



Airdrie Community Health Centre

Specifies Daikin heat recovery system

A highly energy efficient Daikin VRV heat recovery climate control system has been installed at the brand new Airdrie Community Health Centre. This integrated system was designed to provide lower running costs and fewer carbon emissions than alternative systems and fits perfectly within the health board's vision to provide best-in-class healthcare facilities.

The Climate Control Requirement

The £27 million health centre is a new build project on a former supermarket site. It is believed that this is the first of its kind within the UK, having been specially designed to bring together many services under one roof, including eight doctors' surgeries and related services including dentistry, podiatry, dietetics, paediatrics, physiotherapy and a pharmacy. North Lanarkshire Council Offices and some shops are also located within the building.

Facilitating many services on one site puts the health centre at the heart of the community, and provides better access to a range of vital services. Encompassing many varied services under one roof is a key Government initiative to bring communities together.

It was important to choose a climate control system that would simultaneously resolve the issues of cooling and heating in a cost effective and efficient manner. The NHS chose carefully so that ongoing energy and maintenance costs were reduced, in comparison with separate heating and cooling systems.

The client had initially only specified a comfort cooling system. However, as the client had already gained confidence in Daikin solutions (having had trouble-free installation of successfully performing Daikin systems in previous projects), the Daikin VRV heat recovery system was chosen to provide heating as well as cooling across all three floors of the building.

The Solution

Externally, 12 outdoor VRV heat pump condensing units were installed at the community centre. The VRV heat recovery system is designed to extract heat which would otherwise be wasted during the cooling process and transfer this 'free' heat to other areas where heating is required.

New healthcare buildings are insulated to high standards to maximise energy efficiency, so they provide optimum opportunity to install a VRV heat recovery climate control system. This ensures that waste heat, which would otherwise be extracted, can be re-circulated and utilised elsewhere to power heating, hot water and air curtains.

The VRV system was combined with a total of 113 self-cleaning round flow cassettes incorporating daily automatic filter cleaning and 360° air discharge for uniform air flow and temperature distribution. Dust removal is simple using a vacuum cleaner twice a year, without opening the unit, thus saving on maintenance costs.

Daikin wired remote controllers were also installed for easy system modification, together with RTD-10 interfaces, which enable integration with the building management system. An intelligent controller provides detailed monitoring and easy operation of the VRV system, while offering access to electricity consumption management and historical data.

The healthcare sector has designated that all new buildings must meet a BREEAM 'Excellent' rating in the design and assessment of a sustainable building. Heat pump technology can assist building designers to meet the requirements of BREEAM by delivering heat into the building in an energy efficient, controlled way. According to the criteria specified within BREEAM documentation, specific credits can be given for integrated services and building management systems.

FES Limited provided the mechanical and electrical services and commented, "the VRV installation was ideal for the cleanliness of the health centre as it has self-cleaning cassettes and the system maintains the correct temperature whether in heating or cooling mode".

The cold, wintry temperatures in Airdrie posed a further potential problem which was easily overcome with this system, as the outdoor condensers operate in temperatures down to minus 25°C, ensuring reliability even in very low temperatures.



Conclusion

The Daikin VRV heat recovery climate control system installed at the new Airdrie Community Health Centre met all the NHS's requirements for heating and cooling. With careful planning from the outset, specific requirements could be met enabling the system to be optimised to deliver energy savings and reduce carbon emissions.

The health centre required energy saving Round Flow cassettes to be fitted for the correct internal ambience. These provided savings in maintenance costs for the NHS as they perform a self-cleaning function, as well as saving energy and providing a healthy environment.

This was a complex project, easily solved with Daikin's VRV heat recovery system, simultaneously providing a sustainable solution in Airdrie.