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## LEICESTER UNIVERSITY, CENTRE FOR MEDICINE

REHAU heating and cooling systems

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# PASSIVHAUS CERTIFIED CENTRE FOR MEDICINE

## Showcases REHAU's energy efficient heating and cooling solutions

Leicester University's new Centre for Medicine is the largest non-residential project in the UK to have been built to the Passivhaus standard.

It features a full raft of REHAU's energy efficient heating and cooling solutions including our TABS (Thermally Activated Building Structure), AWADUKT Thermo ground – air heat exchanger, and industrial floor heating.

The £42m, 13,000m<sup>2</sup> building features a highly insulated building envelope (roof, walls and ground floor slab) with a total U-Value of just 0.13W/m<sup>2</sup>/k and an air tightness of 1.0m<sup>2</sup>/(hr.m3). It opened in September 2015 and, in its first full year of operation, recorded energy consumption of just 80kWh/m<sup>2</sup>, compared to 500kWh/m<sup>2</sup> for the buildings it has replaced.

Key to this performance, and to the comfort levels being experienced by staff and students, is a REHAU TABS solution which has embedded 7km of REHAU PE-Xa cooling pipes within both the post tensioned ground and first floor slabs with exposed soffits. This works by circulating chilled water through the pipes to provide effective cooling in summer, countering the solar gain from the windows which are distributed evenly across the façade.

In terms of year round ventilation in the highly air tight building, REHAU's Passivhaus certified AWADUKT Thermo ground – air heat exchanger is being used to temper 30% of the air entering the building so that it is pre-warmed in winter and pre-cooled in summer. Air is drawn in through a 1.6km network of REHAU's polypropylene pipework laid below the building to depths of around 3m.

The optimised pipework within the AWADUKT Thermo network utilises the natural temperature of the earth at that depth and maximises the heat transfer which can occur so that in winter the air can be warmed by as much as 9°C and in summer it can be cooled by up to 14°C, achieving a COP of around 20.



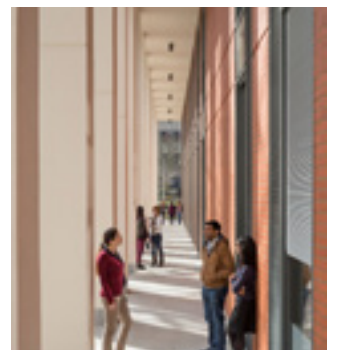
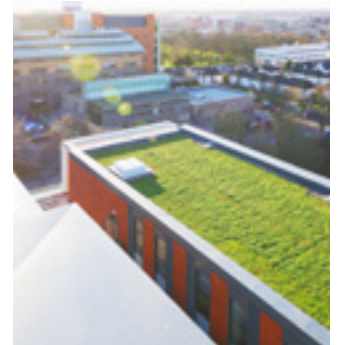
The pipework also incorporates an integrated antimicrobial layer made from silver particles which eliminates the risk of microbial growth or musty smells in the air tight building.

For those areas of the building where additional heating was required, REHAU's underfloor heating pipework was installed, working with a CHP district heating network.

Other renewable technologies on the building include PVC panels and a planted wall and green roof.

The TABS and underfloor heating installation was carried out by Anders Heating and M&E contractors NG Bailey installed the AWADUKT Thermo system. Architects were Associated Architects, consultants were Couch Perry & Wilkes and the main contractors on the project were Willmott Dixon.

The building houses Leicester University's College of Medicine, Biological Sciences and Psychology and has facilities for more than 2,350 staff and students.



Your REHAU sales office is happy to assist you:

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