References

Trident Park Malta TABS installation for sustainable cooling



Uponor involvement

- TABS Thermally Active Building Systems with 110,000 meters of 20 millimetre wide Uponor Comfort Pipe PLUS pipes.
- TABS in combination with conventionall HVAC system
  CO2 emissions cut in half
- Planning and design support
  Installation support

Trident Park Malta with sustainable cooling

TABS installation in the maritime Mediterranean climate of Malta at Trident Park provides energy-efficient comfort indoor climate.
After serving for over 60 years as Farsons' Brewhouse, the owners converted the iconic heritage site in the heart of the Central Business District in Mriehel into a modern office campus. The seven low-density and low-rise terraced office blocks are conditioned with the Thermally Active Building Systems (TABS) on the island of Malta. A very sustainable approach since the usage of concrete for the buildings had two effects: the volume of imported materials decreased significantly and further passive cooling capacity with the pipework for chilled water was embedded in the concrete slabs (TABS). The latter was realized with GF's (at that time Uponor Corporation) flow solutions for buildings including more than 110,000 meters of 20-millimetre-wide Uponor Comfort Pipe PLUS pipes and support for the involved architect, planner and installer in conceptualizing and designing the energy-efficient cooling solution. Since its inauguration, Trident Park has turned into a thriving and vibrant office campus and world class business destination with historical and unique features honoring the original Brewery site.

Project Facts:

Location	Floor space	Completion
Malta	18,000 sqm	2025
Building Type	**Product systems**	**Number of floors**
Office	Radiant Heating & Cooling	4
Address	**Website**	**Project Type**
Trident Park, Notabile Gardens, No. 4, Level 2, Mdina Road, Zone 2, Central Business District CBD 2010	https://tridentparkmalta.com/	Renovation

Partners

Building Owner: Trident Park Ltd., Bikirkara, Malta
Website: https://tridentparkmalta.com/

Planner: Doug King Consulting, Bath, UK
Website: https://www.dougking.co.uk/

Installer: Panta Contracting Ltd., Msida, Malta
Website: https://www.panta.mt/

Architect: Ian Ritchie Architects, London, UK
Website: https://www.ritchie.studio/

Farsons' Brewhouse converted into a modern office campus

About sixty years after the historic Farsons Brewery set up shop at the heart of the Mediterranean island of Malta, it has undergone a major change: Once the birthplace of many of Malta's popular beverages, now the iconic site offers office spaces as well as additional amenities to numerous businesses – with a focus on sustainable operations. "When we decided to move our operations out of the brewery building that was built in the late 1940s, we knew we had a challenge on our hands. The question was what we were going to do with this old iconic building. We are very proud to present Trident Park as a world-class office environment for the growing Malta economy. We pride ourselves in being centrally located in a minimally congested area, housing office spaces afforded with an unparalleled technological backbone, thereby achieving high-quality sustainable development," says Luis Farrugia, Chairman of Farsons Group & Trident Estates plc, the owner of both the old brewery and the new business complex.

Today, Trident Park offers over 18,000 sqm of office space, conference facilities, amenities such as childcare and gym facilities, and a separate above ground park block with a capacity of 700 cars and is surrounded by over 3,000 sqm of landscaped courtyards and gardens. The complex provides tenants with a place to unwind, stay fit and healthy just a stone-throw away from their desks, offering an eatery on site facing The Brewhouse, which is a true gem, complementing Trident's

offering. Tenants and visitors will have the comfort of choosing the perfect food and beverage outlet to fit their needs, whether it is a business breakfast, lunch or dinner, a large event, or a drink on a Friday after a productive week, and all within the complex.

Sustainable to the core

''Sustainability played an important role in the development of Trident Park,'' says consultant Doug King, who planned Trident Park's cooling system. ''Malta's energy supply is still dominated by fossil fuel electricity and so it was important to the team to design energy-efficient buildings. Further, Malta is a relatively small island, and so relying on complex energy technologies could be problematic due to lengthy delivery times. We therefore wanted the energy conservation measures to be built into the fabric of the buildings. So, we chose to build in concrete both to minimize the need to import materials and to embed further passive cooling capacity with pipework for chilled water in the concrete slabs'', says Doug King. This approach was further conceptualized and implemented by Uponor Corporation (now part of GF) and employs its thermally active building systems (TABS) to sustainably keep the ambient temperature at a comfortable level. Due to its location and the warm and humid Mediterranean climate with only short and mild winters, the main requirement is to cool the buildings at Trident Park.

Planning and design support

The experts at Uponor corporation (now part of GF) assisted in the technical design of the cooling system, ensuring that the load requirement of the TABS was sufficient. Because embedded cooling systems like TABS were new to Malta, the experts also offered TABS installation training on site. This included theoretical training with a practice installation demonstration before the start of construction as well as on-site support for the installation company during the construction of the first floor. ''They provided a lot of support to the delivery team throughout the detailed design and construction phases. The greatest benefit was having access to the technical experts during the duration of the project, including the commissioning of the TABS,'' explains Doug King.

High thermal comfort all year round

TABS makes use of the thermal inertia of the building's concrete structures, which allows for a heating and cooling solution with minimal energy consumption. To harness this thermal inertia, a network of pipes was built into the structure of the building, using concrete core activation to store and release the cold. These pipes carry water for the buildings' cooling systems and provide comfortable temperatures all year round. Although they cannot be seen, the TABS can certainly be felt: they are supplied by a central chiller plant made up of six units and keep the slab surface temperature at a constant temperature of 19°C. TABS works in the long term: Even after closing the loops, it takes about three hours to increase the ceiling surface temperature by just one degree from 19°C to 20°C. In total, more than 110,000 meters of 20-millimetre-wide Uponor Comfort Pipe Plus pipes were installed in the buildings, with the TABS grid covering 15,521 square meters.

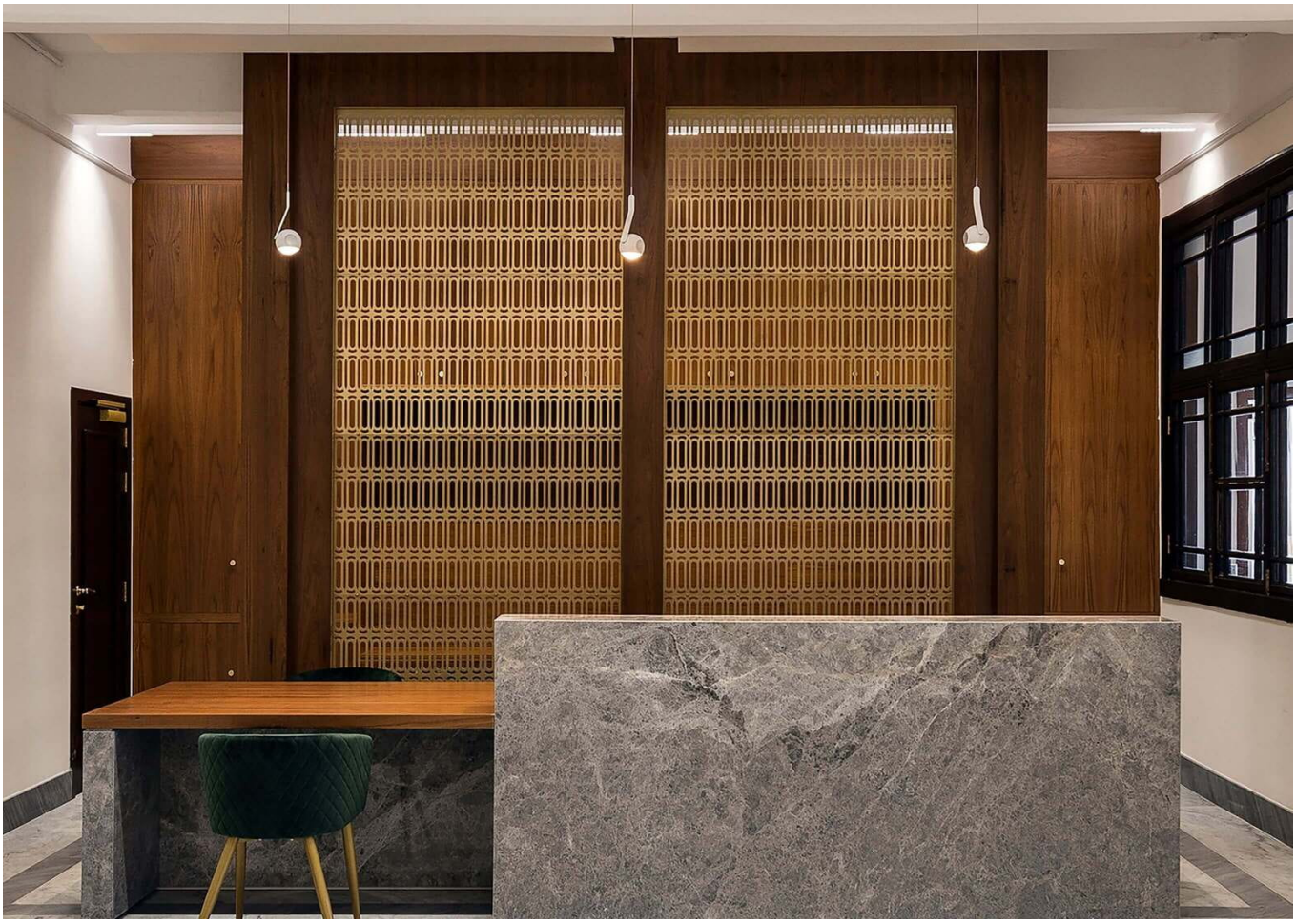
CO2 emissions cut in half

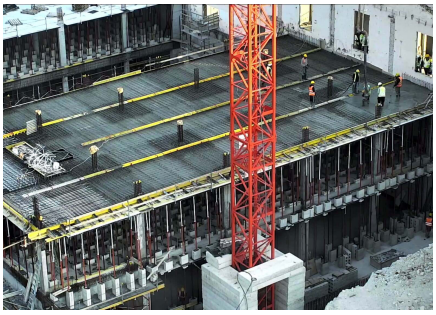
At Trident Park, the entire HVAC system is geared toward energy efficiency. Malta's Mediterranean climate necessitates a hybrid approach or system that contains two main parts: the TABS, which covers the cooling baseload, and a supply of treated fresh air that maintains air quality by dehumidifying it. ''TABS is a more energy-efficient system for cooling buildings. Because it covers 80% of the cooling load, it minimizes the size of the fresh air system compared to a conventional HVAC system,'' says Rikus Wynmaalen, Sales Manager, GF Building Flow Solutions, who managed the project. ''This means that using TABS not only made cooling more energy-efficient, it also reduced the fresh air supply ducting since that part of the system simply covers a lower capacity. Since this hybrid system needs less technical space, it allows for more freedom concerning the internal usable space.''

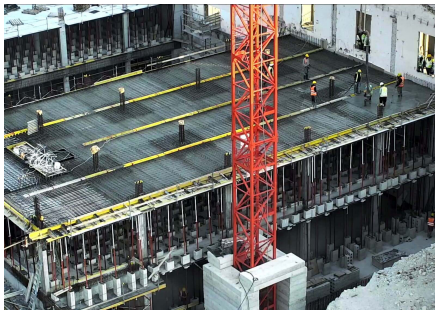
All in all, this set-up, in combination with the architecture that takes the local climate into account, saves a significant amount of energy compared to a conventional HVAC system. In a Lifecycle Assessment, the planning team for Trident Park analyzed the buildings' global warming impact over a lifecycle of 60 years, comparing Trident Park with a more conventional design. The report estimates that, including the construction and demolition of the buildings, Trident Park will emit roughly a total of 57.7 kilograms of CO2 per square meter – compared to 127.1 kilograms in a more conventionally designed building, which is

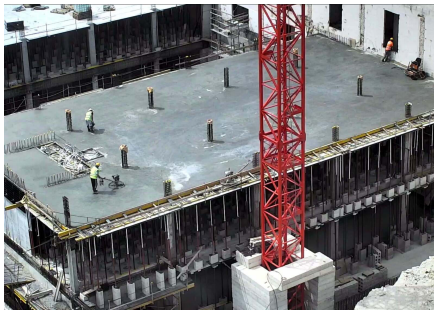
more than double what Trident Park is expected to produce. Designed to meet the strictest of environmental codes and projected to achieve BREEAM Excellent certification, the ethos of this unique redevelopment has been to optimize natural lighting and ventilation, while minimizing the carbon footprint to create a genuine green office campus and world class business destination.

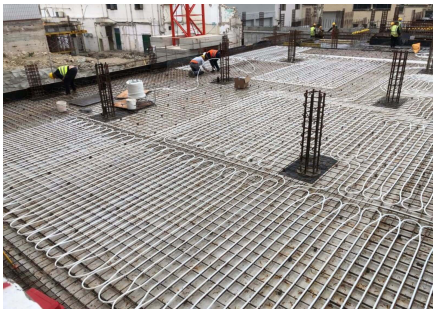
Images of Trident Park Malta and TABS installation











Sustainability played an important role in the development of Trident Park, says consultant Doug King

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