



## Are the acoustics of your learning spaces in good shape?

The welfare of staff and effectiveness of teaching can both be adversely influenced in spaces with poor acoustic performance.

This might seem obvious, but who knows what constitutes poor acoustics within a school building? How might you know and plan for improvement?

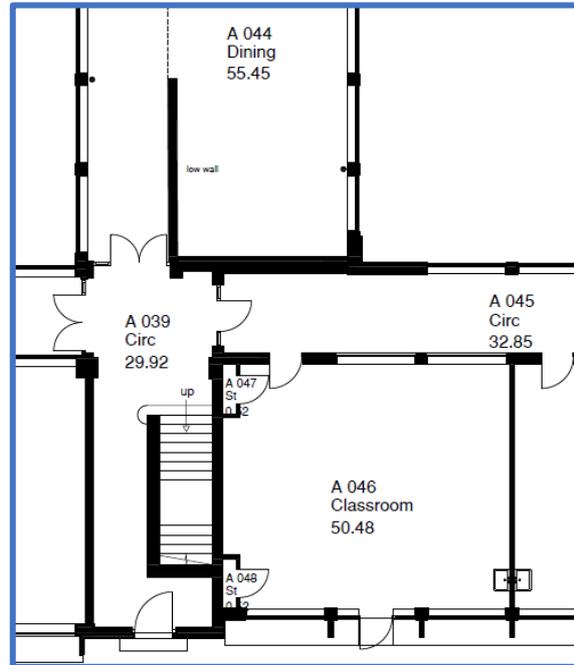
### **This article focuses on classroom**

**acoustics.** It highlights the role it plays in staff welfare and the provision of effective learning spaces, particularly with respect to younger children or those with SEND needs. It also provides a case history of classroom improvement.

Research confirms good acoustic quality within a learning space results in lower levels of unwanted noise, improvements in pupil behaviour, greater teaching effectiveness with a reduction in teaching stress.

**Adequate acoustics in a school are not a luxury, they have been required since 2002 and have formed part of design advice since 1975.** Educational legislation<sup>1</sup> and building regulation<sup>2</sup> express the need for adequate acoustics as follows:

*“The acoustic conditions and sound insulation of each room or other space must be suitable, having regard to the nature of the activities which normally take place therein.”*



<sup>1</sup> The School Premises Regulations and Independent School Standards.

<sup>2</sup> Requirement E4 from Part E of Schedule 1 to the Building Regulations 2010

*"Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use."*

The "nature of activities" and "intended use" of a learning space will govern its requirement for noise absorption and noise exclusion, with the most demanding requirements associated with SEND, language development and primary and pre-school situations. Good acoustics are therefore a component to achieving 'outcome 3' of Somerset's SEND Strategy 2016-2019<sup>3</sup> that requires:

*"inclusive and equitable access to good quality local education."*

### **Who might wish to identify acoustic issues in a teaching environment?**

- The **Teacher** would be the most obvious observer of the acoustics of their classroom, with a vested interest to improve learning and their own welfare. However, discussions with teaching staff would confirm their training provides little insight into good classroom acoustics nor its link with teaching effectiveness and welfare. As such there appears a reluctance and lack of confidence to question the acoustic quality of their work environment.
- A **SENCo** may instigate investigation into classroom acoustics if there is a need to consider the placement of a child with identified hearing impairment. This may then trigger an acoustic audit and measurement to confirm the present situation and need for any improvement.
- **Ofsted** are responsible to assessing the standards of educational provision and could identify poor acoustics as an impact on the outcomes of children when they ask, 'What is it like for a child in this provision?'. However, recent examination of 60 Ofsted reports of mainly Somerset Primary and Early Years settings show few remarks are made on aspects linked with acoustics. The few exceptions that mention, or may point to, acoustic issues are seen in the following comments:

*"currently, the acoustic properties of the Reception and Year 1 classes, and surrounding areas, are poor. This is holding back some pupils from making better progress when learning phonics because they find it hard to hear and discriminate between different letters and the sounds they make."*

*"At times, the play room environment becomes very noisy and not all planned activities support all the children effectively. During these times, children do*

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<sup>3</sup> Somerset's Special Educational Needs and Disability (SEND) Strategy for Children and Young People aged 0-25 2016-19. See <https://www.somerset.org.uk/ipost/iPost%20Documents/Somerset%20SEND%20Strategy%202016-19.pdf>

*not engage, focus and concentrate on the learning opportunities as well as they could, especially the younger ones.”*

*“pupils’ persistent disruption in lessons is still a regular feature in some classes. Leaders’ actions to train staff to understand the precursors of challenging behaviour, what these are communicating and how to resolve them are improving considerably.”*

Ofsted’s consideration of acoustics might develop in response to the findings of The House of Commons Education Committee Special Educational Needs and Disabilities Inquiry<sup>4</sup> and its 38 suggestions for improvements in provision. Findings identify funding difficulties and accountability issues but also state:

*“As the Office for Standards in Education, Children’s Services and Skills, Ofsted is responsible for ensuring that “organisations providing education, training and care services in England do so to a high standard for children and students.” We do not think enough is being done to ensure that every pupil with SEND receives a high standard of education and that all schools are inclusive. Ofsted must deliver a clear judgement, and through this assurance to parents, that schools are delivering for individual children with SEND. It should either seek to do this through its existing programme of inspections, or alternatively develop a separate type of specialised inspection focusing on SEND, with a particular focus on the school’s responsibility to deliver for pupils on SEN Support and that inclusive schools get the recognition that they deserve. If this requires legislative change, the Department should work with Ofsted to bring forward proposals at the earliest possible opportunity.”*

It remains unknown if inspectors will develop skills to recognise acoustic quality and the role it plays in developing inclusive schools, meeting education regulation and providing appropriate working environments.

At present a school is likely to have uncertainty about the acoustic quality of their teaching spaces and, in some situations, the presentation of this information may take a long time as the following **primary school case history** shows.

- 2002 The school occupies a new hall and 2 classroom extension. The Headteacher soon complains about the poor acoustics of the hall and the developer requests a measurement assessment. Measurements confirmed that the reverberation quality of the hall was poor and three times that recommended for a primary school. The report also notes that the heating

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<sup>4</sup> Special educational needs and disabilities inquiry, published 23/10/19. See <https://www.parliament.uk/business/committees/committees-a-z/commons-select/education-committee/inquiries/parliament-2017/special-educational-needs-and-disability-inquiry-17-19/> Full 130 page report <https://publications.parliament.uk/pa/cm201919/cmselect/cmeduc/20/20.pdf>

system was excessively noisy. Additional information was provided on the acoustic quality of the new classrooms showing them to have reverberation times well in excess of the recommendations for a primary school.<sup>5</sup>

- 2003 The developer addresses the complaint and commissions third party improvements to the hall.
- 2005 Ofsted report makes no reference to classroom acoustics.
- 2008 Ofsted report makes no reference to classroom acoustics.
- 2013 Ofsted report makes no reference to classroom acoustics.
- 2017 the Hearing Support team

request the assessment of the same classrooms in preparation for the placement of a child with HI needs. Measurement again identifies the poor acoustics found in 2002 within both classrooms and confirms a failure to meet primary standards for normal hearing and HI uses. Assessment of the hall space



confirmed it to be acoustically improved and now suited to a multi-functional role, but not suited for use as a dining area. A report<sup>6</sup> provided predictions on the necessary classroom treatment to reduce reverberation so as to meet the needs of primary children with normal hearing and the additional treatment required to meet the needs of HI pupils. School apply to SCC for part funding of acoustic improvements.

- 2018 the Hearing Support team request the assessment of post treatment improvements and measurements confirm suitability for HI needs<sup>7</sup>. The subjective response of the class teacher noted that the new acoustic conditions had improved general pupil behaviour, resulted in better engagement with those at the rear of the classroom and resulted in better independent learning and group work sessions. The teacher



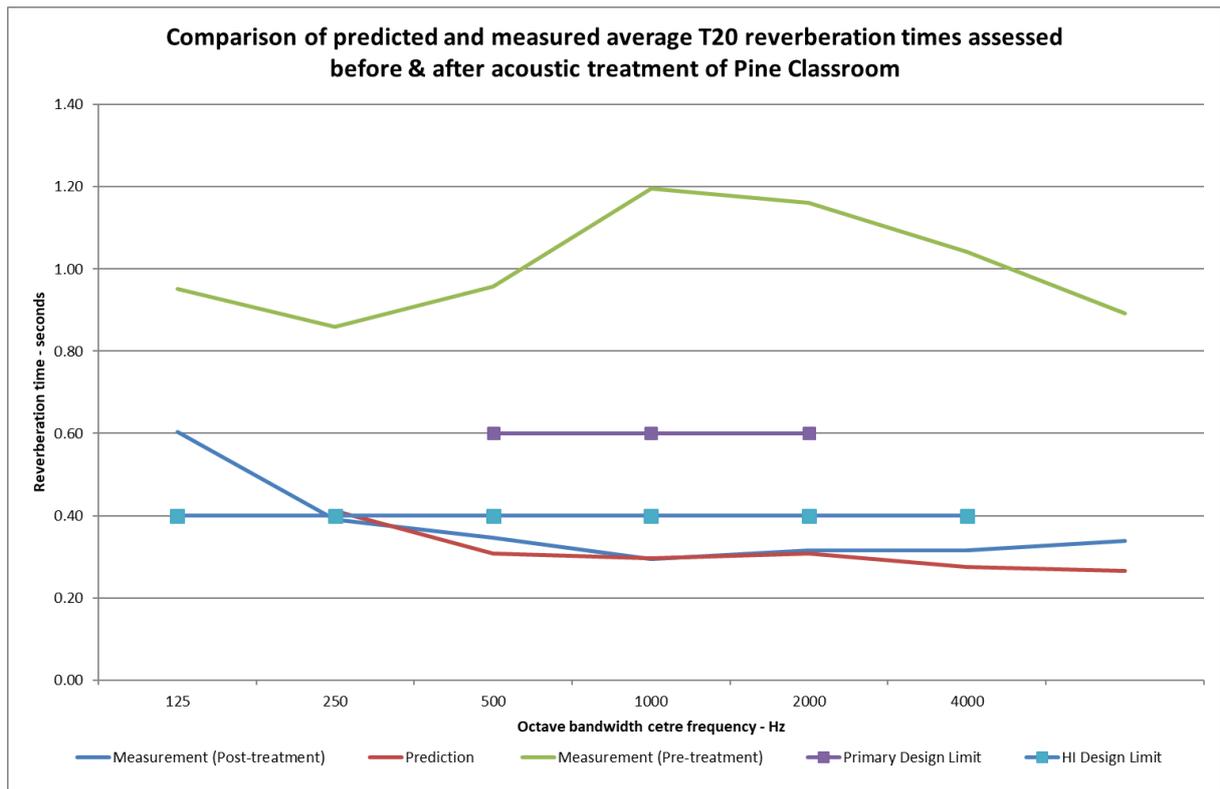
<sup>5</sup> Email report M.H to J.C 14/1/03

<sup>6</sup> Report 302100N.187 by M.H 4/8/17

<sup>7</sup> Report 302100N.173 by M.H 22/6/18

had four years of experience and noted that she still uses a raised teaching voice but notes that there is better clarity when children speak.

The measurement findings of reverberation in the case history are shown in the graph below. The 'before and after treatment' situations confirm the predicted reduction in reverberation to levels now suitable for HI uses. The resulting comments of the teacher also confirm the benefits experienced by all users of the classroom.



If you have any questions about educational acoustics or wish to know if your school has undergone any measurement investigation in the past, then please contact me:

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