British American Tobacco (BAT)

Air Conditioning

As one of the world's largest tobacco companies, British American Tobacco (BAT) operates in around 180 countries worldwide, in a global market estimated to be worth between £450-£500 billion.

Case Study

British American Tobacco (BAT)

As part of a recent refurbishment at the multinational organisation's research and development complex in Southampton, BAT benefited from a new cutting edge hybrid variable refrigerant flow (HVRF) heating and cooling solution from Mitsubishi Electric

CBRE - a commercial real estate services and investment firm - responsible for facilities management at the site, was tasked with identifying an energy efficient system capable of ensuring comfortable working conditions throughout the year.

CBRE called on Stroma to find a suitable solution and after careful consideration the contractor presented a detailed analysis of the **Mitsubishi Electric HVRF system**, outlining its fundamental advantages over a standard variable refrigerant flow (VRF) system.

As Stroma explained in its evaluation of the project, the Hybrid VRF system represents a modern alternative to more traditional heating and cooling solutions, offering simultaneous heating and cooling in separate areas of the building.

Using refrigerant between the outdoor unit and the internal hybrid branch controller, energy is then transferred around occupied areas of the building via two water pipes. This not only provides a stable and comfortable environment but keeping refrigerant away from working environments negates the need for costly leak detection systems in these zones.

Richard Watts, Building Performance Manager at Stroma, commented, '**HVRF provides comfortable and stable air temperature control with no refrigerant in occupied spaces, meaning simple compliance to BS EN378 and removing the need for leak detection**.

'Whilst automatic leak detection would not be a mandatory requirement under F-Gas legislation for a VRF system of this size, the good practice measures set out in BS EN378 would call for leak detection within the cellular offices.'

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Multiple HVRF ducted units have been installed on both the first floor and the ground floor of the BAT facility, along with one centralised controller per floor and 56 local controllers - one for each fan coil unit (FCU)

The potential features and benefits of a Hybrid VRF system include:

- Flexible application options - air and water source external units
- Fully packaged solution - water components included, simple third party additions, same controls as a VRF system
- No refrigerant in occupied spaces - no leak detection as defined by good practice requirements under BS EN278
- Reduced maintenance costs (associated with leak detection system)
- Simultaneous heating and cooling with heat recovery
- Simple two pipe design and installation
- Manageable phased installation
- Quiet indoor units
- High sensible cooling and stable temperatures - typically 10 per cent increase versus VRF
- Water pipes easily isolated from hybrid branch controller box making building layout changes simple - no need to reclaim refrigerant and re-charge following works.

Increasing office space within the building was a major factor in the refurbishment and the higher occupancy levels demanded a futureproof energy efficient solution with a lower global warming potential (GWP) rating when compared with a standard VRF offering.

With the installation complete, BAT can expect stable temperatures and fewer draughts, with the potential to expand the system should the need arise.

Case Study

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Installation Summary

CITY MULTI | Lossnay | CONTROLS

Equipment:

- 27 PEFY-WP-VMA-E / PEFY-WP-VMS1-E indoor ceiling concealed ducted units serve the ground floor offices
- 29 PEFY-WP-VMA-E / PEFY-WP-VMS1-E indoor ceiling concealed ducted units serve the first floor offices
- 3 Hybrid VRF PURY-P200YLM-A1 outdoor units
- 2 Hybrid VRF PURY-P350YLM-A1 outdoor unit
- 1 Hybrid VRF PURY-P450YLM-A1 outdoor unit
- 4 Hybrid branch controllers CMB-WP108V-GA1
- 16 Lossnay LGH-100RVX-E heat recovery ventilation units provide energy efficient fresh air to both floors

Controls:

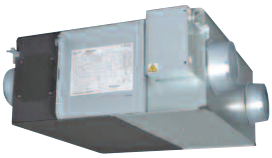
- The system is designed with one PAR-31MAA local controller per indoor unit
- Two AE-200E centralized controllers are used to give full control to each floor

PURY-P200YLM-A1

PURY-P350YLM-A1

PURY-P450YLM-A1

PEFY-WP-VMA-E



Lossnay LGH-RVX-E

PAR-31MAA

AE-200E

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Making a World of Difference

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Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air-conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A(GWP:2088), R32(GWP:675), R407C (GWP:1774) or R134a (GWP:1430). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A(GWP:1975), R32(GWP: 550), R407C (GWP:1650) or R134a (GWP:1300).

Green Gateway
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