



ACOUSTIC DESIGN OF SCHOOLS

BUILDING BULLETIN 93 (BB93)

The acoustic conditions in schools are controlled by Approved Document E of the Building Regulations (Requirement E4), School Premises Regulations and the Independent School Standards.

Whilst mandatory for schools, in lieu of any other suitable guidance or standards, BB93 is often used as a guide for all other educational facilities such as Universities and Colleges (particularly if Health and Wellbeing Credits are required for BREEAM).

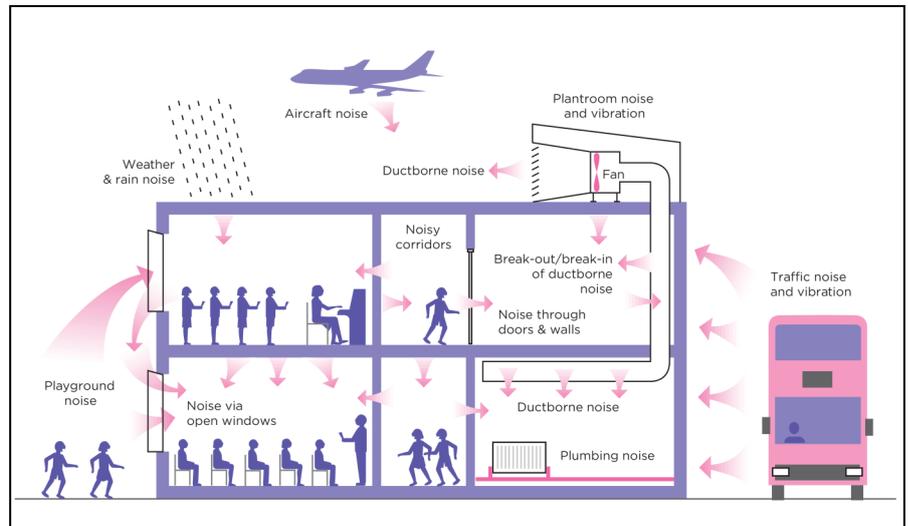
What is BB93?

BB93 sets out performance standards for schools. These apply to all schools, including independent schools, academies, free schools, university technical colleges, 6th form colleges attached to a school and nursery / community and education spaces within school complexes.

Building Bulletin 93 received a much needed update which arrived at the end of 2014 and replaced the 2003 version of the document.

Is BB93 Mandatory?

In schools, BB93 compliance is the normal way to demonstrate compliance with Approved Document E.



New and Refurbishment Areas

A major change from the previous version of BB93 is that it now includes performance standards for refurbishment and temporary buildings within schools.

Hann Tucker Associates will be able to advise which parts of your project are required to meet BB93.

3D Modelling & Room Acoustics

Alongside detailed calculation methods, we are also able to provide acoustic modelling services. This is particularly useful in large spaces such as atria where large room volumes and hard surfaces lead to long uncomfortable reverberation times and lecture theatres where good speech intelligibility is required in all seating positions.

Where open plan areas are proposed, the School Premises Regulations, the Independent Schools Standards and Equality Act all require speech transmission index to be considered.

The BB93 Performance Standards cover the following;

Indoor Ambient Noise Levels (IANL)

To provide clear communication between teacher and students and support learning and study activities.

This involves contributions from:

- External sources such as road, rail and air traffic & industrial premises.
- Building services (e.g. ventilation systems, plant, drainage etc.)



Acoustics in schools has been the subject of much recent research. In particular classroom acoustics and the impact this has on the learning, concentration and behaviour of the pupils — not to mention the effect on the health and wellbeing of the teaching staff!

With the popularisation of open plan teaching areas, the vast array of room functions and adjacencies operating simultaneously and the ever increasing use of audio visual equipment in educational buildings; careful acoustic design has never been more necessary.

Provision for Children Having Special Hearing or Communication Needs

The Equality Act 2010 places a duty on all schools and Local Authorities to prepare and implement accessibility strategies to increase accessibility. This includes:

- Shorter reverberation times
- Increased sound insulation between spaces
- Lower indoor ambient noise levels
- Consideration to the sensitivity to tonal impulsive or intermittent sounds within the school.

Sound Insulation between Spaces

To attenuate airborne sound transmitted between spaces; either through walls or floors. Depending on the space, this is achieved by stating a performance standard for the partition based on either a laboratory rating (R_w) or a field measurement ($D_{nT,w}$).

Noise from Building Services

This contributes toward the IANL, but external noise from plant and the planning & BREEAM requirements should also be considered. Vibration isolation is very likely to be required to avoid structureborne noise.

Impact Sound Insulation of Floors

This is to protect against foot-fall noise and movement of furniture.

Rain Noise

BB93 now states a performance standard for rain noise in teaching spaces; previously it had to be 'minimised'.

Reverberation in Teaching and Study Spaces

The aim here is to provide a space that is conducive to clear communication of speech. Generally the lower the reverberation time, the better.

BB93 should be taken to be a minimum standard which can be improved upon.

Reverberation in Sports Halls and Swimming Pools

In these large spaces, BB93 provides provision to either demonstrate compliance by measurement on completion, or there are now two design lead options (3d modelling or manual calculation and specified placement of absorbent materials).

Alternative Performance Standards

BB93 sets out minimum acceptable standards where the stated performance standards cannot be met. Items can no longer simply be derogated without justification.

Demonstrating Compliance

BB93 states that testing and reporting should be carried out by a specialist acoustic consultant.

Hann Tucker Associates, the leading independent UK acoustic consultancy, can provide all the necessary professional advice and assistance on the acoustic design of schools and any other educational facilities.

By using the specialist knowledge and expertise we have gained over our many years of successful acoustic consultancy, suitable cost effective solutions can be provided to ensure satisfactory design solutions are achieved.



Hann Tucker Associates

Consultants in Acoustics Noise & Vibration

Head Office:

Duke House, 1-2 Duke Street
Woking, Surrey GU21 5BA

(t): +44 (0)1483 770595

(e): enquiries@hanntucker.co.uk

Manchester Office:

First Floor, 346 Deansgate
Manchester M3 4LY

(t): +44 (0)161 832 7041

(w): www.hanntucker.co.uk