References

Uponor in Sluppenveien 17



Uponor involvement

- 66,000 metres of Uponor pePEX piping

Uponor in Sluppenveien 17

Sluppenveien 17 is the first project to use the TABS solution from Uponor. (TABS – Thermally Active Building Systems)
Sluppenveien 17 – Pilot project
This is the first TABS project that Uponor has delivered in Norway:

- 8 floors in total
- Area: 10,000 m^2
- Basement level with car park
- Central atrium in the building covering 7 floors
- Kjeldsberg Eiendom
- Energy class A

Uponor in Sluppenveien 17
Uponor has delivered several plumbing systems for the project in Sluppenveien:

- 66,000 metres of Uponor pePEX piping for cooling
- Uponor floor heating system in changing rooms
- Uponor Uni-Pipe composite pipe for supply pipelines
- Uponor Tap Water Systems PEX Pipe in Pipe

Project Facts:

Location	Completion
Trondheim, Norway	2015
Building Type	Product systems
Office	Radiant Heating & Cooling
Project Type	
New building	

Partners

www.sluppen.no

Kjeldsberg Eiendom

K. Lund AS – www.klund.no

www.sluppen.no

Kjeldsberg Eiendom

K. Lund AS – www.klund.no

TABS – Thermally Active Building Systems; Thermally active slabs

TABS – Thermally Active Building System is a principle for thermal activation of concrete slabs with embedded water loop pipes. The excess heat in the room rises upwards where it is stored in the slabs above. PePex pipes are embedded in the concrete slabs and circulating water draws the heat out from the thermal slabs and out of the building. The system is primarily a cooling system but can also be used to meet the heating needs in the building. The temperature in the room will vary throughout the day from a minimum value up to a maximum value. At night, the room temperature is usually lowered back to the selected minimum value. - and the cycle starts again. TABS is suitable for most building types.

TABS in brief

- Cooling using the slab structure
- The entire floor area is covered with pipes
- Can be used for ground heat during winter
- Waterborne system integrated in the slabs
- Used in industrial buildings, schools, theatres, hospitals, libraries and museums
- Energy supply at night only
- Zone portioning of the building
- Easy to adjust
- Optimal use together with heat pumps and ground source heat exchangers
- Saves energy Operating costs are reduced by 30-50%
- Large, clean roof surfaces
- Large spans
- Cooling capacity: 40-60 W/m2
- Heating capacity: 30 W/m2

Greater freedom for the architect

The solution provides optimal use and distribution of energy. The architect and building advisor gain new and exciting possibilities for the building design. Smooth roofs without ceilings is one such possibility. There is no energy supply to the building during the day. The circulation pump for the water is not in operation during daytime hours!

System description

The temperature starts at a selected level in the morning, e.g. 20°C, and we allow the temperature to rise up to max. 26°C, which is achieved at the end of the school day. (Other temperatures can be chosen), or at a predefined time. Alternatively, both factors can be combined.

The heat generated in the room during the day rises upwards and into the slab structure where the energy is stored. When the peak temperature in the room has been reached, the pump will start to circulate coolant through the pipes. The water will draw the heat from the slabs and out of the building. The room temperature will then decrease again and will, over time, return to the starting point of 20°C (or the temperature selected)

The temperature drop will take place at night when the building is empty.

Cooling or heating

A TABS system is first and foremost a cooling system but can also be used as a heating system. Manual changeover takes place when the season changes. A date for the system changeover is chosen. This is easy, reliable and affordable. The building is split into zones.

A thermally active slab can be implemented in several ways and is just as suitable in a slab cast on-site as in a BubbleDeck. With a BubbleDeck, long spans (up to 16 metres) and large cantilevers can be achieved

A TABS system will be fully dimensioned before the building is erected!

1. Formwork is established.
2. Mark the position of the pipe distribution unit so that the pipelines between the modules and the distribution unit are adapted and visualised in the formwork and reinforcements.
3. The first phase of reinforcements are laid on the formwork.
4. Modules with pipes are prefabricated and pressurised (2.5 Bar) – and kept under constant pressure during the installation phase until they are connected to the distribution unit.
5. Modules with pipes are placed in the proper places and attached on top of the first phase of reinforcements.
6. Flow and return pipes are laid on the distribution unit

point and at least 1 metre above the top of the fully cast slabs. Distribution units are connected to the pipes using Quick & Easy (Q&E).

The contractor K. Lund has been in close contact with

Uponor's technical division in Germany. It is important to ensure that all loops are of the same length, as the system does not require initial adjustment. This also means that any changes during the process need to be correctly designed.

Contacts Viggo Hagen is the Regional Manager for Central Norway and has worked at Uponor since 2001. He has worked closely with K. Lund on the Sluppen project, and in particular with Project Manager Gøran Søbye and Arild Sjøtrø as the Plumbing Foreman. Viggo Hagen, Uponor AS

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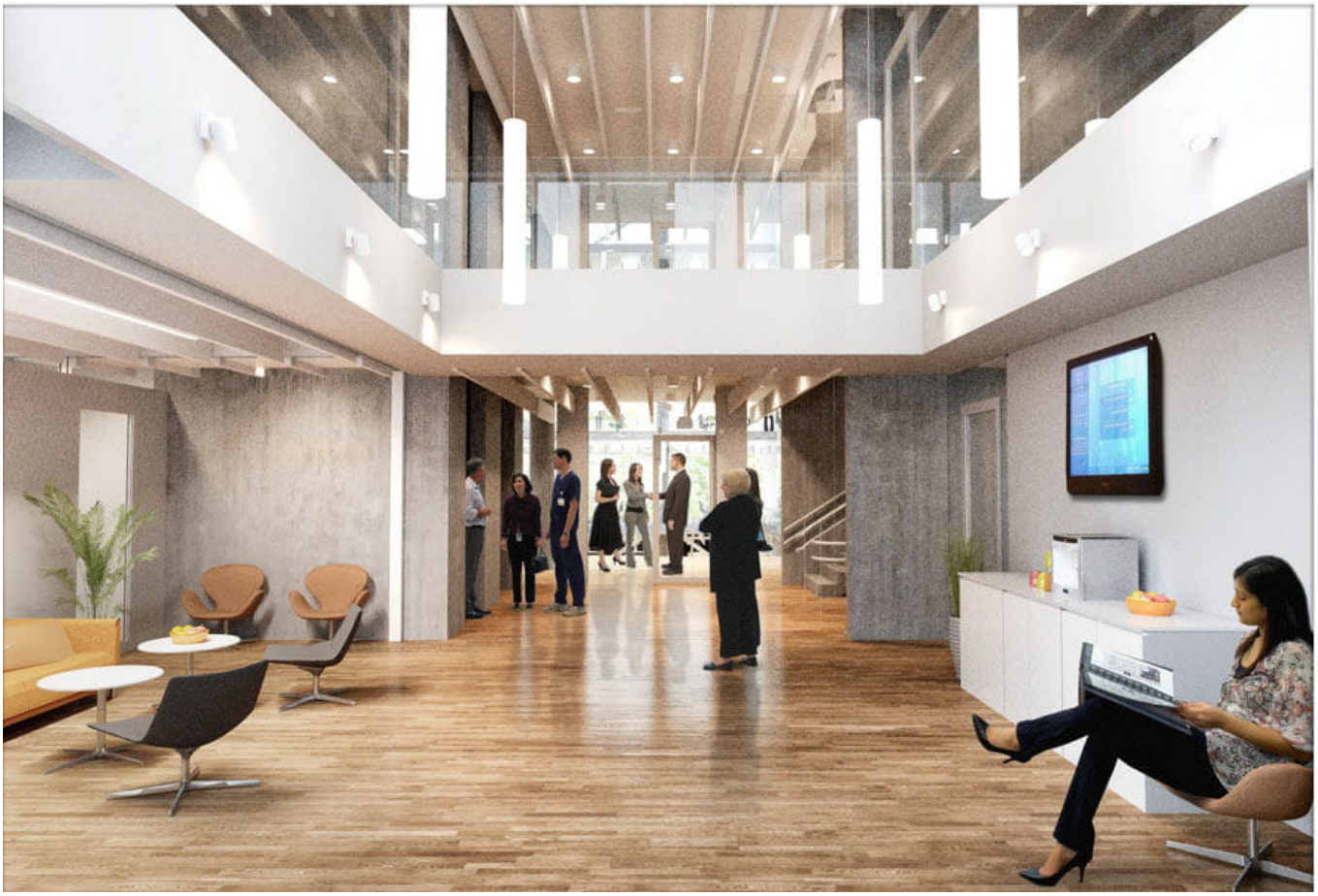
Erland Dilling is the High-rise Manager at Uponor. He is a graduate engineer and only works on major projects. Erland has played a very central part in the TABS project at Sluppenveien. Uponor's expertise in TABS is from Germany, and the engineering takes place in close collaboration with that department.

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Uponor in Sluppenveien 17

















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