

Australian/New Zealand Standard™

**Acoustics—Recommended design
sound levels and reverberation times for
building interiors**



AS/NZS 2107:2016

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The following are represented on Committee AV-004:

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Association of Australian Acoustical Consultants
Australian Acoustical Society
Australian Building Codes Board
Australian Chamber of Commerce and Industry
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee AV-004, Acoustics Architectural, to supersede AS/NZS 2107:2000.

The objective of this Standard is to provide methods for the measurement of compliance in terms of background noise and reverberation times. It recommends design criteria for conditions affecting the acoustic environment within occupied spaces.

This revision updates and expands guidance on design sound levels and provides more extensive recommendations regarding reverberation times.

In this Standard, the recommended design sound levels are provided as a range with a recommended lower level and upper level. In previous editions of this Standard the design sound levels were established in terms of a 'satisfactory' and 'maximum' level. This could be interpreted to suggest that sound levels below 'satisfactory' were desirable. But in fact the opposite may be the case and levels below those which were listed as 'satisfactory' can lead to inadequate acoustic masking resulting in loss of acoustic isolation and speech privacy.

In this edition the use of the L_{Aeq} level is maintained as it is considered the most appropriate descriptor for establishing a criterion for background noise and for compliance measurements. However, where the background noise appears to be unbalanced, this Standard provides direction in terms of suitable diagnostic tools that can be used to assess the spectrum distribution of the background noise.

In this edition, the list of occupancy/activity spaces has been increased to include spaces used in modern buildings and to delete those no longer used.

For the purposes of this Standard, the word 'shall' refers to practices which are mandatory for compliance with this Standard. The word 'should' refers to practices which are advised or recommended.

The term 'informative' has been used in this Standard to define the application of the appendices to which it applies. An 'informative' appendix is only for information and guidance.

Similarly, the notes in this Standard are of an advisory nature only to give explanation or guidance on recommended design considerations or technical procedures, or to provide an informative cross-reference to other documents or publications. Notes to clauses in this Standard do not form a mandatory part for compliance with this Standard.

Where the number of an IEC, ISO or New Zealand Standard is provided in brackets after an Australian Standard number, the IEC, ISO or New Zealand Standard applies to New Zealand only and the Australian Standard applies to Australia only.

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Australian/New Zealand Standard**Acoustics—Recommended design sound levels and reverberation times for building interiors****1 SCOPE**

This Standard recommends design criteria for conditions affecting the acoustic environment within building interiors to ensure a healthy, comfortable and productive environment for the occupants and the users. The background sound levels recommended take into account the function of the area(s) and apply to the sound level measured within the space unoccupied but ready for occupancy (see Note 1 below). The Standard is applicable to steady-state or quasi-steady-state sounds. The reverberation times recommended are for the occupied state of the space.

This Standard also specifies methods of measuring the background sound level in unoccupied spaces and the reverberation time in un-occupied spaces in buildings.

NOTES:

- 1 The sound level during occupancy will usually be increased owing to the activities of the occupants.
- 2 Reverberation times for selected spaces are given in Appendix A. See also Clause 5.4.
- 3 Specialist acoustic advice should be sought for auditoriums or studios.

2 APPLICATION AND LIMITATION**2.1 Application**

This Standard is intended for use by designers of environments within occupied spaces in new and existing buildings. Design considerations include the selection and assessment of—

- (a) building materials and services used in these spaces;
- (b) building components that exclude noise external to the building (e.g. traffic noise, industrial noise); and
- (c) building components that exclude noise generated within the building (e.g. building services noise).

2.2 Limitation

This Standard is not intended for—

- (a) use in evaluating occupancy noise, or noise due to specialist equipment associated with specific user requirements including fume cupboards (see AS 2243.8), dust extractors, and similar items of equipment;
- (b) application to sounds which are not categorized as steady-state or quasi-steady-state;
- (c) either the assessment or prescription of acceptable recommended noise levels from transient or variable noises outside the building such as—
 - (i) aircraft noise (see AS 2021 or NZS 6805);
 - (ii) construction noise such as jackhammers and pile-drivers (see AS 2436 or NZS 6803);
 - (iii) railway noise;

NOTE: AS 2377 gives methods of measurement for railway noise.