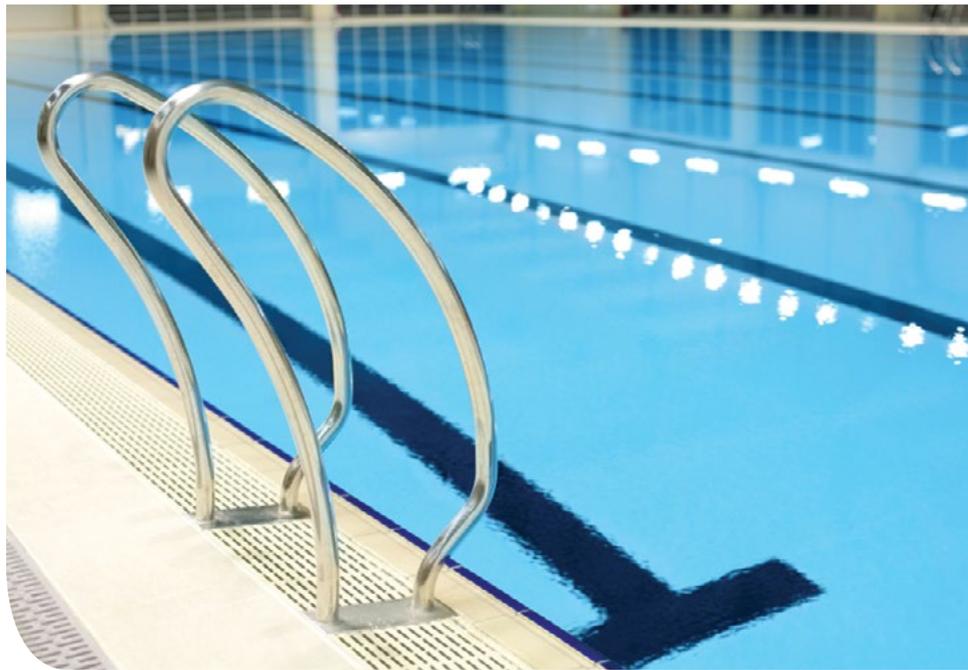




CASE STUDY

WINDRUSH LEISURE CENTRE



*Air handling refurbishment saves capital expenditure
and energy for council*

AIR HANDLING REFURBISHMENT SAVES CAPITAL EXPENDITURE AND ENERGY FOR COUNCIL



By making the best use of an existing air handling unit (AHU), VES improved performance, kept capital costs down, reduced energy usage and minimised down time for a busy leisure centre.

Windrush Leisure Centre is located in the heart of Witney, Oxfordshire and has a wide range of activities and facilities to suit everyone. Facilities include a fully equipped gym, a 6-lane 25 metre swimming pool and separate learner pool.



CHALLENGE

The existing pool AHU was manufactured by VES in June 2000. Whilst it was structurally sound, incorporated components were no longer considered efficient and some were beginning to fail. The AHU had been fitted with a heat recovery plate heat exchanger and a bypass damper, but the controls were basic compared to modern ones. This meant that energy recovery was below what can be achieved today.

In the pool hall, condensation could be found around door and window frames which if left untreated would result in expensive building repairs. A lack of proper control was also identified as the main cause for pool indoor air quality.

When looking at pool ventilation systems it is easy to overlook the importance of humidity control as well as temperature control. With no control over humidity there is no way of accurately controlling conditions in the pool hall, therefore this leads to the potential of over de-humidifying the space, meaning that more energy than is necessary is required to heat the pool water.

[Pictures show out of date AHU (a), Inefficient belt driven fan (b)]



(a)



(b)

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SOLUTION

West Oxfordshire District Council initially considered completely replacing the air handling unit with a new one. VES, however, was able to offer a more cost effective refurbishment solution that incorporated current energy saving techniques. An added benefit was that pool downtime could be reduced to a few days rather than a few weeks.

VES completely refurbished the AHU in situ. This included the removal of inefficient belt drive fan assemblies and replacing them with new inverter controlled direct drive fans. Along with other upgrades, new face and bypass dampers were installed in the fresh air and return air paths. These are now controlled by a modern BlueSense™ control system, ensuring that both temperature and humidity are maintained at appropriate levels, whilst making the most of the latest in energy saving technology.

VES engineers with specialist knowledge of swimming pool ventilation design, worked closely with West Oxfordshire District Council. From the initial brief through to the refurbishment program of work VES provided assistance at all stages, including full commissioning to ensure the new system operated at maximum efficiency.

[Pictures show refurbished AHU with new internal components (c), High efficiency plug fan (d)]



(c)



(d)

“The new motors and controls are more accurate and efficient and there is a noticeable improvement in the swimming pool air quality.”

Stuart Wilson, Leisure Development Officer (Facilities)
of West Oxfordshire District Council

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RESULTS

VES verified that, during the course of a single year, up to 315,000 kW of gas energy and 29,000 kW of electrical energy could be saved by installing a bespoke VES pool air handling unit. This equates to an annual energy saving of £9,500 and £2,900, respectively meaning the **payback period was less than 3 years**.

Stuart Wilson, Leisure Development Officer (Facilities) of West Oxfordshire District Council, commented:

"I was really pleased with the works that took place at Windrush Leisure Centre. The overhaul of the existing unit gave us a good value solution. It made good sense that the structural metal components were not ready for disposal – with a re-paint and thorough clean inside the unit is as good as new.

Since the refurbishment we have had minimal issues with the unit – and it is running as we had hoped. The new motors and controls are more accurate and efficient and there is a noticeable improvement in the swimming pool air quality.

I would definitely recommend that anyone with a VES unit seeks advice from them before embarking on any form of expensive replacement. With the right attention, there may well be a good few years left in it."