only personal meetings provide any real form of help. In such meetings we provide you with all the equipment and support you need in a flexible and market-driven manner.

Uponor Academy: Knowledge creates added value
We offer subject-specific seminars to make our expertise available to you, the customer. We have specialists in each subject area capable of explaining the current state of technology and giving you valuable tips for real-world applications. We place great value on going beyond the system and product horizon: Subjects such as “Work Performance and Room Climate” or “Energy Efficiency” are just a few examples of this. These seminars provide you with practical and immediately usable information that will greatly improve your consulting skills.

Uponor: Built-in design security
All Uponor system solutions have been specifically developed to offer you the highest level of design and installation security. Our extensive technical library contains everything you need for professional design and processing with our systems. You will also have round-the-clock access to all important information and downloads on our website.

Contact us and give us a challenge to work on.

Uponor – simply more.
Uponor – Partner, Pioneer and Market Leader

Uponor is active in areas ranging from manufacturing space heating and cooling systems, drinking water installations and radiator connections, to developing concepts for environmental and civil engineering projects.

Since its establishment in Finland in 1965, Uponor has been continuously developing and enhancing its range of standard-setting products and services.

You can rely on our expertise and experience in three business areas: heating and cooling systems, plumbing systems and infrastructure.

Uponor. Simply more.