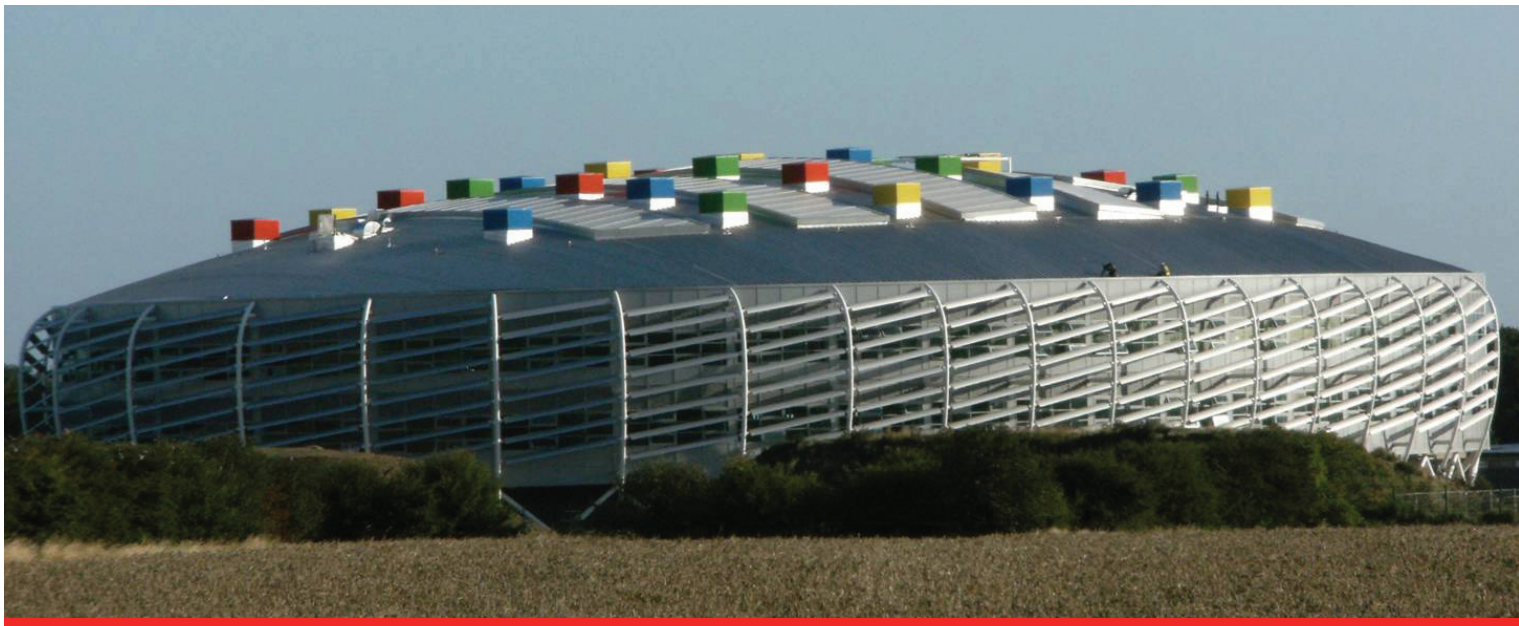
Breathing Buildings



Breathing Buildings takes a holistic approach to school building ventilation and noise attenuation, ensuring:

- effective and efficient ventilation
- minimal energy consumption
- attenuation of outside noise

RUSHLIGHT AWARDS WINNER 2009

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Breathing Buildings Managing Director Shaun Fitzgerald says: “We take a very team-based approach, and work with the client as partners from initial design and development, to coordinating with the contractor and commissioning the units, up to the school’s opening.”

Our extensive experience nationally, working with schools of all sizes and at all stages of development, means we can work with you to resolve your ventilation and noise attenuation issues no matter how challenging.

We can also draw on our sector-leading knowledge to offer a flexible Consultancy service that is second to none.

Having consulted with developers, designers and school stakeholders, our process begins with in-depth flow modelling using laboratory analogue techniques to explore the various air flow regimes within the proposed building to find the optimum solution.

We work to the most rigorous BREEAM requirements as well as the BB101 summertime overheating criteria. We use our own, patented natural ventilation system and Breathing Buildings e-stack units, and design and supply ventilation units tailor-made for rooms and areas with more specific requirements.

Shaun adds: “If designers, developers or school stakeholders want to see us we would be delighted to discuss their project, small or large.”

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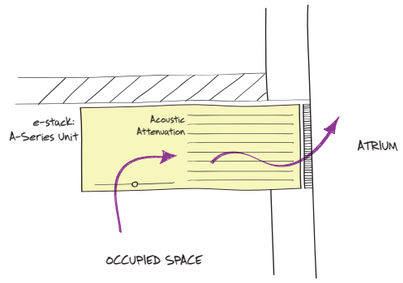
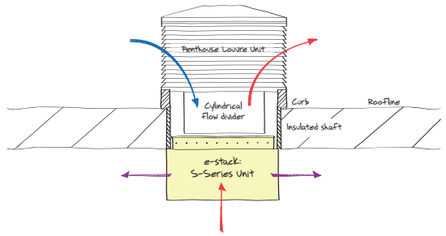
For classrooms at the top of multi-storey schools or with just one floor above them, we generally use Breathing Buildings R-Series e-stack units.

Areas filled with computer equipment such as IT classrooms generate excessive amounts of heat. These rooms can sometimes have even more stringent limits on summertime overheating than BB101, and so we offer a hybrid mixed-mode system to solve these challenges. Once the external temperature reaches a level where free cooling cannot be used, the ventilation system switches to minimum rate and a cooling system is turned on, controlled by the R-Series controller.

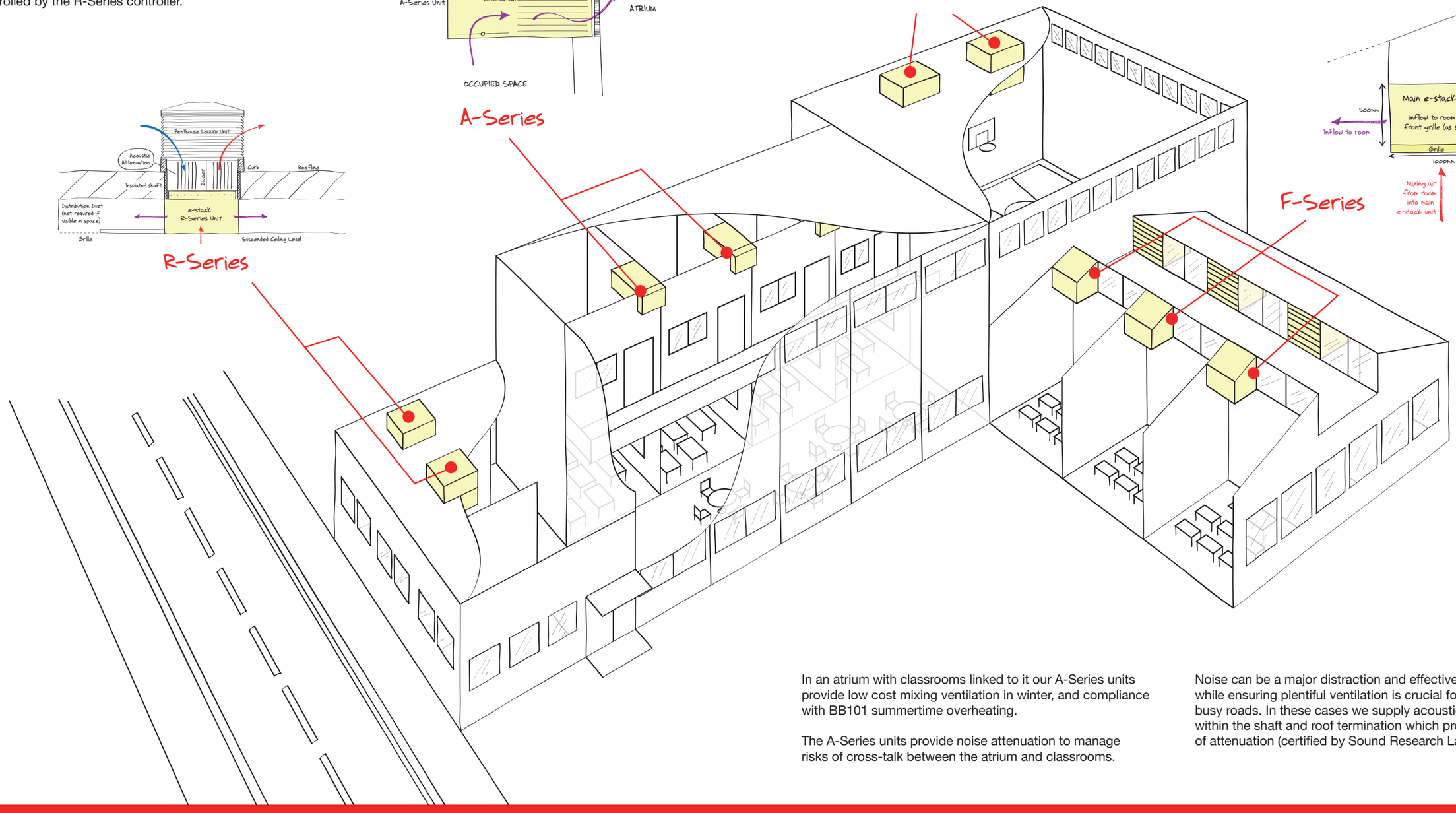
R-Series



A-Series



S-Series

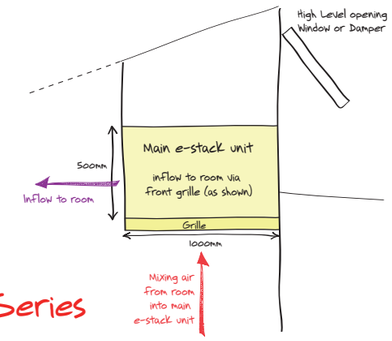


In an atrium with classrooms linked to it our A-Series units provide low cost mixing ventilation in winter, and compliance with BB101 summertime overheating.

The A-Series units provide noise attenuation to manage risks of cross-talk between the atrium and classrooms.

In larger spaces such as school halls, our S-1500 units ensure excellent ventilation and low energy consumption while also complying with BB101 summertime overheating requirements. The number of units required depends on the perimeter area and often works in conjunction with low and high level windows.

Our F-Series unit is ideal for classrooms with sloping roofs or which have a bank of clerestory windows facing away from an external wall. The F-Series delivers the benefits of e-stack ventilation without the need to penetrate the roof.



F-Series

Noise can be a major distraction and effective noise attenuation while ensuring plentiful ventilation is crucial for rooms near busy roads. In these cases we supply acoustic attenuators within the shaft and roof termination which provide up to 25dB of attenuation (certified by Sound Research Laboratories).

Breathing Buildings

Monkseation Headteacher Paul Kelly, the British Council for School Environment's Innovative Educational Professional for 2009, says:

"Breathing Buildings have been central to creating the most innovative school building in the UK in 2009."

"The quality of air, and the improvement in the environment in a building with exceptional air and light quality has set new standards for schools. Our students, staff, parents and visitors all comment on the refreshing change from the institutional air they have always experienced in public buildings."

How it works - An outline

The Breathing Buildings ventilation solution uses a mixing ventilation strategy when the temperature of the external air is too cool to bring in directly on to occupants. Energy use is kept to a minimum as the system uses "free" heat generated through lights, computer equipment and body heat. This is used to warm incoming, fresh, cold air. Hot, polluted air is vented. Far less energy is used than with conventional radiator-based systems as additional heating is not needed until the external temperature falls to between 5°C and 10°C (depending on the room).

As outside temperatures rise, the system draws in warmer air at a low level directly on to occupants without pre-heating, and the ventilation strategy for the system changes to upflow displacement ventilation. Lower level vents or windows are opened, as are additional high level windows (if available) to maximise air flow and to minimise heat build-up. Even on hot, wind-free days rooms are well ventilated as the Breathing Buildings e-stack units generate a natural upwards displacement of air and natural ventilation is continuously provided.

The system is controlled with dedicated temperature and CO_2 sensors for optimal ventilation, comfort and minimal energy consumption.

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