CASE STUDY | COMMERCIAL

CATEGORY | EDUCATION

Coventry University Technology Park

'Techno' park gets an air conditioning technology makeover

After nearly two decades' excellent service, failure of an air conditioning system based on the now-banned R22 refrigerant left Coventry University Technology Park with no alternative but a total system replacement.

After a carefully programmed 12-week project, the Enterprise Centre building's entire air conditioning installation was replaced with a VRV IV heat recovery system from Daikin UK. And it has sparked a rolling project to replace R22 systems in a technology makeover elsewhere in the park.

The three storey Enterprise Centre is one of several buildings in the park, accommodating start-up and small technology businesses. Overall, the park enables tenants to work among like-minded people and gives them access to meeting rooms, high-speed communications and the wider academic community.

High technology when they were installed in the 1990s, the R22 systems were operating on borrowed time following the 2015 ban on the refrigerant because of its ozone depletion potential.

After the ban, it was illegal to recharge a system with R22 so engineers could not work on or replace any components in the refrigerant line. However, it was not illegal to operate an R22 system. In testament to the reliability of the old systems – in this case a Daikin installation – many continued to operate for a long time without component problems.

When problems hit the Enterprise Centre's system, consultants Pick Everard and Daikin installer Envirotech Climate Control were called in.

Richard Cobb, an Associate at Pick Everard, says: "We were commissioned to plan and design the replacement of a Daikin R22 refrigerant ducted air conditioning system at the Enterprise Centre within Coventry University's city centre campus. We have facilitated the installation to accommodate new LV switchgear for external condenser compounds.

"The original systems were defunct and no longer maintained, meaning they need to be replaced before they started to fail. We have phased works to limit disruption to the occupants within a live environment; all work within the building will be conducted out of hours, either at night or weekends.

Year of installation

› 2017

Project requirements

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

Installed systems

› VRV Heat Recovery
› Ducted fan coil units
› Wired remote control
› VAM Heat Recovery
› ITM

"This is a rolling programme for the rest of the site to replace the R22 refrigerants completely. Once finished the result will be buildings that are significantly more energy efficient and fully compliant with building regulations."

Envirotech Climate Control director Brett McKay says the Enterprise Centre now has nine VRV IV heat recovery condensers in a compound at the rear of the building.

He says: "There are three systems – one for each floor – giving the building a total of 136hp. Indoors, there are medium static pressure ducted fan coil units throughout. We also installed Daikin heat reclaim VAM units to provide energy efficient ventilation."

To give tenants some flexibility with the temperature of their offices, the fan coil units and the ventilation units are individually controlled via Daikin wired remote controllers. Overall, the systems are controlled with a Daikin i-Touch Manager with a Bacnet gateway interface to link with a building management system

The installation, in a fully operational building, posed some problems for Envirotech. Brett McKay says: "We worked on one floor at a time, entirely out of office hours so as not to disturb the tenants. With a team of 10 on the project, we were able to complete the project on schedule."

Technology Park manager Jane Rawlings-Purcell held several meetings with the Envirotech project team at the start of the project so that issues could be identified.

She says: "My expectations were exceeded and the result was a well-designed system that was seamlessly installed without any hitches. It made a pleasant change to work with a very professional team that actually listened to our needs and managed the job faultlessly."

Daikin VRV IV systems use R410a refrigerant which, although it is the subject of a long-term phase-down in the move towards lower GWP alternatives, is expected to be still in widespread use well after 2035.

Kit List

Code	Description	No of units
REYQ-T	VRV IV heat recovery condensing unit	9
FXSQ-A	Medium static pressure ducted fan coil unit	54
BRC1E53A	Wired remote controller	66
VAM-FC	Heat reclaim ventilation unit	13
DCM601A51	iTouch Manager	1
BMS502A51	Bacnet gateway interface	1