UNIVERSITY OF NORTHAMPTON
Thermally Activated Building Structures (TABS)
TOP OF THE CLASS FOR NEW UNI CAMPUS
REHAU’s innovative TABS system

State-of-the art teaching buildings at the University of Northampton’s new £330m Waterside Campus development have been designed utilising REHAU’s innovative TABS system, providing energy efficiency and low cost heating and cooling.

Construction work started in 2016 on the aspirational Waterside Campus, which will transform a 58-acre brownfield site along the River Nene into a hub for teaching and student accommodation, as well as leisure and retail facilities for the University and wider community. The whole project is set to achieve a BREEAM Excellent rating upon completion in 2018, so every aspect of the design plans has been carefully considered to ensure it adheres to the principles of sustainable design.

REHAU and its approved contractor partner AMROC were involved early on in the design process for Waterside’s Campus, recommending the Thermally Activated Building Structure (TABS) system. TABS is a versatile cooling and heating system which uses the large thermal mass of concrete in a building’s structure to adjust the environment inside the building throughout the day.

It does this by running heated or chilled water through a network of pipes embedded within the concrete slabs, and can be used in virtually any concrete structure. Although widely used in Europe and South Africa, TABS is less known in the UK but this is changing thanks to high profile installations for the Tate Modern and the University of Leicester.

Paul Stroud, from AMROC, said: “With the University keen to create a low carbon campus and incorporate cutting edge technology, TABS was the ideal choice for the teaching block in the Waterside development. The installation and running costs for TABS are comparatively low and it offers a more comfortable, even heating and cooling of the teaching spaces with no draughts, like traditional air conditioning. This all adds up to a more pleasant learning environment, particularly in busy lecture halls.”

The TABS system for the University of Northampton was installed using approximately 40,000m of 20mm RAUTHERM polymer piping. The PE-Xa pipework was installed inside steel grids in the floors of the building and tested by the AMROC engineers, before being covered with concrete to embed the pipes in situ. The floors of the five-storey teaching building were so big that the pipework needed to be laid in 8 or more zones, with concrete poured four times per floor to cover the required surface area.

The University of Northampton project was the first time AMROC had installed TABS and they were impressed by how straightforward the installation was. The company had previously used REHAU’s pipes and EVERLOC joints for large-scale underfloor heating jobs, and they regularly run REHAU training courses to ensure their team are confident with the products and ready to hit the ground running when needed.

Paul continued: “I think the most challenging part of the job for us was probably being involved so early in the project. As there were no internal walls constructed we had to rely heavily on datum points and grid lines to ensure not only that the pipework was installed in the correct zones back to the manifold, but also to ensure we stayed out of any exclusion zones avoiding potential damage to our pipework later on during the development and fit out.

“From a programme planning point of view, it was imperative that we worked closely with the main contractor. From the zoning of each of the floors, to ensuring materials for that area and labour were available, we only had a few days to lay a great deal of pipe before the concrete was poured in each case. It is a testament to the expertise of our engineers that the project proved a complete success.”