



Monkseaton High School

Tyne and Wear, UK

Price's international partner, Breathing Buildings developed a natural ventilation solution to create the award-winning Monkseaton High School

Project Summary

Project Type: New Education

Features: Consultancy, Atrium, Classrooms

Year Completed: 2009

Engineer: Parsons Brinckerhoff

Architect: Devereux Architects

Price Partner: Breathing Buildings

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 Price, and its international partner Breathing Buildings, are widely recognised.

Parsons Brinckerhoff, one of the world's leading planning, engineering, and construction management firms, partnered with Breathing Buildings to develop a natural ventilation solution for the Monkseaton High School.

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Monkseaton High School

Tyne and Wear, UK

The Challenge:

Monkseaton School is a four-storey building with a central atrium that houses the sports hall, two gymnasiums, dining area, school hall and Information Technology offices. Most of the classrooms are linked to the central atrium.

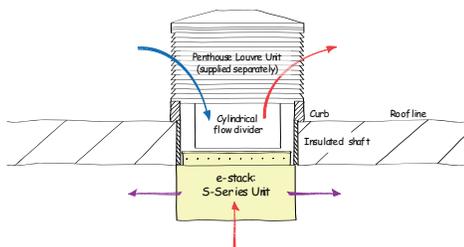
The challenges were to:

- Effectively and efficiently ventilate the school
- Meet BB101, UK summertime overheating criteria
- Deliver fresh air and quiet so students can concentrate, meeting UK acoustics standard BB93
- Ensure minimal energy consumption

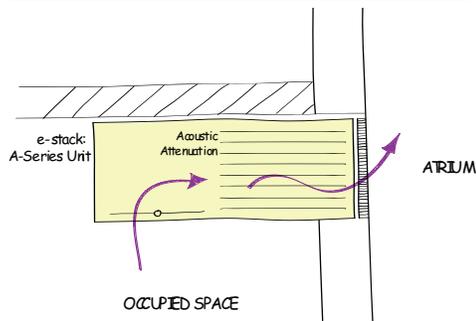
The Solution

The goal was to offer a holistic ventilation and acoustic attenuation solution. This was made possible from the considerable consultancy experience and sector-leading knowledge of Price and Price's partner Breathing Buildings. The initial task of finding the optimum ventilation solution involved in-depth flow modelling, and laboratory analogue techniques, to explore the various air flow characteristics 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 degrees Celsius and thereby qualify the building for an additional BREEAM point (a UK measurement rating for green buildings). To take into account the large glazed areas in the roof and façade, a relatively large ventilation area (45 square metres of free area) was suggested, allowing for successful implementation of the large areas. By partnering with Parsons Brinckerhoff from the initial design phase, the completion of the mathematical and laboratory analogue water bath modelling resulted in a specification which they added right into their drawings.

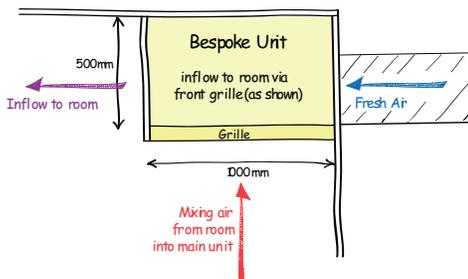
e-stack S-series



e-stack A-series



Bespoke Units



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Natural Ventilation Delivered

In addition to the 22 classrooms linked to the atrium using the NVA units, bespoke units were designed and supplied for those rooms with limited access to perimeter walls. S-1500 NVS units were used in the roof to help the building ventilate.

Client Partnership

Shaun Fitzgerald of Breathing Buildings says: "We take a very team-based approach. On this project we worked with Parsons Brinckerhoff and the school for three years, from the initial design and development work, coordinating with the contractor, commissioning the units and finally sharing the success the school has had with numerous awards. The system is working well and continues to be closely monitored on-site and remotely.

"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."

Paul Kelley, Monkseaton Head Teacher. Received the British Council for School Environment's Innovative Educational Professional for 2009.



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