Chartered Institute of
Environmental Health

BS8233 Consultation

Position paper prepared by the CIEH Noise Satellite Panel, June 2025

The British Standards Institute (BSI) is now consulting on the proposed revisions to the BS8233. The consultation ends on the 6th August 2025. CIEH have been involved in the production of the draft now being consulted on – a member of the CIEH Noise Satellite Panel participated in the BSI drafting committee, and the Noise Satellite Panel have now reviewed the draft which is out for consultation. The panel welcome much of the content of the draft, but we do have some concerns which we set out below. We are seeking our members' views, and also inviting members to respond directly to the consultation should they wish.

The proposals recommend external Sound Exposure Categories which are used to specify the level of façade sound insulation. This is now referred to as the simplified method. One welcome change to the proposals is that internal sound level targets are provided as an alternative to the external Sound Exposure Categories and façade insulation. It states that:

"While application of façade sound insulation criteria results in a simple process, the designer might wish to design the façade sound insulation to meet internal level criteria. This achieves an equivalent design intent but might be achieved with lower levels of façade insulation, and thereby more sustainability."

The consultation draft also recognises the importance of good environmental acoustic design as a: *"process of good environmental acoustic design minimizes the burden of ill health from noise on the future occupants by restricting the exposure of residential façades to high sound levels."*

Note 1 explains that: "*The incident sound level at the location of the façade can be mitigated using site massing, layout, building location, orientation and design and noise barriers. ProPG Supplementary Document 2 [59] sets out how a process of "good acoustic design" can be used to minimize the adverse impact of environmental sound on residential façades.*

Note 2 also specifically advises that:
"A process of good environmental acoustic design can be demonstrated via an Acoustic Design Statement (ADS), as detailed in ProPG: Planning and Noise [16], or alternative methods that satisfy national or local planning requirements."

Concerns

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).

A common view held by Environmental Health Practitioners (EHPs) is that the default is all too often to propose mechanical ventilation solutions, to combat overheating, rather than follow a hierarchy of mitigation exploring non mechanical and passive means first and following the good acoustic design process set out in the ProPG. One of the main concerns is that developers will use the simplified method and the simple process, rather than the internal noise level criteria, thereby making it easier for developers to default to closed windows with mechanical ventilation/ cooling. This is not in accordance with a good acoustic design process and, therefore, inconsistent with Government policy to promote good design. We strongly recommend therefore that the simplified method is removed from the proposed revision to the BS8233.

The proposed standard does advocate the use of good environmental acoustic design by restricting exposure of residential facades to high sound levels. This approach however is materially different to the good acoustic design process, set out in the ProPG, which requires internal noise levels to be achieved as far as reasonable with windows open.

Any revision to BS8233 should 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. 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. 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.
The BSI committee, responsible for BS8233, purports that the proposed changes are based on the best available scientific evidence. We still 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 LAmax 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. In addition, we believe that any revisions should be informed through consideration of both the 2018 and 2019 WHO guidelines. The principles of the

WHO Community Noise Guidelines are used to derive the internal noise criteria, having regard to the critical effects of noise: annoyance, speech interference and sleep disturbance. Specifically, we recommend:

- that internal noise criteria for bedrooms and living rooms are retained,
- that evidence on objective sleep disturbance is used to inform the internal noise criteria and that both the $L_{Aeq,}T$ and L_{Amax} parameters are used to protect people inside bedrooms, and
- The L_{DEN} parameter is not used for design purposes because it is based on the annual average, which is not appropriate for design purposes especially where the level of noise exposure varies significantly throughout the year. The L_{DEN} values should therefore be converted into $L_{Aeq,}T$ values.