

Established in
1974



Alderman Knight School

Case Study: Cool-phase® Award Winning System



Audit of Performance

Alderman Knight School

| | | |
|------------------|--|---|
| Location: | Tewkesbury, Gloucestershire | |
| Contacts: | National Design Consultancy | Consultancy |
| | Mechanical Installation Heating Services (Glos) Ltd | Contractor |
| | Matt Peplow | Business & Operations Manager |
| Systems: | Sports Hall | 2N° Windcatcher® X-Air 170 |
| | Meeting Room and Library | 2N° ABS 350 Circular Windcatcher® Systems |
| | Sensory Room and Small Office | 2N° ABS 350 Circular Windcatcher® Systems |
| | ICT Room | 1N° Cool-phase® Suspended Ceiling |
| Sector: | Education | |



Sports Hall - WINDCATCHER systems



ICT Room - COOL-PHASE Suspended ceiling system



Alderman Knight School - Tewkesbury, Gloucestershire

ICT Room

COOL-PHASE Suspended Ceiling

One new COOL-PHASE unit has been installed in the ICT Room at Alderman Knight School to provide natural cooling within the area, the data below shows the performance achieved from the system as an average.

Internal Temperature Results

This data was collected from the unit installed between 7th June 2012 and 30th March 2015. This table shows the overall average daily temperatures for each year.

| Daily Temperatures (°C) | | | |
|-------------------------|---------|-------------|-------------|
| | Average | Min Average | Max Average |
| 07/06/12 - 31/05/13 | 21.8 °C | 19.6 °C | 23.2 °C |
| 31/05/13 - 24/03/14 | 20.7 °C | 18.4 °C | 22.1 °C |
| 24/03/14 - 30/03/15 | 20.8 °C | 18.6 °C | 22.1 °C |

This table shows the percentage of time that the internal temperature has spent at over 25°C, 28°C and 32°C during the logged period.

| Max Temperatures (%) | | | |
|----------------------|-------|-------|-------|
| | >25°C | >28°C | >32°C |
| 07/06/12 - 31/05/13 | 7.3% | 0.5% | 0% |
| 31/05/13 - 24/03/14 | 0.4% | 0% | 0% |
| 24/03/14 - 30/03/15 | 0% | 0% | 0% |

CO₂ Levels

Background or atmospheric CO₂ level is approximately 400 parts per million (ppm) and 1500 ppm or above would be considered a high level.

| CO ₂ Levels | | | |
|------------------------|-----------|-----------|-----------|
| | >1000 ppm | >1200 ppm | >1500 ppm |
| 07/06/12 - 31/05/13 | 3% | 0.5% | 0% |
| 31/05/13 - 24/03/14 | 5.1% | 0.7% | 0% |
| 24/03/14 - 30/03/15 | 4.5% | 0.6% | 0% |

Energy Consumption

| Energy Use over the total installed period: 147 weeks (2 Years 10 months) | | | | | |
|---|-----------|--------------|--------------|------------|------------------|
| Total Energy Usage since install (based on £0.11 per KWh) | 440.9 KWh | £48.50 total | 33p per week | 5p per day | Approx. £17 year |



Matt Peplow - Business & Operations Manager Alderman Knight School

Throughout our school there were very few rooms that suffered with no ventilation. All of our classrooms either have openable north lights or external doors. However we did have an ICT Suite, an Office and a Meeting Room with no external windows so we decided to utilise the Monodraught WINDCATCHER and COOL-PHASE systems within these spaces. The COOL-PHASE system that we have in the ICT Suite manages the temperature of the room very well and whilst you may lose an element of control that you get with Air-Conditioning, you are reducing the energy consumption that you are using to cool the space. We also had some WINDCATCHER systems installed in the Main Hall which is very useful when the Hall is packed up over a period of time. It makes a big difference in terms of the levels of CO₂ and quality of the air.



ICT Room - COOL-PHASE Suspended ceiling system



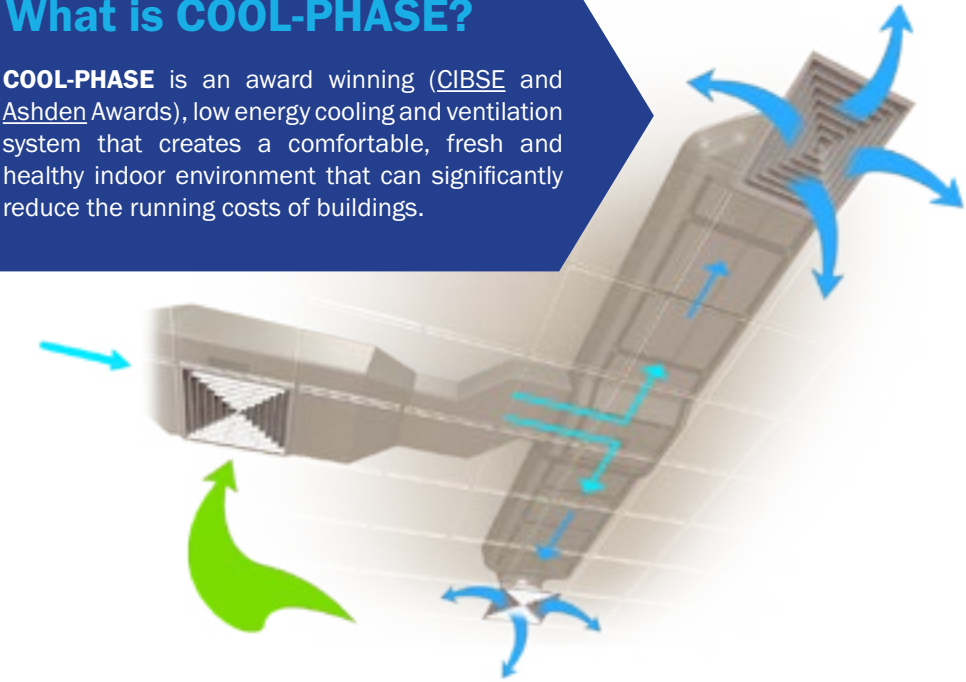
Cool-phase Diffuser



External Louvre

What is COOL-PHASE?

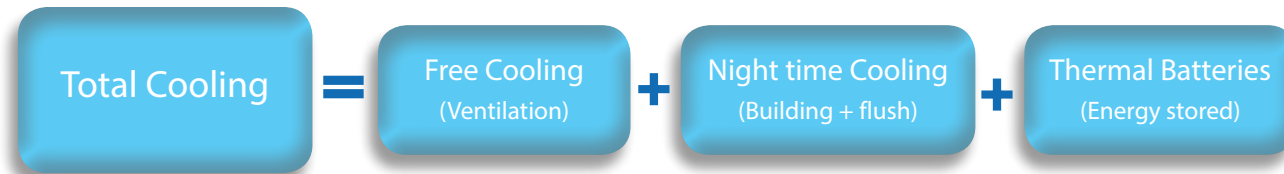
COOL-PHASE is an award winning (CIBSE and Ashden Awards), low energy cooling and ventilation system that creates a comfortable, fresh and healthy indoor environment that can significantly reduce the running costs of buildings.



COOL-PHASE Suspended ceiling system

How does COOL-PHASE work?

COOL-PHASE uses a thermal energy store which utilises a Phase Change Material (PCM) combined with an intelligently controlled Air Handling Unit to actively ventilate and cool the building. The COOL-PHASE system can maintain temperatures within a comfortable zone, while radically reducing energy consumption by up to 90% compared with a conventional cooling system.



What is WINDCATCHER?

Windcatcher® X-Air

The Monodraught WINDCATCHER X-Air is the latest generation of Natural Ventilation that follows in the footsteps of the successful Windcatcher Classic systems. Windcatcher Classic is an energy free Natural Ventilation system encompassing the benefits of both top-down and passive stack ventilation. The simple, but effective design of the system provides fresh air during the daytime as well as night-time cooling.

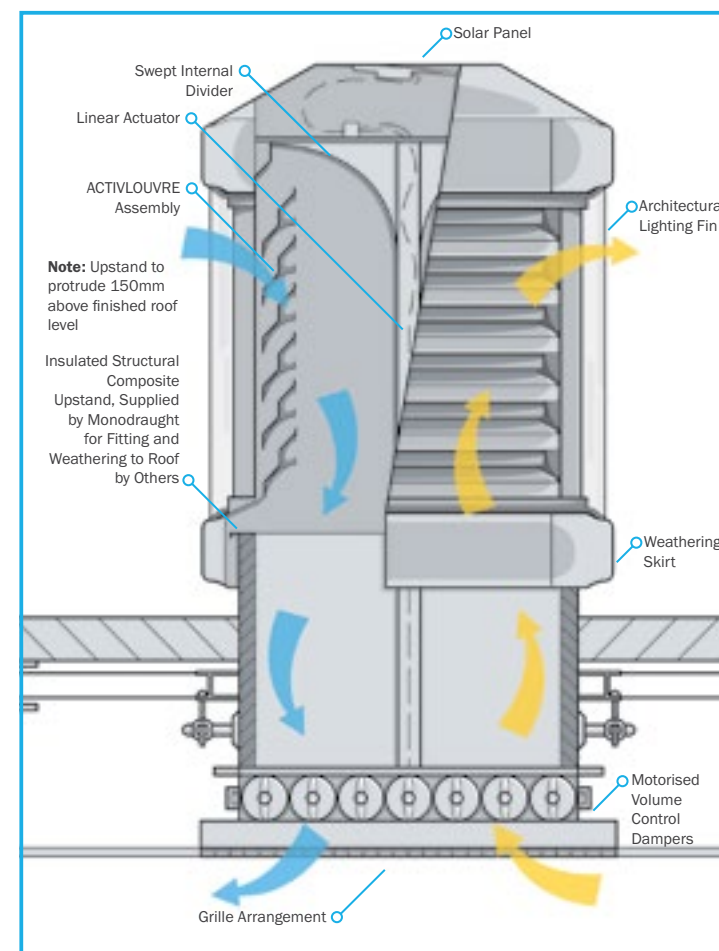
Due to the flexibility of the Windcatcher, the system can be tailored to suit the needs of almost any area. The system's technological ability has been proven within schools, colleges, healthcare environments, commercial properties, as well as many other areas.

The main advantages Monodraught systems have over other forms of Natural Ventilation are:

- It doesn't matter which way the wind blows, the louvres on one side will always entrain the prevailing wind and turn that air movement down through 90°.
- WINDCATCHER X-Air natural ventilation systems will not leak for 10 years from the date of commissioning. Monodraught backs up this promise with a **full 10-year product guarantee**.
- **ACTIVLOUVRE®** modulating louvre technology allows the weather resistance of the external louvre blade to be increased dependent on weather conditions and even closed at roof level to prevent snow being blown through an open louvre arrangement.
- **ACTIVLOUVRE** uses a weather resistant double step louvre profile whilst providing 25% greater levels of ventilation than a conventional Classic louvre profile.
- Computer generated design of profiled internal rain trap louvre is fitted as standard.



Alderman Knight School - Meeting Room - WINDCATCHER system



Sports Hall - WINDCATCHER systems



Want to know more?

Find out how Monodraught systems can help you achieve healthier, cost-effective and more productive environments

Contact us: 01494 89 77 00

<http://www.monodraught.com/contact-us/>





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and manufactured in Great Britain***



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