



Citadines, Barbican



Apart'hotel picks heat recovery for greater comfort and efficiency

Owners of a popular London apart'hotel are switching to Daikin air conditioning for enhanced guest comfort and greater cost efficiencies.

Daikin VRV IV Heat Recovery systems have been specified in a major refurbishment of the 129-unit Citadines Apart'hotel, close to the Barbican complex.

The apart'hotel is one of six London properties operated by The Ascott Limited - one of the leading international serviced residence owner-operators, with more than 40,000 operating units in the UK, Europe, the Americas, the Asia Pacific region and the Middle East.

The Barbican project, which also involves upgrades to the kitchen and bathroom facilities, sees air conditioning providing primary heating, to replace wall-mounted electric heaters that have warmed the guest apartments since the property opened..

Stephen Harvey, regional maintenance manager for The Ascott Limited in London, says with one

2kW electric heater in each studio apartment and two in the larger one bedroom apartments, room heating was costing up to £33 an hour under peak load.

What's more, the 150 electric heaters may have clocked up unnecessary costs if guests left them on when they went out – especially if they did not shut the windows.

Future heating costs are expected to be considerably lower, because the Daikin VRV IV Heat Recovery systems efficiently convert free energy from the air into useable heat – and they can recover waste heat from areas simultaneously being cooled.

Further savings are expected through the down-rating of an old – but still serviceable – heat pump providing additional heat to the rooms via a DX coil in the hotel's air handling unit.

The apartments, ranging from 25m² to 45m² are on seven floors of the eight-storey building on Goswell Road.

Year of installation

› 2017

Project requirements

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

Installed systems

- › VRV Heat Recovery
- › Vertical chassis FCU
- › Simplified controller
- › ITM



The six month refurbishment programme began with work on the top two floors, and continued down the building on a floor-by-floor basis to minimise inconvenience to guests.

Each refurbished apartment has one or two Daikin vertical chassis fan coil units mounted in specially constructed bulkheads. Capacities depend on the apartment size and requirements, but include models with 3.2kW, 4kW and 5kW nominal heating.

The fan coil units deliver warm or cool air according to guests' requirements. Temperatures can be adjusted within a preset range on each apartment's wired simplified remote controller. A Daikin Intelligent Touch Manager gives the hotel overall control of the new air conditioning system and its performance.

Daikin D1 installer Direct Cooling Services was called in to handle the installation of outdoor and indoor units, refrigerant piping, BS boxes and control systems – including refrigerant leak detection in every room. There is also a key card interface and window switch in each apartment (two in each of the one bedroom apartments) so that everything is turned off when guests go out.

Direct Cooling's Martin Ball says: "Riser cupboards on each floor contain the four-way branch selector boxes that enable the fan coil units to operate in either heating or cooling mode – and facilitate the heat recovery process whenever applicable. The new BS boxes are smaller and lighter than previous models, so are very easy to install.

Designed for high efficiency, Daikin VRV IV Heat Recovery systems allow simultaneous heating and cooling and offer a wide range of installation options with smaller, quieter and lighter branch selector boxes. The systems

"Each floor is served by its own Daikin VRV IV Heat Recovery condensing unit, all of which are mounted on a newly constructed steel platform within the rooftop plant area. Most floors have an 18hp unit while the top floor has a 14hp unit."

can provide cooling even when the ambient temperature falls to -20°C. Condensing units are available in various single and multiple configurations, providing a capacity range from 8hp to 54hp. Each outdoor unit can be connected to a maximum 64 indoor units.

The FXNQ-A vertical chassis fan coil unit is a recent addition to the Daikin VRV range, and is designed for floor mounting, typically behind decorative panelling. There is a choice of six models from 2.2-7.1kW nominal cooling (2.5-8.0kW nominal heating). They are among Daikin's quietest VRV fan coil units, with maximum sound pressures ranging from 30-35dBA and slim at only 200mm depth so they can fit tight to the wall.

The Daikin Intelligent Touch Manager (ITM) is a smart, flexible and user-friendly miniature building management system. All functions are accessible via a touch screen – or via web interface that also allows combined control of multiple ITMs. The ITM is designed to compare actual energy use with planned consumption, and to detect sources of energy waste. It conserves energy by interlocking air conditioning with other systems, such as heating, and permits scheduling to guarantee correct operation throughout the year.

Kit list

Code	Description	No of units
REYQ-T	VRV IV Heat Recovery condensing unit	7
FXNQ-A	Vertical chassis fan coil unit	138
BRC2E52C	Simplified remote controller (brushed chrome)	138
BRP7A51	Key card interface and window switch	138
UK.RDEM-WHT	Refrigerant leak detector	138
DCM601A51	Intelligent Touch Manager	1
DCM601A52	Intelligent Touch Manager expansion module	2



Daikin Airconditioning UK Ltd The Heights Brooklands Weybridge Surrey KT13 0NY Tel: 0845 6419000

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