

## Acoustic Review of Partitioning Systems Birtenshaw School, Bolton

### Background

Birtenshaw School is a school for children with special educational needs in Bromley Cross, Bolton. Miller Goodall was appointed by the design team to undertake an acoustic review of the proposed partitioning systems of the new school building. The new school has been built in the field adjacent to the old school. The finished school needed to comply with Approved Document Part E of the Building Regulations 2000; the most common way of demonstrating compliance with AD Part E is to satisfy the performance requirements of Building Bulletin 93 (BB93) *Acoustic Design of Schools*.

### Action Taken

Miller Goodall undertook a comprehensive review of wall designs and advised on several key areas to bring these in line with detailed acoustic design requirements of BB93.

The first part of this process was to undertake a noise survey at the proposed site, thereby establishing the noise levels impacting on the facades of the new school. The next step was to calculate the internal noise levels in teaching spaces as a result of noise ingress through the building envelope, and to confirm the suitability of the proposed natural ventilation solutions.

We then undertook a review of the proposed roof constructions and advised on the measures necessary to control impact noise generated during heavy rain storms. Although the proposed roofs are generally light-weight membrane or standing seam constructions, most of the roofs over teaching spaces incorporate sedum 'living roofs' and as such provide excellent control over rain noise.



Internally, one of the key considerations was the provision of adequate room-to-room sound insulation and advice was provided on the necessary constructions to meet BB93 minimum requirements. One area of particular interest at the school was the proposed use of Durisol blocks to construct both external and separating walls. This relatively uncommon building material resembles large, hollow blocks made from cement bonded wood fibre which are assembled on-site and filled with high density concrete.

Miller Goodall's specialist knowledge in designing flanking details was put to good use as there were a number of areas where flanking paths could have significantly impaired the performance of separating walls. Details were developed for a number of key junctions for both Durisol and traditional drywall

constructions including novel partition head details, junctions with underfloor heating systems and junctions with low performance flanking walls.

Specifications were also provided for internal surface finishes to provide the necessary control of reverberation and so aid speech intelligibility. This is a critical function for the teaching of children with learning difficulties, ensuring an optimum acoustic environment to aid both teaching and learning.

### Summary of Findings

Testing and measurement of noise levels within the new school was completed successfully in June 2012 and handover was completed shortly after.

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