BRITISH STANDARD BS8233 - GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION IN BUILDINGS – A REVIEW

S Kahn Mott MacDonald, Croydon, UK
D Hiller Arup, Manchester, UK

1 INTRODUCTION

This paper describes the progress of a revision of BS8233[1] - Guidance on sound insulation and noise reduction for buildings by British Standards Institute (BSi) panel. The scope of the extant standard is to provide guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building. The scope excludes:

- specialist applications, such as auditoria and cinemas;
- vibration control, except where it is evident in the form of radiated sound; and
- noise that breaks out from the building that might affect external receptors.

The current version of the standard was published in 2014 and included a number of revisions from the previous 1999 version. BSi Committee B/564/-/1 considered the options for amendment or revision and a business case for revision was submitted and accepted. The scope of the draft revision remains broadly the same but notes that character of sound, as well as level and type of sound is considered.

This brief paper is intended to raise awareness of the revision proposals and timescale and so encourage wide involvement across the profession once the draft for public comment is published next year.

2 THE NEED FOR REVISION

A revision was considered necessary to include policy, guidance and improved evidence that affects the acoustic design of buildings available since the current 2014 version of the standard was published including:

- National Planning Policy Framework 2018,2019,2021, 2023[2]
- Planning Practice Guidance, Noise 2019[3]
- Welsh Government Noise and Soundscape Action Plan 2018-2023[4]
- Scottish Building Standards: Technical Handbooks[5,6]
- World Health Organization: Environmental Noise Guidelines for the European Region 2018[8]
- Acoustics, Ventilation and Overheating residential design guide 2020[8]
- Building Regulations England Approved Document O – Overheating 2021[9]
- British Standard BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound[10]
- BB93: acoustic design of schools – performance standards 2014[11]
- Acoustics of Schools: a design guide 2015[12]
- ProPG: Planning & Noise 2017[13]
- International Standard ISO 12913-1:2014 Acoustics – Soundscape – Part 1: Definition and conceptual framework[14]
- CIBSE Guide A Environmental Design 2015[15]
- National Highways Design Manual for Roads and Bridges LA 111 Noise and vibration 2020[16]

The revision also aims to streamline the text by referring the user to key documents, rather than aiming to summarise their content or the assessment methods described.

A proposal to revise was published in 2022 and the responses were generally supportive.

3 CURRENT STATUS OF THE REVISION

The panel, chaired by David Hiller, has met in 2022 and 2023 and has reviewed comments received before and after publication of the 2014 version. The following matters are being addressed.

3.1 National Guidance

Building Control and noise policy are devolved matters in the UK. The revision will ensure that the guidance is based on the devolved requirements for England, Scotland, Wales and Northern Ireland as appropriate.

3.2 Open window ventilation and overheating guidance.

Since 2014 the Institute of Acoustics (IoA) and Association of Noise Consultants (ANC) have published the Acoustics, Ventilation and Overheating: Residential Design Guide and HM Government published Approved Document O: Overheating (ADO) for use in England. The BS8233 guidance will be updated to reflect the building regulation requirements and associated guidance.

3.3 Maximum sound levels.

The 2014 edition removed guidance on maximum sound levels and the use of L_{Amax} metric. Approved Document O uses the L_{AFmax} metric (ADO 3.4). The panel is considering reintroducing guidance on the use of maximum sound metrics.

3.4 Specific building types.

The 2014 edition recognised that a number of building uses had developed specific guidance (e.g. BB 93 for schools, Health Technical Memorandum HTM 08-01 for health sector buildings, etc) and sought to avoid duplication. The current revision intends to continue this approach, by referring to available guidance, updated as appropriate (e.g. IoA/ANC ProPG).

3.5 Relationship between dBA and NR

The guidance for the relationship between a weighted decibels (dBA) and noise rating (NR) in BS8233 is different to CIBSE Guide A[15] guidance. Whilst the relationship between dBA and NR is approximate the benefit of having different guidance is being reviewed.

3.6 Noise, sound and soundscapes

The current title of the standard includes both noise and sound: there are two definitions of noise: The Wilson Report[17] defined noise as “sound which is undesired by the recipient” but the Noise at Work Regulations 2005[18] define noise as “any audible sound”. The standard title includes both sound and noise, because physical sound reduction measures apply to all sounds, but noise reduction is focused on its effect on unwanted sound. Soundscape is frequently used to describe the character and

perception of sounds not captured by physical measurements and is now addressed by international standards. The revision will aim to rationalise use of this terminology throughout.

3.7 Groundborne noise

The current standard includes definitions of groundborne noise and Annex D.6 states that projects involving groundborne noise usually require expert advice. Consideration is being given to adding additional guidance on the character, assessment and reduction of groundborne noise.

3.8 Reverberation times

The current standard does not include guide values for reverberation times, referring instead to general texts. Consideration will be given to re-introducing reverberation time guidance as in some cases acousticians have referenced the previous version of BS8233 rather than use general texts.

3.9 Uncertainty

The 2014 standard refers to uncertainty in a note to section 4, measurement equipment and accuracy. A new section is proposed that will specifically address measurement and calculation uncertainty.

4 PROGRAMME

The panel is continuing to meet and is intending to publish a draft for public comment in the first half of 2024 with the revised standard published in the second half of 2024.

5 REFERENCES

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