

HVAC ENERGY SAVINGS DELIVERED BY OPTIMISATION OF A DEHUMIDIFICATION SYSTEM

CLIENT | LOCATION

Global pharmaceutical company, Utsumoia, Japan

SECTOR

Pharmaceutical manufacturing

PROJECT BRIEF

The site was selected as the key installation base for the Japan off the grid sustainability initiative, with the target of the pharmaceutical manufacturer's operations in Japan being carbon neutral.

In order to progress the energy reduction programme a HVAC pilot project was identified with the following objectives:

- Reduce HVAC energy consumption without adverse impact on product quality or safety.
- Modify the production area air handling units plus the associated fresh air treatment AHUs during summer shutdown.
- Ensure that the savings identified were both viable and deliverable.

- Upskill site team to self-deliver further energy reductions in the future.

PROJECT CHALLENGES

Most of the HVAC systems in the OSD area had been designed to deliver air with very low relative humidity (RH) (less than 35% RH). The products currently being manufactured required air to be delivered at less than 60% RH.

The HVAC system required modification and rebalancing in order to meet current manufacturing requirements, without impacting on product quality or manufacturing output.

A product quality risk assessment was developed with the site quality, production and engineering teams. The potential risks were therefore mitigated and incorporated into the design and commissioning procedures.

SOLUTION

The desiccant dehumidifier on the fresh air serving the OSD Area was fitted with an automated bypass, allowing it to be switched off but still allowing use

when required via the building management system (BMS).

The BMS itself was modified in line with the requirements of the revised BMS FDS that was prepared for the project. If a future product requires different humidity conditions then the parameters in the control system can be changed accordingly. The airflows were re-balanced in-line with the current regulatory guidelines.

RESULTS



1,165,336 kWh

Energy savings delivered (per year)

£57,000

Energy cost savings identified (per year)

233 tonnes of CO₂

Emissions reduction (per year)

The project had a simple payback period of 18 months.

FOR FURTHER INFO

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