

WEIR HOUSE

Weir House, Bristol



Weir House conversion raises the flag for renewables in Bristol

Converted from a redundant 1960s office block into 30 one and two-bedroom flats, Weir House makes a small but significant impression on Bristol's social housing needs. And with a Daikin Altherma Flex installation catering for tenants' heating and hot water requirements, it's also a flagship for renewable energy systems.

Overlooking a weir on the River Avon in the city's St Anne's area, the three storey building emerged from a £4 million, year-long conversion that dramatically upgraded its appearance and raised it to modern residential standards for thermal insulation. But it lacks the electric heating originally specified by the contractors – because housing association Merlin wanted a more efficient solution.

Peter Crouch, Development Manager at Merlin, says: "Electric heating would have given us a SAP rating of 65-67 – well below our corporate target of an average of 80 by 2019. With the Daikin air source heat pumps the SAP rating is 80-plus.

"This is good news not only for the environment, but also for the affordability for our residents who are very cost conscious. The typical electricity bill was estimated at £800 a year if the original electric boilers were used, and this is halved to a predicted £350-£400 a year using the air source heat pump system."

Residents pay a service charge, which among other things includes a share of the cost of running and maintaining the Daikin Altherma Flex outdoor units. Tenants' use of energy is metered and charged individually.

"With it being our first major refurbishment with new technology in the form of air source heat pumps we are watching with interest the data being received on heating use and energy costs in the block, plus the ease of use for residents and any ongoing maintenance required," says Peter Crouch.

Originally the building was heated by gas boilers, but gas was ruled out in the change of usage because of venting issues.

Year of installation

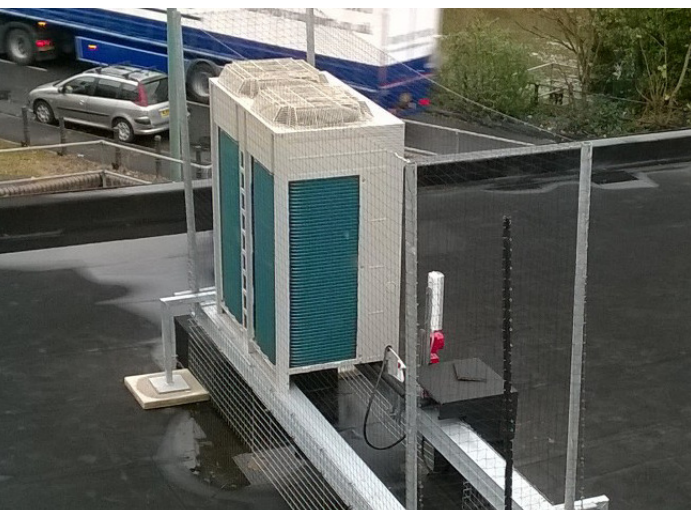
› 2015

Project requirements

- ☐ Air conditioning
- ☐ Air curtain
- ☐ Air purification
- ☐ Control
- ☒ Heating
- ☒ Hot water
- ☐ Refrigeration
- ☐ Ventilation

Installed systems

- › Daikin Altherma Flex
- › Hydrobox
- › Hot water cylinder



The Daikin Altherma Flex units were installed in a decentralised configuration by Daikin installer Moore of Devizes. Director Les Moore says: "The heat pump condensing units are on a new steel platform on the roof, with hydrobox units and matching hot water cylinders in each flat."

The compact 600 x 695mm footprint of the hydroboxes, with 200 litre cylinders of top, means they can be fitted into airing cupboards to minimise demand on floor space in the 45m² and 50m² flats.

The outdoor units are connected to the hydroboxes by primary R410a refrigerant circuits. Secondary R134a refrigerant circuits in the hydroboxes enable them to deliver water at up to 80°C when necessary for high temperature heating. The hydroboxes also contain all the hydraulic components needed to transfer the air-sourced heat to heating circuits serving radiators and DHW cylinders.

Les Moore says: "Tenants have standard third party domestic controllers to turn their systems on and off – and set the room temperatures they want. We ensured they had individual instruction on their systems, so they could get maximum comfort without wasting money on excessive heating."

In addition to the decentralised installation at Weir House, Daikin Altherma Flex systems can also be centralised, with all the hydroboxes located in a single plant room.

Merlin is one of the largest social landlords in the south west, with more than 8,500 and ambitions to grow even further. It owns and manages Weir House – its first office-to-flats conversion, financed from its own resources and funding from Bristol City Council.

Peter Crouch says: "The key drivers were making the best use of location, and maximising affordability for customers. Affordable housing in Bristol is at a premium with a historic low supply but demand on the increase, as shown by the high number of applications for this scheme. We had around 400 people apply for just 30 available units."

"As this is affordable housing and we are retaining ownership over a long period, our requirement was to create a balance between cost and quality, further taking into account affordable warmth for our residents and the longevity of the products we specified and used. This is good for customers and for us, as our commitment to the scheme means it is of good quality and materials are long-lasting."

Popularity of the development reflects the quality of the accommodation, proximity to the city centre, public transport and shops – and generous on-site parking.

Daikin Altherma Flex heat pumps are available in five capacities from 8-16hp (22.4-44.8kW). An 8hp unit can support five hydroboxes; a 16hp can support 10. Hydroboxes are available in five capacities from 5.6-16kW, and single or three phase variants.

Weir House won the Value award at the South West Construction Excellence Awards in May 2016, and has been shortlisted for the National Constructing Excellence award in November 2016.

It has also been shortlisted for the Innovative Development Award, part of Inside Housing's Top 60 development awards in October 2016.

Peter Crouch says: "What we've created at Weir House, with the support of our customers and the local authority, is really a model of affordable housing that has benefited everyone associated with the building. It shows how property can improve lives, and what can be done with a little vision – a transformation of a decaying office block into something so worthwhile."

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Kit List

Code	Description	No of units
EMRQ-A	Daikin Altherma Flex heat pump	4
EKHVMRD-A	Hydrobox	30
UK.EKHTSU-AC	Hot water cylinder	30