CASE STUDY | COMMERCIAL
CATEGORY | EDUCATION

West Thames College

Heatwave prompts college switch to Daikin heat recovery system

A site visit on one of the hottest days of the year led to an 11th hour change of specifications and an opportunity to showcase a Daikin VRV IV heat recovery air conditioning system.

This gives college students who are learning skills in construction, engineering, logistics and motor vehicle engineering an extra-curricular opportunity to experience the effects of two different climate control technologies.

And it gives college management a chance to compare energy costs of fossil fuels and renewables.

Daikin D1 installer and mechanical services contractor CoSourced originally won an order to replace outdated and unreliable oil-fired boilers at the Feltham Skills and Logistics campus of West Thames College. In addition to installing new gas boilers, radiators in classrooms and offices on the second floor were to be upgraded.

CoSourced owner Paul Blackford says: "The second floor has extensive glazing and suffers from solar gain in summer. When I visited the site the rooms were uncomfortably hot.

"There was no air conditioning in the original specification, but we suggested that the Daikin VRV IV system would be a better solution for the second floor. We drafted and priced a revised proposal – which was quickly accepted."

While the rest of the campus is warmed in winter by the new gas boilers, when students and staff are working on the second floor they enjoy year-round comfort with near-constant temperatures.

The college's Estates Manager, Naynesh Patel, says: "We didn't have any cooling in the building and people were suffering in the summer – even with windows open and fans running. It seemed a good opportunity to try something different – there was not much difference in the capital cost.

"What we have on the second floor now is a system that is contemporary in design, does not need gas and has an output that can be economically tailored to specific needs.

Year of installation

- 2018

Project requirements

- [x] Air conditioning
- [ ] Air curtain
- [ ] Air purification
- [x] Control
- [ ] Heating
- [ ] Hot water
- [ ] Refrigeration
- [ ] Ventilation

Installed systems

- VRV Heat Recovery
- Fully Flat cassettes
- Roundflow cassettes
- ITM

The college's Estates Manager, Naynesh Patel, says:

"In larger classes, body heat can have a major effect, even in winter. With the heat recovery system we can provide cooling and use the free 'waste' heat elsewhere."

CoSourced installed two Dakin VRV IV heat recovery condensing units totaling 18hp in a fenced compound at the rear of the building. The units have a total heating or cooling capacity of 50.4kW. Eight Fully Flat cassettes and four Round flow cassettes are installed on the second floor – five in classrooms, four in corridors and three in office areas.

Each cassette has its own branch selector box to allow simultaneous heating and cooling when necessary and to maximise the efficiency of the three pipe system.

The system is controlled locally via an i-Touch controller. This is linked via a Bacnet interface to the college's building management system – facilitating system control and monitoring from the main campus at Isleworth.

"Importantly, we have a system that ticks boxes for the college's green agenda. There is a significant reduction in carbon footprint compared to the less efficient oil boilers and cooling fans using 10-12kW of power.

"When we were relying on radiators, the only control was via the thermostatic valves to provide more or less heat. With the Daikin heat recovery system we don't need radiators – but we do have the facility to adjust individual temperatures remotely. This is a great benefit, because class sizes vary and this affects the demand for heating and cooling.

Kit List

Code	Description	No of units
REYQ-T	VRV IV heat recovery condensing unit	2
FXZQ-A	Fully Flat Cassette	8
FXFQ-A	Round flow cassette	4
DCM601A51	i-Touch manager	1
DMS594C71	Bacnet interface	1