

Project: Oak Green School, Aylesbury

Architect: Jonathan Holland Architects

Contractor: Buckinghamshire County Council

Ventive units installed: 3 PVHR units, one per classroom

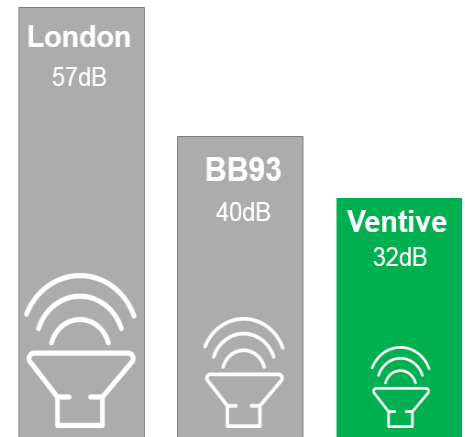
Overheating in classrooms is a major issue for schools as heatwaves are becoming more common each year. This has disastrous effects on students, as health and academic performance suffer greatly.

Oak Green is a new build primary school that had teachers reporting in-class temperatures of 40+ degrees in some cases. The initial design ventilated via an open window strategy to manage costs, but failed to consider shading or building fabric to mitigate heat gains for the upstairs classrooms.

The local council needed to solve this problem quickly, a task made more difficult by the fact it was a retrofit to existing structures and power supplies. They chose Ventive to supply 3 PVHR (Passive Ventilation with Heat Recovery) units for their unique use of stack effect with no mechanical fans to obtain free cooling during the summer and heat recovery during the winter.

This design received a CIBSE design award in 2016, and brought temperatures in the affected classrooms within the standards set out in BB101, while supplying a constant flow of fresh air to occupants at zero cost.

School Noise Levels

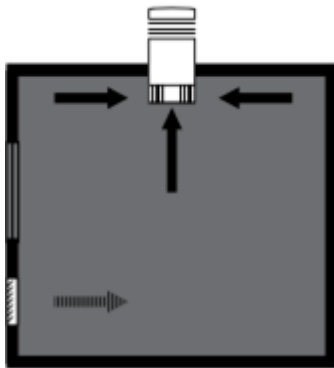


OVERHEATING

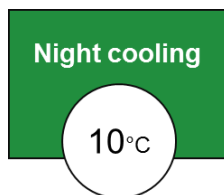
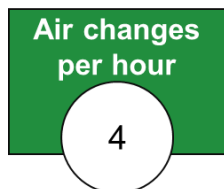
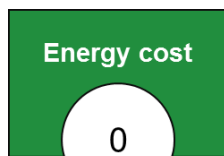
BB101 allows classroom temperatures to reflect external weather during warmer periods, using adaptive comfort criteria.

However there is evidence that lower temperatures in the range between 25C to 20C improved student performance by 2% to 4% for every 1C reduction.

Maintaining a cool environment for learning could have significant benefits for academic performance and well-being.



PVHR is a patented method of delivering high thermal efficiency and consistent air flow using natural ventilation systems by securely transferring the heat from exhaust air to fresh incoming air, in this case cooling it down. Supplying air through this method greatly reduced the problem in Oak Green, creating a comfortable learning environment.



We installed wall louvres to ensure classrooms were cool each morning due to purge ventilation overnight.

Purge ventilation happens by filtering cold air into a room at the floor level, pushing warm air higher where it can be rapidly extracted through the ceiling. It requires no energy, is completely secure and can reduce room temperatures overnight by up to 10C.

The actuated dampers inside of Ventive systems adapt to the internal temperature and CO2 levels to deliver the optimal balance of fresh air and heat recovery to classrooms. Classroom sensor data is sent back to the Ventive Cloud for real-time performance monitoring and proactive maintenance.

Learn more about how Ventive systems minimise the risk of overheating at zero energy cost at www.ventive.co.uk

Learn More:

Email us at contact@ventive.co.uk to get a free consultation on your next project. We offer a full design package that includes IES report, thermal performance and BIM objects that provide precise modelling data.