AS 1892.1:2018

Australian STANDARD

Portable ladders

Part 1: Performance and geometric requirements

STANDARDS Australia

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- Australian Aluminium Council
- Australian Industry Group
- Consumers Federation of Australia
- Engineers Australia
- Ladder Manufacturers Association of Australia
- Master Builders Australia
- National Retail Association
- Safety Institute of Australia
- Victorian Department of Health and Human Services
- Working at Height Association

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Australian Standard®

Portable ladders

Part 1: Performance and geometric requirements

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-034, Portable Ladders, to supersede AS/NZS 1892.1:1996, *Portable ladders*, Part 1: *Metal* and AS/NZS 1892.3:1996, *Portable ladders*, Part 3: *Reinforced plastic*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

This Standard is Part 1 in a series of Standards covering the safe design, manufacture and use of portable ladders and attachments. Other Standards in the series are as follows:

AS 1892.2, *Portable ladders*, Part 2: *Timber*

AS/NZS 1892.5, *Portable ladders*, Part 5: *Selection, safe use and care*

In this edition Parts 1 and 3 have been consolidated into a single document. Design and performance requirements for metal and fibreglass ladders remain the same, except for the following:

(a) Addition of test reporting requirements (Clause 1.7).

(b) Additional labelling requirements (Clause 2.8).

(c) Addition a new classification for ladders with ‘higher stability’ (Clause 1.5.33).

(d) Addition of test and performance criteria for ‘higher stability’ ladders (Appendices GG, HH and II).

(e) Clarification of which test methods apply to each type of ladder (Section 8).

(f) Addition of particular requirements for work platforms (Section 9).

(g) Addition of particular requirements for step stools (Section 10).

In this edition, the test methods have been included as a set of appendices. The test methods have not changed greatly; however, in the light of experience gained from the previous editions, they have been clarified.

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.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the design and manufacture of portable ladders from various materials and combinations of materials, such as metal, plastic, reinforced plastic, other composites, ceramics, timber and engineered wood.

The Standard provides two duty ratings for industrial ladders and domestic ladders, which are assigned minimum load ratings.

The Standard provides two stability ratings; for stability and higher stability, which may relate to industrial ladders and domestic ladders. Any such stabilizing device or devices shall be an integral part of the ladder and shall not be removable.

The Standard covers single and multiple-section ladders, multipurpose ladders, combination ladders and those special-purpose ladders defined in Clause 1.5 and to other ladders that can be set up in configuration equivalent to the foregoing ladders.

The Standard does not fully cover ladder accessories. Examples of accessories not covered may include, but are not limited to, ladder levellers, ladder stabilizers, stand-off devices, ladder jacks, ladder straps, hooks, castors, shelves, safety gates that may be installed on, or used in conjunction with ladders.

NOTE: Accessories should not lessen the performance and test requirements of ladders to which they are attached.

1.2 OBJECTIVE

The objective of this Standard is to provide designers, manufacturers and regulatory authorities with the minimum performance and dimensional requirements for portable ladders, in order to minimize the risk to the safety of portable ladder users. Performance requirements include strength, stability and durability criteria for the evaluation of portable ladders.

1.3 APPLICATION

Portable ladders shall conform to the relevant requirements of Section 2, General requirements, and with the specific requirements of the Section(s) appropriate to the type of ladder, as follows:

(a) Single ladders: Section 3.

(b) Extension ladders: Section 4.

(c) Stepladders: Section 5.

(d) Trestle ladders: Section 6.

(e) Multipurpose ladders: Section 7.

(f) Other ladders: Section 8.

(g) Work platforms: Section 9.

(h) Step stools: Section 10.

1.4 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
2089	Sheave blocks for lifting purposes
4142	Fibre ropes
4142.2	Part 2: Three-strand hawser-laid and eight-strand plaited
AS/NZS	
1554	Structural steel welding
1554.1	Part 1: Welding of steel structures
1665	Welding of aluminium structures
2312	Guide to the protection of iron and steel against exterior atmospheric corrosion by the use of protective coatings (series)
ASTM	
D149	Test methods for dielectric breakdown voltage and dielectric strength of solid electrical insulating materials at commercial power frequencies
D229	Standard test methods for rigid sheet and plate materials used for electrical insulation
D709	Specification for laminated thermosetting materials
D790	Test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials
D792	Test methods for density and specific gravity (relative density) of plastics by displacement
D1499	Practice for filtered open-flame carbon-arc type exposures of plastics
D2565	Practice for xenon-arc exposure of plastics intended for outdoor applications
D2583	Test method for indentation hardness of rigid plastics by means of a Barcol impressor
G23	Practice for operating light-exposure apparatus (carbon-arc type) with and without water for exposure of nonmetallic materials
G26	Practice for operating light-exposure apparatus (xenon-arc type) for exposure of nonmetallic materials
G154	Practice for operating fluorescent ultraviolet (UV) lamp apparatus for exposure of non-metallic materials

1.5 DEFINITIONS

For the purpose of this Standard, the definitions below apply (see also Figure 1.1).

1.5.1 Articulation

A hinge that is capable of being locked in one or more positions.

1.5.2 Brace

A rigid member (typically diagonal) used to enhance stiffness and strength, for example, at a tread to stile connection.

1.5.3 Composite

A homogeneous or layered material created by the synthetic assembly of two or more materials (a selected filler or reinforcing elements and a compatible matrix binder), to obtain specific characteristics and properties.

1.5.4 Domestic ladder

A ladder designed to be used by a householder for construction, maintenance and repairs carried out at a private dwelling for non-commercial purposes.

1.5.5 Double-sided stepladder

A self-supporting portable ladder of fixed length with two pairs of stiles which are—

(a) hinged or fixed; and

(b) each fitted with treads for ascent and descent.

1.5.6 Dual-purpose stepladder

A self-supporting portable ladder of which the back section is fitted with rungs or treads, and which can be further adjusted to provide an extension of the front section as a non-self-supporting portable ladder (in the extended position).

1.5.7 Duty rating

The rating assigned to the ladder, i.e. industrial or domestic, that indicates the service capability of the ladder.

1.5.8 Effective length

The length of a ladder less end caps and feet, where fitted.

1.5.9 E-glass

A borosilicate glass, the type most frequently used for glass fibre for reinforced plastics, suitable for electrical laminates because of its high resistivity.

1.5.10 End cap

A terminating piece fixed to the end of a stile to cover and/or protect the end of the stile.

1.5.11 Extension ladder

A non-self-supporting portable ladder, consisting of two or more sections travelling in guides, including interlocking stiles or brackets arranged in order to permit adjustment of length.

1.5.12 Fibreglass

A glass-reinforced plastic, where the most common plastic encountered would be polyester. The composite possesses directional properties, as well as specific mechanical, electrical, anti-corrosion and weathering characteristics.

1.5.13 Handrail

A component that provides additional assistance for ascending or descending a ladder or provides an alternate hand hold opportunity. It also is used to describe the uppermost horizontal members of an enclosure at the top of a platform stepladder.

1.5.14 Industrial ladder

Any ladder other than a domestic ladder.

1.5.15 Load rating

The maximum load, including the weight of the user, materials and tools, that the ladder is intended to carry, in kilograms.