

<p>The British Society of Audiology Rapid Review Panel</p>	<p>The BSA was founded in 1966, has grown steadily since then and is by far the largest Audiology society in Europe. It is multi-disciplinary and has members from all areas of Audiology in the UK and throughout the world.</p> <p>The Rapid Response Panel of the BSA brought significant direct experience and expertise to the task. It included Audiologists, Educational Audiologists, Teachers of the Deaf, Acousticians, Physicians and Scientists. Further to this, opinion of many professionals involved in Education were canvassed and these were fed into the discussion.</p> <p>England is the world leader with its NHS Newborn Hearing Screening Programme giving deaf and hearing impaired children an early start, however an early start is not enough in itself to ensure that these children and many others who have less severe hearing problems make the best out of their educational opportunities. We need be world leading in terms of our infrastructure for all children and especially children who are disabled or who have communication difficulties. The secretary of State's 2008 'Report on progress towards disability equality across the children's and education sector', specifically refers to BB93:</p> <p><i>Building Bulletin: 93 Acoustic Design of Schools</i> improves the acoustics for all pupils, but especially for those with SEN and disabilities (sensory impairment, communication needs, autism and learning difficulties) in mainstream and special schools. Guidance for specialist environments for pupils and staff who have hearing impairments were set out. Improved acoustics supports better working conditions for all staff. (P238)</p> <p>The DCSF Attainment statistics for children in 2006/7 show that hearing impaired children perform less well than children without a hearing impairment. Whilst not suggesting a causal link between acoustics and performance, it is well established that poor acoustics can present a barrier to participation and learning for children with special hearing requirements such as hearing impairment.</p>
<p>SCOPE OF THE REVIEW of BB93</p>	<p>We feel that there are substantial issues that need address and would welcome a wider review of BB93 to include the following:</p> <ol style="list-style-type: none"> 1) Detailed consideration of the current impact of BB93 on schools. 2) Adoption of different or additional performance criteria. 3) Development of active website to disseminate examples of good design and performance. <p>Notwithstanding the above, it was felt that more restricted changes could be made now that would improve the relevance and impact of BB93 on the quality of Education for all children.</p>

<p>Comments relating to BB93 as a whole</p>	<p>It was expressed that BB93 was not having the impact on delivering schools with acoustics appropriate to their purpose – that is supporting teaching and learning. This might be due to the use of derogation from the published standards to inferior performance targets, or to the absence of requirement for post completion testing. The latter leading to schools which did not meet their design specification. Without an audit it is difficult to know the state of the situation nationally. Our first concern, therefore, was that it is made a requirement <i>that post completion testing be carried out.</i></p> <p>Our second concern is that the performance standards for classrooms might not be appropriate or reflect the current understanding of classrooms. Reverberation time is a blunt tool and a relatively poor guide to the fitness of purpose of classrooms and teaching spaces. <i>All classrooms and teaching spaces should be required meet to minimum STI levels – not just open plan rooms.</i> It was also noted that the current STI values are not appropriate for children and appropriate levels should be adopted (these are 0.75 for regular classrooms and 0.85 for rooms used by hearing impaired children).</p> <p>Our third concern related to children with special hearing requirements. <i>It was the opinion of the group that it is necessary to strengthen the guidance in Section 6 that acoustic conditions need to be related to the needs of each specific child with special hearing requirements.</i> This is consistent with Special Education Legislation and Guidance. Expertise in this area exists amongst audiological competent professionals currently employed in Education and Health.</p> <p>Our fourth concern related to what might be termed <i>Editorial issues</i> relating to the guidance sections. These included:</p> <ol style="list-style-type: none">1) A need to move Classroom Soundfield Technology from Section 6 to Section 4 – as this is more appropriately an issue to do with everyday management of the speech levels and clarity rather than a technology used by children with special hearing requirements.2) Moving technological details out of section 6 to Appendix 8. This is an area that continues to develop although principles remain the same and these should be the focus of Section 6. Appendix 8 could become a web site that is regularly updated – and might include direct links to outside sources for this purpose.3) General updating of terminology. For example it is not appropriate to talk about ‘hearing impaired children’ and we would recommend that the term children with special hearing requirements be used instead. Hearing aids have been replaced by a broader term, ‘hearing instruments’ which include implantable devices. These bring particular issues with them that need addressing.
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Specific referenced comments relating the Document BB93		
BB93 Section	Page	
	3	Scope should be extended to include all educational buildings
	4	DDA act needs updating to include the DDA 2005
Overview		Case studies should be removed from the Guidance section and placed separately (as an appendix perhaps) where they can be updated and added to over time.
	7	Opening paragraph: Concern was expressed that the standard concerning Speech intelligibility (1.3.9) could be overlooked, even if E4 requirements – i.e. the other standards relating to noise and reverberation, are met?
1.1 Performance standards	8	Bullet point speech intelligibility in open-plan spaces should read ‘ speech intelligibility in teaching spaces’ Remove ‘open plan spaces should additionally meet the performance standard for speech intelligibility’ There is confusion in all tables concerning ancillary spaces, this needs clarifying.
1.1.1		
Table 1.1 Performance standards ambient noise level	9	‘Classrooms designed specifically for use by hearing impaired students’ should be replaced by ‘ <i>Rooms and teaching spaces used by children and young people with special hearing requirements</i> ’
Table 1.2 point 4	10	Anecdotal evidence points to continued failure of new build and refurbishment to deliver appropriate standards and adds to the evidence that a post completion evaluation is required.
Rain noise	10	Refers to rain noise. Is there a recent standard or guidance on this that needs referring to?
1.1.2		
1.1.3		
1.1.4		
Table 1.4 Performance standards	P13	‘Classrooms designed specifically for use by hearing impaired students’ should be replaced by ‘ <i>Rooms and teaching spaces used by children and young people with special hearing requirements</i> ’
1.1.5		
Table 1.5 Performance standards Rt	14	‘Classrooms designed specifically for use by hearing impaired students’ should be replaced by ‘ <i>Rooms and teaching spaces used by children and young people with special hearing requirements</i> ’
Table 1.5 Performance standards for children with special hearing requirements (‘Hearing impaired’ in table)	14	Change RT requirement for ‘ <i>Children and young people with Special Hearing Requirements</i> ’ to be $<0.4 T_{125\text{Hz} - 4000\text{Hz}}$. This will bring it into line with best guidance available in Section 6.
Table 1.5 Ancillary	14	There is confusion in the document. This needs clarifying.

spaces		
1.1.7 Speech intelligibility in open plan spaces	15	The reference to open plan spaces should be removed and the section reworded to include all teaching rooms and spaces. Heading should read 'Speech Intelligibility in Classrooms and teaching spaces' STI is an appropriate and we believe necessary measure for all spaces.
	15	Remove second paragraph in section as not necessary following change of title.
Second paragraph from end	15	STI descriptors quoted relate to adult listeners and should be replaced with child appropriate levels >0.75 or >0.85 children with special hearing requirements.
1.2 Demonstrating compliance to the Building Control Body	16	It should be a requirement in the commissioning of work that compliance is tested post completion of the building.
1.2.1 Alternative performance standards	16	There is a danger that less stringent standards are chosen without appropriate supporting rationale. It is however wholly appropriate to specify alternative standards for rooms and spaces (which maybe a subset of a newbuild) to meet those for children with special hearing requirements.
1.3 Demonstrating compliance to the client	17	This needs to be mandatory.
1.3.9 Speech Intelligibility in open plan spaces	19	Should read 'speech intelligibility in all classrooms and teaching spaces'
Section 4 The design of rooms for speech		This section should include a section for sound field systems. These are being installed and specified in many schools and are primarily a tool for teaching and managing the teaching voice.
Section 6 Acoustic design and equipment for pupils with special hearing requirements	77	The use of the phrase ' with special hearing requirements ' is appropriate and the section should be edited to use this term in preference to ' <i>hearing impaired</i> ' Technical (relating to equipment) information should be removed and relocated into appendix 8 – preferably with an ability to update the section on a regular basis. The first paragraph should be deleted and should begin at the start of the second sentence in para 2 'There are large...' The first bullet point should read <ul style="list-style-type: none"> • Children with permanent hearing impairment The final para should be deleted.
6.1	17	Replace hearing impaired with special hearing requirements throughout section.
6.2	77-78	Last para p77 line 6 beginning and continuing to top of page 78 'It would be ...' this paragraph should be replaced with 'Professional should specify classroom acoustics for a particular child. They should have available measures of the child's hearing including acceptable noise levels, desirable reverberations times and required signal to noise levels. These measures will help to determine an appropriate acoustic environment.'

		Replace first sentence of second paragraph with 'Where it is not possible to identify definitive acoustic requirements for a particular child with special hearing requirements architects and acousticians are directed to the recommendations of the professional bodies presented in table 6.1
6.3		Replace Hearing impaired with 'special hearing requirements' throughout section.
6.4		Replace title with 'The speech signal and hearing instruments' Replace hearing aids with hearing instruments throughout section6.
6.7		Replace 'radio aid' with 'personal fm system'
6.7.1	80	Replace Radio aid with 'Personal FM system' and vice versa. Last para 80 line 5 from bottom. Delete 'is omnidirectional and is' and replace with 'and can be'
	81	Delete paragraphs 8 and 9 keeping 'most personal fm systems operate on a range of carrier frequencies. For example each school class might have its own frequency so that there is no interference with a neighbouring class. Take out adjective 'recent' wrt ear level receivers
6.8.1 Whole classroom soundfield systems	82	Add at end of sentence 1 'and should be optimised for intended use'.
Remove technical boxes	P83 – 87	Remove technical boxes to section 8
6.8.2	83	Transfer this section to Section 4
6.8.3	83-84	Transfer this section to Section 4
Table 6.3	84	Transfer this section to Section 4
Table 6.4	85	Transfer this section to Section 4
6.8.4	84	Transfer this section to Section 4
6.9	88	Website for list of organisations needs to be updated: BAAS does not exist and should be replaced with BAA BAEA website is incorrect
Glossary	88	Radio aid needs to be replaced by 'personal fm system' CAPD should be replaced by Auditory Processing Difficulty/Disorder – A broad term used to describe listening difficulties.
References	89	Remove reference 7 and reference within the text (section 6.3) Reference to latest FM working group document 'quality standards for the use of personal fm systems' added to reference 16
Section 7		Should be removed from publication and added as an appendix or referenced in some other way in order to allow continued addition to case studies as a web site resource.
7.6 A junior school with resource provision for deaf children		Keep and add similar
An all age special school for hearing imp[aired children		Keep and add similar
Appendix 8		This section needs to be revised to also include all technical assistive

Equipment specifications for sound field systems in schools		devices that enhance the signal to noise level for a particular child with special hearing requirements. The Soundfield section should now relate to its preferred position in section 4 under speech. It needs to be revised to reflect current technology without being too prescriptive. Several technical submissions have been received and the BSA RRP believes that its breath of expertise and experience places it in a unique position to revise and update this section on behalf of the DCSF.
Standard loudspeakers		See above.
NXT		See above.
Mixer amplifier		See above.
Radio microphone system		See above.
Headworn microphone		See above.

Appendix:

David Canning (Chair of Rapid Response Panel), Educational Audiologist, City University

Professor Bridget Shield, Professor of Acoustics, South Bank University

Tony Shaw, Principal Mary Hare School, Berkshire

John Briggs, Educational Audiologist, Cambridge

Mary Hostler, Lecturer, Education of the Deaf, University of Manchester

Graham Frost, Audiological Scientist, PC Werth

Doris-Eva Bamiou, Audiovestibular Physician, Ear Institute, UCL

Professor Adrian Davis, Director of the MRC Hearing & Communication Group, University of Manchester