

Australian/New Zealand Standard™

Furniture — School and educational

**Part 2: Chairs — Strength, durability
and stability**



AS/NZS 4610.2:2020

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- Furniture and Cabinetmaking Association of New Zealand
- Furntech — Australasian Furnishing Research & Development Institute
- Human Factors and Ergonomics Society of New Zealand
- National Retail Association
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Australian/New Zealand Standard™

Furniture — School and educational

Part 2: Chairs — Strength, durability and stability

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CS-088, Furniture — Domestic and Commercial, to supersede AS/NZS 4610.2:1999, *Furniture — School and educational, Part 2: Chairs — Strength, durability and stability*.

The objective of this Standard is to provide educational authorities, purchasers, specifiers, users, manufacturers and consumers with requirements for school and educational chairs that specify sizing, safety, strength, durability and stability requirements to assist in selection and evaluation.

This Standard is Part 2 of the AS/NZS 4610 series consisting of the following:

AS/NZS 4610.1, *Furniture — School and educational, Part 1: Tables — Strength, durability and stability*

AS/NZS 4610.2, *Furniture — School and educational, Part 2: Chairs — Strength, durability and stability* (this Standard)

AS/NZS 4610.3, *Furniture — School and educational, Part 3: Storage furniture — Strength, durability and stability*

The major changes in this revision are as follows:

- (a) Test level and dimensional size marks have increased from seven categories to eight and have changed from numerical to alphabetical designation.
- (b) A safety section has been added, see [Section 4](#).
- (c) Tests for durability of castors (see [Appendix V](#)) and writing tablets (see [Appendices T](#) and [U](#)) have been included.
- (d) Tests for leg strength and impact tests have been revised, see [Appendices K](#), [M](#), and [N](#).
- (e) Tests for pedestal style chairs only have been included, see [Appendix I](#).

The terms “normative” and “informative” are used in Standards to define the application of the appendix to which they apply. A “normative” appendix is an integral and mandatory part of the Standard, whereas an “informative” appendix is only for information and guidance.

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Australian/New Zealand Standard

Furniture — School and educational

Part 2: Chairs — Strength, durability and stability

Section 1 Scope and general

1.1 Scope

This Standard specifies sizing, safety, strength, durability and stability requirements for eight sizes of chairs for educational institutions.

Chairs may be —

- (a) fixed height;
- (b) height adjustable;
- (c) with arms;
- (d) without arms;
- (e) have fixed seats; or
- (f) swivel seats.

Chairs may have —

- (i) fixed or inclinable backrests of not more than 30° from vertical;
- (ii) fixed or inclinable single slope seats;
- (iii) a writing tablet; or
- (iv) a storage area, usually under the seat.

Where a chair includes a storage component, this Standard will not make any strength or durability assessment of that component.

Bases may be, but are not limited to —

- (A) discrete legs;
- (B) sled;
- (C) cantilever; or
- (D) pedestal types.

Bases may be fitted with —

- (1) wheels;
- (2) castors;
- (3) glides; or
- (4) ferrules.

NOTE 1 In this Standard, the term “chair” also includes stools.

This Standard does not cover the following:

- (aa) Chairs other than those with single-sloped seats and single-sloped seats with a forward inclination greater than 7° or a rearward inclination of greater than 5°.
- (bb) Double-sloped seats (i.e. a seat where approximately 30 % to 50 % of the seat depth slopes to the front and the remainder slopes to the rear of the seat).

NOTE 2 Double-sloped seats have a substantial apex height, see [Figure 1.1](#).

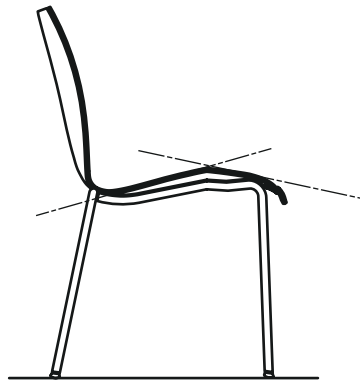


Figure 1.1 — Double-sloped seat

- (cc) Folding chairs.
- (dd) Benches or seating for more than one person.
- (ee) Outdoor and playground seating.
- (ff) Lounges and ottomans.
- (gg) Chairs intended for use by teachers, administration staff or management.
- (hh) Chairs for use in commercial environments.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

AS ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 48-4:2018, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 48-5:2018, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 5: Indentation hardness by IRHD pocket meter method*

EN 1729-1:2015, *Chairs and tables for educational institutions — Part 1: Functional dimensions*

1.3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

1.3.1**accuracy**

degree of closeness to the true value or the specified value of whatever dimension is being measured, or force applied

1.3.2**accessible to the user**

features to which access can be easily gained by the user, when the seating is in its intended configuration for use, and for which the probability of unintentional contact is high

1.3.3**footrest**

chair component, for the purpose of providing a resting place for the user's feet

1.3.4**height adjustable**

chairs that can be adjusted in height without the need for special tools and be set at a minimum of two adjacent dimensional size marks

1.3.5**may**

indicates the existence of an option

1.3.6**median plane**

vertical plane running from front to back and passing through the centre of the seat

Note 1 to entry: See [Figure 1.3.6](#).

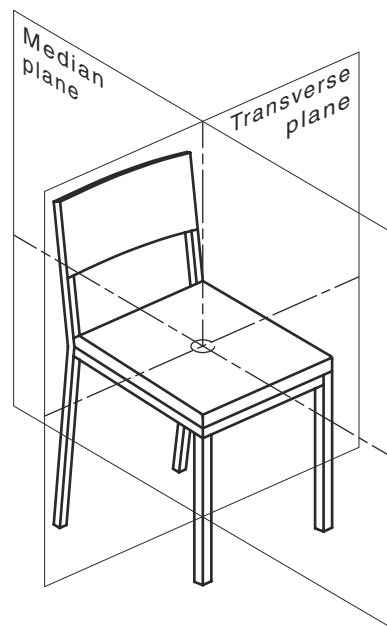


Figure 1.3.6 — Median and transverse planes

1.3.7**pedestal chair**

chairs with the seat and base attached to, and separated by, a single vertical column

1.3.8**precision**

degree to which repeated measurements show the same results

Note 1 to entry: Precision is usually expressed as a \pm % about the true value or the specified value of whatever dimension is being measured, or force applied.

1.3.9**school chair measuring device****SCMD**

device used for determining Point S, buttock zone and chair dimensions of chairs in accordance with EN 1729-1

1.3.10**shall**

indicates that a statement is mandatory

1.3.11**sharp edges**

edges that are not rounded, chamfered or otherwise finished such that they are smooth and free from burrs

1.3.12**shear and squeeze zones**

zones where the distance between two accessible parts, moving relative to each other, is less than 25 mm or more than 7 mm in any position during movement, or where parts move in classic scissor action without any gap between them

1.3.13**should**

indicates a recommendation

1.3.14**single-sloped seat**

seat sloped (in a general sense) either in a forward or rearward direction and confirmed with the SCMD

Note 1 to entry: See [Figures 1.3.14\(A\)](#) and 1.3.14(B).

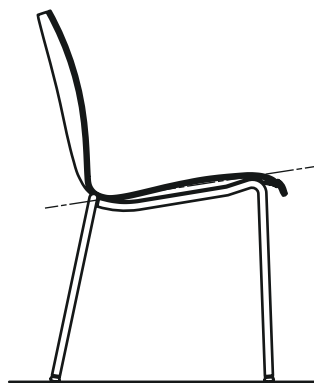


Figure 1.3.14(A) — Single-sloped seat (Negative angle)