



CIEH statement on proposed revisions to BS8233 - prepared by the CIEH Noise Satellite Panel, October 2024

The recent article entitled 'Updating BS8233: Aligning residential acoustic design guidance with health evidence', purports that the proposed changes are based on the best available scientific evidence. We believe there are important considerations that may have been overlooked. What will constitute the best available scientific evidence will depend on the question that is being asked. If we are interested in the design of new homes to provide good or reasonable living conditions indoors then we need to identify the best evidence that relates to internal noise conditions. However, the evidence cited in the article relates to exposure response functions (ERFs) derived from external noise measurements or predictions. Two main issues arise as a result:

- The study designs used to derive the ERFs for daytime annoyance do not enable annoyance from external noise and internal noise to be reliably disentangled, and
- The ERFs for sleep disturbance are again mainly based on external noise measurements and self-reported sleep. Self-reported sleep is a form of night-time annoyance and does not represent a robust measure of objective sleep disturbance. Objective sleep disturbance, typically measured using polysomnography or other devices, such as actimetry, is a more reliable measure of objective sleep disturbance.

These matters are well understood by the World Health Organisation. The recommendations made in the WHO Community Noise Guidelines were derived using evidence relevant to internal noise conditions, including interference with communication and sleep disturbance effects. It was recognised that the maximum noise level was best correlated with effects on sleep and that is the reason why the recommendations for the protection of sleep inside dwellings included the 45 dB L_{Amax} criterion. In 2018 the WHO reviewed the available scientific evidence and published the Environmental Noise Guidelines European Region 2018. It concluded that:

*The current environmental noise guidelines for the European Region supersede the CNG [1999 WHO guidelines for community noise] from 1999. Nevertheless, the GDG [Guideline Development Group] recommends that all 1999 CNG **indoor guideline values** and any values not covered by the current guidelines (such as industrial noise and shopping areas) **should remain valid**. (Our emphasis).*

Departing from the WHO recommendations could lead to significant changes, and we believe careful consideration is needed before such a step. Not least because the good acoustic design process set out in the ProPG is based on the criteria recommended in the

Community Noise Guidelines. In addition, while changes are sometimes necessary, we believe that any revisions should be grounded in robust and relevant evidence in terms of protecting people from the adverse effects of noise inside dwellings. This is especially concerning given the Government's intention of introducing a new mandatory housing target for councils to deliver 1.5 million more homes.

Although the proposed revisions to the standard are based on what the authors consider to be sound scientific studies, the internal and external noise levels have been used for decades without apparent problems or challenges. This suggests that they have been effective in practice. We believe that dismissing these long-established standards without sufficient evidence could undermine their proven effectiveness. Therefore, we have significant concerns about the proposed revisions and request that the WHO community noise guidelines are retained in BS8233.

The ProPG encourages the process of good acoustic design. The starting point for good acoustic design is to allow people the freedom and choice to be able to have control over the internal environment using openable windows as far as it is reasonable to do so. The good acoustic design process requires that passive design measures (site layout, building typologies, building layout, room orientation, barriers, passive façade design) are considered and incorporated into the design as far as reasonable. Façade insulation and mechanical cooling should only be used as a method of last resort and should not be treated as a substitute for the reasonable passive design measures identified through a good acoustic design process.

This approach is entirely consistent with that set out in the Approved Document O (see sections 2.10 and 2.11).

The proposed revisions to BS8233 place too much emphasis on façade insulation and overheating. This appears to be fundamentally at odds with the guidance contained in the ProPG.

The core of any revision to BS8233 should be to encourage a good acoustic design process and should be entirely consistent and compatible with the ProPG. Otherwise, any revision to the BS8233 is likely to create ambiguity and confusion. Discrepancies between the ProPG and BS8233 could lead to confusion and hinder the promotion of design outcomes that support good health and quality of life. Therefore, we have significant concerns about the proposed revisions and ask that any revision to the BS8233 encourages a good acoustic design process and is fully aligned with the ProPG.