



Fixed platforms, walkways, stairways and ladders—Design, construction and installation



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- Australian Aluminium Council
 - Australian Building Codes Board
 - Australian Industry Group
 - Australian Rope Access Association
 - Energy Networks Association
 - Engineers Australia
 - SafeWork NSW
 - WorkSafe Victoria
-

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Australian Standard®

**Fixed platforms, walkways, stairways
and ladders—Design, construction and
installation**

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PREFACE

This Standard was prepared by Standards Australia Committee SF-013, Platforms, Gangways, Stairways and Ladders, to supersede AS 1657—2013.

The objective of this Standard is to provide technical specifications and criteria for fixed platforms, walkways, guardrails, stairways, ladders and permanently configured (but movable) platforms that are used in the workplace, to reduce the risks to the safety of users.

The objective of this revision is to clarify a number of clauses where the text was causing some confusion with readers and to improve the clarity of some figures. The bulk of the Standard is not affected by this revision.

Changes in this edition include the following:

- (a) Clarification to the word ‘level’, which generally meant replacing it with less ambiguous words. Definitions for ladder flight and landings have been revised to replace the word ‘level’.
- (b) Figure 5.4(b) has been revised to align with the text of the Clause relating to rectangular handrails.
- (c) Clauses 5.6.4 and 5.6.5 have been revised.
- (d) Clause 7.3.6(a) is accompanied by a new figure, which has been included to clarify the ‘length of the landing’.
- (e) Figures 7.5 and 7.9 have been revised to align with the text of the relevant clauses.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

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.

This Standard incorporates a Commentary on some of the clauses. The Commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a panel. The Commentary is intended to help readers understand the background to the clause but does not form part of the clause.

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STANDARDS AUSTRALIA

Australian Standard**Fixed platforms, walkways, stairways and ladders—Design,
construction and installation**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the design, selection, construction and installation of fixed platforms, walkways, stairways and ladders that are intended to provide safe access to places used by operating, inspection, maintenance and servicing personnel.

This Standard also applies to the following:

- (a) Movable platforms that are permanently configured but that may be site adjustable or site assembled/modified.
- (b) Permanently installed roof access, where such access is for the purpose of installing, operating, inspecting, maintaining or servicing equipment that is located on, or is accessible from, the roof.
- (c) Permanently installed access for inspection and maintenance of the roof itself.

NOTES:

- 1 In the absence of a directly applicable Standard, this Standard may be used for guidance in providing access to some parts of stationery and mobile machinery, light and telecommunication towers, wind turbine towers and water and sewerage facilities. While such access may not be capable of conforming to all the requirements of this Standard, the principles and imposed actions should be followed.
- 2 Appendix A provides information on recommended component dimensions and materials for edge protection.
- 3 Appendix F provides a method for testing the load-carrying capacity of a twin-stile or single-stile fixed ladder.
- 4 Appendix G provides information on selection of stairways, walkways and fixed ladders.
- 5 Appendix H provides guidelines for fall protection measures for various types of ladders.
- 6 Appendix I provides design, fabrication and installation considerations for ladders to improve their safety and reduce the likelihood of injury to users.
- 7 Appendix J provides guidelines for roof access for the purposes of routine equipment or building maintenance activities.

1.2 EXCLUSIONS

This Standard does not apply to the following:

- (a) Scaffolding that may be used in similar situations.
- (b) Access for people with disabilities.
- (c) Temporary access, e.g. by means of portable ladders.
- (d) Access and egress to buildings covered by the National Construction Code (NCC).
- (e) Attic type ladders (see Note 1).
- (f) Access to lift machine rooms (see Note 2).

NOTES:

- 1 While some attic type ladders in the market are able to conform to the requirements of this Standard, it is not the intent of this Standard to provide specifications for such ladders.
- 2 For access to lift machine rooms, see NCC, BCA Volume One.
- 3 There may be additional or conflicting requirements in legislation. Users should make themselves aware of these requirements.

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS

- | | |
|--------|---|
| 1111 | ISO metric hexagon bolts and screws—Product grade C |
| 1111.1 | Part 1: Bolts |
| 1604 | Specification for preservative treatment |
| 1604.1 | Part 1: Sawn and round timber |
| 1720 | Timber structures |
| 1720.1 | Part 1: Design methods |
| 3600 | Concrete structures |
| 3700 | Masonry structures |
| 3990 | Mechanical equipment—Steelwork |
| 4100 | Steel structures |

AS/NZS

- | | |
|--------|--|
| 1170 | Structural design actions |
| 1170.0 | Part 0: General principles |
| 1170.1 | Part 1: Permanent, imposed and other actions |
| 1170.2 | Part 2: Wind actions |
| 1170.3 | Part 3: Snow and ice actions |
| 1252 | High strength steel bolts with associated nuts and washers for structural engineering (series) |
| 1554 | Structural steel welding |
| 1554.1 | Part 1: Welding of steel structures |
| 1554.6 | Part 6: Welding stainless steel for structural purposes |
| 1604 | Specification for preservative treatment |
| 1604.3 | Part 3: Plywood |
| 1664 | Aluminium structures |
| 1664.1 | Part 1: Limit state design |
| 1664.2 | Part 2: Allowable stress design |
| 1665 | Welding of aluminium structures |
| 1891 | Industrial fall-arrest systems and devices (series) |
| 4600 | Cold-formed steel structures |
| 4680 | Hot-dip galvanized (zinc) coatings on fabricated ferrous articles |

EN

- | | |
|-------|--|
| 13101 | Steps for underground man entry chambers—Requirements, marking, testing and evaluation of conformity |
|-------|--|

1.4 DEFINITIONS

For the purposes of this Standard, the definitions below apply.

1.4.1 Access hatch

A device normally closed, but which can be opened, to provide access through a platform, roof or other similar structure.

NOTE: Also known as a trapdoor.

1.4.2 Fixed

Permanently installed or configured structures used to gain access, including platforms from which work is performed.

1.4.3 Floor

The surface of a platform, walkway or landing.

1.4.4 Going

The horizontal distance from the nosing of one stair tread to the nosing of the next stair tread above or below.

1.4.5 Guardrail

The highest rail in guardrailing fixed parallel to a floor or platform.

1.4.6 Guardrailing

A system of rails or panels, or both, that provides edge protection at the edge of a floor or platform or walkway.

1.4.7 Handrail

A rail that provides a handhold on a platform, walkway, stairway or step-type ladder.

NOTE: A handrail may form part of a guardrail.

1.4.8 Headroom

The minimum vertical distance, clear of all obstacles such as beams or ducts, above the floor or the slope line of the stair tread nosing.

1.4.9 Infill

Typically a solid or mesh panel that prevents a person or material from falling through guardrailing.

1.4.10 Ladder

1.4.10.1 Rung-type ladder

A structure comprising a stile or stiles and rungs on which a person may stand on or step on when ascending or descending.

1.4.10.2 Step-type ladder

A structure comprising stiles and treads on which a person may stand on or step on when ascending or descending, and which also incorporates handrails.

1.4.11 Ladder cage

A fixed enclosure that encircles the climbing space of a ladder.

1.4.12 Ladder flight

The continuous part of a fixed ladder between—

- (a) top and bottom landings, in the case of ladders without intermediate landings; or
- (b) top or bottom landings and the nearest intermediate landing; or
- (c) successive intermediate landings.

1.4.13 Landing

An area at the top or bottom of a flight or between two flights.

1.4.14 Nosing

The leading edge of a stair tread.

1.4.15 Pipe

A hollow section made as a production item.

NOTES:

- 1 Pipe may be round, oval, square or rectangular in section.
- 2 For the purposes of this Standard, the word 'pipe' is synonymous with 'tube' or 'structural hollow section'.

1.4.16 Platform

A designated surface to support a person working or resting, or materials used by persons.

1.4.17 Post

A structural component, other than infill, that is used to support a handrail or guardrailing.

NOTE: The terms 'stanchion' and 'rectangular support' are synonymous with 'post' and are used for similar types of products by different industries.

1.4.18 Riser

The vertical distance from the top of one stair tread and the next stair tread above or below.

1.4.19 Rung

A rounded crosspiece forming a step on a rung-type ladder.

1.4.20 Self-closing gate

A section or part of a guardrail that is intended to be easily opened and, when the section is not held open, will automatically close under the influence of gravity, a spring or other means.

1.4.21 Shall

Indicates that a statement is mandatory.

1.4.22 Should

Indicates a recommendation.

1.4.23 Slip resistance

The effective friction of a walking surface.

1.4.24 Stair

A sloping structure fitted with stair treads and having at least two risers and a slope within the range of 20° to 45° to the horizontal.

1.4.25 Stair flight

A single continuous series of risers and goings not interrupted by a landing or floor.