Calorex cuts energy costs at Wolverton Pool

The new Wolverton Swimming & Fitness Centre in Milton Keynes is the latest commercial leisure venue to benefit from energy cost savings and reduced CO_2 emissions, thanks to the installation of a bespoke Calorex heat recovery system.

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Operated by Wolverton Leisure Trust, the centre opened in spring 2013 and welcomes just under half a million visitors per year. Boasting a 25m six-lane swimming pool, a learner pool with water features, a fitness suite and workout studios, the centre is a vital leisure resource for the community.

During the initial design process, Calorex of Essex were approached to come up with a heat recovery solution that would not only maintain water and air conditions within the pool hall in an energy efficient manner, but run on a 'set and forget' basis.

A modified HRD heat pump heat recovery dehumidifier was specified by Calorex, tailored to fulfil the requirements of the brief. The unit features a bespoke PLC controller, inverter controlled fans and high tech air pollutant monitors that regulate fresh air demands.

Adding to the specification and providing additional BREAM points towards the installation is a refrigerant leak detection system with automatic pump down.

The high-tech Calorex HRD system is designed to simultaneously monitor and control humidity, air quality and air and water temperatures, all within a self-contained packaged air handling unit. Unlike most swimming pool air handling units the

Calorex HRD will recover both the latent heat lost by the pool due to evaporation as well as the sensible energy in the pool hall air and route all of this energy back to either the pool water or pool hall air as required. As an additional benefit the HRD is able to reverse its heat recovery process, whilst maintaining heat recovery to the pool water, and therefore provide sensible pool hall air cooling when temperature set points are exceeded.

By converting latent energy into sensible heat through its unique thermodynamic circuitry the Calorex HRD will provide efficiencies of 300-350%. Compared to traditional heat and vent systems, cost savings of over 60% are not unheard of and corresponding CO_2 emissions can be dramatically reduced by up to 70%.

Airflow is controlled by the units purpose programmed PLC software that keeps an optimum balance between fresh and re circulated air streams to satisfy occupancy, and dilution demands. The software has also been programmed to control the fans so that the pool hall is always under a slight negative pressure that ensures moist air cannot migrate to other rooms within the building or into the fabric of the pool hall.

The HRD unit at Wolverton is controlled by a bespoke building management system (BMS), that monitors and controls the comfort levels within the pool hall and environmental performance of the whole system.

Wolverton's centre manager Matt Leeder commented: "I am pleased to report that the Calorex unit has been successfully maintaining ideal conditions within the pool hall since the centre opened last year, and we have been impressed with the level of customer service we have received from the Calorex team."

He added: "The system does exactly what it says on the tin and the ease of the 'set and forget' control of the heating and dehumidification is essential for the efficient operation of the leisure centre facility."