

Australian Standard[®]

**Methods for determination of
sound transmission class and
noise isolation class of building
partitions**

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Australian Acoustical Society
Confederation of Australian Industry
CSIRO, Division of Building Research
Environment Protection Authority, Victoria
Experimental Building Station
Institution of Engineers, Australia
Public Works Department, Western Australia
Royal Australian Institute of Architects
Royal Melbourne Institute of Technology
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This standard was issued in draft form for public review as DR 72090.

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First published 1979

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 1643 7

PREFACE

This standard was prepared by the Association's Committee on Architectural Acoustics as one of a series dealing with the evaluation of sound-attenuating properties of building elements. It provides a classification system based on single number indices which are primarily intended for the initial comparison of the sound reduction properties of partitions, including walls and floor-ceiling assemblies, used to divide spaces in domestic and commercial buildings. Such single indices are in no way intended to supplant the detailed sound transmission loss and noise reduction values obtained by measurement for each frequency band.

In addition to the use of this classification system for the determination of sound transmission class (*STC*), which applies to partitions whose transmission losses have been measured in the laboratory, this system can be used to determine the field sound transmission class (*FSTC*) for partitions and noise isolation class (*NIC*) between spaces in buildings.

This standard is based on ASTM 413, Standard Classification for Determination of Sound Transmission Class; it differs from it in its presentation but not in any essential. Also, some use has been made in Australia of another classification system, the single number rating of airborne sound insulation index (I_a). The procedure for the determination of this index is given in ISO R 717—1968, Rating of Sound Insulation for Dwellings. Some information about this method is provided in the appendix to this standard.

This standard may require reference to the following Australian and international Standards:

AS 1191	Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
AS 1633	Glossary of Acoustic Terms
AS 2253	Methods of Field Measurement of the Reduction of Airborne Sound Transmission in Buildings
ISO R 717	Rating of Sound Insulation for Dwellings

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

**METHODS FOR DETERMINATION OF SOUND
TRANSMISSION CLASS AND NOISE ISOLATION
CLASS OF BUILDING PARTITIONS**

1 SCOPE. This standard describes methods for the determination of the following indices for rating the properties of partitions (including walls and floor-ceiling assemblies used to divide spaces in domestic and commercial buildings) in reducing the transmission of airborne sound:

- (a) Sound transmission class (*STC*)
- (b) Field sound transmission class (*FSTC*)
- (c) Noise insulation class (*NIC*)
- (d) Normalized noise isolation class (*NNIC*).

2. APPLICATION. The classification system described in this standard applies to the derivation of a single number to denote the sound attenuation properties of walls, floors and ceilings used to divide spaces within commercial and domestic buildings. An order of rank is required for these partitions to correlate with the subjective impressions of the reduction of many household and commercial sounds which have most of their energy in the mid-frequency range and relatively less in the higher and lower frequencies.

The classification system described in this standard does not apply to conditions in which the sound spectra differ markedly from those of household and commercial sounds, especially in cases where low and/or high frequency components predominate. These include the sounds produced by motor vehicles, most forms of industrial machinery, and power transformers.

NOTE: Some details of sound spectra of standard household sound are given in Paragraph A2 and Fig. A1 of Appendix A.

3 DEFINITIONS. For the purpose of this standard the following definitions apply:

3.1 Sound transmission class (*STC*)-a single number evaluation of the property of a partition to attenuate household and office sounds, derived in accordance with the procedure prescribed in Clause 4 of this standard from laboratory measurements of sound transmission loss in accordance with AS 1191.

3.2 Field sound transmission class (*FSTC*)-a single number evaluation of the property of a building partition to attenuate household and office sounds derived in accordance with the procedure in Clause 4 of this standard from measurements of field transmission loss in accordance with AS 2253.