

Case Study

Ventec and Koura Global

Overview

Koura is the largest producer of fluorspar in the world, accounting for over 20% of the global supply, as well as producing around 10% of the global hydrofluoric acid supply. The products are used within Koura manufacturing centres in Mexico, UK, USA and Japan.

Challenge

To increase capacity by relocating their existing Laboratory to a larger 27-year-old facility at Thornton Research Park. The project required the existing laboratory capacity to increase from 15 existing fume cupboards to 48 fume cupboards, expelling a total of 100,000m³ air per hour.

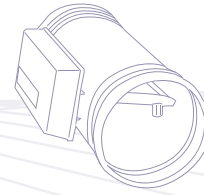
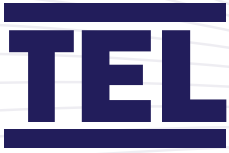
Ventec commissioned TEL who worked together to gain a deeper understanding of the existing ventilation system.



World leaders in airflow controls and monitors

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Approach

Ventec commissioned TEL who worked together to gain a deeper understanding of the existing ventilation system, how the fume cupboards would be used, and what could be integrated into the control systems already in place.

Preliminary investigations highlighted parts of the existing plant equipment that had failed and required replacement or upgrades. A further full point to point check of the entire system undertaken to ensure full and proper operation.

Solution

The increase from 15 to 48 fume cupboards was achieved by relocating existing fume cupboards and converting them from CAV to VAV and installing 33 new VAV fume cupboards. If they had stayed with CAV, 24 is the maximum number of fume cupboards they could have had.

To combat the number of fume cupboard sashes being open at any one time, Fume Cupboard Diversity was employed. They have 48 fume cupboards with 18 in use (open) at any one time giving 37% diversity. As the number of fume cupboards outweighs than the number of operators, this was not an issue for the client.

All of the relocated and new fume cupboards operate with VAV controllers to reduce the extract volumes and allow the working diversity in the building, the fume cupboards are located in 7 rooms that are pressure controlled to manage the balance of the supply and extract according to the demand. There are 5 Fresh Air Bleed systems that are used to maintain the fan volumes and stack discharge velocities.



With 18 sashes open 8 hours per day, 5 days per week, and closed all other times, the additional annual savings using VAV are approximately 891,000 kWh, 176 tonnes of CO₂, and £75K in energy costs.

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