

# Passivent Natural Ventilation for Sports and Dining Hall



A predicted 30% increase in student numbers at a Wiltshire school that has achieved Specialist Arts College status has led to a natural approach to expansion of facilities.

Wiltshire County Council commissioned David Kent Architects to design new amenities including a new sports and dining hall at Maltravers School in Westbury, to accommodate the growth in roll numbers from 1000 to 1300+ over the next five years. Part of the brief was to include natural ventilation systems wherever possible, in line with County Council preference for sustainable and low energy solutions.

## Displacement Ventilation

Alan Reynolds at David Kent Architects met the brief by working with Passivent Ltd, one of the UK's leading suppliers of natural ventilation systems, to design a displacement ventilation solution that ensured the internal atmosphere in the

sports hall remained fresh without draughts. To make an architectural feature of the ventilation, the terminals were specially designed with a steeply angled rake.

As a result, two 1250 x 1250mm Passivent Airscoop terminals with direct air dispersal (DAD) louvres linked to five modulating room control units have been fitted to the sports hall, to meet Sports England guidelines of 1.5 air changes/hour, with a

further three similarly sized Airscoops in the dining hall providing an airflow rate of 8l/s/p in accordance with DfES Building Bulletin requirements.

Passivent Airscoop is a roof mounted ventilation terminal divided diagonally into four chambers. Wind from any direction is channelled down through the windward chambers into the building, which displaces warm, "used" air out through the leeward chambers.





These chambers ensure airflow is always separated, regardless of wind direction, providing effective distribution of air into the occupied space. Motorised dampers in the base of the Airscoop control the flow and mixing of air whilst preventing draughts and cold “dumping”.

## Controls



The modulating room control units incorporate an electronic thermostat to provide automatic control of ventilation rate within an adjustable temperature band of 6°C about the set point. As the temperature increases past the set point, motorised louvres in the Airscoop are signalled to open more to increase flow of

cooler, fresh external air. The controller is in turn linked to a night cooling over-ride, that offers a winter/summer setting and automatic control of free night cooling. A time clock and external temperature sensor overrides the internal controls according to the low external temperature at night. In cold winter periods, the system automatically reverts to daytime temperature settings to prevent thermal discomfort and condensation.

Phil Shulkins, Corporate Building Manager at Wiltshire County Council observes, “Wiltshire County Council is keen to promote naturally ventilated solutions in its school buildings wherever possible, and the Passivent system fits in with this preference.”

Passivent is a member of the NatVent™ EC/EU funded research project co-ordinated by the Building Research Establishment to develop practical, natural ventilation solutions for commercial

building. Passivent is the only natural ventilation supplier to offer a 12 years insurance backed design and product warranty.



*Controllable insulated damper within subbase of Airscoop modulates air flow and closes off system during cold spells.*

## PASSIVENT LIMITED