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AS ISO 2631.2:2014

Australian STANDARD

Mechanical vibration and shock—Evaluation of human exposure to whole-body vibration

Part 2: Vibration in buildings (1 Hz to 80 Hz)

STANDARDS Australia

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- Association of Australian Acoustical Consultants
- Australasian Railway Association (RISSB)
- Australian Acoustical Society
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute of Occupational Hygienists
- Department of Defence (Australian Government)
- Department of Trade and Investment (NSW)
- Hire and Rental Industry Association of Australia
- Human Factors and Ergonomics Society of Australia
- Safe Work Australia
- University of Wollongong

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Australian Standard®

Mechanical vibration and shock—Evaluation of human exposure to whole-body vibration

Part 2: Vibration in buildings (1 Hz to 80 Hz)

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PREFACE

This Standard was prepared by the Standards Australia Committee AV-010, Vibration and Shock Human Effects, to supersede AS 2670.2—1990, *Evaluation of human exposure to whole-body vibration*, Part 2: *Continuous and shock-induced vibration in buildings (1 to 80 Hz)*.

The objective of this Standard is to provide a method for the measurement and evaluation of whole-body vibration in buildings and to encourage uniform methods for collection of data on human response to building vibration.

This Standard does not provide guidance on the human response to vibration in buildings and the effects of that response. For those aspects, AS 2670.1—2001, *Evaluation of human exposure to whole-body vibration*, Part 1: *General requirements*, should be referred to. It has sections which discuss effects of human exposure to vibration. Section 7 of that document concerns health effects, and Annex B of that document provides guidance on the effects of vibration on health. Section 8 of that document concerns the effects of vibration on comfort and perception, and guidance on those effects can be found in Annex C of that document.

In Australia, state and territory government regulators provide guidelines and limits for the immission of vibration in buildings and it is recommended that reference be made to their publications for such advice.

This Standard is identical with, and has been reproduced from, ISO 2631-2:2003, *Mechanical vibration and shock—Evaluation of human exposure to whole-body vibration*, Part 2: *Vibration in buildings (1 Hz to 80 Hz)*.

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

(a) In the source text 'this part of ISO 2631' should read 'this Australian Standard'.

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

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
ISO		AS	
2631	Mechanical vibration and shock—Evaluation of human exposure to whole-body vibration	2670	Evaluation of human exposure to whole-body vibration
2631-1	Part 1: General requirements	2670.1	Part 1: General requirements
IEC		AS/NZS	
61260	Electroacoustics—Octave-band and fractional-octave-band filters	4476	Acoustics—Octave-band and fractional-octave-band-filters

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

CONTENTS

INTRODUCTION

Structural vibration to which human beings are exposed in buildings can be detected by the occupants and can affect them in many ways. More particularly, their comfort and quality of life may be reduced.

For the evaluation of vibration in buildings with respect to comfort and annoyance, overall weighted values of the vibration are preferred. The value obtained with the appropriate frequency weighting characterizes the place or site within the building where people may be present, by giving an indication of the suitability of that place.

This part of ISO 2631 is also intended to encourage the uniform collection of data on human response to building vibration.

AUSTRALIAN STANDARD

Mechanical vibration and shock—Evaluation of human exposure to whole-body vibration

Part 2:
Vibration in buildings (1 Hz to 80 Hz)

1 Scope

This part of ISO 2631 concerns human exposure to whole-body vibration and shock in buildings with respect to the comfort and annoyance of the occupants. It specifies a method for measurement and evaluation, comprising the determination of the measurement direction and measurement location. It defines the frequency weighting W_m which is applicable in the frequency range 1 Hz to 80 Hz where the posture of an occupant does not need to be defined.

NOTE 1 The frequency weightings given in ISO 2631-1 can be used if the posture of the occupant is defined.

Whilst it is often the case that a building will be available for experimental investigation, many of the concepts contained within this part of ISO 2631 would apply equally to a building in the design process or where it will not be possible to gain access to an existing building. In these cases, reliance will have to be placed on the prediction of the building response by some means.

This part of ISO 2631 does not provide guidance on the likelihood of structural damage, which is discussed in ISO 4866. Further, it is not applicable to the evaluation of effects on human health and safety.

Acceptable magnitudes of vibration are not stated in this part of ISO 2631.

NOTE 2 At present it is not possible to give guidance on acceptable magnitudes of vibration until more information has been collected in accordance with this part of ISO 2631.

The mathematical definition of the frequency weighting W_m is given in Annex A. Guidelines for collecting data concerning complaints about building vibration are given in Annex B.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2631-1:1997, *Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 1: General requirements*

ISO 8041, *Human response to vibration — Measuring instrumentation*

IEC 61260:1995, *Electroacoustics — Octave-band and fractional-octave-band filters*

