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Understanding Acoustics for Windows & Doors

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1. What units are used to measure sound level and frequency?

Sound level is measured in decibels (dB), and frequency is measured in hertz (Hz), which indicates the pitch of the sound.

2. How does the concept of loudness differ from the physical intensity of sound?

Loudness refers to the subjective human perception of sound, whereas sound level or intensity is an objective, measurable value expressed in decibels.

3. Which regulations, standards and guidelines inform the required acoustic performance of building envelopes in Australia?

Acoustic requirements for the external envelope are determined by State and Local Government regulation. AS 2107 provides guidance on recommended indoor sound levels. However, AS 2107 is not a mandatory standard unless specifically referenced in a project brief, performance specification or regulation.

4. How is the required Rw rating for a window or door determined, and why are correction factors (C and Ctr) applied?

The required Rw rating is typically estimated by subtracting the target internal noise level from the predicted external noise level. To reflect real-world conditions, correction factors C and Ctr are applied; C for mid-to-high frequency noise (e.g. speech), and Ctr for low-frequency noise (e.g. traffic).

5. What two physical characteristics of glass influence its ability to reduce sound transmission?

Glass thickness and the presence of a laminated interlayer both impact acoustic performance by affecting how sound waves are absorbed or deflected.

6. What two factors should be prioritised when selecting windows or doors for effective acoustic control?

Prioritise high-quality seals and gaskets, and choose frame types that allow for tight closures, such as hinged or awning systems.