

AS/NZS 4438:1997

Australian/New Zealand Standard<sup>®</sup>

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**Height adjustable swivel chairs**

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*Australian Furniture Research  
and Development  
Institute Limited*

## AS/NZS 4438:1997

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CS/88, Commercial Furniture. It was approved on behalf of the Council of Standards Australia on 15 October 1996 and on behalf of the Council of Standards New Zealand on 28 October 1996. It was published on 5 January 1997.

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The following interests are represented on Committee CS/88:

Australian Chamber of Commerce and Industry  
Australian Chamber of Manufactures  
Australasian Furnishing Research and Development Institute  
Australia Post  
Commercial Services Group N.S.W.  
Department of Public Works and Services  
Ergonomics Society of Australia  
Furnishing Industry Association of Australia  
National Occupational Health and Safety Commission  
National Supply Group  
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New Zealand Furniture Manufacturers Federation  
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PUBLISHED JOINTLY BY:

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Level 10, Radio New Zealand House,  
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Wellington 6001 New Zealand

ISBN 0 7337 0819 6

## PREFACE

This Standard was developed under a Memorandum of Understanding (MoU) between Standards Australia and the Australasian Furnishing Research and Development Institute Limited (AFRDI) and is published as a Joint Australian/New Zealand Standard.

Under the Memorandum, AFRDI acts as an agency for the development of the text of the Standard which is then reviewed by an appropriate Joint Standards Australia/New Zealand Committee.

The Joint Standards Australia/Standards New Zealand Committee CS/88 on Commercial Furniture reviewed this text and endorsed its adoption as a Joint Australian/New Zealand Standard.

In preparing this Standard, the AFRDI Commercial Furniture working group took into account both prevailing practice in Australia and the Standards used in the mature market overseas. In particular, attention was given to developments in furniture quality and testing occurring in Europe and the USA although the European position is still in flux at the time of publication of this Standard.

Due to the absence of an ISO Standard and the fact that the development of the CEN Standard has been delayed due to non-agreement between its members, Australia and New Zealand have aligned where practicable with the most relevant of the 'de facto International Standards', i.e. National Standards in wide use. For ergonomic criteria this Standard aligns (with the exception of tilt angle) with a draft Standard produced by CEN-prEN1335-1, *Office chairs—Swivelling office chairs—Part 1: Dimensions—Definition of dimensions*. The difference in the tilt angle was seen by the committee to be necessary to align with Australian and New Zealand practice.

In relation to test methods for strength, durability and stability this was a more difficult decision. Eventually, however it was considered that BS 5459 was the more relevant to follow. It was chosen from a number of de facto International Standards as the best compromise which could be presented at this time whilst waiting on the CEN Standard to be finalized and published.

The German Standard DIN 4551 was also carefully considered in the discussions as AS/NZS 4438 was being drafted. The committee had difficulties in coming to a consensus decision on which of the two de facto Standards, German or British, was the appropriate one to have been the basis of this Standard. In order to overcome the difficulty and to achieve a publishable document that also adheres to our trade obligations, it was finally agreed that if a chair complies with one of the de facto Standards mentioned above, it may be considered as an alternative to showing compliance with this Standard, provided the combinations of Standards detailed in Clause 1.3 are adhered to.

The objective of this Standard is to provide purchasing authorities, specifiers, users, retailers and manufacturers with a uniform set of height adjustable swivel chair performance requirements that can form the basis of selection and evaluation criteria.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

## CONTENTS

|  | <i>Page</i> |
|--|-------------|
| FOREWORD .....   | 5           |
| SECTION 1 SCOPE AND GENERAL  |             |
| 1.1 SCOPE .....  | 6           |
| 1.2 OBJECTIVE .....  | 6           |
| 1.3 COMPARISON WITH OTHER NATIONAL STANDARDS .....                                     | 6           |
| 1.4 REFERENCED DOCUMENTS .....   | 6           |
| 1.5 DEFINITIONS .....  | 7           |
| 1.6 CLASSIFICATION BY FUNCTION .....   | 7           |
| 1.7 CLASSIFICATION BY STRENGTH AND DURABILITY .....                                    | 8           |
| 1.8 STABILITY .....  | 8           |
| SECTION 2 GENERAL REQUIREMENTS   |             |
| 2.1 COMPONENTS AND MATERIALS .....   | 9           |
| 2.2 SPECIFIC REQUIREMENTS RELATED TO END USE .....                                     | 10          |
| 2.3 TOLERANCES .....   | 10          |
| SECTION 3 FUNCTIONAL CRITERIA  |             |
| 3.1 GENERAL .....  | 11          |
| 3.2 DIMENSIONAL REQUIREMENTS—DEFINITIONS OF REFERENCE<br>POINTS, AXES AND PLANES ..... | 12          |
| 3.3 DIMENSIONAL REQUIREMENTS—DEFINITION OF FUNCTIONAL<br>DIMENSIONS .....              | 13          |
| SECTION 4 TESTING—STRENGTH AND DURABILITY REQUIREMENTS                                 |             |
| 4.1 GENERAL .....  | 26          |
| 4.2 TEST PREREQUISITES .....   | 26          |
| 4.3 PERFORMANCE REQUIREMENTS .....   | 26          |
| SECTION 5 TESTING—STABILITY REQUIREMENTS   |             |
| 5.1 GENERAL .....  | 28          |
| 5.2 OVERTURNING PERFORMANCE REQUIREMENTS .....   | 28          |
| 5.3 ROLLING STABILITY PERFORMANCE REQUIREMENT .....                                    | 28          |
| SECTION 6 MARKING, INSTRUCTIONS AND TEST REPORT  |             |
| 6.1 GENERAL .....  | 30          |
| 6.2 INSTRUCTIONS FOR USE .....   | 30          |
| 6.3 MARKING .....  | 30          |
| 6.4 TEST REPORT .....  | 30          |
| APPENDICES   |             |
| A DETERMINATION OF SEAT LOADING POINT (SLP) AND BACK LOADING<br>POINT (BLP) .....      | 31          |
| B SEAT STATIC LOAD TEST .....  | 34          |
| C BACK STATIC LOAD TEST WITH FLEXIBILITY ASSESSMENT .....                              | 37          |

|   |  |    |
|---|--|----|
| D | ARM SIDeways STATIC LOAD TEST . . . . .  | 39 |
| E | ARM DOWNWARDS STATIC LOAD TEST . . . . .   | 40 |
| F | SEAT AND BACK FATIGUE TEST . . . . .   | 42 |
| G | SEAT IMPACT TEST . . . . .   | 44 |
| H | BACK IMPACT TEST . . . . .   | 48 |
| I | ARM IMPACT TEST . . . . .  | 51 |
| J | DROP TEST . . . . .  | 53 |
| K | SWIVELLING TEST . . . . .  | 55 |
| L | REARWARDS OVERTURNING (ALL CHAIRS) . . . . .   | 57 |
| M | REARWARDS OVERTURNING OF TILTING OR RECLINING CHAIRS . . .                                 | 59 |
| N | ACCIDENTAL REARWARD OVERTURNING . . . . .  | 61 |
| O | ROLLING STABILITY . . . . .  | 62 |
| P | A GUIDE TO ERGONOMIC CRITERIA OF GRIP, LEVERAGE AND<br>FORCE FOR CHAIR DESIGNERS . . . . . | 63 |

First published as AS/NZS 4438:1997.  
Incorporating:  
Amdt 1—1999

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## FOREWORD

It is important for the health and comfort of chair users at work to take into account the general principles and minimum requirements of ergonomics. This applies particularly to the design and use of chairs with workstations containing desktop computers with visual display units (VDUs) or similar situations. In determining the dimension ranges of height adjustable swivel chairs, it is important to consider the anthropometry of the user population. It is normal international practice to design to accommodate at least the fifth to the ninety-fifth percentile range of the user population.

The strength and durability of the chair is determined by the application of forces simulating normal functional use and allowing for a degree of misuse. It does not allow for abuse or continued misuse. The sequence of tests as a whole determine static strength, fatigue strength, resistance to impact, stability, and safety.

This Standard includes four levels of chair performance (Levels 3, 4, 5 and 6) which have been selected to meet the range of conditions expected in service. However, designers and specifiers should evaluate the intended service conditions to ensure no unusual conditions are likely to cause premature failure or unsafe operation of the chair.

The stability of the chair is determined by both the application of impact forces and by tilting the chair to simulate normal functional use allowing for a degree of misuse. It does not allow for abuse or continued misuse. The Standard includes four levels of testing for rearwards overturning of chairs.

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Height adjustable swivel chairs**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard sets out the requirements for the evaluation and selection of height adjustable swivel chairs. It specifies minimum requirements for function, strength, durability and stability of the chairs, leaving designers and manufacturers the maximum opportunity to develop suitable products.

Recognition is made in this Standard of the various end uses and service applications for which height adjustable swivel chairs are required. As a consequence, four levels of requirement have been provided covering different service and durability requirements. Differentiation has also been made in terms of function, to include executive chairs as well as chairs for general and keyboard operator use.

**1.2 OBJECTIVE** The objective of this Standard is to provide purchasing authorities, specifiers, users, retailers and manufacturers with a uniform set of height adjustable swivel chair performance requirements that can form the basis of selection and evaluation criteria.

**1.3 COMPARISON WITH OTHER NATIONAL STANDARDS** Chairs complying with one of the following combinations of requirements contained in overseas national Standards are deemed to comply with AS/NZS 4438:

- (a) All requirements of the following British Standards and German Standard:
- (i) BS 5459.2 (covering general performance requirements).
  - (ii) BS 5940.1 (covering design and dimensional requirements).
  - (iii) DIN 4550 (covering requirements for gas self-supporting seat height adjustment mechanisms).

NOTE: The British Standards apply to all office chairs. However DIN 4550 applies only to chairs with seat height adjustment mechanisms operated by gas self-supporting mechanisms and will not be relevant if another method of adjustment is used.

- (b) All requirements of the following German Standards:
- (i) DIN 4551 (covering design, dimensional and performance requirements).
  - (ii) DIN 4550 (covering requirements for gas self-supporting seat height adjustment mechanisms).

NOTE: DIN 4551 applies to all office chairs. However, DIN 4550 applies only to chairs with seat height adjustment mechanisms operated by gas self-supporting mechanisms and will not be relevant if another method of adjustment is used.

**1.4 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

|        |   |
|--------|---|
| AS     |   |
| 2281   | Flexible cellular polyurethane for seat cushioning and bedding              |
| 2282   | Methods for testing flexible cellular polyurethane                          |
| 2282.3 | Part 3: Determination of apparent density of flexible cellular polyurethane |





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