



CASE STUDY

STANTONBURY
CAMPUS



Swimming pool ventilation and heat recovery package achieves payback of less than 3 years



VES

Better air for the built environment

SWIMMING POOL VENTILATION AND HEAT RECOVERY PACKAGE DELIVERS COMFORT AND ENERGY SAVINGS TO SCHOOL



A swimming pool ventilation and heat recovery package from VES is so energy efficient it will achieve payback of less than 3 years for one of the UK's largest schools. Not only that, significant improvements have been made to air quality, ensuring bather comfort and preventing damage to the building fabric.

Stantonbury Campus is a secondary foundation school located in Milton Keynes. Established in 1974, it is the second largest secondary comprehensive school in the United Kingdom with more than 2,100 students aged 11–18. Stantonbury Campus has a dedicated leisure facility which houses a combined main and learner 25 m swimming pool built in the 1980s.



CHALLENGE

The existing ventilation system had fallen into disrepair and was inefficient by modern standards. Exhaust air was discharged direct to atmosphere without any method of heat recovery. Inefficient belt driven fans and aging motors were also contributing to high running costs. Conditions in the pool hall had deteriorated and, on numerous occasions, it had to close due to poor air quality. The building fabric was being affected by high humidity levels causing tiles to come loose, with corrosion starting to appear on window and door frames.

[Pictures show existing AHU unit (a), Inefficient belt driven fan (b)]



(a)



(b)

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SOLUTION

VES engineers, with specialist knowledge of swimming pool ventilation design, worked closely with building services consultants, C&D Partnership to come up with a suitable energy efficient solution.

VES calculated that a significant amount of energy could be recovered by replacing the existing ventilation system with one that recovered waste heat from the exhaust. The plate heat exchanger used in a VES pool air handling unit is sized to achieve an efficiency of at least 70%, maximising energy recovery.

Another important consideration is humidity control. Without this, there is no way of accurately controlling conditions in the pool hall, leading to over de-humidifying of the space. This means that more energy than necessary is required to heat the pool water - a huge cost that should not be overlooked.

Temperature and humidity control in VES pool air handling units is achieved by modulating independently controlled face and bypass dampers on both fresh air and return air paths. Air quality sensors accurately measure temperature and humidity of the fresh and return air. Combined with a sophisticated controls package, this achieves optimum conditions in the pool hall while minimising energy use.

From the initial design brief through to installation, VES provided design assistance that resulted in the manufacture and supply of a bespoke energy saving air handling package specifically designed for the rigours of a pool environment. VES also undertook specialised site works that included on site wiring of the control panel and full commissioning to ensure the new system operated at maximum efficiency.

[Picture of a typical pool unit]

“The input from VES was a valuable contribution”

Design Engineer, John Creaser of C&D Partnership



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RESULTS

VES verified that, during the course of a single year, up to 430,000 kWh of gas energy and 60,000 kWh of electrical energy could be saved by installing a bespoke VES pool air handling unit package. This equates to an annual energy saving of £15,000 and £4,500 respectively meaning the **payback period was less than 3 years.**

Design Engineer, John Creaser of C&D Partnership commented:

“From initial survey through to design, implementation and commissioning, the input from VES was a valuable contribution to a successful project.”