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Case Study: QTON HOTEL INSTALLATION, CITADINES

Efficient low carbon hot water generation for hotel

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A London hotel has recently upgraded its hot water generation plant using the **Q-ton Air to Water** heat pump system from Mitsubishi Heavy Industries (MHI).

The Citadines Holborn, located in Covent Garden London originally had gas-fired boilers which provided potable hot water to the apart'hotel's 192 apartments and communal breakfast area. Citadines required a replacement that could provide water at high temperatures, whilst ensuring minimal environmental impact.

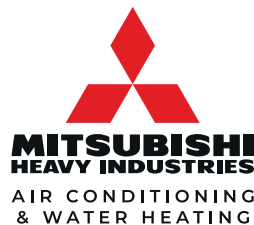
Q-ton Air to Water



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"Q-ton is an ideal product for commercial water heating applications. It uses CO₂, a natural refrigerant with ultra-low global warming potential, to produce hot water ranging from 60-90°C. Q-ton holds efficiencies when operating right up to 70°C, which is required by the hotel to combat legionella growth." Martin Craxton, KiPO

The project at Citadines Holborn-Covent Garden, part of The Ascott Limited portfolio - CapitaLand's wholly owned lodging business unit – is part of CapitaLand's 2030 Sustainability Master Plan. As part of their Master Plan, a phased installation program will see the Q-ton system deployed at four other Citadines sites across the capital, in Islington, Barbican, South Kensington and Trafalgar Square.

Ryan Jules, regional maintenance manager at The Ascott Limited UK, who hired KiPO Consultancy to assist with the key sustainability carbon reduction project, said: "This a significant investment and action towards meeting both the UK Government and CapitaLand's 2030 Sustainability Master Plan target of a 78 per cent reduction in carbon emissions by 2035, and 2030 for CapitaLand."

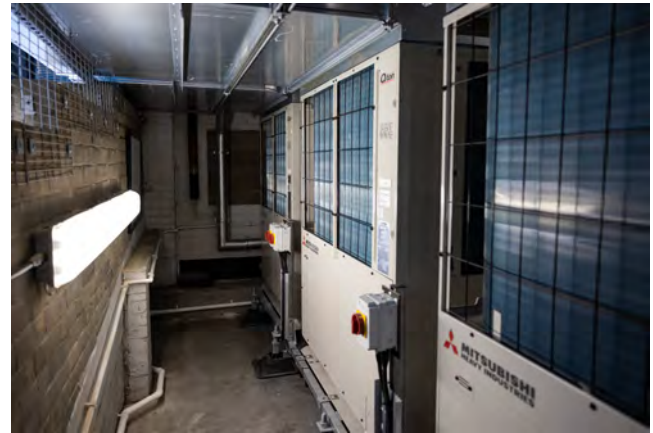


Martin Craxton, of consulting engineers KiPO, worked closely with Citadines to develop a complete renewable solution for the hotel chain. He said:

"Whilst the Q-ton solution was marginally more expensive on capital costs than the traditional gas-fired as alternative, the client was willing to make this extra investment, demonstrating their commitment to sustainability. Central London's atmosphere is now rid of the hotel's 600 kW of gas-burning emissions. Q-ton holds its capacity down to -7°C ambient and still provides full operation at -25°C."

Unlike water heaters using gas or oil, renewable heating systems are not usually designed for instant hot water. Instead, KiPO designed the system using a method known as energy accumulation to meet the apart'hotel's usage profile and peak load. The heat pump generates the energy, and a thermal store holds the hot water until it is used.

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Principal contractor Nationwide Air Conditioning installed three Q-ton heat pump units and six 1000 litre storage vessels at ground level while the original gas-fired water heaters at the roof level were still in use. The transition to the new system took just a few hours towards the end of the project, ensuring minimum disruption to the property. Nationwide Air Conditioning was supported throughout the installation by the MHI specifications team. This included online design, training, system design schematics, a pre-commissioning site visit and assistance with final commissioning.

Daniel Valente, project manager at Nationwide Air Conditioning, said:

"The support provided by the MHI specifications team throughout the design and installation period made the project very straightforward. As a modular system, Q-ton is simple to install and commission, with minimal wiring and straightforward controller setup. On commissioning it was evident that the Q-ton equipment was more than capable of producing hot water at 70°C, and the 6000 litres of storage ensured that the system could cope with periods of peak hot water demand."

"We look forward to installing and maintaining many more Q-ton systems in the future and can see them becoming a crucial tool in collectively reducing CO₂ emissions across many industries that generate large quantities of domestic hot water."

In addition, the building is equipped with a Q-ton Remote Monitoring System (QRMS), a tool that monitors Q-ton's operation, provides the team with a quarterly report comparing energy usage and efficiencies against gas and electric equivalents and self-analyses to highlight any potential operation or maintenance requirements.

Germana Genovese, residence manager at Citadines Holborn-Covent Garden, said: "We are delighted to be using heat pump technology as a primary method for our hot water generation. The Q-ton's operation has been perfect, and we're looking forward to seeing how efficiently the system works during its first winter compared to the gas boilers we previously had. Everyone needs to do their bit to help achieve the government targets of net zero and we are proud to play our part."

If you would like more details about Q-ton Air to Water heat pump systems, then please contact MHI Direct on 0800 917 3077 or email sales@MHIdirect.co.uk