



Palace of Westminster

Daikin VRV III-Q R22 Replacement Technology

Daikin UK D1 Partner, All Seasons Climate Control, chose Daikin's innovative VRV®III-Q 'plug in' upgrade for R22 systems to replace out-dated equipment during a refurbishment project at the Palace of Westminster – one of the country's most iconic listed buildings.



The VRV®III-Q system from Daikin Airconditioning (UK) Limited (Daikin UK), was chosen as the perfect solution to the prestigious project as it can reduce the cost of upgrading R22 equipment by up to 50% when compared with total system replacement. The system is also able to reduce energy consumption by up to 40%.

After undertaking a detailed site survey, All Seasons recommended the use of the Daikin VRV®III-Q system be used to replace a number of Hitachi VRF heat recovery heating and cooling systems, which had come to the end of their useful life.

Mick Langford of All Seasons explains:

"VRV®III-Q offers a three pipe replacement option, which has the unique ability to reduce operating pressures of R410a down to near those of R22, without loss of performance. The system was flushed, and new refnet joints were fitted into the existing pipework, the new indoor and VRV outdoor units were installed and the system was commissioned.

"It is anticipated that the new R22 solution will provide in excess of 35% energy savings when compared with the old system, as well as an annual carbon reduction of six tonnes of CO₂."

Virgin R22 gas has been banned since the beginning of 2010 and recycled R22 is due to follow suit in January 2014. With between 45 and 60% of existing air conditioning systems estimated to still run using R22, the need to replace this gas with an energy efficient alternative is becoming more pressing.

Re-use of existing R22 pipework has many benefits, not least the ability to save up to 50% on the cost of a new installation. VRV®III-Q also offers increased energy efficiency and lower CO₂ emissions compared with using a drop in refrigerant – thus saving money in the long run.

John Durbin, Engineering Department Manager at Daikin UK explains:

"Daikin's new VRV®III-Q uses zero ozone depleting R410A, which not only reduces associated CO₂ emissions but also improves energy efficiency, as well as offering users a technically secure and cost effective option to a full system upgrade.

"This innovative solution allows all existing VRV R22 piping - and potentially also controllers and indoor units installed since 1996 - to be retained, so only the outdoor units and heat recovery BS branch selector boxes need to be replaced. It is

therefore viable to plan a phased replacement programme with costs spread over a period of time and minimal business disruption, while generating much less waste than if the entire system was replaced.”

This fast and effective upgrade is achievable because VRV®III-Q is designed to operate at the lower pressures required by existing R22 piping, without compromising high efficiency levels. For example, an R410A 10HP system has a COP of 3.98 and an EER of 4.00: around 50% more efficient than its R22 equivalent.

VRV®III-Q comes in nine heat pump and heat recovery models. With capacities of between five and 30HP it delivers drastically increased efficiencies, promising significantly lower energy consumption than existing installed equipment.

