AS/NZS ISO 717.1:2004
ISO 717-1:1996

Australian/New Zealand Standard™

Acoustics—Rating of sound insulation in buildings and of building elements

Part 1: Airborne sound insulation

STANDARDS AUSTRALIA

STANDARDS NEW ZEALAND
Paerewa Aotearoa

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee AV-004, Acoustics—Architectural. It was approved on behalf of the Council of Standards Australia on 12 January 2004 and on behalf of the Council of Standards New Zealand on 23 February 2004. It was published on 10 March 2004.

The following are represented on Committee AV-004:

Association of Australian Acoustical Consultants
Australian Acoustical Society
Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Defence Force Academy
Australian Hearing
Building Industry Authority, New Zealand
CSIRO Manufacturing & Infrastructure Technology
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This Standard was issued in draft form for comment as DR 03529.

Australian/New Zealand Standard™

Acoustics—Rating of sound insulation in buildings and of building elements

Part 1: Airborne sound insulation

Originated as AS 1276—1979.
Previous edition AS/NZS 1276.1:1999
Jointly revised and redesignated as AS/NZS ISO 717.1:2004.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 5741 3

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee AV-004, Acoustics, Architectural, to supersede AS/NZS 1276.1:1999, *Acoustics—Rating of sound insulation in buildings and of building elements*, Part 1: *Airborne sound insulation*.

The objective of this Standard is to provide a method whereby the frequency-dependent values of airborne sound insulation of building elements and in buildings can be converted into a single number characterizing the acoustical performance.

This revision confirms the Standard without technical change. The main change has been to redesignate the Standard as AS/NZS ISO 717-1 in order to conform with BCA conventions.

This Standard is identical with and has been reproduced from ISO 717-1:1996, *Acoustics—Rating of sound insulation in buildings and of building elements*, Part 1: *Airborne sound insulation*. Further explanation has been added in Appendices ZA and ZB.

This Standard uses the term 'weighted sound reduction index (R_w)' rather than 'sound transmission class (STC)' which has traditionally been used in Australia and New Zealand. Similarly this Standard uses the term 'weighted apparent sound reduction index (R'_w)' rather than the equivalent term 'field sound transmission class (*FSTC*)'. In Australia the term 'noise isolation class (*NIC*)' is used. A comparable term is not defined in this Standard. The recommended term to replace *NIC* is 'weighted level difference (D_w)' as defined in ISO 140-4:1998, *Acoustics—Measurement of sound insulation in buildings and of building elements*, Part 4: *Field measurements of airborne sound insulation between rooms*. This Standard uses the term 'sound insulation' rather than the equivalent Australian term 'sound isolation'.

Appendix ZA explains the relationship between the sound transmission class (STC) rating system, which is widely used by the architectural and building communities in Australia and New Zealand, and the rating system based on weighted sound reduction index, R_w, which is used in this Standard. Appendix ZB provides a detailed comparison of the rating systems used in AS 1276—1979 and in this Standard. Appendices ZA and ZB are intended to assist users of this Standard who have traditionally used the STC rating system in making the transition to the R_w rating system.

As this Standard is reproduced from an international Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text, 'this part of ISO 717' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

(d) In Figure B.1, the broken line for 50 Hz to 3150 Hz should stop at 3150 Hz.

(e) In Table C.1, the heading for column 5 should read 'Spectrum No. 1, L_{i1}' and the heading for column 8 should read 'Spectrum No. 2, L_{i2}'.

(f) In Tables C.1 and C.2, 'dB' should be deleted from the headings to columns 7 and 10. The values listed, and their sums, are dimensionless quantities multiplied by 10^{-5}.

Input data for this Standard can be obtained according to several parts of ISO 140, *Acoustics—Measurement of sound insulation in buildings and of building elements*. For Australia, measurements made in accordance with corresponding Australian Standards can also be used as input data, as follows—

Part of ISO 140		*Corresponding Australian Standard*	
Part 3:	Laboratory measurements of airborne sound insulation of building elements	AS 1191	Acoustics—Method for laboratory measurement of airborne sound transmission loss of building partitions
Part 4:	Field measurements of airborne sound insulation between rooms	AS 2253	Methods for field measurement of the reduction of airborne sound transmission in buildings
Part 9:	Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it	AS/NZS 2499	Acoustics—Measurements of sound insulation in buildings and of buildings elements—Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it

The Australian and Australian/New Zealand Standards listed above are classified as being not equivalent to the corresponding part of ISO 140. Other parts of ISO 140 listed in the Normative References clause have not been adopted as Australian or Australian/New Zealand Standards.

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

CONTENTS

INTRODUCTION

Methods of measurement of airborne sound insulation of building elements and in buildings have been standardized in ISO 140-3, ISO 140-4, ISO 140-5, ISO 140-9 and ISO 140-10. The purpose of this part of ISO 717 is to standardize a method whereby the frequency-dependent values of airborne sound insulation can be converted into a single number characterizing the acoustical performance.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

Acoustics—Rating of sound insulation in buildings and of building elements

Part 1: Airborne sound insulation

1 Scope

This part of ISO 717

a) defines single-number quantities for airborne sound insulation in buildings and of building elements such as walls, floors, doors and windows;

b) takes into consideration the different sound level spectra of various noise sources such as noise sources inside a building and traffic outside a building; and

c) gives rules for determining these quantities from the results of measurements carried out in one-third-octave or octave bands in accordance with ISO 140-3, ISO 140-4, ISO 140-5, ISO 140-9 and ISO 140-10.

The single-number quantities in accordance with this part of ISO 717 are intended for rating the airborne sound insulation and for simplifying the formulation of acoustical requirements in building codes. The required numerical values of the single-number quantities are specified according to varying needs. The single-number quantities are based on results of measurements in one-third-octave bands or octave bands.

For laboratory measurements made in accordance with ISO 140-3, ISO 140-9 and ISO 140-10, single-number quantities should be calculated using one-third-octave bands only.

The rating of results of measurements carried out over an enlarged frequency range is dealt with in annex B.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 717. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 717 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 140-3:1995, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements.*

ISO 140-4:—[1)], *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 4: Field measurements of airborne sound insulation between rooms.*

ISO 140-5:—[2)], *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 5: Field measurements of airborne sound insulation of façade elements and façades.*

ISO 140-9:1985, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 9: Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it.*

1) To be published. (Revision of ISO 140-4:1978)
2) To be published. (Revision of ISO 140-5:1978)