



**Breathing Buildings worked in partnership with renowned designers Parsons Brinckerhoff for three years to help create the award-winning Monkseaton High School.**



<b>PROJECT</b>	Monkseaton High School, Whitley Bay
<b>LOCATION</b>	Tyne and Wear, UK.
<b>SECTOR</b>	Education
<b>FEATURES</b>	Consultancy, Atrium, Classrooms
<b>HISTORY</b>	Project begun 2008 Building completed and occupied 2010 Support work for the school continues

**Awards for the school include:**

**LABC Building Excellence Awards**  
Best Educational Building 2010

**Constructing Excellence in the North East**  
Project of the Year 2010

**Constructing Excellence in the North East**  
Best Value 2010

Schools present designers and developers with particularly challenging ventilation and noise attenuation issues. This is a highly specialised field in which the expertise of Breathing Buildings are widely recognised.

This is why Parsons Brinckerhoff, one of the world's leading planning, engineering, and construction management organisations, chose Breathing Buildings as partners on the Monkseaton High School development.

**The Challenge**

Monkseaton School is a four-storey building with the central atrium housing the sports hall, two gymnasiums, dining area, school hall and IT zones. Most of the classrooms are linked to the central atrium.

**The challenges were to:**

- effectively and efficiently ventilate the school
- meet BB101 summertime overheating criteria
- deliver fresh air and quiet so students can concentrate, meeting BB93
- ensure minimal energy consumption

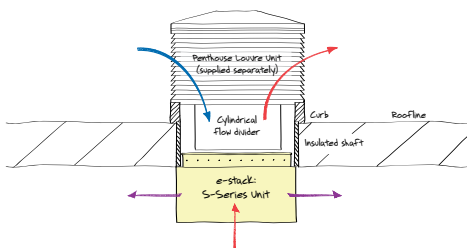
Shaun Fitzgerald, Breathing Buildings Managing Director says: "We went to see Parsons Brinckerhoff. They pulled out the plans for the school and asked how would we ventilate it? We didn't have the answers straightaway but we thought about it, told them what design work we needed to do and then invested time and effort upfront engineering our ideas."

**Monkseaton Head teacher Paul Kelley**, the British Council for School Environment's Innovative Educational Professional for 2009, says:

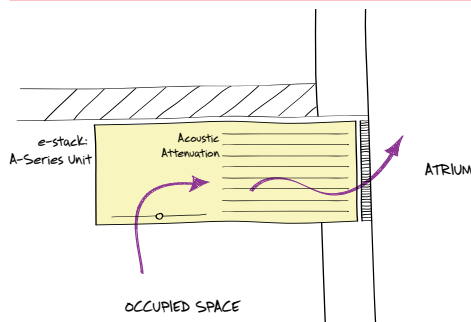
***“Breathing Buildings have been central to creating the most innovative school building in the UK in 2009.***

***“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.”***

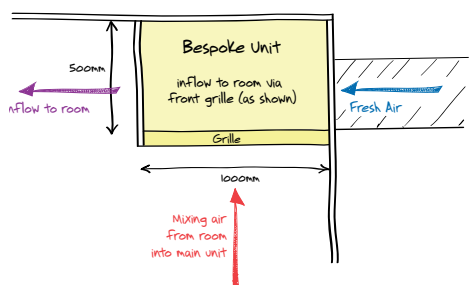
#### e-stack S-series



#### e-stack A-series



#### Bespoke Units



### The Solution

The goal for Breathing Buildings was to offer a holistic ventilation and acoustic attenuation solution, drawing on their considerable consultancy experience and sector-leading knowledge. The initial work to find the optimum ventilation solution, involved in-depth flow modelling using laboratory analogue techniques to explore the various air flow regimes within the proposed building.

At this stage it became clear that a ventilation solution that met the BB101 summertime overheating criteria was also likely to result in the school having fewer than 40 hours a year above 28 Celsius and so qualify the building for an additional BREEAM point. This then became the goal.

To take account of the large glazed areas in the roof and façade, Breathing Buildings suggested adopting relatively large ventilation areas (45 square metres of free area), so the concept of these large glazed areas could be implemented.

Shaun says: “We did the mathematical modelling and the laboratory analogue water bath modelling, and came up with

the specifications for the ventilation which Parsons Brinckerhoff put into their drawings.”

### Natural Ventilation Delivered

In addition to the 22 classrooms linked to the atrium using Breathing Buildings A-Series units, bespoke units were designed and supplied by the Breathing Buildings Consultancy arm for those rooms with limited access to perimeter walls. Breathing Buildings S-1500 e-stack units were used in the roof to help the building ventilate.

### Client Partnership

Shaun Fitzgerald says: “We take a very team-based approach. On this project we worked with Parsons Brinckerhoff and the school for something like three years from the initial design and development work, to coordinating with the contractor, commissioning the units and the school's opening. We continue to monitor the system on-site and remotely.

“If designers want to see us we would be delighted to discuss their projects and proud to take them to see the school. Monkseaton is a very big project but we are always happy to consult about any project, small or large.”

## For More Information Contact Breathing Buildings at:

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