

An architectural rendering of a modern school building. The building is constructed from red brick with a large glass facade section. The scene is set during the golden hour, with warm sunlight casting long shadows. In the foreground, several people are walking on a paved area. The overall atmosphere is bright and professional.

International School of Kuala Lumpur Malaysia

uponor



Uponor Asia was selected in International School of Kuala Lumpur new campus construction project, providing a radiant cooling solution to the campus, conditioning an area of 11000 m².

Located in a 26 Acres site in Ampang Hilir, the new campus for the International School of Kuala Lumpur (ISKL) is now in use.

The target was to create a sustainable learning environment for ISKL's 1,600 students. The design considers clean air for the students to breathe, natural light that illuminates their classrooms and shaded outdoor spaces that connect them to nature.

Working closely with ISKL's faculty, students and parents, the building's designer, HOK, created a campus that unifies a kindergarten, an elementary school, a middle school and a high school and pays particular attention to the Malaysian context and climate.





Passive solar design strategies drove the form and layout of the building, which is projected to use 60% less energy than the average school in similar hot, humid climates. Arranging the teaching blocks in an east-west alignment draws in daylight while protecting classrooms from the intense sun at the beginning and end of the day. Light shelves on the classrooms' north and south edges drive daylight deep into the space and reduce artificial lighting loads.



TABS (Thermal Active Building System)

Uponor's TABS (Thermal Active Building System) was embedded in the concrete structure of the teaching blocks to thermally activate concrete slabs and cool the building. The operating temperature of the system is close to the ambient temperature. It is invisible, noiseless and without any draught. Therefore, provides architectural and interior design freedom of decorations without fan coils and other cumbersome devices.

Other parts of the school's design borrows from two aspects of traditional Malaysian architecture to improve thermal comfort: screens and shelter. Existing mature plantings and a screened facade shield the eastern elevation, with major openings limited to the northern and southern ends. An open undercroft beneath the middle and high schools creates sheltered spaces for socializing and dining. Naturally ventilated, covered walkways lead to the center of each teaching wing.



Visible sub meters that are part of the building management system act as a teaching tool that reveals the school's real-time resource consumption and encourages students to look for ways to save energy.

The school is to be a sustainable exemplar both for the region and the world, aiming to obtain platinum Green Building Index (GBI).

Benefits of the Uponor TABS

Low investment and energy-efficient operation

Life-cycle cost assessments show: the longer the lifetime of system components, the lower the overall whole-life costs. For TABS with 50+ years of lifetime (equal to the lifetime of a building), this creates a substantial advantage compared to short-life components such as fan coils. Furthermore, the operation of long-life components is, to a great extent, maintenance free, and primary energy use is significantly lower than for all-air systems.

Optimized utilization of renewable energy sources

Low temperature heating and high-temperature cooling with TABS is the key to integrating renewable energy sources into high-performance buildings. The use of large surface emitters allows heating and cooling at temperatures very close to that of the ambient environment. This means that renewable energy available from the ground, ground or sea water, sun and air can be easily integrated and utilized.

The TABS large surface emitters are highly suitable for the use of free or low cost energy in accordance with low exergy design principles. This is due to the low lift between ambient temperature, flow temperature and room temperature which in some climates even allow for free cooling during the summer period. This method allows the chiller/GSHP to operate with a very high COP.



Complete freedom of room utilization – no restrictions in room design

TABS, as an active storage system for cooling and heating, is integrated into the structural concrete. Due to the reduced size of the technology used in water-based heat exchangers, TABS has no space requirements, unlike the air ducts required for an all-air system.

Thus, the partitioning room utilization can be determined independently of the embedded system. The possibility of using exposed concrete in their design is one reason why architects and designers favor the invisible cooling option provided by TABS.

Reliability & trust in a proven system

Uponor is one of the pioneers to apply TABS and has been a proven solution in more than 1,000 buildings since 1997.

Uponor

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Uponor radiant cooling / heating systems are silent and create optimal thermal environment

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