

AS 1576.5:2021



STANDARDS
Australia



Scaffolding

Part 5: Prefabricated trestle and trestle ladder scaffolds



AS 1576.5:2021

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- Engineered Wood Products Association of Australasia
- Engineers Australia
- Hire and Rental Industry Association of Australia
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Scaffolding

Part 5: Prefabricated trestle and trestle ladder scaffolds

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-036, Scaffolding, to supersede AS/NZS 1576.5:1995, *Scaffolding, Part 5: Prefabricated splitheads and trestles*.

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.

The objective of this Standard is to provide requirements for the design and operational performance of trestle scaffolds and trestle ladder scaffolds.

This edition includes the following technical changes from the previous edition:

- (a) Splitheads have been removed.
- (b) Design, operational and testing requirements for trestle ladder scaffolds have been included.
- (c) Special duty rating and associated minimum width of working platform for trestle scaffolds has been deleted.
- (d) Additional test procedures have been included in normative appendices.

The terms “normative” and “informative” are used in Standards to define the application of the appendices 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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NOTES

Australian Standard®

Scaffolding

Part 5: Prefabricated trestle and trestle ladder scaffolds

Section 1 Scope and general

1.1 Scope

This Standard specifies requirements for scaffolds that are assembled from prefabricated trestles or trestle ladders.

NOTE Design and testing of trestle ladders is covered by AS 1892.1 and such requirements are outside the scope of this Standard.

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 a requirement of this document:

AS/NZS 1576.1, *Scaffolding, Part 1: General requirements*

AS/NZS 1576.2, *Scaffolding, Part 2: Couplers and accessories*

AS/NZS 1577, *Scaffold decking components*

AS 1892.1, *Portable ladders, Part 1: Performance and geometric requirements*

1.3 Definitions

For the purpose of this Standard the definitions given in AS/NZS 1576.1 and those below apply.

1.3.1

bottom rail

lowest rail in guardrailing

1.3.2

clamping device

device which interconnects scaffold planks at intervals along their length to limit differential deflection between adjacent scaffold planks

1.3.3

counterweight

weight or series of weights used to counterbalance the forces on the trestle ladder scaffold against overturning

1.3.4

frame trestle

self-supporting stand other than a trestle ladder incorporating one or more beams and designed to support a working platform

Note 1 to entry: Frame trestles provide a platform height that may be fixed or varied.

Note 2 to entry: Base arrangements for frame trestles may be of a fixed configuration, or may be folded or swivelled to aid storage, handling and transit.

Note 3 to entry: For a typical frame trestle, see [Figure 1.1\(a\)](#).

**1.3.5
platform**

surface on a scaffold to support persons, materials, or both, which may comprise individual planks or multiple interconnected planks

**1.3.6
putlog**

horizontal structural member which supports the working platform and spans between the supporting standard or post and the adjacent wall

**1.3.7
putlog trestle**

non-self-supporting stand incorporating an integral putlog, one end of which is intended to be supported by a wall

Note 1 to entry: Putlog trestles provide a platform height that may be fixed or varied.

Note 2 to entry: For a typical putlog, see [Figure 1.1\(b\)](#).

**1.3.8
scaffold**

temporary structure erected to support access platforms or working platforms

**1.3.9
shall**

indicates that a statement is mandatory

**1.3.10
should**

indicates a recommendation

**1.3.11
trestle**

frame trestle or putlog trestle

**1.3.12
trestle ladder**

self-supporting portable ladder of fixed length, consisting of two sections hinged at the top to form equal angles with the base, each section being provided with cross-bearers, fixed between the stiles, on which a plank or planks may be supported

**1.3.13
trestle ladder scaffold**

working platform and associated edge protection supported by trestle ladders as defined in this document (see [Figure 1.2](#))

**1.3.14
trestle scaffold**

working platform and associated edge protection supported by trestles as defined in this document (see [Figure 1.1](#))

**1.3.15
working load limit**

maximum load that may be placed on the working platform under general conditions of use

**1.3.16
working platform**

platform on a scaffold positioned at a work location for supporting personnel, equipment and materials and used to provide a working area

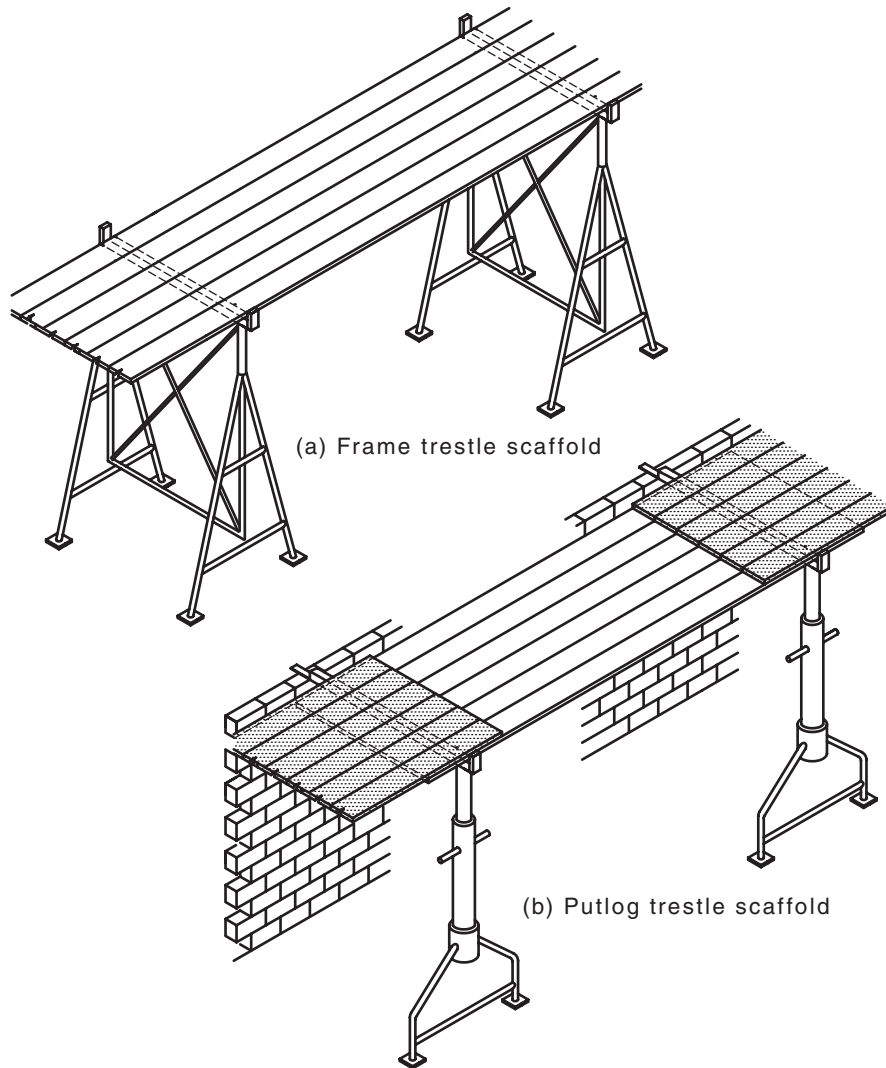


Figure 1.1 — Example of trestle scaffolds

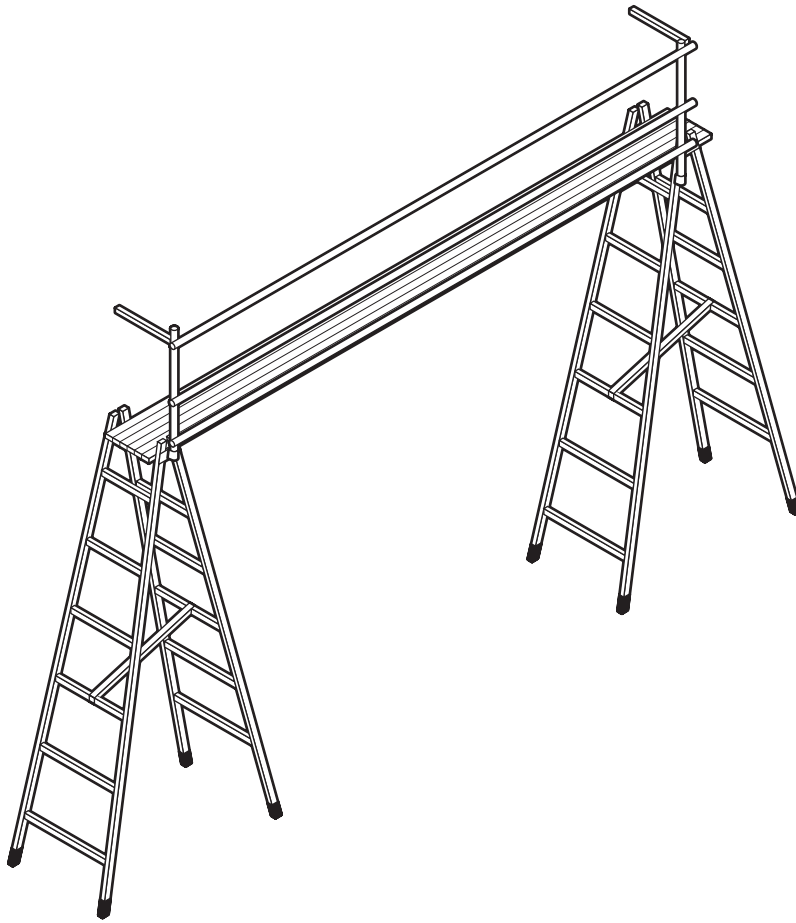


Figure 1.2 — Example of a trestle ladder scaffold

1.4 Marking requirements for trestles and trestle ladders

The marking requirements for scaffolding equipment specified in AS/NZS 1576.1 shall apply to trestles. Trestle ladders shall be marked as specified in AS 1892.1.

1.5 Product information

1.5.1 Documented information

The following documented information shall be provided:

- (a) Instructions for erection, dismantling, transportation and storage.
- (b) A guide for safe working practices, including ensuring stability of the erected trestle or trestle ladder scaffold.
- (c) Duty load rating of trestle or trestle ladder scaffold.
- (d) Maximum span of working platforms for trestle scaffolds and trestle ladder scaffolds, including requirements for clamping devices.
- (e) Guidance for the servicing and inspection of the equipment and the rejection of damaged components.

1.5.2 Labelled information

Where documented information is provided on a label, the label shall —

- (a) be attached to the scaffold by a method that does not adversely affect its strength or the component to which it is attached;
- (b) be located such that it is readily visible and remains legible; and
- (c) conform to the label test requirements given in AS 1892.1.

1.6 Alternative design methods and materials

Alternative design methods and materials that are not mentioned in this document may be used, provided it can be demonstrated that the resulting scaffolding equipment satisfies the strength, stability, serviceability and operational requirements specified in this document.

Service life durability shall be a consideration in any assessment of new materials.

Section 2 Design requirements

2.1 General

Trestle scaffolds and trestle ladder scaffolds shall conform to the design requirements of AS/NZS 1576.1, subject to the specific requirements of this document, which take precedence.

A trestle may be of a putlog type or frame type in design. The putlog blade of a putlog shall conform to AS/NZS 1576.2.

For theoretical design of stability, trestle scaffolds and trestle ladder scaffolds shall conform to the stability requirements for single bay tower scaffolds in AS/NZS 1576.1, which includes the horizontal load combination. The horizontal load combination shall apply whether outriggers (rakers) are included or not.

The self-weight of the minimum length of planks used in the configuration shall be included in the stabilizing load combination in order to minimize the contribution from these elements.

2.2 Duty live loadings

Duty live loadings applied to working platforms supported by trestle scaffolds and trestle ladder scaffolds, in accordance with AS/NZS 1576.1, shall be as follows:

- (a) *Putlog trestles* — Duty live loadings applied to working platforms supported by putlog trestles shall be heavy duty or special duty.
- (b) *Frame trestles* — Duty live loadings applied to working platforms supported by frame trestles shall be light duty, medium duty, heavy duty or special duty.
- (c) *Trestle ladders* — Duty live loadings applied to working platforms supported by trestle ladders shall be light duty.

2.3 Materials

2.3.1 Trestles

Trestles shall conform to the material requirements specified in AS/NZS 1576.1.

2.3.2 Trestle ladders

Trestle ladders shall conform to the material requirements specified in AS 1892.1.

2.3.3 Decking components

Decking components shall conform to the material requirements specified in AS/NZS 1577.

2.3.4 Edge protection

Edge protection components shall conform to the material requirements specified in AS/NZS 1576.1.

Section 3 Operational requirements

3.1 Supporting structure

The supporting structure for trestle and trestle ladder scaffolds shall be as specified in AS/NZS 1576.1.

The working platform of a trestle scaffold shall not be used to support another scaffold.

3.2 Slope of working platforms

All working platforms shall be erected level with a nominal tolerance of 3° (1 in 19) in all directions.

3.3 Trestle scaffolds

3.3.1 Platform height

The platform working height for trestle scaffold shall be not greater than 2 m above the surface of the supporting structure.

3.3.2 Height adjustment

Where height adjustment of the work platform of trestle scaffolds is provided, each means of height adjustment shall be such that —

- (a) while adjusted to any height within the manufacturer's specified range, it shall be positively fixed to prevent unintended disturbance due to vibration or shock; and
- (b) pins used to support and adjust the height of trestles shall have a nominal diameter of not less than 8 mm and be held captive to the trestle.

3.3.3 Working platforms

Working platforms shall conform to duty live loading requirements of [Clause 2.2](#) and the following:

- (a) Platforms shall be constructed from decking components conforming to AS 1577.
- (b) The minimum width of a working platform shall be as specified in [Table 3.1](#).
- (c) Platforms shall be fully decked across the length of their supporting members.

NOTE 1 Fully decked means that the supporting member is to be occupied along its length with the multiple of decking components for which it has been designed; that is leaving minimal gaps between the decking components and at ends of the supporting member.

NOTE 2 Gap limitations are given in Item (f).
- (d) A stop with a height of not less than 30 mm shall be permanently fixed to each outer end of the platform-supporting member.
- (e) The surface of the working platform shall be nominally level.
- (f) Gaps between adjacent planks of the working platform shall not exceed 20 mm.
- (g) Each scaffold plank shall overhang its end-supporting member (putlog or transom) by not less than 150 mm nor more than 250 mm.
- (h) Where it is necessary to lap planks, the overlapping plank shall extend past the putlog or transom by not less than 150 mm.

- (i) Where a prefabricated platform is used as a working platform it shall connect to its supporting member in such a way that it cannot be inadvertently dislodged.
- (j) Planks less than 3 m in length shall be secured against an end being lifted by a downward force on the other cantilevered end.
- (k) The loading shall not exceed the designated duty loading of the scaffold.

Table 3.1 — Width of working platform

Duty as designated by AS/NZS 1576.1	Minimum width mm
Light	450
Medium	675
Heavy	900

3.3.4 Access to the working platform

Access to the working platform of trestle scaffolds shall be in accordance with the requirements of AS/NZS 1576.1.

3.3.5 Edge protection

The edge protection for trestle scaffolds shall be as specified in AS/NZS 1576.1 with the following exceptions:

- (a) Where the distance that a person or object may fall from the working platform is less than 2 m a bottom rail may replace a toeboard.
- (b) Bottom rails shall be positioned at a distance of not less than 150 mm and not greater than 275 mm above the working platform surface.

3.4 Trestle ladder scaffolds

3.4.1 Trestle ladders

Trestle ladders used to configure trestle ladder scaffolds shall conform to the requirements of AS 1892.1 and have a load rating of not less than 160 kg.

For a trestle ladder with a load rating of 160 kg, the maximum self-weight of components supported by any cross-bearer, including decking rails and associated attachments, shall not exceed 55 kg. Where the self-weight of components supported by the cross-bearer exceeds 55 kg, a ladder shall be used which has a load rating that exceeds 160 kg by the amount of that additional self-weight.

Where foot extensions are included in the design of a trestle ladder, as a means of levelling the trestle ladder —

- (a) the maximum adjustment of that foot extension shall be not greater than 270 mm; and
- (b) the pin diameter used in adjustment of the foot extension shall be not less than 8 mm.

3.4.2 Working Platform

3.4.2.1 Height

The distance a person or object could fall from a working platform of a trestle ladder scaffold shall be not greater than 5 m.

3.4.2.2 Width

The width of the working platform shall be a minimum of 450 mm.

If the working platform is formed by more than one plank, the horizontal gap between planks shall be not greater than 20 mm.

3.4.2.3 Overhang

Each scaffold plank shall overhang its end-supporting member (cross-bearer) by not less than 150 mm, nor more than 300 mm, unless uplift of the plank, or access to that overhanging portion of the plank, is prevented.

3.4.2.4 Planks

Planks used to create the working platform for trestle ladder scaffolds may incorporate polymer strips or, at one end, a lashing hole or clamps or end hooks to minimize sliding of the plank on the supporting bearer.

3.4.3 Access

Access and egress to the working platform of a trestle ladder scaffold shall be by climbing the ladder cross-bearers or by independent means.

Where access to the work platform requires a person to climb over the top cross-bearer of the trestle ladder, a handhold post or rail, extending between 900 mm and 1100 mm above the top cross-bearer shall be available.

The cross-bearers of a trestle ladder at the access point shall not be obstructed, preventing foothold of the person climbing the ladder.

Cross-bearers supporting a work platform and used for climbing shall have a minimum clear width of 265 mm. The work platform may extend past the cross-bearers, provided it does not interfere with foothold when climbing.

3.4.4 Edge protection

The edge protection requirements of AS/NZS 1576.1 shall apply to trestle ladder scaffolds with the following exceptions:

- (a) A bottom rail may replace a toeboard.
- (b) Bottom rails shall be positioned at a distance of not less than 150 mm and not greater than 275 mm above the working platform surface.
- (c) End protection may be omitted where the top surface of the working platform is not less than 900 mm below the top surface of the top cross-bearer.

3.4.5 Deflection

Where the planks of a working platform are not interconnected along their length, the maximum span of the planks shall be limited by the differential deflection between top surfaces of planks. The differential deflection shall not exceed 30 mm.

Where the span is such that the resultant differential deflection exceeds 30 mm under the duty rating concentrated load, planks shall be interconnected at intervals along their length with clamping devices.

Section 4 Performance requirements

4.1 General

The strength, stiffness and stability of trestle scaffolds and trestle ladder scaffolds shall be verified by structural analysis in accordance with [Clause 2.1](#) or testing in accordance with [Clause 4.2](#).

Where a previously tested scaffold system is subsequently varied, its load capacity shall be verified by either structural analysis or testing.

Where a component of a previously tested scaffold system is subsequently varied, its load capacity shall be verified by either structural analysis or testing.

Where a specific application of a previously tested scaffold system requires dimensional or loading variations from the supplier's documented information, the load capacity of the scaffold shall be verified by either structural analysis or testing.

Any structural member or component of a scaffold system that has been subjected to any test required by this Standard shall not subsequently be used as scaffolding.

4.2 Testing

4.2.1 General

The scaffold or the component to be tested shall be assembled in accordance with supplier's instructions and simulating the intended application.

Test loads shall conform to the relevant appendices of this Standard.

NOTE Interpretation of the test results achieved from the appendices should take into account possible variations in the material properties and the section properties of the tested components. Guidance on adjusting specimen capacity for dimensional and material properties is given in AS/NZS 1577.

4.2.2 Testing requirements

4.2.2.1 Trestle scaffolds

The following tests shall apply:

- (a) *Strength test* — Trestles shall be tested in accordance with [Appendix A](#) and each trestle shall be capable of supporting a test load of two times its duty live load plus associated self-weight of decking components without failure.

Failure is considered to have occurred when the equipment under test —

- (i) is no longer able to support that strength test load;
- (ii) shows any visible cracks in the material or welding of an individual component; or
- (iii) shows separation or failure of any connection between components.

Duty live loads shall be determined in accordance with AS/NZS 1576.1.

- (b) *Stiffness test* — Trestle scaffolds shall be tested in accordance with [Appendix B](#) and each trestle shall be capable of supporting a test load of 500 N under the conditions specified in [Appendix B](#), without deflecting by more than 20 mm.

- (c) *Stability test* — Trestle scaffolds shall be tested in accordance with [Appendix C](#).

- (d) *Edge protection test* — Trestle scaffolds shall be tested in accordance with [Appendix D](#).

4.2.2.2 Trestle ladder scaffolds

The following tests shall be carried out:

- (a) *Strength test* — Trestle ladders used in trestle ladder scaffolds shall be tested in accordance with AS 1892.1.
- (b) *Drop tests* — Where a trestle ladder incorporates adjustable feet, the drop tests specified in AS 1892.1 shall be conducted with the feet retracted.
- (c) *Stability test* — Trestle ladder scaffolds shall be tested in accordance with [Appendix G](#).
- (d) *Edge protection test* — Trestle ladder scaffolds shall be tested in accordance with [Appendix H](#) and [Appendix I](#).

4.2.2.3 Planks — General

The following tests for planks shall be carried out:

- (a) *Friction test* — Planks shall be tested in accordance with the coefficient of friction test specified in AS/NZS 1577.
- (b) *Sliding test* — Planks shall be tested in accordance with [Appendix E](#).

4.2.2.4 Planks for use in trestle scaffolds

The following tests for planks used in trestle scaffolds shall be carried out:

- (a) *Strength test* — Planks shall be tested in accordance with the strength test specified in AS/NZS 1577 for the required light, medium or heavy duty load rating.
- (b) *Stiffness test* — Planks shall be tested in accordance with the stiffness test specified in AS/NZS 1577 for the required light, medium or heavy duty load rating.

4.2.2.5 Planks for use in trestle ladder scaffolds

The following tests shall be carried out:

- (a) *Strength test* — Planks shall conform to strength testing in accordance with AS/NZS 1577 for light duty load rating.
- (b) *Stiffness test* — Planks shall be tested in accordance with [Appendix F](#).