Acoustics Glossary

For Architects and Contractors

Terms	Description
Reverberation	Prolongation of sound due to sound reflections. What is heard: muddied, unintelligible sounds that are indistinguishable from sound source.
Echo	Reflection of sound that is heard more than 0.1s after direct sound is produced. What is heard: reflected sound arriving at the listener with a distinguishable lag time.
	Editor's Note: Reverberation and echo are both effects of sound reflection. The observed difference in lag time (reverberation with lag time less than 0.1s; echo more than or equal 0.1s) is due to the size of the acoustical environment. In most projects, we expect to deal with reverberation more than echo.
Reverberation Time (RT60)	The amount of time sound takes to decay by 60dB. What this means: RT60 is an acoustical measurement of any space. The greater the RT60, the more reverberant a space sounds, vice versa. Design considerations: Different spaces have different optimum RT60 suitable for its use. For example, a conference room would do well with a low RT60 (0.5s - 1.0s) while a symphony hall would do well with a higher RT60 (1.8s - 2.0s).
Absorption Bandwidth	The range of frequencies absorbed by acoustic panels. Porous materials generally have broadband absorption properties while resonating panels generally have narrower absorption bandwidth. What this means: Porous materials such as rockwool/fibreglass absorb a wide range of frequencies; resonating panels such as perforated/grooved panels absorb a narrower range of frequencies. Design considerations: For most spaces (e.g. office, conference rooms), broadband absorption is sufficient to resolve reverberation issues. Acoustic panels using porous materials (e.g. Fabrix) can be used in these cases. For spaces experiencing reverberation problems at specific frequencies, resonating panels are required to target these problematic frequencies.
Sound Absorption Coefficient (SAC)	Measurement, between 0 and 1, of amount of sound energy absorbed by a material at specific frequencies. SAC 0 indicates total reflection while SAC 1 indicates total absorption.

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Noise Reduction Coefficient (NRC)	Representation, between 0 and 1, of amount of sound energy absorbed by a material. NRC 0 indicates total reflection while NRC 1 indicates total absorption. It is the average of SAC values across different frequencies. What this means: Different materials have different NRC. For example, 25mm 96kg/m3 fibreglass has an NRC of 0.75. However, two materials of the same NRC might not have the same performance as they can have different SAC values.
Airborne Sound	Sound transmission through the air.
Flanking Paths	Sound transmission through connected structures.
Sound Transmission Coefficient (STC)	Rating of how effective a partition attenuates airborne sound. What this means: STC measures/rates how well a partition stops airborne sound transmission. This is a laboratory-derived rating.
	Editor's Note: STC is often mentioned alongside NRC in construction documents but should not be confused with each other. STC relates to sound transmission between two partitioned spaces while NRC relates to sound energy absorption within a space.
Field STC (FSTC)	The on-site measurement of STC is FSTC, but it is less often used as a post-construction test because it ignores sound transmission through flanking paths.
Apparent STC (ASTC)	ASTC reflects the apparent performance of a partition, taking into consideration both airborne sound transmission and flanking paths. It is more commonly used as a post-construction test.
Noise Criterion (NC)	Rating for noise level within a space.
Impact Isolation Class (IIC)	Rating of how effective a partition attenuates impact sounds.