

Wall and Floor Sound Requirements in the Australian Building Code

Introduction

As from 1 May 2004 the Australian Building Code noise provisions will change. The code will require minimum standards of noise control in class 1a (row houses), class 2 (apartments), class 3 (e.g. hotels, motels and large boarding houses), and class 9 (aged care) buildings. Minimum standards are required between adjoining occupancies or where occupancies adjoin parts of a building with a different use. Requirements are specified for (i) impact and airborne sound through walls and floors, and (ii) airborne sound through doors and between service pipes and living areas. These provisions do not apply in QLD, WA, NT.

Methods of compliance

The Code has a few basic 'deemed to satisfy' designs, expert evidence options, as well as the usual compliance route through either laboratory or site testing. Laboratory testing allows system providers to provide convenient off-the-shelf compliant noise control systems. In practice on-site testing is often used in larger projects to allow full flexibility in product selection and design, and to establish actual performance to allow effective marketing to customers who are increasingly sensitive to and knowledgeable about acoustic outcomes.

Australian Building Code Minimum Ratings – Lab and Field

Definitions of the rating requirement measures that follow are available in separate Powerscape single page summaries on Impact and Airborne sound.

Impact Sound

Building Class	Context	Requirement (dB)	
		Lab	Field
		$L_{n,w} + C_1$	$L'_{nT,w} + C_1$
1,2,3	Floors - Between sole-occupancies or a sole occupancy and: plant rooms, lift shafts, stairway, public spaces or the like.	≤ 62	≤ 62
	Walls - between living areas and sanitary spaces	Walls must use 'discontinuous' construction.	

An impact sound rating of $L_{n,w} + C_1$ or $L'_{nT,w} + C_1$ of 62 can be considered to be a minimal impact sound result for inter-tenancy floors - leaving most occupants dissatisfied, 50 a medium quality target, and 45 a high quality performance standard.

Airborne Sound

Building Class	Context	Requirement (dB)			
		Lab	Field	Lab	Field
		$R_w + C_{tr}$	$D_{nT,w} + C$	R_w	$D_{nT,w}$
1,2,3	Floors – between occupancies and between occupancies and other building uses	≥ 50	≥ 45		
	Walls – between occupancies	≥ 50	≥ 45		
	Walls - between a sole-occupancy and: plant rooms, lift shafts, stairway, public spaces or the like.			≥ 50	≥ 45
	Floors and Walls – construction between service ducts or pipes and a habitable room (not kitchen) where it serves more than one occupancy, or a storm water pipe	≥ 40			
	Floors and Walls – i.e. construction between service ducts or pipes and a habitable room (kitchen or non habitable room) where it serves more than one occupancy, or a storm water pipe	≥ 25			
9	(i) Walls between sole-occupancies or sole-occupancies and: sanitary compartments, plant or utilities rooms. (ii) Floors between sole-occupancies	-	-	≥ 45	-

A recent study of over 2,000 homes concluded that an airborne sound rating of $D_{nT,w} + C_{tr}$ 48 - 50 resulted in most occupants being 'satisfied', whereas a quality system with most occupants being 'very satisfied' requires ≥ 55 .

Notes:

- Spectrum adaptation terms C_1 and C_{tr} are usually very significant, and can also affect ranking.
- There is no relationship between IIC & STC ratings and the measures discussed above (except R_w which is usually within 2dB of STC). Ranking of products and systems may be different under the two measures.
- The AAAC (Association of Australian Acoustical Consultants) has a draft noise control star rating system, which uses similar, but different measures – namely $L_{n,w} + C_1$ and $D_{n,w} + C_{tr}$.
- This document is intended as a guide only and does not replace the need to carefully consult on matters of building law and customer satisfaction.