



Portable ladders

Part 5: Selection, safe use and care



AS 1892.5:2020

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- Australian Industry Group
- Australian Institute of Health & Safety
- Better Regulation Division
- Consumers Federation of Australia
- Engineers Australia
- Ladder Manufacturers Association of Australia
- Master Builders Australia
- National Retail Association Australia
- Working at Height Association

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Part 5: Selection, safe use and care

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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee SF-034, Portable Ladders, to supersede AS/NZS 1892.5:2000.

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 minimum requirements and recommended safe practices for the selection, use and maintenance of portable ladders in order to minimize the risks for those who use, work with or are near portable ladders.

This Standard is Part 5 in a series of Standards covering the safe design, manufacture and use of portable ladders. Other Standards in the series are as follows:

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

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

The major changes in this edition are as follows:

- (a) Significant update of general recommendations common to portable ladders, see [Section 2](#).
- (b) Addition of recommendations for trestle ladders, see [Clause 2.12](#).
- (c) Addition of recommendations for fall arrest equipment, see [Clause 2.14](#).
- (d) Addition of safety information, see [Clause 2.15](#).

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Australian Standard®

Portable ladders

Part 5: Selection, safe use and care

Section 1 Scope and general

1.1 Scope

This Standard sets out the minimum requirements and recommended safe practices for the selection, use and maintenance of portable ladders.

The requirements of this Standard need not apply where safe work procedures that are equivalent or superior to this Standard are in place.

1.2 Application

General recommendations common to the selection, use and maintenance of portable ladders are given in [Section 2](#), while specific recommendations and requirements for ladders predominantly constructed from a particular material are given in the following Sections:

- (a) Metal ladders, see [Section 3](#).
- (b) Non-metal ladders, see [Section 4](#).
- (c) Timber ladders, see [Section 5](#).

[Section 2](#) shall be read in conjunction with the relevant Section relating to the type of ladder being used.

1.3 Normative references

There are no normative references in this document.

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

1.4 Terms and definitions

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

1.4.1

competent person

person who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task

1.4.2

may

indicates the existence of an option

1.4.3

shall

indicates that a statement is mandatory

1.4.4

should

indicates a recommendation

**1.4.5
walk**

action of a person at the top of a ladder who, by moving their body, causes the bottoms of the ladder stiles to lift clear of the floor so causing the ladder to move

Section 2 Common guidelines

2.1 Principles

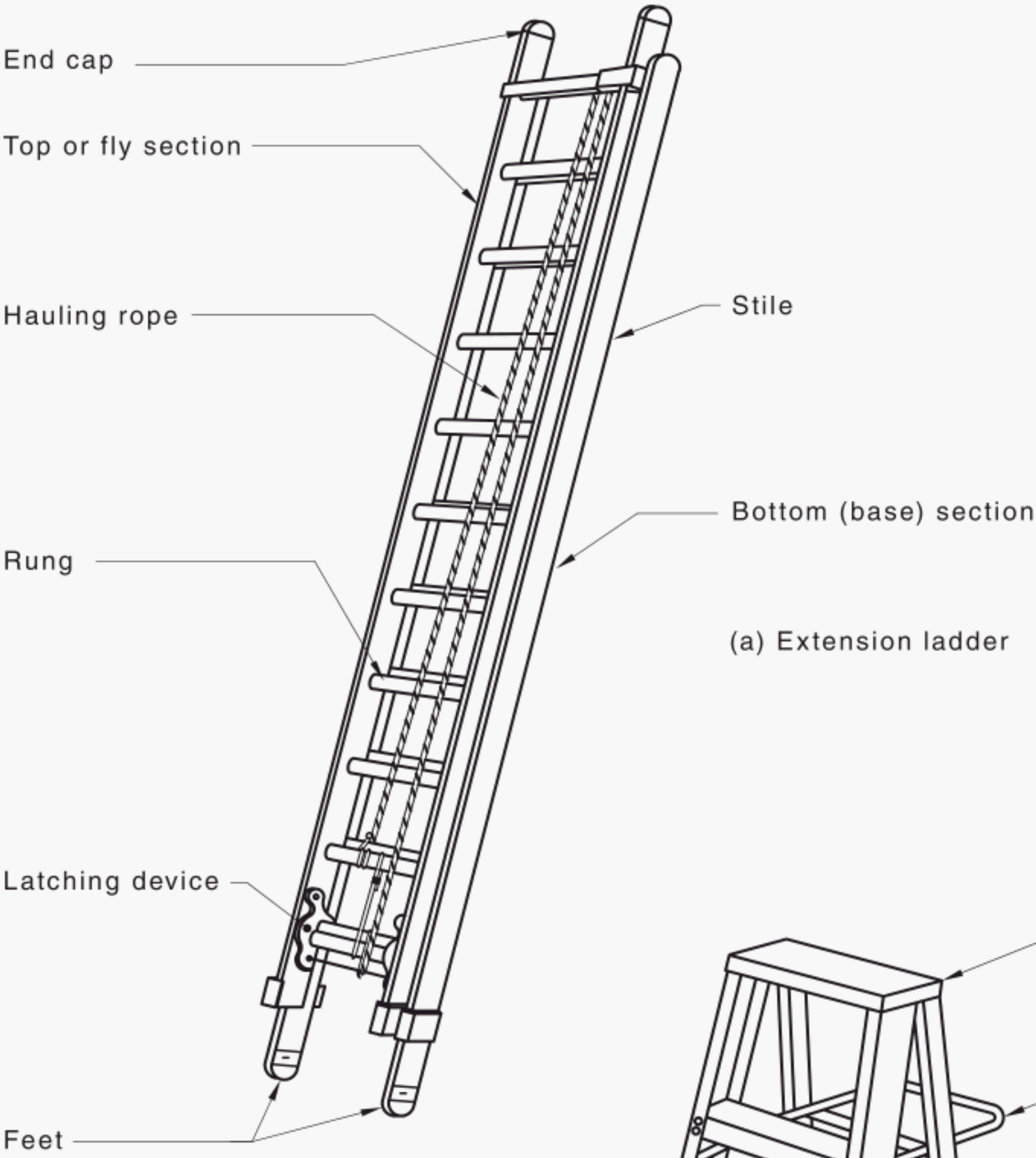
The following general principles should be observed:

- (a) Type and length of ladder appropriate to the task should be chosen.
- (b) Ladders should be in a sound condition for use.
- (c) Ladders should be placed on a firm supporting surface.
- (d) Ladders should be placed in a safe working position.
- (e) Ladders should not be left unattended while erected in a public place.
- (f) Ladders that conform to AS 1892.1 or AS 1892.2, as appropriate, should be used.
- (g) In hazardous wind or adverse weather conditions, extreme care should be taken.
- (h) Fully enclosed, slip-resistant footwear should be worn when using ladders.

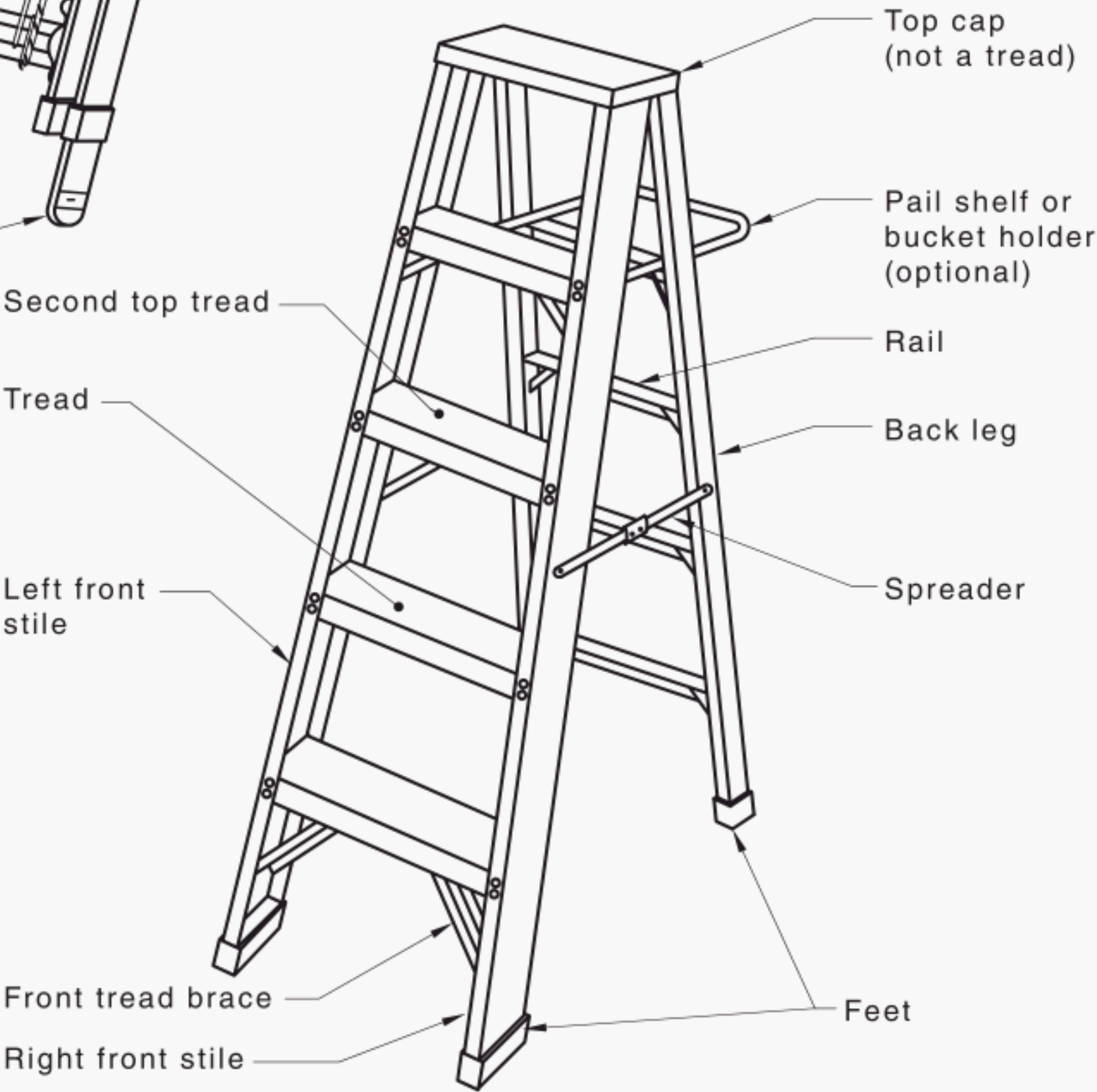
In order to observe these principles, hazards that may need to be considered include the following:

- (i) Height of the work or access area.
- (ii) Site layout and access constraints.
- (iii) Location of brittle or friable surfaces.
- (iv) Proximity to powerlines.
- (v) Proximity to mobile plant.
- (vi) Proximity to pedestrians or other workers.

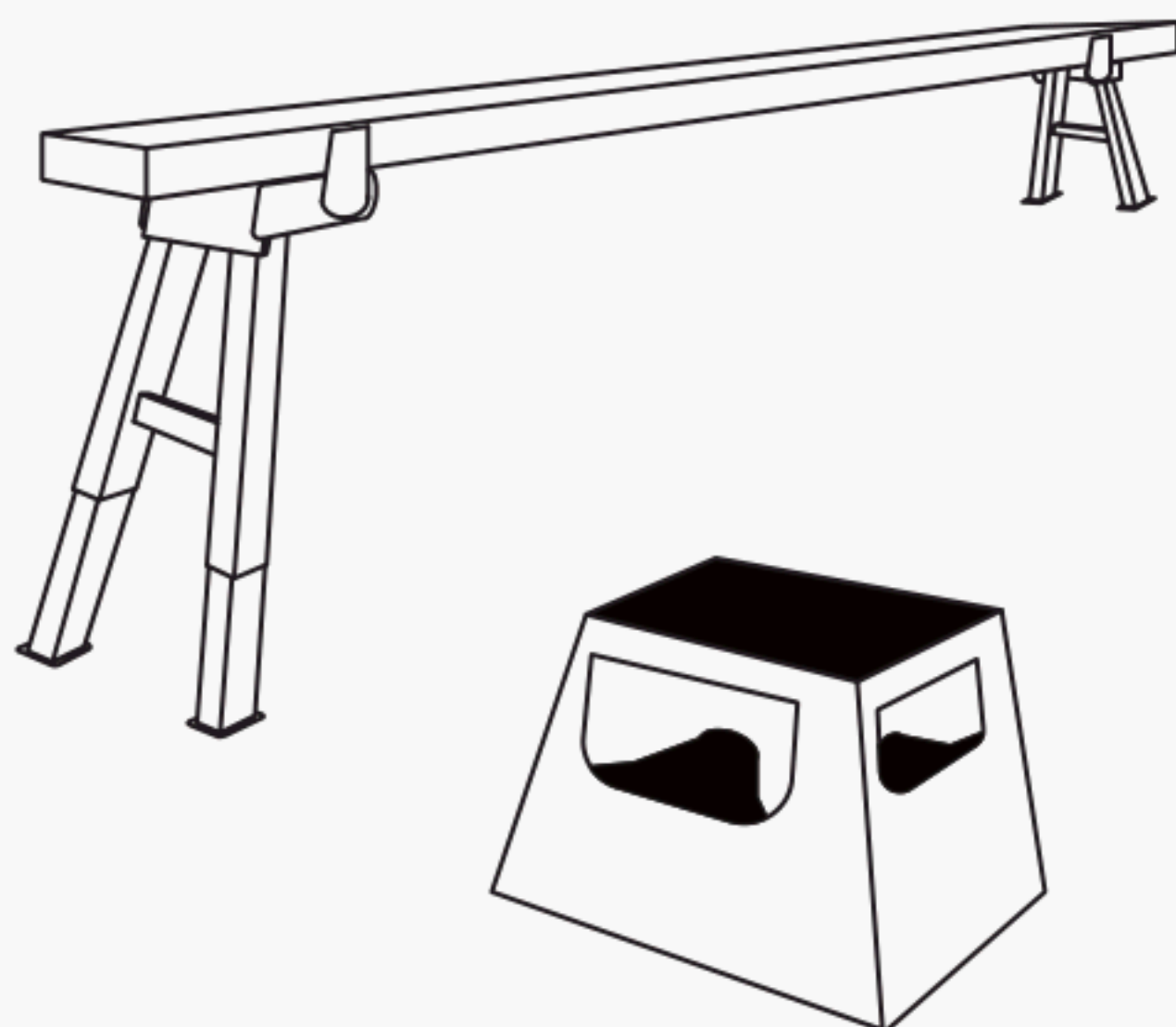
NOTE Examples of components and terms relating to ladders are shown in [Figure 2.1](#).



(a) Extension ladder



(b) Stepladder



(c) Work platform—examples



(d) Step stool—example

Figure 2.1 — Examples of components and terms relating to ladders

2.2 Handling of ladders

2.2.1 Care in handling and setup

Ladders should not be dropped, jarred or misused. Before a ladder is to be raised, lowered or carried, risks associated with the task should be assessed. These risks include the following:

- (a) Slope, strength and friction of the supporting surface.
- (b) Height and reach required
- (c) Environmental conditions.
- (d) Work areas, e.g. adequate space available to handle and set up the ladder.
- (d) Manual handling.
- (e) Potential for contact with persons or objects within the swing or fall radius of the ladder. A device to assist or more than one person may be needed to handle and set up the ladder. The ladder should remain under the control of the person or persons handling the ladder at all times.

When a ladder is being raised, lowered or carried, encroachment of any exclusion zones, such as distance to powerlines, and contact with any person or object in the vicinity, should be avoided.

2.2.2 Care during transport

Where a ladder is being transported by a vehicle, including push carts or trolleys, the ladder should be supported to avoid sagging. Overhang of the ladder beyond supporting points should be limited. Ladder supports should be made of material that will not damage the ladder and has enough friction to prevent sliding, e.g. wood or rubber-covered metal. The ladder should be securely fastened to the supports to minimize chafing and the effects of road shock.

When a ladder is being transported on edge (i.e. with treads or rungs vertical), the ladder should be supported under the lower stile to prevent springing of the rungs.

2.3 Pitch angle

Portable non-self-supporting ladders should be pitched at an angle of 4:1, i.e. set the base 1 m out from the wall for every 4 m it reaches up (see [Figure 2.2](#)).

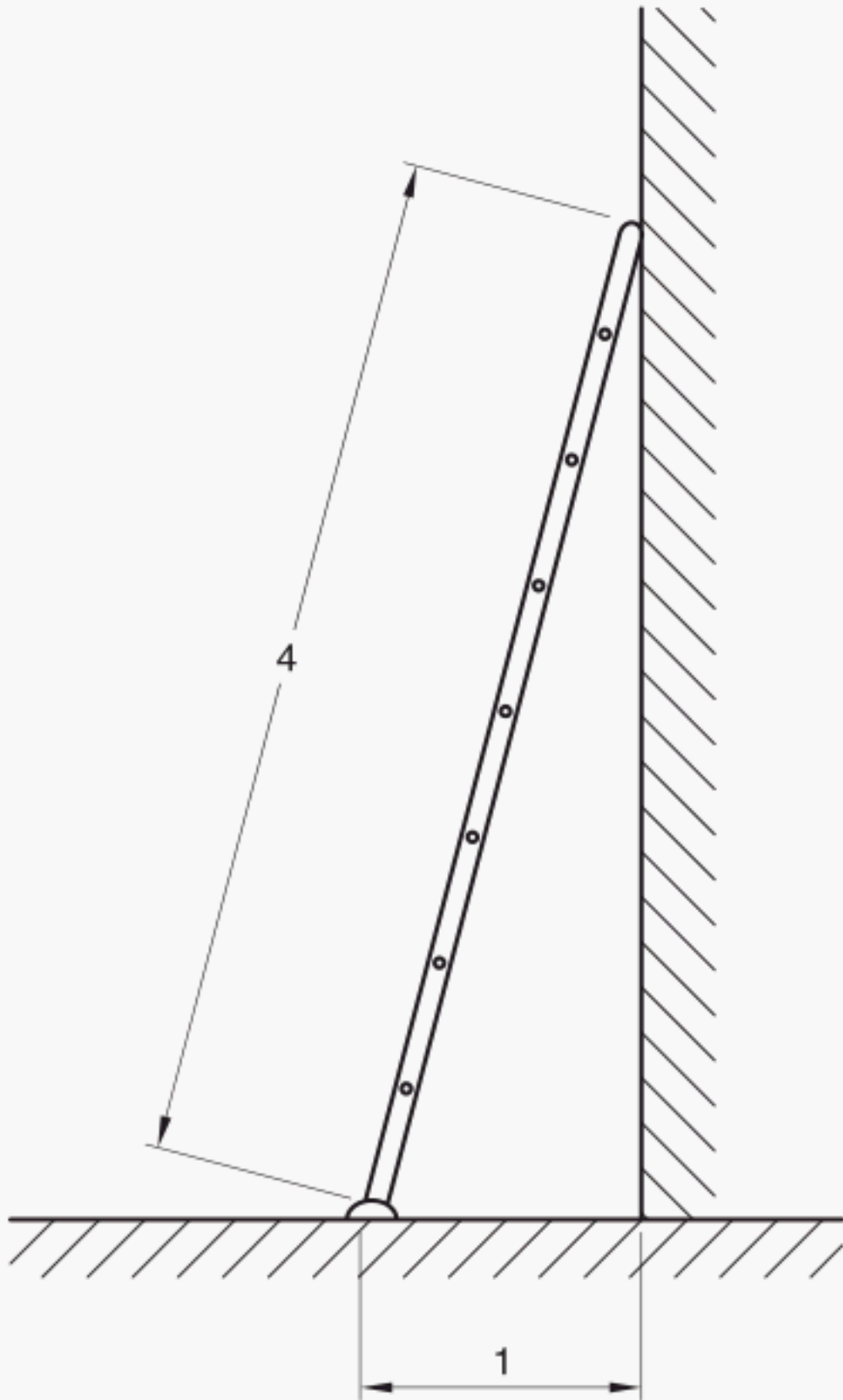


Figure 2.2 — Pitch angle

2.4 Footing

Ladders should be placed on a firm and level footing. Ladders should not be used on slippery surfaces unless suitable means to prevent slipping are employed, e.g. lashing. Stiles should not be supported by boxes, loose bricks or other loose packing or unstable surfaces. Where levelling is required, a ladder leveller or other suitable device should be installed on the ladder.

Non-self-supporting ladders should be secured at the footing to minimize the risk of ladder movement, e.g. by lashing or having a person holding the bottom of the ladder in place.

2.5 Top of ladder

The top of the ladder should be evenly supported by its stiles and leant against a surface structurally capable of withstanding the applied load.

NOTE 1 A suitable device may need to be fitted to the ladder to distribute the load over a larger area or to transfer the load to an adjacent structural member where, for example, a ladder is to be placed against framing, brittle material or a window opening.

The top of the ladder should not be supported by the rungs. Where the top of the ladder is to be supported against a pole, tree or similar structure that may result in rung loading, it should be fitted with a pole chain, strap, hoop or other suitable device to transfer the support load to the stiles.

The top of the ladder should be secured in position as soon as is practicable before use.

NOTE 2 Care is needed when securing the top of an extension ladder with clutches that rely on gravity acting on the upper section(s) of the ladder to keep the clutch mechanism engaged. If the support at the top of the ladder is able to move as the user's weight moves up the ladder, the top ladder section can be pulled away from the bottom section and the clutch may separate from the rungs, potentially disengaging and causing the ladder to drop down to a lower clutch engagement position. This may cause the ladder to lose connection with the support. Also, in some designs the slide guide connecting the upper and lower ladder sections may fail and allow the ladder to hinge in a scissor action.

NOTE 3 A similar problem may occur when lowering an extension ladder into a well, cavity or a lower roof section whereby the clutch may fully or partly disengage, resulting in a failure when ascending or descending the ladder.

NOTE 4 In situations where the bottom and top sections of an extension ladder can move in a way to extend the ladder, the clutch engagement may not be reliable.

2.6 Using a ladder to gain access

Where a ladder is used to gain access onto a work area or roof, the stiles of the ladder should extend above the level of the work area or roof by not less than 1 m. The ladder should be secured at the top before the user transitions from the ladder onto the working platform or roof to prevent sideways slipping or movement away from the top support.

Care should be taken when transitioning between the ladder and the landing as a need to swing around the stile during the transition increases the potential for slipping or falling.

NOTE 1 In some cases, the ladder could be installed so that it can be accessed from the side.

NOTE 2 In some cases, stile extensions could be incorporated to allow the user to pass between the stiles when transitioning. Where stile extensions are used, the top rung should be level with or immediately below the landing so as not to create a trip hazard when passing between the stiles.

2.7 Climbing ladders

When ascending or descending a ladder, the user should face the ladder and be able to grip the ladder with both hands. The use of a tool pouch, or similar, should be considered when carrying tools.

Users should have at least one foot and one hand contact with the ladder while ascending or descending the ladder. The user should not climb or move laterally from one ladder to another.

NOTE For ladders without stiles (i.e. work platforms), it is not expected that a hand will be used to grip the ladder. However, it may be necessary to grip an adjacent structure or object for balance.

2.8 Ladders used near door openings

Where a ladder is to be placed near a doorway, the door should be blocked open, locked closed or removed. In addition to guarding the door, appropriate warning signs may be placed or erected.

2.9 Working on ladders

When working on a ladder, the user should remain centred between the stiles and maintain three points of contact.

NOTE 1 Three points of contact in this context means both feet and one other point of contact such as the waist, upper torso or hand.

NOTE 2 Three points of contact are not required for ladders that incorporate a platform specifically designed for working on, e.g. platform stepladders, work platforms and some step stools.

NOTE 3 Examples of working on a ladder include using hand tools and passing objects to a person on the ground.

The user should not stand higher than the tread or rung indicated on the ladder as the highest standing level. The user should not stand —

- (a) on the top cap or the top tread of a self-supporting ladder;
- (b) above the second top rung of a non-self-supporting ladder; or
- (c) on the rear horizontal braces of a single-sided self-supporting ladder.

Ladders should be used for short duration, light duty manual tasks.

NOTE 4 Some tasks using ladders may be considered hazardous manual tasks under WHS legislation (e.g. involving repetitive movement, sustained or awkward postures, sustained or repetitive forces etc). The longer or more repetitive a task the more likely its is to be hazardous, and some ladders may be more ergonomically suitable to certain tasks than others. Guidance on managing risks of hazardous manual tasks is not covered in this Standard but may be found elsewhere e.g. WHS Regulator guidance material. The ladder should be kept close to the work. The user should keep their centre of mass within the footprint of the ladder and not overreach. Instead, the user should descend and relocate the ladder. A ladder should not be relocated while anyone is on the ladder. When using a ladder, the user should not push or pull unless the ladder is properly secured.

When a self-supporting ladder is to be relocated, tools should be removed from the top cap before moving the ladder.

Users should not “walk” the ladder to reposition it. Instead, users should descend and relocate the ladder.

Where the ladder incorporates guardrails, users should not stand on these to gain extra height or lean against them to gain extra reach. Care should be taken when lifting items over the guardrails as the combined centre of mass of the user and the item they are holding can extend beyond the footprint of the ladder causing it to become unstable.

2.10 Movement on ladders

2.10.1 Number of persons on a ladder

Only one person should be on a ladder at a time. However, emergency conditions may necessitate a second person being on a ladder. In these circumstances, only one person should move at a time. A non-self-supporting ladder should be inclined to a steeper angle than that recommended in [Clause 2.3](#). The ladder should be lashed in position.

Only one person should be on a ladder at one time during normal use.

Use of a second person on a ladder in an emergency scenario should only occur if an appropriate system of work has been developed prior that ensures the stability and integrity of the ladder under the emergency conditions. The system of work should be developed in consultation with the ladder manufacturer or in accordance with the manufacturer’s instructions. The ladder should be lashed to prevent movement and only one person should move at a time. A non-self-supporting ladder may need to be inclined at a steeper angle to minimize stile bending.

2.10.2 Number of ladders

Where frequency of traffic or other circumstances warrant, separate ladders should be provided for ascent and descent.

2.11 Step ladders

Double-sided step ladders should only be used in the fully open position. A single-sided stepladder may be used in the closed position by leaning it against a support. In this case, all of the load should be carried by the front stiles.

2.12 Trestle ladders

Trestle ladders should only be used in the fully open position.

Trestle ladders with a rung spacing that exceeds 300 mm should only be used when incorporated into a scaffold system. Trestle ladders with a rung spacing of 300 mm may be used as a standalone ladder.

NOTE The additional rung spacing on some trestle ladders is to allow scaffold planks to be installed.

The design and use of trestle ladder scaffolds should be in accordance with AS/NZS 1576.5.

2.13 Use of ladders to support working platforms

2.13.1 Self-supporting ladders

Only trestle ladders or multipurpose ladders configured as trestle ladders should be used to support a scaffold plank or platform upon which a person is to work.

Use of these ladders when supporting planks or working platforms should be in accordance with AS/NZS 1576.5.

2.13.2 Non self-supporting ladders

Extension ladders or single ladders should not be used to support a plank upon which a person has to work.

NOTE This Standard no longer includes provision for the use of ladder brackets that connect to the rungs and support a single plank.

2.13.3 Improper use

A ladder should not be used as a replacement for guys, braces, struts, beams, skids, bridges, ramps or gangways, or for any other use than that specified in the manufacturer's instructions.

2.14 Use of fall arrest

Industrial fall arrest equipment should not be installed onto a ladder unless permitted in the manufacturer's instructions. Ladders that incorporate integral fall arrest devices should be used as specified in the manufacturer's instructions.

Fall arrest equipment that is separate to the ladder may be used where the use does not interfere with the integrity or stability of the ladder or prevent the user from climbing or using the ladder as recommended in [Clauses 2.7](#) and [2.8](#).

Fall arrest equipment and systems should conform to the AS/NZS 1891 series.

NOTE In an arrested fall, the total fall distance includes the free fall distance, plus any lanyard/harness stretch, lanyard deployment and anchorage deflection. Many ladders do not provide sufficient distance between the user's feet and the supporting surface to allow a fall to be arrested.

2.15 Safety information

Ladders should only be used for the purpose for which they are designed as specified in the manufacturer’s instructions. All warning labels and safety information affixed to ladders should be followed. This information should not be removed from ladders.

As ladder use is a manual task, the degree of physical exertion by the user should be considered when selecting ladders and developing systems of work involving ladder use.

Section 3 Metal ladders

3.1 Electrical hazards

Metal ladders, including step and trestle ladders, shall not be used where an electrical hazard exists. When handling a metal ladder, care shall be taken to ensure that the ladder does not make contact with powerlines and conductors.

3.2 Maintenance

Metal ladders should be checked frequently and maintained in a good condition. All pivoting or rotating surfaces should be lubricated with suitable lubricant, or lubricant according to the manufacture's specifications. Fasteners and rivets should be present and secure before the ladder is used. If a fastener or rivet is found to be loose or missing, the ladder should not be used until repairs are completed. Ladder feet that are excessively worn or missing should be replaced before use. Ropes showing sign of fraying, wear, rot or other damage should be replaced.

Under no circumstances shall any temporary repairs be made to a metal ladder.

Broken or bent ladders or ladders with parts missing shall be marked and taken out of service until they are repaired by a competent person or destroyed in such a manner as to render them useless, e.g. by cutting into lengths of approximately 1 m, or not more than two rungs.

Repairs carried out to ladders shall not weaken the ladder from the original design specification.

3.3 Inspection

A thorough ladder inspection should be made —

- (a) when originally purchased, received and put into service;
- (b) before each use;
- (c) after mishaps, drops and impacts; and
- (d) periodically.

Metal ladders should be checked for internal corrosion, loose rung or tread-to-stile connections, and deformed flanges. Where a defect is found, the ladder shall be marked and taken out of service for either repair by a competent person or destruction.

NOTE A ladder register may be appropriate to record and track inspections.

3.4 Tipping over, and other impact damage

Where a metal ladder has been tipped over or has been exposed to impact, it shall be inspected for dents, bends, damage (e.g. distortion), deformed flanges or excessively dented rungs. All rung or tread-to-stile connections shall be checked, as well as hardware connections, rivets (for shear) and all other components.

3.5 Exposure to fire

If ladders are exposed to excessive heat, such as that from fire, their strength may be reduced. After such exposure, steel ladders shall be inspected visually for damage and tested for deflection and strength characteristics before further use, refer to AS 1892.1. Aluminium ladders should be discarded.

3.6 Corrosive substances

When metal ladders are to be exposed to a corrosive environment that could significantly reduce the working load, product life or other performance properties (e.g. deflection under load) of the ladder, the manufacturer or a competent person shall be consulted prior to such exposure.

3.7 Storage

Metal ladders should be stored in or on racks designed to protect the ladder when it is not in use, preferably under cover. These racks should have enough supporting points to avoid sagging. Material should not be placed on the ladder while the ladder is in storage.

Section 4 Non-metallic ladders

4.1 Maintenance

Non-metallic ladders should be maintained in a good condition, and be clean and free from splinters and fibres. Fittings and rungs or treads should be tight and securely attached. Pivoting and rotating components should be suitably lubricated, and all moving parts should operate freely without bending or play. Ropes showing signs of fraying, wear, rot or other damage should be replaced.

Under no circumstances shall any temporary repairs be made to a non-metallic ladder.

If the surface of a reinforced plastic ladder has degraded (e.g. as a result of exposure to ultraviolet radiation), some reinforcing fibres may become exposed.

The ladder stiles should be washed with a commercial solvent or liquid detergent solution compatible with the stile material and allowed to air dry. The stile should be coated with a polyurethane or acrylic lacquer. More than one coat of lacquer may be required to fully encapsulate the exposed fibres.

Broken, cracked, delaminated, split, fractured, crushed or bent ladders or ladders with parts missing shall be marked and taken out of service until they are repaired by a competent person or destroyed in such a manner as to render them useless, e.g. by cutting into lengths of approximately 1 m, or not more than two rungs.

Repairs carried out to ladders shall not weaken the ladder from the original design specification.

NOTE Due to the complexity of design, material specification and the requirement for electrical non-conductivity, refer to the original manufacturer or importer for advice or information prior to starting any repairs to damaged stiles.

4.2 Inspection

A thorough ladder inspection should be made —

- (a) when originally purchased, received and put into service;
- (b) before each use;
- (c) after mishaps, drops and impacts; and
- (d) periodically.

Non-metallic ladders should be checked for internal corrosion and loose rung or tread-to-stile connections. Where a defect is found, the ladder shall be marked and taken out of service for either repair by a competent person or destruction.

4.3 Tipping over, and other impact damage

Where a non-metallic ladder has been tipped over or exposed to impact damage, it shall be inspected for splits, cracks, delaminations, dents or bends, or excessively dented rungs. All rung or tread-to-stile connections shall be checked, as well as hardware connections, rivets (for shear) and all other components.

4.4 Exposure to fire

If non-metallic ladders are exposed to excessive heat, such as that from fire, their strength may be reduced. After such exposure, ladders shall be inspected visually for damage and tested for deflection and strength characteristics before further use, refer to AS 1892.1.

4.5 Corrosive substances

When non-metallic ladders are to be exposed to a corrosive environment that could significantly reduce the working load of the ladder, the manufacturer or a competent person shall be consulted prior to such exposure.

4.6 Storage

Non-metallic ladders should be stored in or on racks designed to protect the ladder when it is not in use, preferably under cover. These racks should have enough supporting points to avoid sagging. Material should not be placed on the ladder while the ladder is in storage.

Section 5 Timber ladders

5.1 Electrical hazards

Timber ladders using exposed wire reinforcement in the stiles shall not be used where an electrical hazard exists.

5.2 Hot conditions

Timber ladders should not be placed where they may be subjected to prolonged exposure to temperatures greater than 66 °C.

5.3 Maintenance

Timber ladders should be maintained in a good condition, and be clean and free from splinters, spilt paint or other opaque deposits. Fittings and rungs or treads should be tight and securely attached. Pivoting and rotating components should be lightly oiled, and all moving parts should operate freely without bending or play. Ropes showing signs of fraying, wear, rot or other damage should be replaced.

rungs. All rung or tread-to-stile connections shall be checked, as well as hardware connections, rivets (for shear) and all other components.

5.7 Corrosive substances

When timber ladders are to be exposed to a corrosive environment that could significantly reduce the working load of the ladder, the manufacturer or a competent person shall be consulted prior to such exposure.

5.8 Storage

Timber ladders should be stored in or on racks designed to protect the ladder when it is not in use, preferably under cover. These racks should have sufficient supporting points to avoid sagging. Material should not be placed on the ladder while the ladder is in storage.

Timber ladders should be stored in well-ventilated places and protected from the weather, decay and insect attack. Places that are damp or subject to extremes of temperature should not be used for storage purposes.

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