Industry standard

# Scaffolding

## For the safe use of scaffolding in the workplace

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WorkSafe VICTORIA | Reducing workplace harm.

VICTORIA State Government

**Disclaimer**

The information presented in the industry standard is intended for general use only. It should not be viewed as a definitive guide to the law and should be read in conjunction with the *Occupational Health and Safety Act 2004.*

Whilst every effort has been made to ensure the accuracy and completeness of the industry standard, the advice contained herein may not apply in every circumstances. Accordingly, the Victorian WorkCover Authority cannot be held responsible, and extends no warranties as to the suitability of the information for your specific circumstances; or actions taken by third parties as a result of information contained in the industry standard.



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# Acknowledgments

This industry standard has been published by WorkSafe Victoria on behalf of Foundations for Safety Victoria, the peak consultation body representing the Victorian construction industry on OHS matters of public interest and importance. Foundations for Safety Victoria has endorsed this document as an industry standard for scaffolding.

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- CFMEU, Construction and General Division
- Housing Industry Association
- Master Builders Association of Victoria
- Scaffolding Association Australia
- Victorian Construction Safety Alliance
- Victorian Scaffolding Safety Committee
- Victorian Volume Home Builders Safety Alliance
- WorkSafe Victoria.

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Some content from *AS 4576:2020 Guidelines for scaffolding* was reproduced by WorkSafe Victoria in this industry standard with the permission of Standards Australia Limited under licence CLF1222WSV.

# Foreword

## Who should use this industry standard?

This industry standard is for all persons who manage hazards and risks related to the design, erection, inspection, use, dismantling and/or maintenance of scaffold and scaffolding work. This includes:

- employers
- scaffolders
- site supervisors
- employees.

## Scope

This industry standard gives practical advice on the safe design, erection, inspection, use, dismantling and maintenance of scaffolds and scaffolding work. It includes principles and requirements for scaffolds and scaffolding work across a broad range of industries and applications.

The content is based on industry expectations, current practices and systems at the time of publication. This industry standard does not stop a person from using other ways and systems in the future if those methods provide the same or higher level of safety.

This industry standard does not give detailed information about the duties scaffold manufacturers need to comply with. For information about manufacturer duties, see *Compliance code: Plant* at **worksafe.vic.gov.au.**

# Part 1: Introduction

## 1.1 Who has duties?

Under the *Occupational Health and Safety Act 2004* (OHS Act) and Occupational Health and Safety Regulations 2017 (OHS Regulations), the following all have duties:

- employers
- self-employed persons
- people who manage or control workplaces
- employees
- designers of buildings, structures or plant
- manufacturers and suppliers of plant to be used at a workplace
- people who install, erect or commission plant.

The OHS Regulations define:

- **Scaffold** as a type of plant. This means that those involved in scaffolding work will need to comply with specific duties for plant under the OHS Regulations.
- **Scaffold** as being a temporary structure specifically erected to support access or working platforms.
- **Scaffolding work** as being:
  - » the erection, alteration or dismantling of a scaffold
  - » if the scaffold is such that a person or object could fall more than 4 m from the scaffold.

**Note:** The word **must** indicates a legal requirement that has to be complied with. The term **need(s) to** is used to indicate a recommended course of action in accordance with duties and obligations under Victoria's health and safety legislation. The word **should** is used to indicate a recommended optional course of action.

### Employer duties to employees

Employers must, so far as is reasonably practicable:

- Provide and maintain a working environment for their employees that is safe and without risks to health. Employees include independent contractors and labour hire employees.
- Provide employees with the necessary information, instruction, training or supervision to enable them to do their work in a way that is safe and without risks to health.
- Consult with employees and health and safety representatives (HSRs) when:
  - » identifying or assessing hazards or risks
  - » making decisions about risk control measures.
- Provide or maintain plant or systems of work that are safe and without risks to health.
- Ensure safety and the absence of risks to health in connection with the use, handling, storage or transport of plant or substances.
- Maintain each workplace under the employer's management and control in a condition that is safe and without risks to health.
- Provide adequate facilities for the welfare of employees at any workplace under the management and control of the employer.
- Not let an employee perform high risk work (HRW) unless the employee holds an appropriate HRW licence for the work (unless an exception applies as per the OHS Regulations r130).
- Not perform high risk construction work (HRCW) unless:
  - » there is a safe work method statement (SWMS) for the work before the work starts
  - » the work is done in accordance with the SWMS.

For information about what the term **reasonably practicable** means when complying with the OHS Act or OHS Regulations, see the WorkSafe position *How WorkSafe applies the law in relation to Reasonably Practicable* at **worksafe.vic.gov.au.**

### Employer duties to other persons

During the erection, use, altering and dismantling of a scaffold, adequate public safety needs to be maintained in:

- public places
- areas adjoining the work area.

Where a scaffold is to be erected, used, altered or dismantled, controls to protect the public need to be:

- Assessed and planned in consultation with relevant parties. This includes principal contractors, scaffold suppliers and local councils.
- Implemented before the start of the work.
- Maintained during the progress of the work.
- Regularly inspected.

As part of the general duty to other persons under sections 23 and 24 of the OHS Act, employers must ensure that non-employees such as members of the public are not exposed to health and safety risks from their activities. They must do this so far as is reasonably practicable.

To meet this obligation, employers should use risk control measures, which can include:

- establishing exclusion zones around scaffolds and adjoining areas
- using perimeter containment sheeting or gantries to contain falling objects.

Employers must regularly review and revise the control measures to ensure they effectively control any risks to non-employees.

### Employer duties to prevent falls

Under the OHS Regulations, employers must prevent falls from **more than 2 m** in the workplace. This includes duties to:

- Identify, so far as is reasonably practicable, any task that involves a fall hazard. This includes:
  - on any plant or structure being constructed, demolished, inspected, tested, maintained, repaired or cleaned
  - on a fragile, slippery or potentially unstable surface
  - when using equipment to gain access to an elevated level or to undertake a task at an elevated level
  - on a sloping surface that is difficult to maintain
  - near an unprotected edge
  - near a hole, trench, shaft or pit that a person could fall into.
- Eliminate any risk associated with a fall at the workplace, so far as is reasonably practicable. Where it is not reasonably practicable to eliminate a risk, work through the hierarchy of control to reduce the risk so far as is reasonably practicable. See Part 6 for more information on the hierarchy of control.

**Note:** Section 21 of the OHS Act requires employers to provide and maintain a working environment that is safe and without risks to health. They must do this so far as is reasonably practicable. This includes managing risks associated with falls of **2 m or less.**

For information about duties relating to preventing falls, see **worksafe.vic.gov.au** for the:

- *Compliance code: Prevention of falls in general construction*
- *Compliance code: Prevention of falls in housing construction.*

# Part 1: Introduction

**Employer and self-employed persons duties regarding plant**

> **Reminder:** Scaffolds are 'plant' under the OHS Regulations.

Employers or self-employed persons must:

- Identify hazards related to installing, erecting, commissioning, decommissioning, dismantling and using plant (such as scaffolding) at the workplace where it is used. This must be done so far as is reasonably practicable.
- Identify hazards related to the systems of work associated with plant. This must be done so far as is reasonably practicable.
- Eliminate any risk related to plant, so far as is reasonably practicable. Where it is not reasonably practicable to eliminate a risk, work through the hierarchy of control to reduce the risk, so far as is reasonably practicable. See Part 6 for more information on the hierarchy of control.
- Ensure:
  - » there is enough clear working area around the plant so it can be used safely
  - » the layout of the plant does not create a risk in the entry to or exit from the workplace.
- Ensure the plant is only commissioned and decommissioned if safe to do so.
- Ensure the plant is inspected and any risks are monitored during processes of:
  - » installation
  - » erection
  - » commissioning
  - » decommissioning
  - » dismantling.
- Ensure the plant is inspected and any risk associated with its use is monitored.
- Ensure steps are taken to prevent:
  - » alterations to the plant that have not been permitted by the employer
  - » people from interfering with the plant.
- Ensure the plant is left in a state that is safe and does not create a risk for any person when not in use, so far as is reasonably practicable.
- For a scaffold, ensure:
  - » work is only done from a scaffold when it is complete or the relevant part of the scaffold is complete, except the work of erecting or dismantling the scaffold
  - » it is secure and capable of supporting the work being done from it
  - » if the scaffold or its supporting structures are in an unsafe condition, repairs, alterations or additions are done as soon as possible and before the scaffold is used
  - » if the scaffold is left unattended, people who would not usually be using the scaffold are prevented from accessing it, so far as is reasonably practicable.
- Review and, if necessary, revise any methods used to control risks associated with plant or associated systems of work:
  - » before the plant is used for the first time at the workplace
  - » before the plant is altered or any change is made to the way it is used or its systems of work, including a change in the location of the plant
  - » if new or extra information about hazards or risks relating to the plant or its associated systems of work becomes available
  - » after a notifiable incident occurs involving plant or its system of work
  - » if, for any other reason, the control in place does not control the risks
  - » after receiving a request from an HSR.

- If a hazard related to plant and its system of work is identified, ensure that employees and contractors likely to be exposed to the risk, and any person supervising them, are trained and given information and instruction on:
  - » the processes used for hazard identification and risk control
  - » the safety procedures for using plant at the workplace
  - » the use, fit, testing and storage of personal protective equipment (PPE), if used as a risk control measure.
- Give an employee involved in commissioning, installing, testing, decommissioning, dismantling, disposing of, inspecting or maintaining the plant information on how to do this safely. This also includes any person supervising the employee. This must be done so far as is reasonably practicable.
- Notify WorkSafe immediately after becoming aware a notifiable incident has occurred. For more information, see *Report an incident: Criteria for notifiable incidents* at **worksafe.vic.gov.au.**

Other duties apply to the use of plant in the workplace. For more information, see *Compliance code: Plant* at **worksafe.vic.gov.au.**

### Plant design registration

Certain plant design must be registered with WorkSafe before it can be used at a workplace.

This applies to prefabricated scaffolding. This is a system of parts made in such a way that the designer has pre-determined the possible geometry of assembled scaffolds.

A list of plant that must be design-registered is in:

- Schedule 2 of the OHS Regulations
- *Compliance code: Plant.*

### Designers, manufacturers and suppliers of plant

Designers, manufacturers and suppliers of plant to be used at a workplace have a duty to make sure that any plant they design, make or supply is:

- safe and without risks to health and safety
- if used for a purpose for which it was designed, made and supplied.

They must do this so far as is reasonably practicable.

Designers, manufacturers and suppliers of plant also have duties to:

- Give adequate information on:
  - » the purpose or purposes for which the plant was designed, manufactured or supplied
  - » any conditions necessary to ensure the plant is safe and without risks to health if it is used for a purpose for which it was designed, manufactured or supplied.
- Give such information to a person who uses or is to use the plant, on request.

For more information on duties of designers, manufacturers and suppliers of plant, see *Compliance code: Plant* at **worksafe.vic.gov.au.**

### Suppliers who hire or lease plant

A supplier of plant who hires or leases plant must:

- Ensure it is inspected and maintained, and that any risks arising from its use are controlled, so far as is reasonably practicable, between any hiring or leasing of the plant.
- Record details of any inspection or maintenance.
- Keep the record while the supplier has management and control of the plant. This includes when the plant is being operated by another person who has hired or leased the plant from the supplier.

### Persons installing and commissioning plant

A person who installs, erects or commissions plant such as scaffold at a workplace must ensure that nothing about the way this is done makes it either:

- unsafe to use
- a risk to health.

They must do this so far as is reasonably practicable.

### Self-employed persons

A self-employed person must make sure that people are not exposed to health or safety risks arising from their business conduct. They must do this so far as is reasonably practicable.

### Employees

Employees, while at work, must:

- Take reasonable care for:
  - » their own health and safety
  - » the health and safety of others who may be affected by the employee's acts or omissions in the workplace.
- Cooperate with their employer's actions to make the workplace safe. For example, by following any information, instruction or training provided.
- Not intentionally or recklessly interfere with or misuse anything provided at the workplace in the interests of health, safety or welfare.

Further, a person must not perform HRW unless they hold an appropriate HRW licence for the work. See Part 2.2 for more information on HRW and licensing requirements.

### Persons in management and control of a workplace

A person who has any level of management or control of a workplace must make sure that the workplace, and the ways of entering and leaving it, are safe and without risks to health. They must do this so far as is reasonably practicable.

## 1.2 Safe work method statement for high risk construction work

Erecting, altering, dismantling or using a scaffold will often be classified as high risk construction work (HRWC). For example, if a person is:

- at risk of falling more than 2 m
- working near energised electrical installations or services.

A safe work method statement (SWMS) is a document that must:

- identify the type of HRCW
- state the hazards and risks arising from that work
- describe the risk control measures that will be used
- describe how the control measures will be used, monitored and reviewed
- be easy to understand and accessible to all persons who use it.

Hazards and risks change from site to site. This is why SWMS need to be site-specific rather than generic. For a generic SWMS to be acceptable, duty holders need to:

- review it on site
- include all HRCW and risks associated with the activity before works commence.

Any content that is not relevant to the site should be removed.

Employers and self-employed persons must ensure that HRCW is done in line with the SWMS.

If the SWMS is not complied with, the HRCW must stop immediately or as soon as it is safe to do so. HRCW cannot resume until:

- it complies with a SWMS
- the SWMS is reviewed and, if necessary, revised.

The duty holder must review and revise the SWMS whenever:

- the HRCW changes
- there is an indication that risks are not adequately controlled by the control measures in place.

They must do this in consultation with the affected employees and their HSRs. The duty holder must retain a copy of the SWMS for the duration of the HRCW.

High risk construction work means any of the following construction work:

- where there is a risk of a person falling more than 2 m
- on or next to roadways or railways used by road or rail traffic
- in, over or next to water or liquids where there is a risk of drowning
- at workplaces where there is any movement of powered mobile plant
- where there are structural alterations that require temporary support to prevent collapse
- in an area where there are artificial extremes of temperature
- on or near energised electrical installations or services
- involving a trench or shaft more than 1.5 m deep
- on or near pressurised gas distribution mains or piping
- involving demolition
- involving a confined space
- on or near chemical, fuel or refrigerant lines
- involving tilt-up or precast concrete
- on telecommunications towers
- involving diving
- involving removal or disturbance of asbestos
- in an area that may have a contaminated or flammable atmosphere
- involving the use of explosives
- involving a tunnel.

For more information, see the *SWMS guidance* at **worksafe.vic.gov.au.**

# Part 2: Training and competency

## 2.1 Information, instruction, training and supervision

Employers must give employees information, instruction, training or supervision as is necessary to allow them to perform the work safely and without risks to health. Employees include:

- independent contractors
- labour hire employees.

The information, instruction, training or supervision needed depends on:

- the type of hazards in the workplace
- employees' understanding of the hazards, risks and control measures.

Employers must consult with employees when identifying hazards and assessing risks before making decisions about ways to eliminate or control risks. They must do this so far as is reasonably practicable.

Employers should keep records of induction and training given to employees and independent contractors.

Employers must also provide information, instruction, training or supervision to those employees who use scaffolds. Injuries from using scaffold can arise when people:

- misuse the scaffold
- make unauthorised modifications
- cannot identify hazards; for example, missing components.

## 2.2 High risk work licences

A person must not perform HRW unless they hold an appropriate HRW licence for the work (unless an exception applies as per the OHS Regulations r130).

An HRW licence will only be granted if WorkSafe Victoria assesses that the person applying for the licence is competent to safely perform the HRW applied for.

HRW licences are issued by WorkSafe Victoria or a corresponding interstate authority. They are not evidence of operator competency and/or appropriate training. Employees should also receive information, instruction or training on the specific scaffolding system they will be using before they can be deemed competent.

# Part 2: Training and competency

| High risk licence class | Description |
|---|---|
| **Basic scaffolding licence (SB)** | 1. Scaffolding work involving any of the following:<br>• prefabricated scaffolds (includes modular scaffolds)<br>• cantilevered material hoists with a maximum working load limit of 500 kg (materials only)<br>• ropes<br>• gin wheels<br>• safety nets and static lines<br>• bracket scaffolds (tank and formwork). |
| **Intermediate scaffolding licence (SI)** | 1. Scaffolding work included in the scope of work for basic scaffolding licence, and<br>2. Scaffolding work involving any of the following:<br>• cantilevered crane-loading platforms<br>• cantilevered scaffolds<br>• spur scaffolds<br>• barrow ramps and sloping platforms<br>• scaffolding associated with perimeter safety screens and shutters<br>• mast-climbing work platforms<br>• tube and coupler scaffolds (including tube and coupler covered ways and gantries). |
| **Advanced scaffolding licence (SA)** | 1. Scaffolding work included in the scope of work for intermediate scaffolding licence, and<br>2. Scaffolding work involving any of the following:<br>• cantilevered hoists<br>• hung scaffolds, including scaffolds hanging from tubes, wire ropes and chains<br>• suspended scaffolds. |

**Note:** There are two exceptions where unlicensed scaffolding work is permitted:

- The worker is both:
  - » enrolled in an accredited HRW licence scaffolding course with a registered training organisation
  - » working under the direct supervision of a person who holds the appropriate class of scaffolding HRW licence.
- The worker has received a notice of satisfactory assessment from the registered training organisation within the last 60 days but has not yet received the HRW licence.

# Part 2: Training and competency

**Unlicensed worker restrictions for scaffolding work**

Only licensed workers are permitted to undertake scaffolding work. There is no allowable 'ratio' of licensed to unlicensed workers. Common examples of unlicensed workers are:

- labourers
- other trades on site.

An unlicensed worker cannot:

- Erect or dismantle scaffolding where a person or object could fall more than 4 m.
- Alter or modify the scaffold in any way. This includes removing ties, planks, hop-ups or other components.
- Access the scaffold while it is being erected, altered or dismantled.
- Access the scaffold while it is incomplete.

Scaffolding work where HRW licences are needed only applies to scaffolds where a person or object can fall more than 4 m from the scaffold. Where this is not the case, HRW licences are not required.

However, employers and self-employed persons must still make sure that employees and other people are:

- not exposed to risks
- trained and competent to erect, alter and dismantle the scaffolding.

For information about licensing, including *How to apply for a HRW licence*, go to **worksafe.vic.gov.au.**

## 2.3 Competency

**Suitably competent persons**

A suitably competent person is required to erect, alter and dismantle scaffolding correctly, safely and efficiently. This person needs to be able to:

- Read and understand the:
  - » supplier's information
  - » general site plans
  - » design drawings
  - » specifications for scaffolds.

> **Note:** They may also need to be able to calculate dead load and live load.

- Recognise and understand the scaffolding equipment being used, including:
  - » identifying the system
  - » the design requirements and construction methods, including how to stabilise, configure and adjust scaffold components.
- Recognise common hazards and control the health and safety risks from these hazards.
- Prepare a SWMS before erecting, altering or dismantling a scaffold.
- Inspect scaffolding equipment for faults.
- Demonstrate the physical skills needed for scaffolding construction.
- Be competent in manual handling and lifting techniques.
- Work safely and confidently at heights.
- Correctly use the various tools, ropes and gin wheels.
- Erect and dismantle scaffolding in the correct sequence.

For further information, see *AS 4576:2020 Guidelines for scaffolding.*

# Part 2: Training and competency

**Suitably competent engineers**

In some instances, a suitably competent engineer is required to:

- assess the performance of a scaffold structure
- determine its suitability for a particular application.

This person needs to:

- have an engineering degree or equivalent level of education
- be familiar with scaffolding
- be familiar with construction sequence
- consider buildability in the design
- be able to design structures to suit the end use
- have experience designing temporary structures
- be able to do calculations to analyse temporary flexible structures
- understand scaffold design standards as per AS/NZS 1576 series and/or AS 1170 series
- know the material properties and technical characteristics of the scaffold system being analysed
- produce drawings, documents and/or other communication that the target audience can understand.

# Part 3: Planning and selection

## 3.1 Planning

When planning the job, assess the safest method for working at height. If scaffolding is too risky, consider other options like an elevating work platform.

Before starting, plan all stages of scaffold work to make sure all:

- hazards and risks are identified
- suitable risk control measures are in place and maintained.

Make sure the plan covers all people who are:

- involved in erecting, dismantling, maintaining and altering the scaffold
- using the scaffold
- near the scaffold (such as other employees and members of the public).

When planning to use a scaffold, think about:

- When in the job schedule should the scaffold be erected to provide access to trades?
- Which areas need to be accessible from the scaffold?
- What design features should the scaffold have to facilitate the emergency response?
- What capacity (duty classification) does the scaffold need to have for the work being done from the scaffold?
- Will trades need access to areas where ties have been connected? For example, renderers or window installers.
- Where and how will access be provided to the different scaffold levels?
- When will the work finish and the scaffold be dismantled?

## 3.2 Types of scaffold

It is important to choose the correct scaffolding type for the specific job. This ensures the scaffold is right for:

- the site conditions/constraints
- its intended use.

There are many types of scaffold systems. Many have been designed for specific uses or environments with specific constraints. When selecting the type of scaffold, consider the design, shape and location of the building or other structures.

The following are commonly used scaffolding types.

### Prefabricated scaffold

The OHS Regulations define prefabricated scaffolding as:

'... an integrated system of prefabricated components manufactured in such a way that the possible geometry of assembled scaffolds is pre-determined by the designer.'

Prefabricated scaffolding can include the following scaffolds:

- modular, such as ring lock, cup lock
- tower
- cantilever
- hung
- suspended, such as swing stage.

Prefabricated scaffolding must be design-registered before it can be used in the workplace.

# Part 3: Planning and selection

### Modular scaffold

Modular scaffold is a system of scaffolding comprising prefabricated individual parts. This is the most common type of scaffold used in the industry, as it is easy to assemble and dismantle. It is generally suitable for various types of work.

*Figure 1: Example of a modular scaffold. Some scaffold components are omitted for clarity.*

### Tower scaffold

Tower scaffold is an independent scaffold. It:

- is not connected to another structure for stability
- is generally made from lightweight prefabricated scaffolding
- incorporates fabricated units constructed as single-bay towers
- may also have an extra stabiliser bay or outriggers to increase stability.

*Figure 2: Example of a tower scaffold*

### Mobile scaffold

Mobile scaffold is a scaffold that is freestanding and mounted on castors.

*Figure 3: Examples of a mobile scaffold*

### Tube and coupler scaffold

Tube and coupler scaffolds are constructed of metal tubes connected by couplers to form a structure that supports working platforms made up of planks. Tube and coupler scaffold can be assembled in a wide range of configurations, making them very versatile.

*Figure 4: Example of a tube and coupler scaffold*

### Hanging bracket scaffold

Hanging bracket scaffolds are scaffold planks supported by frames on buildings or other structures. Hanging brackets are often made from braced L-shaped brackets, where the vertical arm is hung from, or secured to, the structure. The other arm projects horizontally to support the scaffold planks. Posts are installed at the end of the horizontal members to support guard railing.

Bracket scaffolds are sometimes set up to provide a catch platform. This is to safeguard roof workers like tilers or roof plumbers from falling to the ground or a lower level of the building under construction. Usually when this is done, the same scaffold provides a working platform for other tasks, such as facia and gutter installation.

For more information about catch platforms requirements, see:

- *Compliance code: Prevention of falls in housing construction*
- AS 4994 series.

Control measures such as toeboards need to be in place where:

- the potential fall height from the platform exceeds 2 m
- there is a likelihood of a person:
  - » working below a bracket scaffold
  - » being struck by any materials, tools or debris falling from the platform.

*Figure 5: Example of a hanging bracket scaffold. Some scaffold components such as toeboards are omitted for clarity.*

### Suspended scaffold (swing stage)

A suspended scaffold incorporates a suspended platform that can be raised or lowered when in use. Suspended scaffolds provide access and working platforms in the construction, alteration, inspection, repair, refurbishment and maintenance of:

- high-rise buildings
- industrial plant
- bridges
- other large structures.

Common types of suspended scaffolds include:

- swing stages
- double-rope scaffolds
- Boatswain's chairs
- false cars.

For more information and checklists on suspended scaffolds, see Part 9.

*Figure 6: Example of a swing stage scaffold*

### Trestle scaffolds

Trestle ladder scaffolds are only suited to light-duty tasks like painting and rendering. Work should only be done between the trestles.

When used at heights greater than 2 m, trestle ladder scaffolds need to incorporate guard railing and toeboards. This is to prevent people and materials falling from the open side or ends of the work platform. Trestle ladders should include outriggers for increased stability. The system, including planks, needs to be assembled according to the manufacturer's specifications.

*Figure 7: Example of a trestle scaffold*

### Birdcage scaffolds

Birdcage scaffold is an independent scaffold that consists of three or more longitudinal rows of standards and two or more bays in width. It is mainly used for work carried out on a single level, such as ceilings.

### Void scaffolds

Void scaffolds, also known as void protection decking, consist of a working platform supported by horizontal elements. The void scaffold is supported directly by the surrounding permanent structure. It is typically used to provide a temporary working platform in a void area or in a shaft.

# Part 4: Design

**Note:** Part 4 provides advice about plant design for use at the workplace. It does not provide advice on plant design registration requirements. For information about plant design registration, see *Compliance code: Plant* at **worksafe.vic.gov.au.**

## 4.1 Scaffold installation design

### Principles of scaffold design

After planning and selecting the appropriate scaffold system for the job, a site-specific scaffold installation design should be developed. This should consider the duration of the construction project. This may be either:

- a clear sketch for a small simple scaffold
- a complex set of drawings for a large or complicated scaffold.

To be effective, a site-specific scaffolding installation design requires effective transfer of information between the:

- scaffolder
- principal contractor
- engineers
- workers who use the erected scaffold.

The site-specific scaffold installation design should consider and address:

- scaffold layout, elevations, sections and dimensions
- the basis for design and intended use of the scaffold
- the type of scaffold
- load rating (light, medium, heavy duty) and number of working levels
- load considerations (dead, live and environmental loads; for example, wind loads)
- details of any containment sheeting/hoarding (if required)
- the flammability of containment material for both:
  - » general works
  - » suitability for hot works performed from working decks (see AS 1576 series)
- strength, stability and rigidity of the supporting structure or ground conditions; that is, the minimum bearing capacity of ground or load-bearing capacity of supporting structure (including hung scaffolds)
- loading onto any supporting structures
- soleboard and baseplate details
- stability (for example, the locations of ties)
- details of tie types, including engineered designs for non-standard tie types (for example, raking ties)
- where required, details of post-installed anchors to be used for ties
- rigidity (such as bracing placement)
- the configuration of standards to avoid high top-ups (known as ‘three-pin splices’)
- type and location of edge and fall protection
- any adjustments or alterations that may be needed during the life of the scaffold
- safe access and egress (for example, use of ladders, stair bays)
- hazards and risks for persons:
  - » engaged in the erection, alteration and dismantling of the scaffold
  - » using the scaffold
  - » in the vicinity of the scaffold.

Where a proprietary prefabricated scaffold system is used, many of the above details will be in the supplier’s documented information. They do not need to be reproduced in the site-specific scaffold installation design. In these instances, the supplier’s documented information will be an important part of the site-specific scaffold installation design.

Always keep a copy of the scaffold installation design at the workplace if reasonably practicable. It should be readily accessible when required.

# Part 4: Design

### The lifecycle of the scaffold on the project

Most scaffold incidents occur well into the construction project when the scaffold structure has changed from the initial design. The scaffold designer should anticipate how the scaffold may change to accommodate the construction work and incorporate this into the installation design.

Consider the entire construction project, including:

- the initial scaffold erection
- how the scaffold structure will need to change to accommodate various trades during building construction and final dismantling.

Examples of common alterations to in-situ scaffolds include:

- adding lifts as the building height increases
- moving ties to facilitate other trades such as facade work or glazing
- moving hop-ups for facade finishing
- adding access or openings
- adding crane-loading platforms
- adding unplanned encapsulation or signage
- using scaffold to support lifting equipment like gin wheels.

### Design analysis and engineering

The scaffold designer needs to ensure the scaffold installation design to be erected complies with:

- instructions provided by the manufacturer of the scaffolding system
- design and operational requirements of *AS/NZS 1576.1:2019 Scaffolding – general requirements.*

Where manufacturer's instructions do not exist, the scaffold may comply with *AS/NZS 1576.6:2020 Metal tube and coupler scaffolding – Deemed to conform to AS/NZS 1576.1.*

Where manufacturer's instructions do not exist and the scaffold installation design falls outside the scope of AS/NZS 1576.6:2020, a structural analysis of the proposed design is required. This is to ensure the scaffold installation design complies with *AS/NZS 1576.1:2019 Scaffolding – General requirements*.

There are many common examples of scaffold installation design that are not in the scope of *AS/NZS 1576.6:2020 Metal tube and coupler scaffolding – Deemed to conform*. These include:

- single leg ties
- raker ties
- non-standard ties, or where there is no manufacturer's information
- non-prescribed tie patterns
- tied scaffolds with post-installed anchors
- cantilevered scaffolds
- spur scaffolds
- needles
- ladder beams
- access openings
- perimeter demolition scaffolds
- special duty ratings and bay dimensions
- public access structures (requiring Building Code of Australia compliance)
- gantry or overhead protection structures
- complex scaffolds where standards are not continuous from top to bottom
- hanging bracket scaffold
- reinforcing standards such as double legging
- use of containment sheeting or hoardings
- high wind or environmental loading
- tie anchorage to weaker materials; for example, masonry, aerated concrete, hebel or dincel
- alterations involving removal or omission of transoms, ledgers, bracing or ties
- compatibility of components from mixed scaffold systems or suppliers

- scaffold used to support other plant/structure; for example, hoists, formwork
- stretcher stairs, particularly those higher than 10 m
- dynamic/impact loading; for example, pitched roof falls
- scaffolds that are to be crane-lifted
- suspended or hung scaffolds
- scaffolds requiring buttresses for stability
- scaffolding that acts as falsework
- scaffolds erected on:
  - » balconies
  - » roofs
  - » suspended flooring systems
  - » parapets
  - » awnings
  - » similar structures.

The scaffold installation design needs to be comprehensive, so scaffolders do not have to improvise the scaffold configuration onsite. However, the scaffold designer may prescribe a range of parameters.

This allows scaffolders to make site-based decisions, provided the as-built scaffold remains within these parameters. For example, the designer may specify a maximum interval between ties or a maximum bay length while allowing the scaffolder to choose a lesser interval if site constraints require.

Where a structural analysis of the proposed scaffold installation design or design feature is required (including tie patterns), it needs to be done before the scaffold is erected. The assessment needs to be done only by a:

- structural or temporary works engineer
- similar competent person with structural analysis training and familiarity with scaffold.

**Notes:**

**1.** Scaffolders do not typically have the training or experience to perform structural analysis of a scaffold installation design. They should not assess non-standard designs or design features.

**2.** The assessment does not need to be site-specific. Previous assessments of designs/design features can be reused wherever the same design conditions exist. For example, a standardised installation design for an access opening that could be incorporated into any typical scaffold installation.

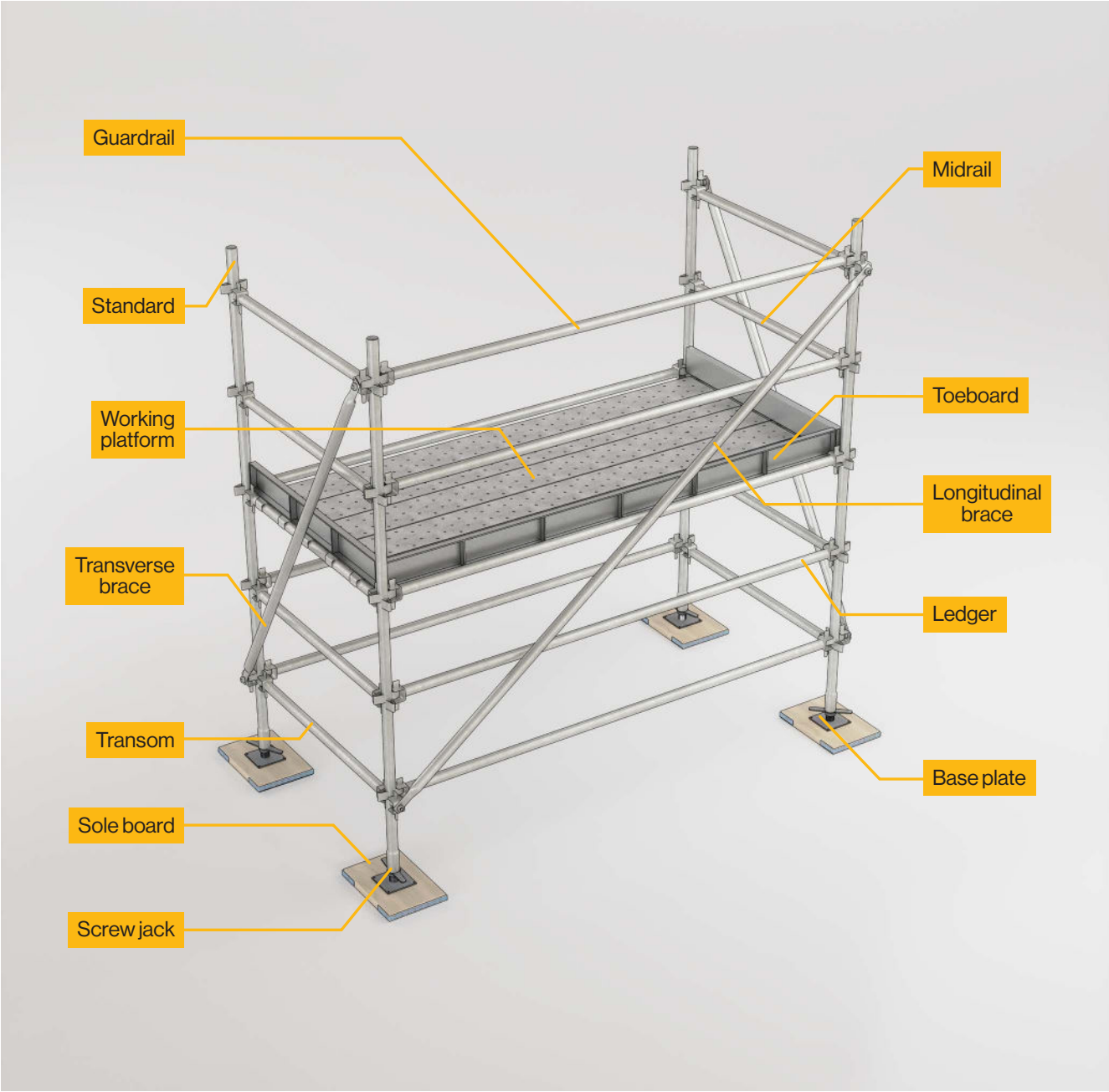



*Figure 8: Common scaffold terms and parts. Some scaffold components are omitted for clarity.*

## 4.2 Intended use and working platforms

Working platforms other than suspended scaffolds should have duty classifications and dimensions that comply with the manufacturer's and/or supplier's information on loading.

Scaffold working platforms are rated as:

- light duty
- medium duty
- heavy duty
- special duty.

**Table 1: Scaffold duty rating and dimensions**

| Duty rating | Maximum live load | Minimum width of the scaffold bay | Examples of use |
|---|---|---|---|
| **Light duty** | Up to 225 kg per platform per bay, including a concentrated load of 120 kg | At least 450 mm wide | Painting, electrical, carpentry work and other light tasks |
| **Medium duty** | Up to 450 kg per platform per bay, including a concentrated load of 150 kg | At least 675 mm wide | General trades like tiling and light steel framing |
| **Heavy duty** | Up to 675 kg per platform per bay, including a concentrated load of 200 kg | At least 900 mm wide | Concrete block laying, bricklaying, concreting, demolition work and most other tasks involving heavy loads or heavy impact forces |
| **Special duty** | Has a designated allowable load as designed, with minimum of light duty rating | Needs to maintain clear access:<br>• minimum of 450 mm for people and tools (two planks)<br>• minimum of 675 mm wide for people and materials (three planks) | Special uses such as loading bays |

# Part 4: Design

Each scaffold needs to be designed to both:

- carry the required number of working platforms
- support the maximum dead and live loads.

Where tools or materials will be used or stored on working platforms, keep at least 450 mm clear access width.

### Access platforms

Access platforms should be:

- 450 mm in width for people and hand tools
- 675 mm in width for people and materials
- 900 mm in width for emergency access, where practicable.

### Hanging bracket scaffold

Hanging bracket scaffold should be:

- horizontal
- never pitched at an angle steeper than 7° (a gradient of approximately one to eight).

Planks for hanging bracket scaffold should overhang their end brackets by:

- at least 150 mm
- not more than 250 mm.

An engineering assessment is needed if planks cantilever (at an external corner) by more than 150 mm. Cantilevered planks need to be properly restrained.

## 4.3 Loads

To ensure the scaffold is secure and capable of supporting the intended work, it needs to be designed for site-specific conditions and requirements. This includes being able to withstand an adverse combination of dead, live and environmental loads, such as extreme wind loading, when the scaffold is:

- being erected
- being altered
- in use
- being dismantled.

# Part 4: Design

**Table 2: Load types**

| Types of loads | Definitions | Examples |
|---|---|---|
| **Dead loads** | The weight of the scaffold structure and components. Dead loads should be calculated in accordance with AS/NZS 1576.1:2019. | All scaffolding components used on the scaffold. For example:<br>• platforms<br>• stairways<br>• ladders<br>• screens<br>• sheeting<br>• platform brackets<br>• suspension ropes<br>• secondary ropes<br>• traversing ropes<br>• tie assemblies<br>• scaffolding hoists. |
| **Live loads** | • Average weight of people on the scaffold<br>• Materials and debris<br>• Tools and equipment<br>• Impact forces | People, tools, equipment, and materials. See Table 1 for maximum live loads.<br>Note: The live load should not exceed the maximum live load. |
| **Environmental loads** | Extra loading due to the environment and weather conditions at the site. Consider the effects of climatic conditions like wind, snow and earthquake on the scaffold.<br>For calculation of wind actions, see AS/NZ 1170.2:2021. | Load-bearing capacity may be significantly reduced during extreme weather events. This is particularly the case where, for example, perimeter containment screening, cladding or signs are attached to the scaffold. |

Calculate the different load types during the design stage to make sure the supporting structure and the lower standards can support the loads. A suitably competent person or engineer should approve the site-specific design of scaffolds and ties. Follow the manufacturer, designer or supplier specifications for the maximum loads of the scaffold.

**Note:** Scaffolds should not be used to support formwork and plant (such as hoist towers and concrete pumping equipment) unless the scaffold is designed for this purpose.

## 4.4 Foundations and bearing capacity

The scaffold needs to be erected on a surface that can carry and distribute all its load. This includes any live or environmental loads. It is important to consider the ground surface conditions while the scaffold is used. Check the ground conditions regularly, as things like poor drainage and rain can cause changes.

The pressure a certain material can take is called 'allowable bearing capacity'. Different materials and ground types have different bearing capacities. Hard structural surfaces like concrete will often be strong enough to support a scaffold. A suitably competent person such as a geotechnical engineer should assess the bearing capacity of the founding material. Reassess ground-bearing capacity after changes in the ground's condition from:

- rain
- foundation movement, such as nearby excavations.

## 4.5 Soleboards and baseplates

Soleboards and baseplates can evenly distribute the load from the scaffold to the supporting surface. Both soleboards and baseplates may be needed on less stable surfaces. For example:

- soil
- gravel
- fill
- other supporting structures.

### Soleboards

Where soleboards are needed to increase the bearing area on the supporting structure, they should be designed to have sufficient strength and rigidity to distribute the load to the supporting structure.

The size of the soleboard needs to suit the supporting surface. Vertical scaffold standard should be centered on a fully bedded soleboard.

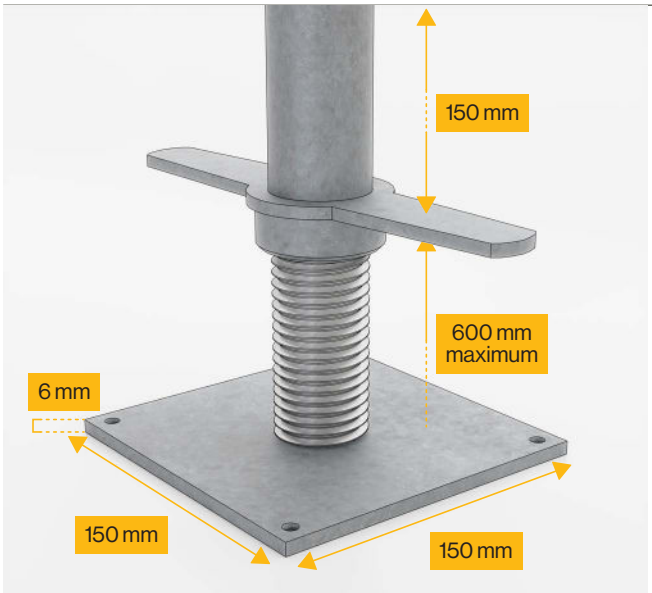
To reduce point loading, a longer soleboard may be needed to support both inner and outer legs.

Soleboards should be level. Some surfaces may need to be levelled out.

### Baseplates

Adjustable bases can be used on uneven surfaces for modular scaffold systems to give a level base lift.

To make sure loads are imposed evenly on the soleboard, no part of the baseplate or adjustable base should extend over the side of the soleboard.




- The square base plate needs to be 150 mm x 150 mm and at least 6 mm thick.
- The maximum extension of the threaded section is no greater than 600 mm.
- At least 150 mm of the shank should be inserted into the standard.

*Figure 9: Adjustable baseplate requirements*

## 4.6 Supporting structures

A suitably competent person like a structural engineer should determine the structural adequacy of the supporting structure, including ground surface. All loads transmitted from the scaffold to the supporting structure should be estimated, considering dead, live and environmental loads.

Some examples of supporting surfaces and structures include:

- concrete floor slabs
- tar seal or bitumen surfaces
- compacted fill
- uneven ground or rough terrain
- sloping ground
- soft soils or sand
- gantry
- wall frames
- mezzanine levels
- verandas and awnings.

If the supporting structure cannot bear the most adverse combination of loads, it may need to be strengthened by back-propping or other suitable means. Concrete back-propping formwork requirements are set out in *AS 3610.1:2018 Formwork for concrete.*

*Figure 10: A typical back-propping method to transfer load through a structure*

Back-propping allows scaffold loads to be transferred through the supporting structure to the props below. A visual inspection of the supporting structure will be needed. A suitably competent engineer should verify the design.

When the standards and back-propping are not directly in line, a beam system may be needed on top of the back-propping and below the supporting structure. This method transfers the load of the standard along the beam system when the back-propping must be offset. A suitably competent engineer should verify the design.

Use control measures such as back-propping to prevent any deterioration of the supporting structure from:

- trenching or other excavation work in the vicinity
- partial demolition
- it being removed or damaged
- it being overloaded from other sources, such as:
  - » various loads from vehicles
  - » stored materials
  - » impact forces
  - » build-up of debris.

## 4.7 Stability

The stability of the scaffold needs to be maintained for all stages during service life. Consider stability during the design stages and take into account:

- all imposed loads
- the use cases
- surrounding area
- environmental factors.

Common ways to ensure scaffold stability include:

- Tying the scaffold to a structurally adequate supporting structure. AS/NZS 1576.1:2019 recommends a minimum lateral force capacity of 6 kilonewtons, unless specifically designed and documented for lower forces.
- Guying to a supporting structure or suitable anchor.
- Securely attaching the scaffold to counterweights near the base.
- Adding bays to increase the base width.
- Adding outriggers, rackers or buttress bays to increase base width.

### Free-standing scaffolds

For free-standing scaffold stability, the maximum height of the scaffold is determined by the narrowest base width of the scaffold.

- When the narrowest base width is less than 1200 mm, the maximum free-standing height is two times the base width.
- When the narrowest base width is greater than 1200 mm, the maximum free-standing height is three times the base width.

For any light-duty mobile scaffolds, the height should not exceed 9 m unless otherwise specifically stated in the supplier's specifications.

**Note:** For cladded free-standing scaffolds, consider other factors such as environmental conditions and wind loads.

### Scaffold ties

Scaffold ties are a system used to secure the scaffold to a supporting structure. This helps prevent the scaffold from becoming distorted or unstable from factors such as:

- wind loading
- weight bearing
- height-to-base ratio.

Investigations of scaffold collapses often find a lack of ties or removal of ties as a significant contributing factor. Risks from inadequately tied scaffolding need to be addressed during both the design phase and ongoing management of the scaffold.

Ties may be anchored to the supporting structure in many ways.

Follow manufacturer, designer or supplier's instructions for tie methods and spacing. If information is missing or it is not practical to position the ties as shown in the instructions or design, consult a suitably competent engineer to instruct when and where to use scaffold ties.

For prefabricated modular scaffolds without supplier information, *AS 1576.6:2020 - Deemed to conform to AS/NZS 1576.1* may be used as guidance for tying prefabricated modular scaffolds. Tie requirements should include:

- If the specified freestanding stability is not satisfied, the scaffold should be tied to a laterally supportive structure and the following should apply:
  - » The distance between the end of the scaffold and the first tie at any level shall not exceed:
    - i. one bay for a scaffold with no return
    - ii. three bays for a scaffold with a tied return.
  - » The distance between longitudinally adjacent ties at any level shall not exceed three bays.
  - » The vertical distance between the supporting surface and the first level of ties shall not be greater than three times the least base width, subject to a maximum of 4 m.
  - » The vertical distance between adjacent levels of ties shall not exceed 4 m.

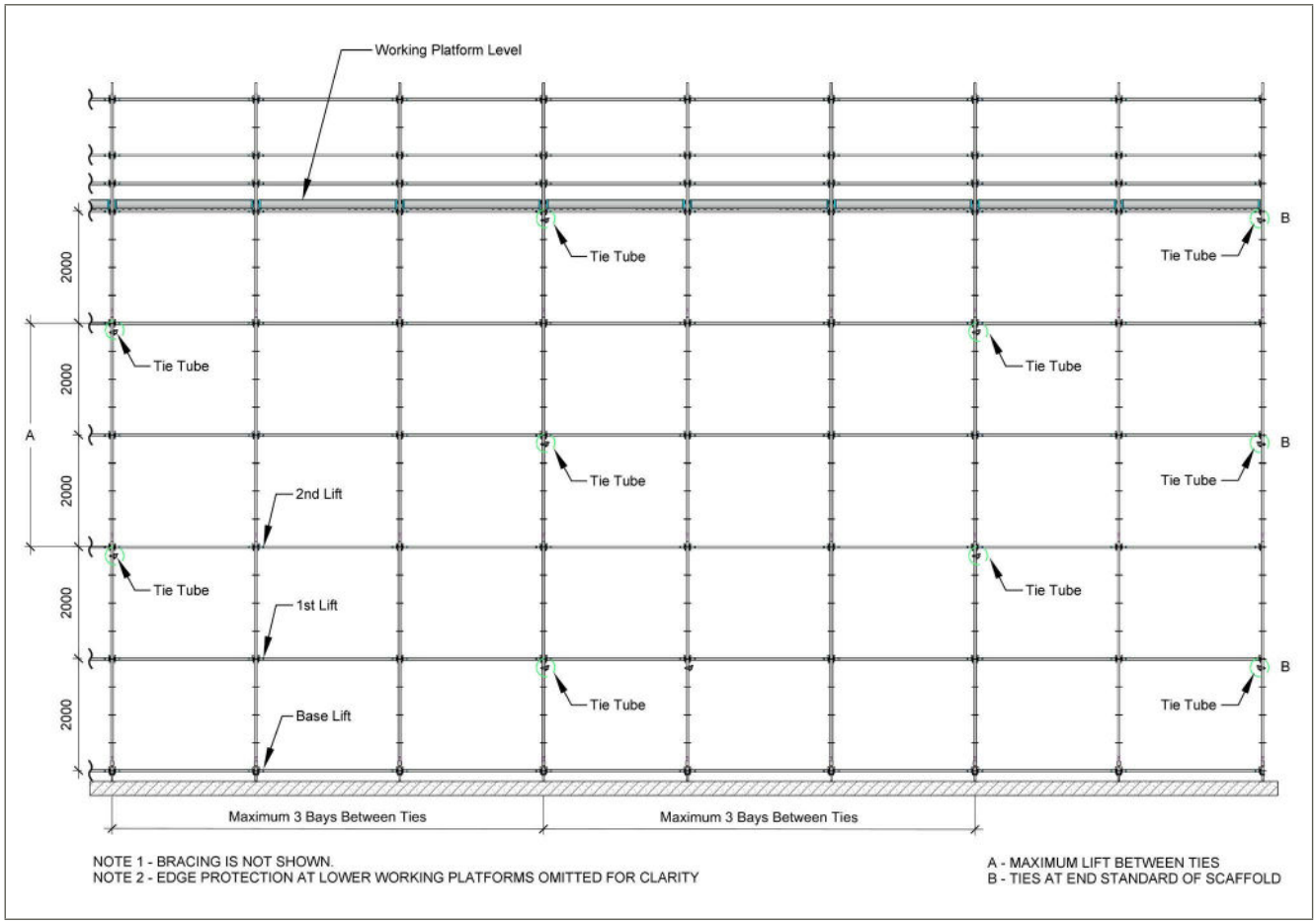



*Figure 11: Typical horizontal and vertical tie spacing*

- The typical tie spacings for a full-width (1.2 m wide) scaffold with no containment sheeting: ties should be installed at every third bay, every second lift and the ends. See Figure 11 above.
- Tying requirements for modular scaffold systems may vary from this 'typical' spacing. Always refer to the manufacturer's safe use information for confirmation.
- For narrower widths and/or scaffolds with containment sheeting, the tie spacing will reduce and the number of ties will increase. See the engineered design or the manufacturer's safe use information for confirmation of tie requirements.

All tying information should be available onsite and comply with the details on the scaffold plan. Ties should not obstruct access along the working and access platforms.

Ties should connect with both inner and outer scaffold standards (unless otherwise specified by an engineer or the scaffold manufacturer/supplier documentation) to increase the rigidity of the scaffold.

The most common method is to fix directly to columns walls or slabs using post-installed anchors such as:

- concrete screws
- expansion anchors
- chemical anchors.

Other methods may include boxing around or clamping to elements such as:

- structural columns
- parapets
- window voids.

An assessment of the supporting structure may be needed to ensure it can withstand loading imposed by the scaffold. Proof testing of tie anchorages may also be needed. Align tie pattern with locations on the supporting structure that are structurally capable of withstanding the imposed loads.

**Common types of scaffold ties**

Box tie

A tie assembly that is positively fixed around every side of a column or beam. This tie offers rigidity from inward and outward movement. This is due to the series of parallel tie tubes interlocking all elevations of the column or beam.

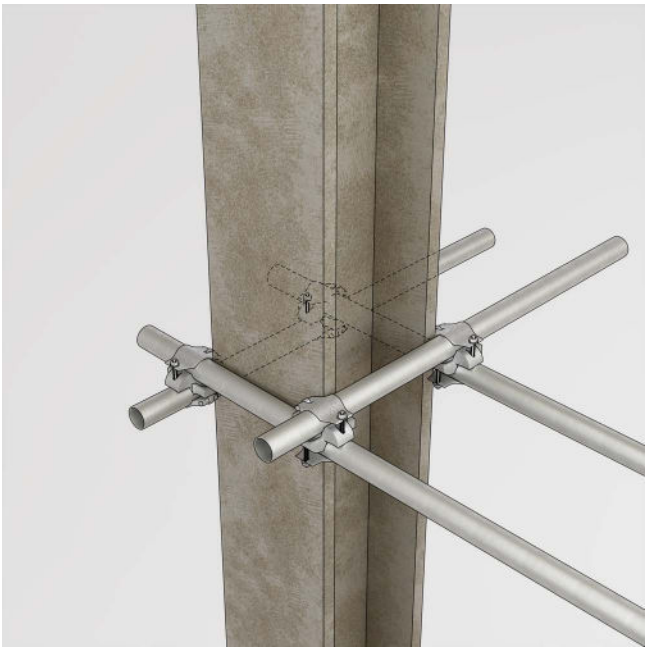


*Figure 12: Box tie positively fixed around every side of a column or beam*

Through tie

Ties that attach over, through or behind a structurally sound feature of the supporting structure. Verify the integrity of the wall or parapet.

Place through ties as close as possible to the window reveal and secure with right-angle couplers.

Reveal tie

These use pressure and friction to expand into the internal-side surfaces of a supporting structure's opening, recess or cavity. For example, a reveal pin, screw jack or adjustable prop.

They usually do not require permanent fixing anchors and can be removed without leaving any anchor bolts or abrasion to the exterior. Reveal ties are more susceptible to external factors. They should not make up more than 50% of total ties for a scaffold.

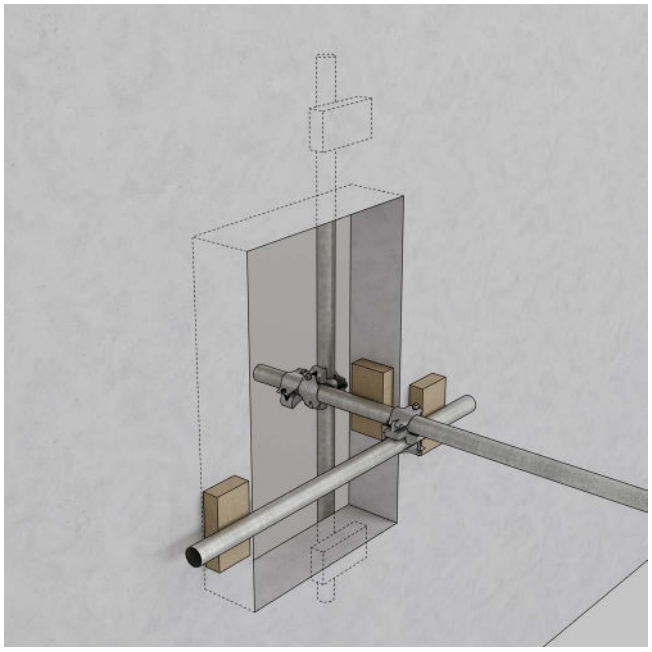


*Figure 13: Through ties attached over, through and behind a wall*

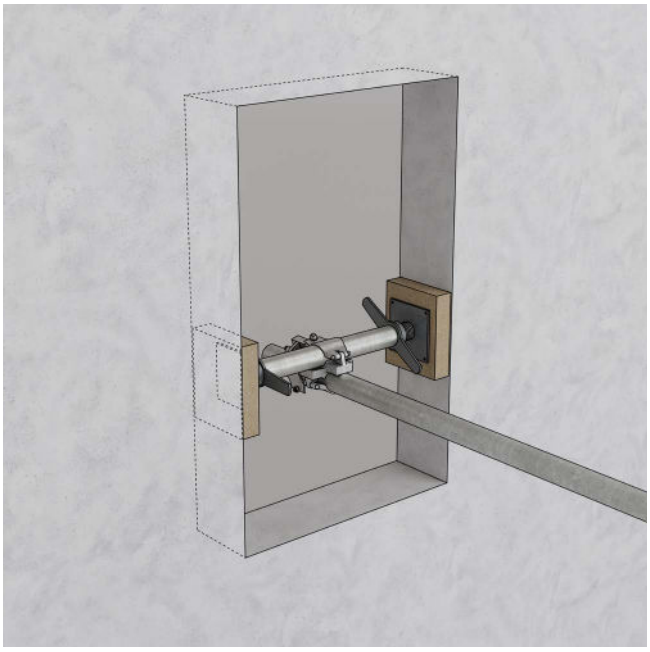


*Figure 14: Reveal ties with adjustable props on the internal-side surface of a wall opening*

Drilled-in tie

A component that has:

- a direct physical connection from the scaffold to the supporting structure
- strength in tension and compression.

See also Post-installed anchors.

Raker tie

A raker consists of an inclined scaffold tube fixed between a scaffold and supporting structure to keep the scaffold stable.

The incline tube is supported by a horizontal tube back to the scaffold.

(Post-installed anchors securing rakers to a concrete slab should be capable of resisting the combined shear and tensile forces.)

*Figure 15: Drill-in tie is secured to the supporting structure*

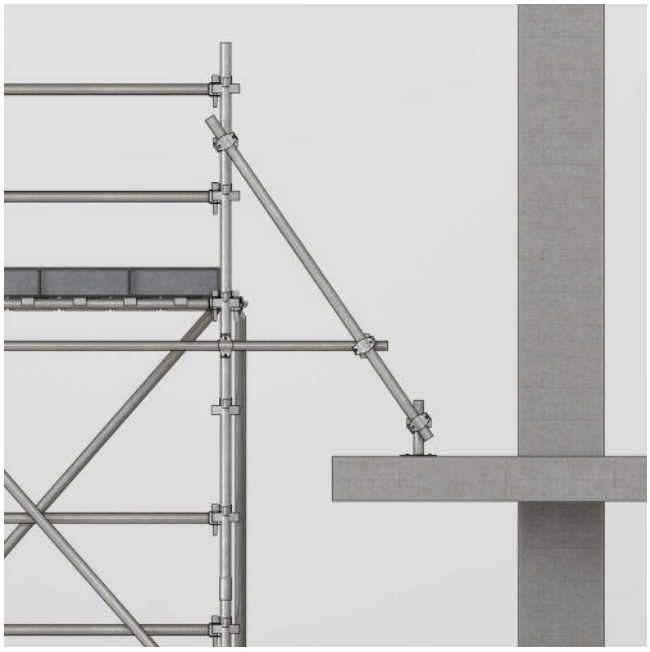


*Figure 16: Raker tie fixed between a scaffold and supporting structure*

Lip tie

Lip ties are similar to box ties but are used where its impossible to form a complete box around the structure. Instead lip ties are formed from three tubes that hook onto the structure such as a column or wall. Lip ties are often used to tie onto parapet walls at the top of buildings.

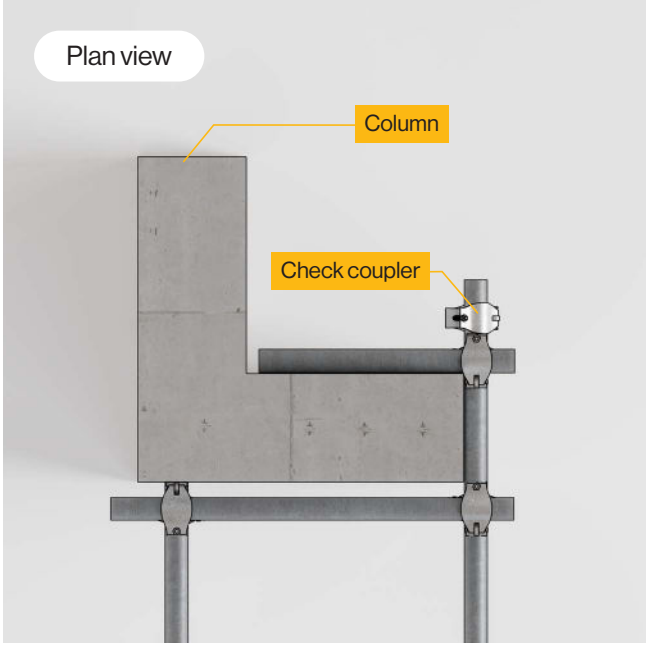



*Figure 17: Lip tie (view from the top)*

Scaffolding needs to be installed as the scaffold is erected. This includes all bracing and ties, guy ropes or buttresses. Scaffold ties should not be altered. Anti-tamper devices are readily available and reduce the risk of unauthorised alteration of a scaffold.

**Post-installed anchors**

Post-installed anchors should be one of the following:

- chemical anchors
- concrete screw anchors (the maximum number of uses as per the manufacturer's recommendations)
- coil expansion anchors
- torque-controlled expansion anchors.

Assess the structure to which the anchors will be installed to confirm its suitability for application. Post-installed anchors need to be specified by a suitably competent engineer.

Only use these anchors when drilling is done by a suitably competent person following the post-installed anchor manufacturer's installation information.

Only use post-installed anchors that are subject to tensile loads where it is not practicable to secure or tie the scaffold in any other way.

Where possible, use cast-in anchors or anchors that go through a wall rather than post-installed anchors.

Where post-installed anchors are used, the capacity and installation quality should be verified. This may be done by:

- individual proof load-testing of a representative selection of anchors
- using effective administrative controls during installation.

If the strength of a particular substrate material such as old, weathered masonry is not certain, do proof load-testing. Apply a proof load of 1.25 times the design maximum tensile load.

For more information on:

- post-installed anchors: see AS/NZS 1576.1
- proof load-testing of post-installed anchors: see Australian Engineered Fasteners and Anchors Council Technical Note 5: AEFAC TN 05 - Guidelines for Site Testing of anchors.

**Additional ties**

When additional loads are placed on scaffold, a suitably competent engineer should assess it. This includes for:

- cladding or large sail areas (due to increased wind loadings)
- loading platform for materials or equipment, including demolished material (such as carpets)
- any lifting devices.

Following the assessment, the suitably competent engineer may specify the additional ties.

## 4.8 Rigidity (bracing placement)

Bracing of scaffolding creates rigidity. Bracing can be scaffold tubes on tube-and-coupler scaffolding. For prefabricated modular scaffolding, prefabricated bracing members or tube-and-coupler bracing may be used.

There are various bracing configurations used for scaffolds. This section focuses on the most common use configurations. For other configurations, see *AS/NZS 1576.6:2020 Metal tube and coupler scaffolding - Deemed to conform to AS/NZS 1576.1.*

Braces can be fixed:

- diagonally on the longitudinal face of the scaffold
- transversely across the end bay where displacement forces need to be restrained
- diagonally arranged in the scaffold's horizontal layout, tying the scaffold's standards together.

Where diagonal bracing is used, brace members should extend from the base of the scaffold to the top lift, up the full length of the scaffold. Bracing does not need to extend to the height of the top guardrail.

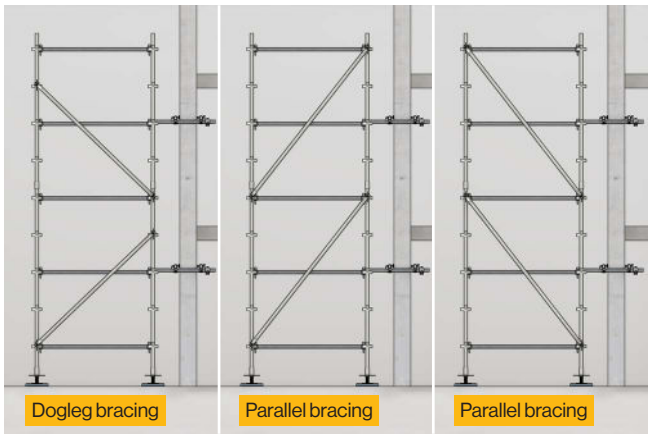
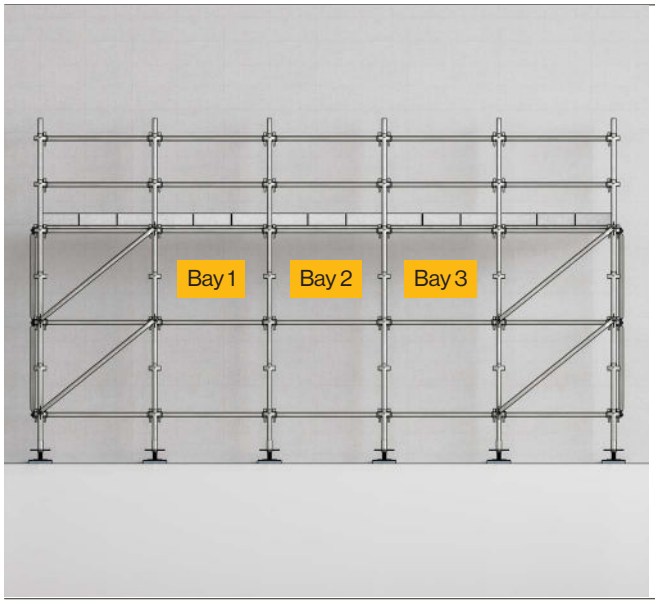



*Figure 18: Typical transverse bracing*




- Refer to manufacturer recommendations.
- If there is no recommendation, then no more than three bays between braces.
- Bracing should run to the full height of the scaffold.

*Figure 19: Minimum requirements for longitudinal bracing*

## 4.9 Access and egress

The forms of access and egress for working platforms on scaffolding are determined by the:

- nature of the work
- site conditions and restrictions
- height of the platforms
- number of people needed for the work.

### Accessways

Where access is by hoist or other mechanical means, there needs to be a different form of egress for emergency use. For example, a ladder or stair tower.

Accessways from permanent floors can be flat or ramped. They should be built the same way as heavy-duty working platforms, but the width can be reduced to:

- 450 mm for use by people with hand tools only
- 675 mm for transporting materials
- 900 mm for emergency access.

The slope of a ramped accessway (such as a barrow ramp) should not be more than 20° (or 1:3) to the horizontal. Where the slope is more than 7° (or 1:8), the upper surface should be cleated to minimise the risk of slipping.

Cleats should:

- be 25 mm thick
- be 50 mm wide
- extend across the full width of the platform.

A 100 mm gap may be left in the cleats at the centre of the platform for the wheel of a barrow. Cleats should be fixed every 450 mm along the length of the ramp.

### Stairs

Scaffold stairs are typically 1.5 m vertically in height. When constructed for a scaffold with lift heights of 2 m, this can mean a height of approximately 500 mm for the:

- final step height from the scaffold stair on to the working platform
- step from the stair to the ground.

Using scaffold stairs with a height of 2 m or reconfiguring the scaffold can address this issue.

The step heights and goings in a scaffold stair system should be consistent within a straight run of steps between landings. The step height to any access or egress point should be no more than 300 mm.

> **Note:** This requirement is enforceable 12 months from the date this standard is published. Before this date, the minimum standard of 300 mm is strongly recommended.

### Stretcher stairs

Stretcher stairs can be incorporated into scaffolds to:

- move people in stretchers from one level to another in the event of an emergency or injury
- improve access and egress to and from scaffolds.

If the stairs are in two separate units, they should be bolted together and secured to prevent uplift. If stretcher stairs are not reasonably practicable, use alternative control measures.

*Figure 20: An example of stretcher stairs*

### Access to hanging bracket scaffolds

Use an intermediate step to access the working platform of a hanging bracket scaffold. This is usually placed in an opening of the supporting structure, such as a window. If this is not reasonably practicable, provide access by a:

- tower access scaffold
- secured ladder that extends 900 mm past the landing or departure point.

Ladders such as A-frame or platform ladders are not designed to access a hanging bracket scaffold. Using them for this purpose could increase the risk of someone falling.

### Ladder access

Use ladders only as a secondary access system unless it is not reasonably practicable to provide other ways of access. For example, when accessing a mobile scaffold tower.

Ladder access may be used where:

- Only a few people need access to the working platforms.
- Tools and equipment can be delivered separately to the working platform. For example, by a rope and gin wheel, materials hoist or crane.

When a ladder is used on scaffold, it needs to be an industrial-grade portable ladder.

Ladders should be within a separate ladder-access bay of the scaffold where space permits. Ladders may be fixed to the external face of a scaffold, provided:

- they do not affect scaffold stability
- there is unobstructed access to and from the ladder without having to climb over or through guardrails.

Guidelines for ladders access systems include:

1. Where ladders are supported by scaffold framework (typically by hooks and ladder stand-off arms), the length of the cantilevered section (below the stand-off arms) should not exceed one-quarter of the total length of the ladder.
2. Where extension ladders are used, they should be specifically designed to be supported by scaffold framework, taking into account the operation of the latching device.
3. Ladders should be pitched at a slope of not less than 1:4 and no more than 1:6 (horizontally to vertically).
4. Ladders should be secured to prevent movement at the base and head.
5. Unless the ladder is supported by the scaffold framework, it should be based on:
   - firm, level ground
   - a solid structure or ladder landing.
6. The maximum step height from the supporting surface or ladder landing to the lowest rung of the ladder should not exceed 400 mm.
7. Openings in working platforms for ladders should be as small as practicable. Openings should be guarded by self-closing gates or a trapdoor over the opening.
8. The base of a ladder should be offset from the head of the ladder below. This will ensure more ladders do not take the form of a single continuous ladder.
9. Ladders should extend a minimum of 900 mm above the landing or top departure point. Alternatively, other handholds should be available continuing up to that height.
10. There should be clear and unobstructed access to and from ladders to each landing.
11. Ladders on mobile scaffolds should be clear of the scaffold supporting surface.

12. Where reasonably practicable, portable ladders should only span a single lift. Where this cannot be achieved, the maximum height between successive landings, serviced by a portable ladder, should not exceed 4 m or two lifts, whichever is greater.
13. The step down from the lowest landing to the ground should not exceed 300 mm.
14. Nothing should be carried by hand when using a ladder.

Ladder landings and stairway landings should have the same level of edge protection next to their open sides and ends as working platforms. A working platform may need guardrails where there is a risk of falling onto the stairway.

Where a ladder encroaches on a working platform, provide an unobstructed access of at least 450 mm width along the full length of the working platform.

*Figure 22: Use of external ladder access with self-closing safety gate*

*Figure 21: Use of internal ladder hatch*

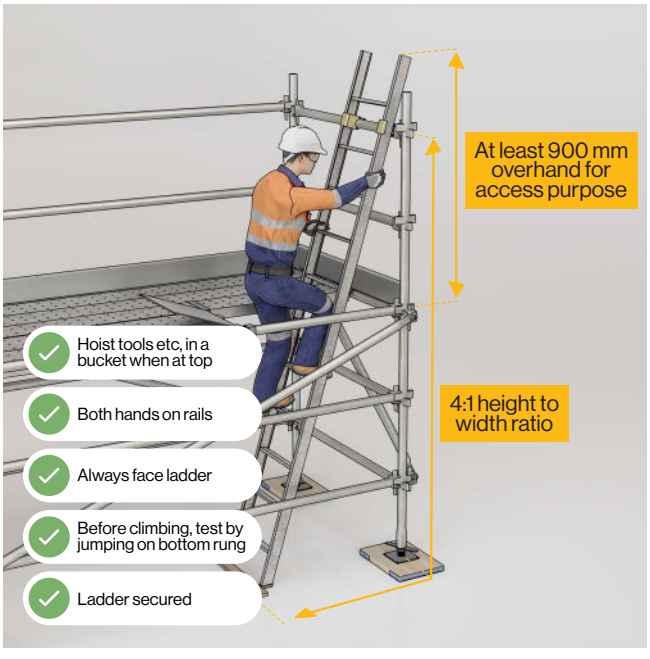



*Figure 23: Example of a straight ladder correctly set up. Some scaffold components such as toeboards are omitted for clarity.*

### Scaffold planks

All scaffold planks should comply with *AS/NZS 1577:2018 Scaffold decking components*.

The nominal minimum width of a scaffold plank is 225 mm, with the minimum width being 220 mm. This means that any scaffold plank less than 220 mm in width does not comply and should not be used to construct scaffold platforms.

Mark the scaffold decking components in accordance with AS/NZS 1577. Avoid using planks that have been painted in any way that could conceal defects.

A deck infill is a plank used to complete a working deck when planks do not modulate to suit the width of a scaffold bay. Deck infills need to be:

- at least 50 mm wide
- less than 220 mm wide.

Do not use timber planks that:

- are damaged, broken, surface-cut or split
- have damaged or broken hoop iron on their ends
- are warped or twisted
- have areas that are excessively worn (greater than 10% reduction in thickness)
- have any evidence of rot.

Do not use metal planks with:

- cracked or broken welds
- broken or missing rivets
- missing end caps
- bent or crushed sections
- heavy rust or corrosion.

Planks made from other materials should follow manufacturer's instructions.

Clearly quarantine unserviceable planks from serviceable planks. Where they are on hire, promptly return them to the supplier.

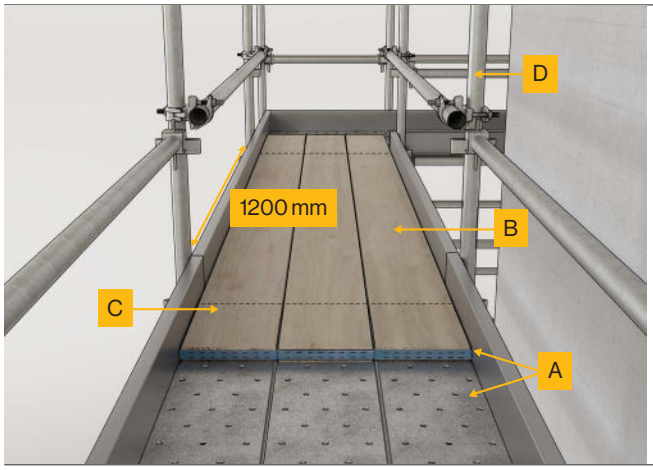
### Lapboards

Planks (for example, laminated and timber) should not be lapped on straight runs of modular and tube and coupler scaffolding. They may be lapped on hanging bracket scaffolds.

Secure planks as shown in Figure 24. Avoid metal planks lapped on other metal planks. Where they are used, they should be secured using proprietary fixing or steel strapping. Do not use other systems that are not structurally rated to secure planks on hop-up brackets.

If using plywood sheets to cover gaps between scaffold bays, these should be:

- a minimum of 17 mm thick
- only used to cover gaps less than 500 mm wide (unless approved by an engineer)
- secured.




Lapped scaffold planks may sometimes be used to cover gaps around corners of scaffold bays. These planks generally may not need to be secured, provided the following conditions are met:

A: Timber is lapped over metal planks.
B: Planks are 1.2 m long or greater.
C: Plank overlap, past the edge of the plank underneath, is 300 mm or greater.
D: Standards prevent planks from moving sideways on the scaffold.

*Figure 24: Overlapping planks*

### Hop-up (bay extension) platforms

A hop-up platform is formed by using platform brackets that are supported by and connected to standards. This is also known as a bay extension platform.

Hop-ups are typically used to extend a working bay. They are to be used in accordance with their duty rating.

If a hop-up is to be used outside of its intended design on the working face of the scaffold (for example, access between split decks), it needs to be considered, approved and documented by:

- the scaffold manufacturer
- the scaffold supplier
- a suitably competent person.

To prevent a scaffold plank or prefabricated platform from sliding off the end of the platform bracket, use either a positive stop or tie bar.

To prevent a scaffold plank or prefabricated platform from falling between platform brackets, brackets of 250 mm or more in length should be stopped from rotation by either:

- a tie bar
- an engagement of plank hooks

The method used depends on the type of scaffold.

Where tie bars are used, they need to be designed and installed to manufacturer's specifications. This will minimise the risk of them becoming dislodged and falling. If a tie bar is inadequate or inadvertently detaches:

- people could fall from the platform
- the tie bar could fall and strike people below.

The use of non-proprietary or non-structurally rated products, such as zip ties and tie wire, are unacceptable. They have not been designed to withstand the loads imposed on the scaffold.

Tie bars are provided on two- and three-board hop-up brackets to prevent:

- the brackets rotating (splaying)
- planks becoming dislodged and falling.

Any single inadvertent force should not be able to dislodge any part of the tie bar. For example:

- a bouncing motion caused by an object falling on the scaffolding deck
- an inadvertent vertical or horizontal force.

Brackets up to 250 mm in length typically incorporate end stops. They are not restrained with tie bars.

**Note:** Hop-ups and tie bars should not be removed or tampered with during the use of the scaffold unless done by suitably competent or licensed persons.

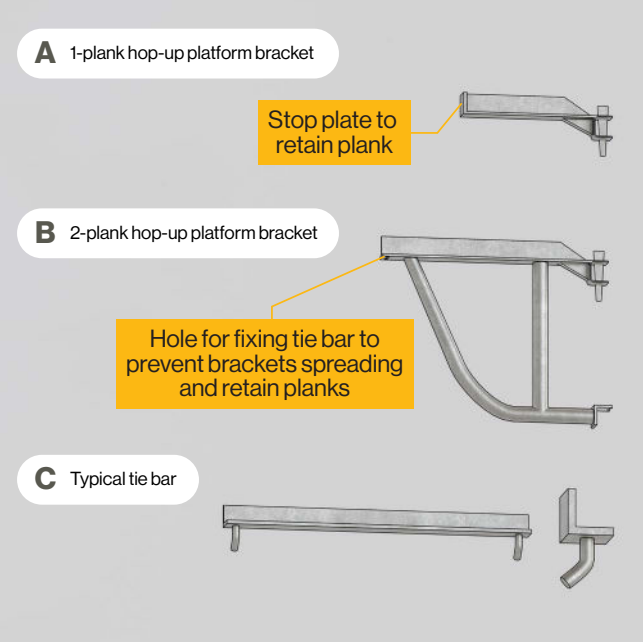



*Figure 25: Examples of brackets and tie bar details*

## 4.10 Edge protection

Employers must identify any task that involves a fall hazard from an unprotected edge and eliminate the risk. Where it cannot be eliminated, they must control the risk. They must do this so far as is reasonably practicable.

See Part 1 for more information on *Employer duties to prevent falls.*

Employers must provide and maintain safe workplaces. This includes preventing objects from falling onto persons or plant below the work area.

Edge protection should be provided where there is a risk of a person or object falling from an unprotected edge. This includes, for example:

- at all open sides and ends of all accessible platforms
- landings
- along temporary stairways.

All edge protection should conform to the requirements of AS 1576 series. This includes:

- guardrails
- midrails
- panels
- containment sheeting.

The working platform needs to be placed as close as practicable to the working face to reduce the risk of a person or object falling between the working face and working platform. The gap between the working platform and the working face should be no larger than 225 mm.

Temporary stairways with handrails need to be provided.

**Note:** Cross-braces on frame scaffolding are not edge protection.

Edge protection needs to comprise:

- guardrails
- midrails
- toeboards.

Other controls such as containment sheeting or panels may be needed to prevent objects falling from the scaffold.

### Guardrails

Guardrails should:

- be at least 900 mm above the platform
- be parallel to the platform
- be 100 mm or less outside the edge of the platform
- not be made of flexible materials, such as ropes and chains.

### Midrails

Midrails should:

- be positioned so that the maximum vertical gap between adjacent horizontal edge protection components is not more than 500 mm

**Note:** More than one midrail may be needed.

- be parallel to the platform
- be 100 mm or less outside the edge of the platform
- not be made of flexible materials like ropes and chains.

### Toeboards

Toeboards should:

- extend at least 150 mm above the working platform surface
- be retained and secured to the scaffold with appropriate components
- not have a vertical gap of more than 10 mm between the toeboard and the platform
- not have a horizontal gap of more than 10 mm between the toeboard and the platform.

### Panels

Guardrail panels and infill panels need to:

- be securely fixed parallel to the platform
- extend at least 900 mm above the platform
- be nominally vertical
- incorporate a toeboard that extends at least 150 mm above the platform, unless a separate toeboard is provided
- not have a horizontal or vertical gap of more than 10 mm between the toeboard and the platform
- not have top or exposed edges of panels that are sharp points.

### Containment sheeting (encapsulation)

Containment sheeting, also known as encapsulation, is one method to control the risk of falling objects striking persons below. Containment sheeting can be made of:

- mesh
- high-quality shade cloth
- plywood
- metal sheeting
- any other suitable material.

Prior to choosing what material containment sheeting is to be made of, consider:

- what additional risks may be introduced
- how they would be controlled, so far as is reasonably practicable.

Risks to consider may be:

- using conductive sheeting where there are electrical services present
- what additional dead and live loads may be introduced.

Wind loading on the scaffold needs to be considered when selecting the material of sheeting.

When incorporating containment sheeting into the scaffold design, a suitably competent engineer needs to approve the scaffold design (including ties). This is to ensure the scaffold and its ties can withstand the introduced dead, live and wind loads.

Containment sheeting should be installed in accordance with the manufacturer's specifications.

For more information, see *AS 1576.7:2021 Safe use of encapsulation on scaffolding.*

### Openings in edge protection

Access to stairways or ladders should not be part of a working platform. Where this is not practicable, stairways or ladders should be protected with gates. Gates need to be:

- self-closing
- unable to open away from the platform
- designed and located to act in place of the replaced guardrail.

If openings do not have gates, they need to be far enough from working platforms to prevent a person working on the platform from falling through the opening.

### Omission of edge protection

Edge protection or components of edge protection may be left out of a platform or landing adjacent to the face of a building or structure only if:

- The face has strength and rigidity not less than those of the edge protection or its components.
- The face is located at the required height of the edge protection or its components above the surface of the platform.
- In all other respects, the face performs the function of the edge protection or its components.
- The gap between the face and the platform edge or adjacent horizontal member of the scaffold does not exceed:
  - » 225 mm where the face is a working face
  - » 100 mm where the face is not a working face.

## 4.11 Gantries

Special-duty scaffold gantries may be required to provide pedestrian access and public protection from falling objects. They are also typically designed to support the load of the scaffold above. They need to be designed (or design-verified) by a suitably competent engineer if the design is not covered by the manufacturer's specifications.

City councils may provide guidance on gantry design requirements.

The safe erection of gantries in busy city areas requires careful planning and execution to minimise disruption and ensure the safety of employees and the public. Steps for safe erection of gantries in busy city areas should include:

- Identifying potential hazards and risks to the employees and public.
- Planning the work to ensure the hazards and risks are controlled, so far as reasonably practicable.
- Site preparation and verification of ability to support gantry loads.
- Traffic management plan during the erection, use and dismantling phase to safely control the flow of traffic and pedestrians.
- Using appropriate equipment to lift and place the gantry components.
- Proper training for all employees involved in the installation.
- Using PPE.
- Inspection by a suitably competent engineer to verify the gantry is built to design and safe for use.
- Ongoing monitoring and review.

# Part 5: Erecting, altering and dismantling scaffolds

Employees should be given information, instruction or training needed to safely erect, use, alter and dismantle the scaffold before work starts.
Where the scaffold type requires a HRW licence, the person erecting, altering or dismantling the scaffold must also hold the relevant licence.

See Part 2.2 for more information on *High risk work licences.*

## 5.1 Erecting scaffold

Always choose the safest erection method.
Follow these safe work practices:

- All scaffold components should be progressively installed as each lift of the scaffold is being erected. This includes:
  - » bracing
  - » ties
  - » buttresses
  - » access elements.
- Work behind edge protection, wherever possible.
- Only authorised persons should be on the scaffold while it is erected.
- Develop an orderly work sequence if more than one worker will be on the scaffold at the same time. For example, allocate specific tasks to each scaffolder.
- Work from a full deck of planks, whenever possible.
- Do not climb guardrails, standards, ledgers and transoms.
- Have a suitably competent engineer certify before erecting a scaffold on awnings or other structures like roofs or suspended floors.
- Establish and maintain exclusion zones.
- Ensure scaffold components are compatible.
- Ensure employees are aware of any other requirements, such as No Go Zones, that may impact on the erection of the scaffold.

Under regulation 44 of the OHS Regulations, the risk of falling more than 2 m must be eliminated or controlled, so far as is reasonably practicable.

Using a 'sequential erection' method can expose employees to the risk of falling more than 2 m.
For example, installing edge protection while working in the immediate vicinity of an unprotected edge.
See Figure 26 for more information.

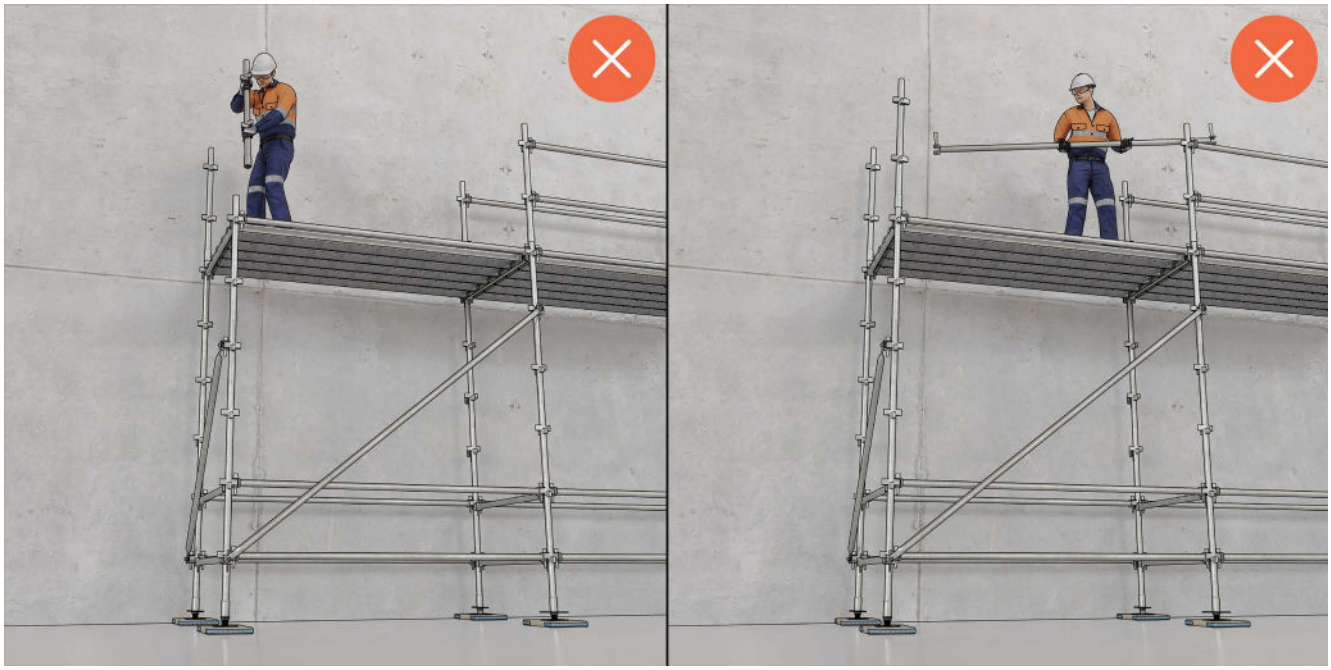


*Figure 26: Sequential erection method – working on live edge while installing guardrails. Some scaffold components such as toeboards are omitted for clarity.*

Consider alternative (and safer) scaffold erection and dismantling methods to control this risk. Other methods include the:

- '1 m lift' method (see Figure 27)
- 'advanced guardrail system' method (see Figures 28 and 29).

This is not an exhaustive list of safer alternative erection methods. Other erection methods may be used if they provide an equivalent or greater level of safety.

# Part 5: Erecting, altering and dismantling scaffolds

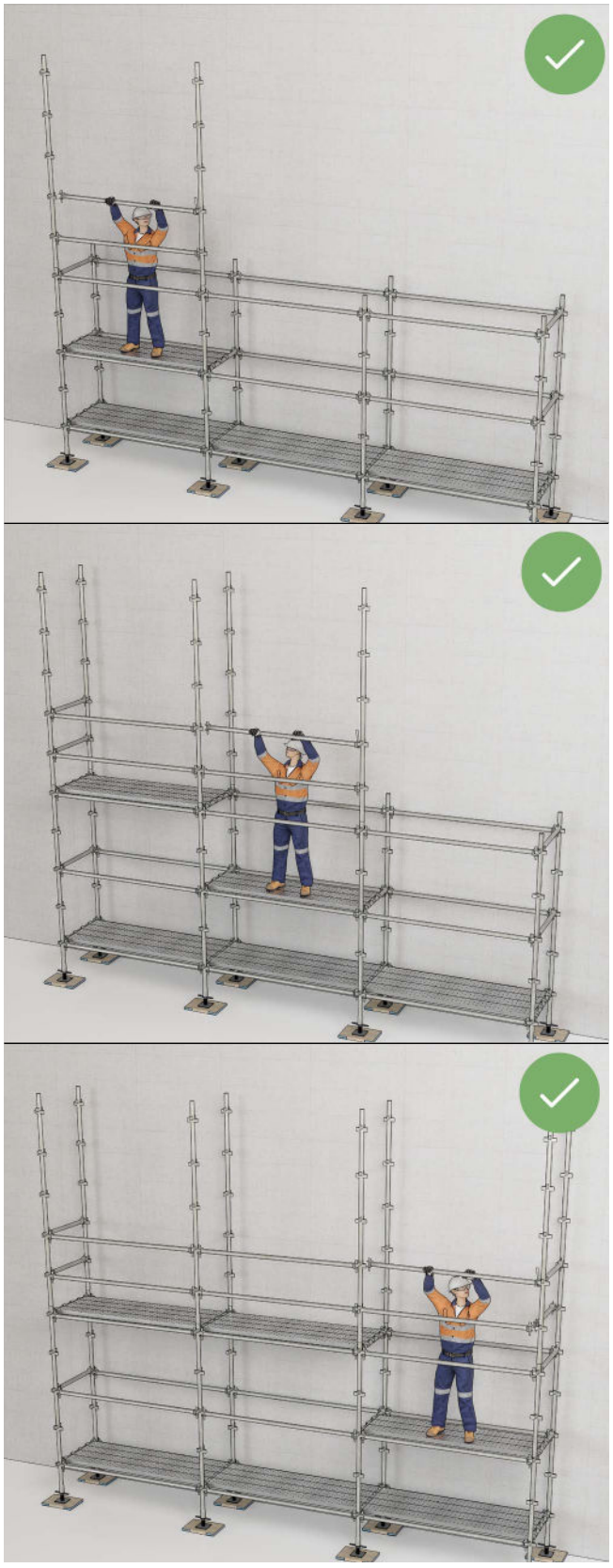


*Figure 27: An example of scaffold erection method – 1 m lift. Some scaffold components such as toeboards and access ladders are omitted for clarity.*

**Erecting the first lift with the 1 m lift erection method**

After basing out a scaffold and installing the ledgers and transoms that will form the first lift, the key steps are:

1. **Build a temporary 1 m lift** by installing ledgers, transoms and decks 1 m above a fully decked base lift.
2. **Move to the temporary 1 m lift.** The previously installed ledgers and transoms will now function as temporary guardrails, providing necessary fall protection.
3. **Install standards, top rails and mid rails for the first lift from the temporary 1 m lift.** The first lift is typically 2 m above the base lift or ground level.
4. **Raise the decking** from the temporary 1 m lift to the first lift. This will create a fully decked and guard-railed first lift for scaffolders to work safely.
5. Once the first lift is completed, **remove any temporary transoms** used in the temporary platform to allow clear access.
6. **Repeat this sequence** for the next lift until the scaffold is erected to the required working height.
7. **Dismantle** scaffold in reverse sequence.

**Note:** The above steps relate to the basic elements of the 1 m lift erection method. Other considerations, such as bracing, ties, stairways and foundations, have been omitted.

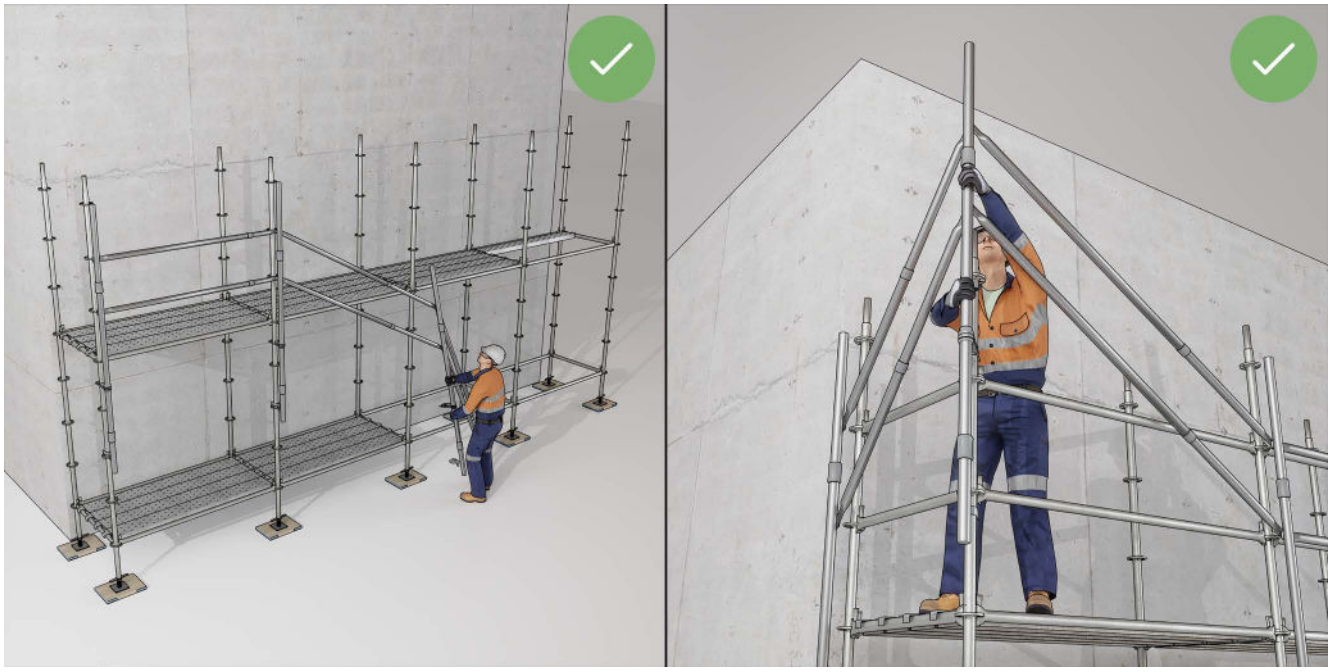


*Figure 28: An example of scaffold erection method – advanced guardrail system. Some scaffold components such as toeboards are omitted for clarity.*

*Figure 29: An example of scaffold erection method – another advanced guardrail system. Some scaffold components such as toeboards are omitted for clarity. The midrail is being installed after the temporary handrail (in yellow).*

# Part 5: Erecting, altering and dismantling scaffolds

**Scaffolds lifted by cranes**

Some scaffold systems have been designed by the manufacturer to be lifted by cranes. These systems have componentry specifically designed to allow the pre-erected scaffold to be safely lifted and placed as per the manufacturer's instructions and engineered design. These systems reduce the amount of time required to design and prepare the scaffold to be lifted.

Other scaffold systems that have not been designed for this purpose will require additional work. This includes an engineered design to enable the pre-erected scaffold to be safely lifted with a crane.

Before deciding to lift any scaffold by crane, consider if it is the safest method and system to complete the task.

Scaffolds should be built from solid ground. Lifting a scaffold lifted by crane can be a complex process that requires careful planning and execution to ensure health and safety.

# Part 5: Erecting, altering and dismantling scaffolds

When a pre-erected scaffold is to be lifted by crane, the following safe work practices should be followed:

1. **Planning:** Before the lift, assess factors such as the weight of scaffold, site conditions, weather and obstructions along the route. Develop a lift plan, including the scaffold design, lifting points and slinging arrangements.

↓

2. **Lift plan:** A suitably competent engineer needs to design the lift plan. It should be peer-reviewed by a third-party suitably competent engineer.

↓

3. **Documentation:** All documentation, such as manufacturer's instructions, lift plan and SWMS, needs to be communicated and accessible for crane and scaffold crews. This includes, where relevant, their HSRs.

↓

4. **Preparation:** Scaffold is to be erected by suitably qualified persons. Ensure the scaffold is assembled on suitable ground conditions and is stable before lifting. All loose components, such as base jacks, need to be secured. Any additional bracing required in the design should be in place. A suitably competent person should do a pre-lift inspection to confirm the scaffold can be lifted as per the design. Designated location to be verified as suitable to land the scaffold.

↓

5. **Attaching lifting gear:** Any required ties are kept in place until suitable lifting gear has been attached to the scaffold. The load must be slung by a licensed dogger or rigger and maneuvered in a way that ensures the load remains stable.

↓

6. **Equipment:** Select a crane that is suitable for the weight and height of the scaffold, ensuring it has the necessary reach and capacity. A suitably licensed and competent person must operate the crane.

↓

7. **Placement:** Once lifted, guide the scaffold into the designated location and ensure it is placed securely onto the suitable supporting structure.

↓

8. **Removing lifting gear:** If ties are required, the lifting gear is to remain in place and connected to the crane until the scaffold has been secured via ties, as set out in the design.

↓

9. **Post-lift inspection:** A suitably competent person should do a post-lift inspection of the scaffold to ensure it was not damaged or affected during the lift and placement process. A scaffold handover certificate and scaffold tag need to be completed before it is commissioned for use.

**Note:** A crane should not be used to lift aluminium mobile scaffolds. The scaffolding components may fail unless it is specifically designed for lifting.

# Part 5: Erecting, altering and dismantling scaffolds

## 5.2 Altering scaffolds

To minimise the risk of death or injury when altering scaffold:

- consult the scaffold supplier/designer before making any alterations
- ensure a system of work is in place that only allows a suitably competent person(s) to alter scaffold
- only alter scaffold in accordance with the scaffold plan or manufacturer's specifications
- ensure alterations do not compromise the scaffold's structural integrity
- have systems in place, such as regular inspections, to identify unauthorised interference with the scaffold
- use anti-tamper devices to prevent unauthorised alterations.

Alterations should only be done by suitably competent persons who, if required, hold the appropriate HRW licence. Examples of such alterations may include:

- removing/moving ties or other parts that obstruct access to a work area
- removing planks from hop-ups to provide clearer access for work
- moving planks to create temporary work platforms in other locations
- removing adjustable bases to do work on the supporting foundation
- removing/moving ledgers, transoms, braces or other parts to create clear pathways through the scaffold structure
- removing/altering scaffolding signage and emergency procedures.

For alterations to a scaffold over 4 m, the alteration details should be recorded on the scaffold handover certificate. This includes:

- what was altered
- by whom
- when.

The person with management and control of the scaffold should engage a suitably competent person to inspect the scaffold ties regularly. This is to ensure they are:

- effective
- not removed or altered during the life of the scaffold.

For example, by finishing trades who may loosen, relocate or remove ties to access walls and openings.

Scaffolding needs to be installed as the scaffold is erected. This includes all:

- bracing and ties
- guy ropes
- buttresses.

Scaffold ties should not be altered. Anti-tamper devices are readily available. These reduce the risk of unauthorised alteration of a scaffold.

## 5.3 Dismantling scaffolds

Always choose the safest dismantling method. Follow these safe work practices:

- The dismantling sequence should not expose a person to a live edge.
- A platform at least 450 mm wide should be in place at the level the dismantling has reached, where practicable.
- Ensure that a full set of planks is directly underneath and no more than 1 m below the worker.
- Establish and maintain exclusion zones.
- Do not climb guardrails, standards, ledgers and transoms.
- Never drop scaffolding components from heights. This will prevent death or injury to a person, and damage to parts that could compromise their integrity and safety for future use.

For an example of a scaffold checklist, see Part 9.

# Part 6: Hazards

Workplace incidents, injuries and even fatalities can occur when:

- hazards are not identified
- risks are not controlled.

When hazards are identified, the employer must ensure that the risks associated with those hazards are eliminated or reduced, so far as is reasonably practicable.

When controlling risks associated with the use of scaffolds in the workplace, the appropriate hierarchy of control should be followed.

A general hierarchy of control is outlined below.

| Level | | |
|---|---|---|
| 1. | Eliminate the risk | Highest level of protection |
| 2. | If it is not reasonably practicable to eliminate, reduce the risk with one or more of substitution, isolation and engineering controls | |
| 3. | Reduce the risk using administrative controls | |
| 4. | Reduce the risk using personal protective equipment (PPE) | Lowest level of protection |

*Figure 30: Hierarchy of control*

- **Substitution** means using a safer alternative from the original source of the hazard. For example, a new:
  - » activity
  - » procedure
  - » plant
  - » process
  - » substance.
- **Isolation** means isolating the hazards and risks from people by either distance or physical barrier.
- **Engineering** controls means a physical control of any kind designed to eliminate or reduce a risk, but does not include:
  - » administrative controls
  - » the use of PPE.
- **Administrative control** means a system of work or work procedure designed to eliminate or reduce a risk, but does not include:
  - » a physical control
  - » the use of PPE.
- **PPE** includes respiratory protective equipment and personal protective clothing.

Reducing the risk may involve a:

- single control measure
- combination of different controls that work together to provide the highest level of reasonably practicable protection.

Monitor, review and, if necessary, revise the risk control measures:

- before changing workplace layout or practices
- when introducing new equipment, materials or work processes
- if a new problem is found
- if consultation shows a review is necessary
- if there is an injury or near miss
- if an HSR requests it
- when the control measure is not working; for example, when someone is injured or experiences a 'near miss'.

Any risk control measures adopted need to be:

- properly installed (if applicable)
- used
- maintained.

## 6.1 Electrical hazards

### Working near energised overhead electrical assets

**Note:** Work should not begin until a Permit to Work (PTW) is obtained. This is a written authority from the asset owner. It should include specific conditions and/or requirements that need to be adhered to.

A PTW needs to be available onsite or on request. The PTW information needs to be communicated to the scaffolders.

Electrical overhead assets are used in a wide range of applications. Examples include:

- powerlines
- service lines
- tramway or railway overhead lines.

Contact with overhead electrical assets can cause serious or fatal injuries.

No Go Zones set out safe clearances from overhead electrical assets that need to be maintained during works, including scaffolding.

Different overhead electrical assets will have different clearances. Contact the respective asset owner to learn more.

If a scaffold or its components will enter a No Go Zone, a PTW from the asset owner may be required. The PTW needs to be obtained before each sequence of the works begins:

- erection
- use
- dismantling.

The No Go Zone for a powerline is the area:

- within 5 m below the powerline
- within 4.6 m horizontally from the powerline
- above the powerlines (see Figure 31).

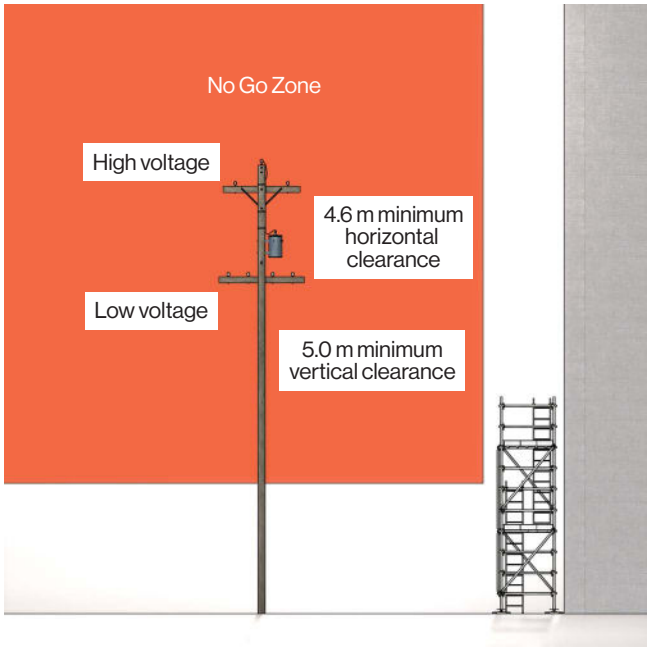



*Figure 31: No Go Zone for scaffold near powerlines*

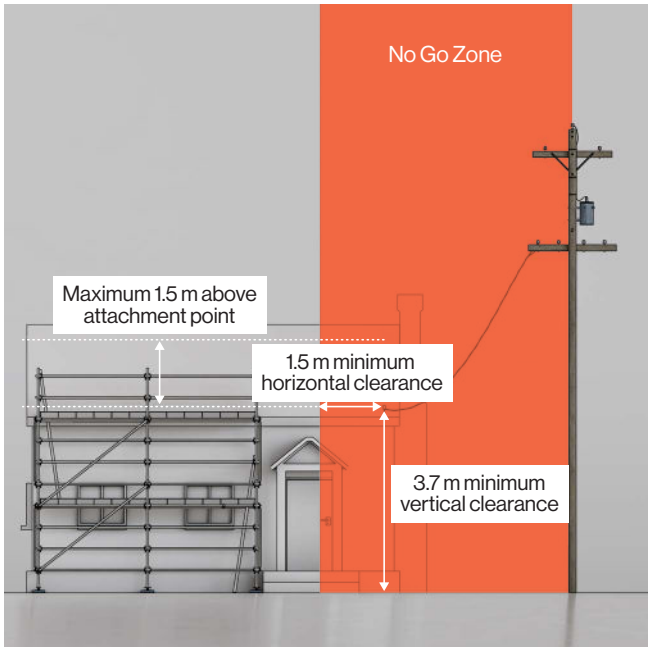



*Figure 32: Clearance distances for scaffolds near service lines*

The No Go Zone for a service line is the area within 4.6 m of the service line. Following an assessment and discussion with the power distribution company, either:

- a PTW may be issued
- advice on clearance distances may be provided, if a PTW is not necessary (see Figure 32).

A PTW may not be necessary if:

- the highest point of the scaffold is less than 1.5 m above the point at which the service line attaches to the building
- no scaffolding components are:
  - » placed above the service cable
  - » less than 1.5 m horizontally to the service line or its point of attachment to the building
  - » less than 3.7 m below the service line.

When determining how far a scaffold will be from an overhead electrical asset, do not try to physically measure, particularly with conductive material like a metal tape measure. Use a laser measure or measure along the ground.

Information, instruction and advice provided by the asset owner, including the PTW, is crucial to ensuring workers are not at risk of electric shock or electrocution. This may contain suggested risk control measures, such as:

- isolation
- visual indicators
- safe approach distances.

Do not rely solely on an Energy Safe Victoria spotter without a PTW. This is an inadequate risk control measure to prevent contact with overhead electrical assets when inside the No Go Zone.

For more information, see Energy Safe Victoria's guidelines at **energysafe.vic.gov.au**:

- *Guidelines for scaffolding near overhead powerlines*
- *Guidelines for scaffolding near service lines.*

### Flexible extension cords

Where flexible extension cords pass through scaffolding, they should be run on insulated hangers. This reduces the risk of mechanical damage that could result in an electric shock.

## 6.2 Scaffold collapse hazards

### Unauthorised scaffold alterations

The unauthorised alteration of a scaffold can affect its integrity and introduce significant risks. For example, scaffold collapse or a person falling from height.

A scaffold can be in place for a significant length of time. Many different tradespeople will be able to access and use the scaffold. The scaffold could be tampered with or altered without the knowledge of the person in management and control of the scaffold.

Anti-tamper devices are readily available and can reduce the risk of unauthorised alteration of a scaffold.

See Part 5.2 for more information about control measures to minimise the risk of death or injury when altering scaffold.

### Ground conditions

Scaffold needs to be erected on a surface that can carry and distribute all its load. It is important to consider the ground surface conditions. These may need to be inspected and assessed regularly as they can change during the time the scaffold is being used.

Soft ground can be disguised by a relatively thin crust on the surface where the ground has dried out. The hard crust may falsely indicate the ground has adequate bearing capacity. When the scaffold load increases, the scaffold can suddenly punch through the crust and cause it to collapse.

Get advice from a suitably competent and trained person, such as an engineer, before erecting scaffolds on:

- verandas
- suspended flooring systems
- compacted soil
- parapets
- awnings
- other similar structures
- a slope (see Figure 33).

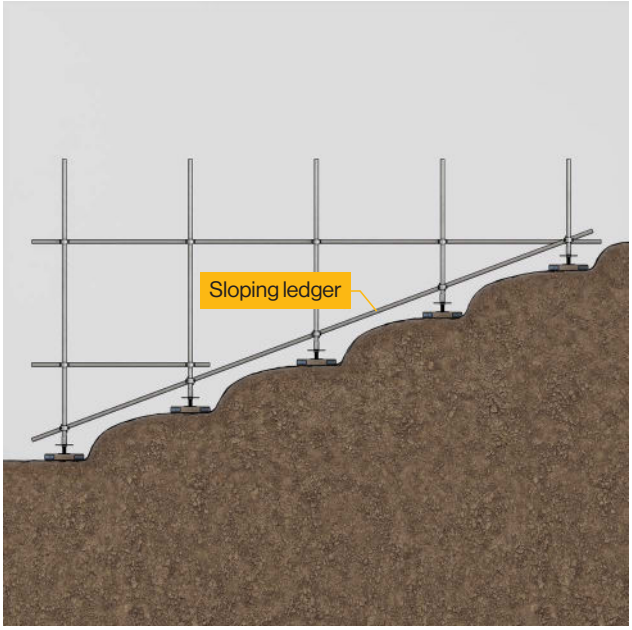



*Figure 33: Scaffold erected on a slope*

Water and nearby excavations may lead to soil subsidence or erosion, causing the scaffold to collapse. Any watercourse that could damage, undermine or wash away the scaffold base should be diverted away from the scaffold. Plan to avoid any excavation works under, through or adjacent to areas where scaffolding is likely to be erected.

Before erecting a scaffold that could be affected by an excavation, a suitably competent person such as a geotechnical engineer needs to verify the ground conditions. This is to ensure the ground can support the scaffold.

The scaffold soleboards need to be set back from the trench. The setback distance should be outside the zone of influence. The zone of influence is dependent on the soil type. Maintaining the setback distance will reduce the risk of:

- potential collapse
- the undermining of the scaffold due to soil displacement.

There are many ways a scaffold can be erected safely near an excavation. See Figure 34 for correct and incorrect examples.

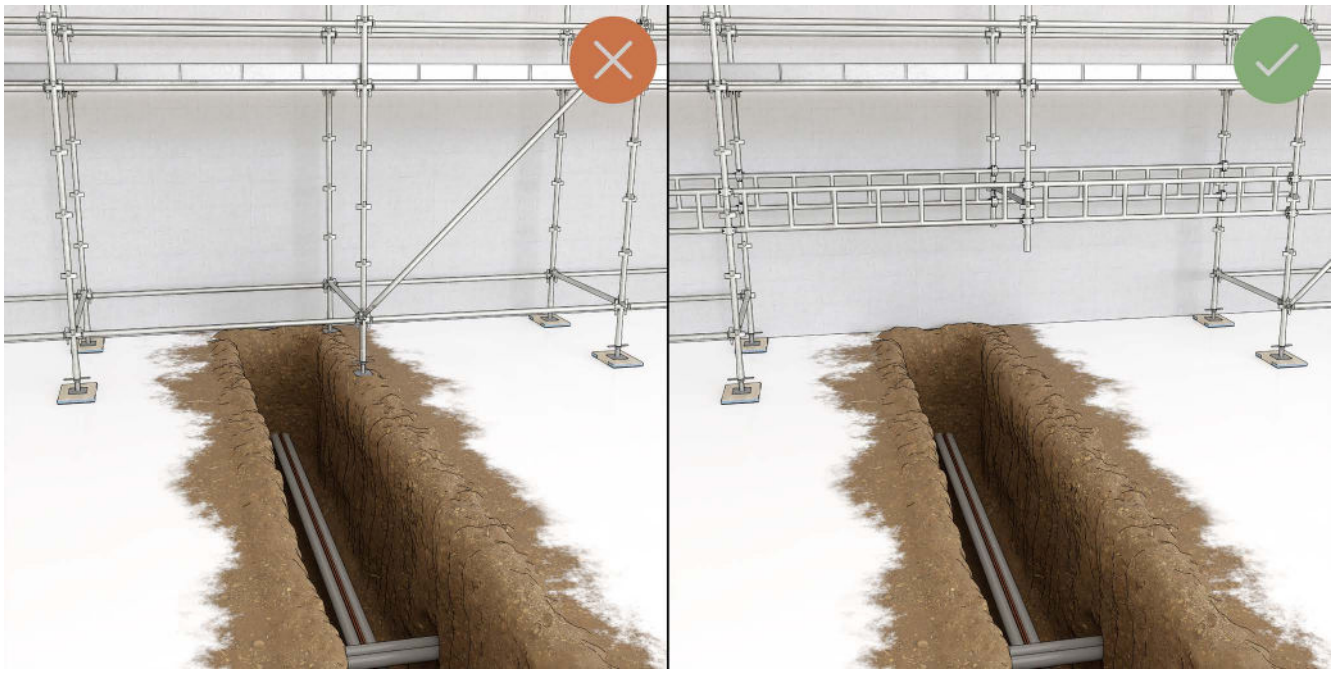


*Figure 34: Examples of scaffold erected near an excavation. Some scaffold components are omitted for clarity.*

**Overloading**

Overloading occurs if excessive load is placed onto the scaffold. Overloading can increase the risk of a catastrophic failure resulting in partial or full collapse.

See Part 4.3 for more information about the types of loads.

The scaffold installation design needs to consider and address all expected loads to be applied during the life of the project. Employees using the scaffold should be told the duty ratings/load capacity. The loads placed on the scaffold should not exceed the duty ratings. This should be monitored throughout the use of the scaffold.

Scaffold should not support formwork and plant, such as hoist towers and concrete pumping equipment, unless it is designed for this purpose.

The most common causes of scaffold overloading are:

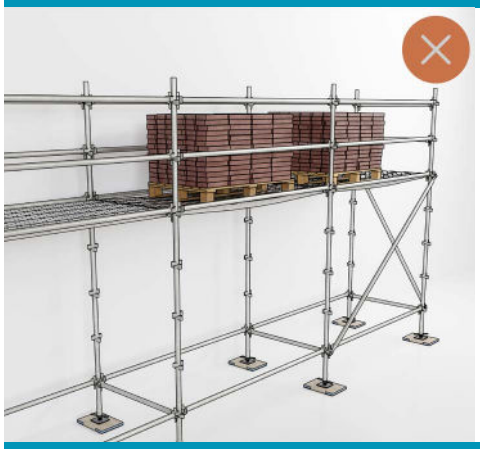
- too much load on a single platform
- loading multiple platform levels in the same bay simultaneously.

To minimise the risk of this occurring before the scaffold is first loaded, consider:

- the duty rating of every platform
- if this duty rating is fixed or can vary depending on how the rest of the scaffold is being loaded
- how many platform levels within a single bay can be loaded simultaneously.

**Note:** A common assumption that causes overloading is that deck loadings can be applied simultaneously on all decks for the full height of scaffold. It is important to consider the individual loading per lift in comparison to overall load for the scaffold.

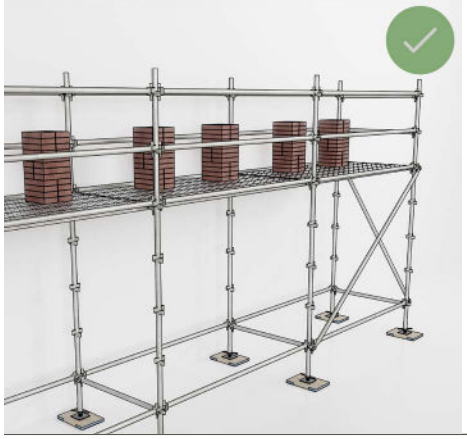
**Table 3: Case study of loading scaffold bays with bricks**

| Background | |
|---|---|
|  | Each heavy-duty scaffold bay is loaded with 188 bricks.<br>The scaffold bay can safely hold 125 bricks.<br>The scaffold bay is overloaded. |

**Next steps**

**Example of load calculations per bay:**

| Quantity | Description | Weight |
|---|---|---|
| 1 | Tradesperson | 100 kg |
| 1 | Mortar to service one bricklayer | 50 kg |
| 125 | Bricks @ 3.4 kg per brick | 425 kg |
| | **Total** | **575 kg** |

| Outcome | |
|---|---|
|  | The bricks have been evenly distributed with approximately 125 bricks on each bay. This scaffold bay is loaded correctly within its duty rating. |

*Some scaffold components such as brickguards are omitted for clarity.*

Note:

- Do not stack materials on hop-up extension bracket.
- Reduce brick quantities in wet weather.
- For every extra person working in a scaffold bay, reduce the number of bricks accordingly.
- Where there are two decks on a bay, the number should remain the same. That is, to load both decks, the number is 65 per deck.

Overloading may damage the scaffold and make it unsafe to access or result in catastrophic failure. Obvious signs of damage include:

- full or partial collapse
- bowing/buckling of standards, ladder beams or needles
- tie tubes slipping through anchorages or couplers
- movement at, or damage to, the supporting surface
- damaged scaffold components, such as cracked welds.

If a scaffold appears damaged or unsafe, do the following:

- Close it and prevent anyone from accessing it, including scaffolders.
- Establish an exclusion zone around the potential fall zone where the scaffold could collapse.
- Have a suitably competent and trained person such as an engineer inspect the scaffold. If necessary, they should determine a safe method to either rectify or demolish the affected areas of the scaffold.

### Mix and match scaffold components

Mixing different scaffolding systems could lead to failure of the scaffold. If components from different systems are mixed, treat it as a new system. See AS/NSZ 1576.1:2019.

> **Note:** This does not apply to accessories or components that are not system-specific, such as ladder beams.

The new system should be:

- assessed and deemed compatible by a suitably competent engineer
- registered as new plant.

The person designing the new system should consider any adverse effects of mixing the scaffolding systems, including whether:

- the parts are of compatible size and strength and have compatible deflection characteristics
- the fixings are compatible and the mixing would lessen the scaffold's:
  - » strength
  - » stability
  - » stiffness
  - » load capacity
  - » suitability
- testing of the mixed scaffolding systems can be carried out in accordance with *AS/NZS 1576.1:2019 Scaffolding Part 1: General requirements.*

### Mobile scaffold

Unsafe work practices can lead to mobile scaffold collapse or overturn. The following safe work practices should be followed for mobile scaffold:

- Erect as per the manufacturer or supplier instructions.
- Ensure the supporting surface is hard and flat.
- Use boards or steel channels to provide a level foundation if the ground surface is unstable. For example, on dirt, uneven ground, muddy or slopping surfaces.
- Erect bracing correctly and include a plan brace at the base of the scaffold.
- Ensure controls are in place for any hazards in the operation area of the mobile scaffold. For example, floor penetrations, slab edge, powerlines.
- Check that castor wheel locks are functional and locked when workers are on the scaffold.

## 6.3 Falls from height hazards

Under the OHS Regulations, employers must, so far as is reasonably practicable, eliminate the risk of falling more than 2 m. If this is not reasonably practicable, employers must reduce the risk, so far as is reasonably practicable. Risks should be controlled in accordance with the falls hierarchy of control shown in Table 4.

**Note:** Duty holders also have general duties under the OHS Act. Employers must provide and maintain a working environment that is safe and without risks to health. This includes eliminating or reducing risks associated with falls of **2 m or less.** They must do this so far as is reasonably practicable.

**Table 4: Hierarchy of control for falls from height**

| Level | Examples |
|---|---|
| 1. Eliminate the risk | Doing all the work on the ground or from a solid construction. |
| 2. Reduce remaining risk by using a passive fall prevention device | Guardrails or elevating work platforms. |
| 3. Reduce remaining risk by using a work positioning system | Travel-restraint systems or industrial rope-access systems. |
| 4. Reduce remaining risk by using fall-arrest systems | Catch platforms or fall arrest-harness systems. |
| 5. Reduce remaining risk by using a ladder or administrative controls | Using an erection and dismantling process that provides permanent edge protection for the persons undertaking the work. |

Before a person starts to erect or dismantle a scaffold, they should:

- identify any falls from height hazards
- assess the risk arising from the hazard
- put control measures in place to prevent or minimise exposure to the risk
- understand when to review and revise risk control measures.

Hazards that may increase the risk of injury or death from a fall from height include:

- void areas not identified or protected, such as ladder access voids
- incomplete scaffolds or loose scaffold components where work is being done, or is likely to be done
- the gap between the working face and the platform edge or adjacent horizontal member of the scaffold
- inadequate information, instruction, training and supervision of scaffold workers and users
- inadequate edge protection.

A higher order of control may not be reasonably practicable or risks may remain when erecting or dismantling scaffold. Safety harness systems can help employers to control the risk of falling more than 2 m in the following circumstances:

- On hung scaffolds, where the scaffold is constructed from top to bottom.
- On cantilevered needles (for the erection of the first lift and later for dismantling that lift) and for decking between the needles.
- When attaching and removing spurs that project from the supporting scaffold or supporting structure.
- When fixing and removing trolley tracks on suspension rigs. A trolley track is a suspended rail that supports and guides trolleys for:
  - » swing stages
  - » work cages
  - » Boatswain's chairs
  - » other types of suspended scaffolding.

Safety harness fall arrest systems need to comply with the *AS/NZS 1891 Industrial fall arrest systems and devices* series.

Using safety harness systems can introduce new risks. It is essential to:

- establish robust work procedures, including emergency rescue procedures
- provide and properly maintain adequate anchor points.

**Mobile scaffold**

Unsafe work practices can lead to people falling from the mobile scaffold. Use the following safe work practices for mobile scaffold:

- Erect as per the manufacturer or supplier instructions.
- For working platform over 2 m, ensure:
  - » handrails, midrails and toeboards are maintained
  - » there is internal ladder access.
- Ensure working deck is complete with no split decks.
- Do not move mobile scaffold while people are on it.

For more information about managing fall hazards, see the WorkSafe compliance codes at **worksafe.vic.gov.au**:

- *Prevention of falls in general construction*
- *Prevention of falls in housing construction.*

## 6.4 Falling objects hazards

Erecting, altering, using and dismantling scaffold exposes people to the risk of being struck by falling objects like:

- scaffold components
- tools
- the entire scaffold in the event of a collapse.

If the risk of objects falling cannot be eliminated, control measures should focus on reducing the risk. Employers should also consider control measures that would prevent the risk of injury if an object was to fall from heights. All objects falling from a height can cause serious injury. This includes small objects like bolts and concrete aggregate.

The following are examples of control measures that may prevent or reduce the risk of being hit by falling objects:

- Establish exclusion zones around scaffolding and adjoining areas to prevent people from accessing the area.
- Contain falling objects with:
  - » perimeter containment screening
  - » toeboards
  - » scaffold fans
  - » hoardings
  - » gantries (see Figure 35).
- Use tool tethering to prevent tools from falling or being dropped when working at height. Tool tethers need to be assessed for suitability.
- In built-up areas, erect and dismantle scaffolding during times when fewer people are in the area.
- Use mechanical hoists to move materials.
- Attach danger tags and warning signs in obvious locations to warn people of hazards. For example, ‘Keep Out – Falling Objects’ and ‘Danger – Incomplete Scaffolding’.
- Consult with all relevant parties before work starts.
- Use good housekeeping practices.

Do not drop materials and items from a scaffold. Pass scaffolding from one level to another internally within the scaffold.

When erecting, altering and dismantling a scaffold, assess the exclusion zone to prevent persons working near scaffold and pedestrians from being injured from falling objects.

The assessment should determine the likely maximum distance components or tools may fall, including non-vertically. The distance a component or tool can fall can be affected by:

- the scaffold's height
- the nature of the tasks
- environmental conditions.

Exclusion zones need to be created and maintained using appropriate delineation and barriers to prevent unauthorised access.

Collaboration with external stakeholders can help to create and maintain an effective exclusion zone. For example, local councils and principal contractors.

**Note:** There are still significant hazards and risks for work where a person or object may fall less than 4 m. A suitably competent and trained person should assess and control this work.

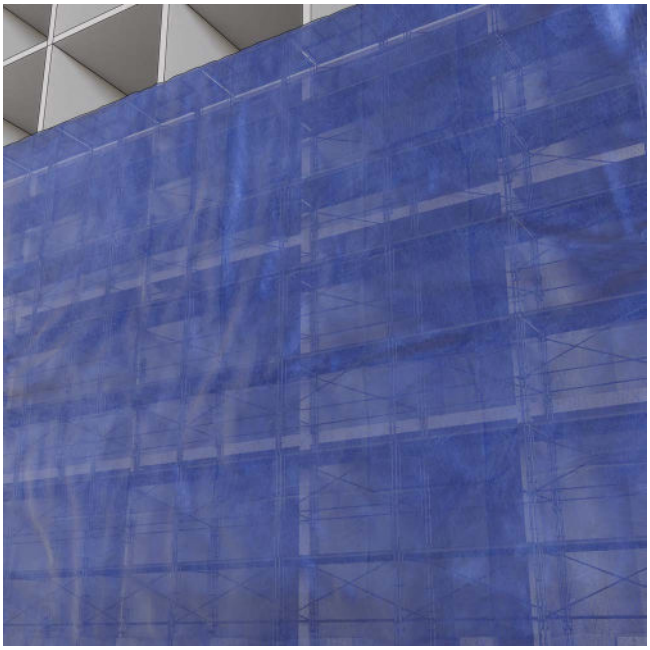


*Figure 35: Use of perimeter containment screens, shade cloth and brick guards to contain falling objects*

## 6.5 Collision hazards

### Mobile plant and traffic

Mobile plant and vehicle traffic are hazards that can affect:

- worker safety
- the safe use and structural integrity of a scaffold.

Control measures that can prevent or reduce the risk of death or injury from moving plant and traffic include:

- Re-routing motor vehicles and mobile plant away from the scaffold location. For example, by using traffic controllers to redirect traffic.
- Preventing mobile plant and traffic from touching the scaffold by using:
  - » barricades
  - » signs
  - » posts
  - » buffer rails
  - » guards
  - » wheel stops
  - » barriers, such as concrete or water-filled barriers (see Figure 36)
  - » spotters.
- Ensuring scaffolding does not have any unnecessary protrusions. For example:
  - » over-length transoms
  - » putlogs
  - » tie tubes
  - » over-height standards.

*Figure 36: Use of concrete barriers around scaffold in a trafficable area*

Crash barriers are specifically engineered to deflect or absorb the impact of vehicles. Scaffolding should not be erected on top of these barriers. It is essential to place the scaffold outside the deflection zone in accordance with the specifications provided by the manufacturer of the crash barriers.

### Fixed plant

Where fixed plant like tower cranes operates near a scaffold, there is a risk of:

- loads snagging on the scaffold
- endangering people on working platforms.

Site-specific procedures should be developed to eliminate and reduce the risks associated with fixed plant.

### Members of the public

Members of the public should be kept away from scaffolding during erection and dismantling. When a scaffold is erected in a public space, potential hazards and risks to the public need to be identified. Control measures to reduce injury from persons colliding into scaffolds include:

- foam or plastic paddings on vertical standards
- adequate lighting
- highlights.

Site and traffic management plans are important to control the flow of traffic and pedestrians. When installing traffic barriers, adhere to manufacturer's specifications and Department of Transport and Planning requirements.

**Note:** A permit may be required for the construction of a scaffold in a public space.

## 6.6 Environmental hazards

### Poor weather conditions

Natural events may damage erected scaffolds and harm people. These include:

- storms
- high winds
- lightning

- water eroding foundations
- subsidence, sinking into supporting surface
- corrosion/deterioration of components.

Some scaffolds may be more likely to be damaged by:

- weather; for example, wind loads on scaffolds with containment sheeting
- natural disasters like an earthquake.

Scaffolds can be damaged when controls for managing weather events are not followed. For example, not adding extra ties at the top lift as required by the designer.

Encapsulated scaffolds have an additional risk. The fixings of the encapsulation may partially fail, causing the encapsulation to act as a flag. This puts additional dynamic loads on the scaffold, its ties and the supporting structure.

Environmental conditions such as lightning and wind should be monitored while scaffold is erected, used and dismantled.

Secure or remove scaffold components before predicted extreme weather events. Inspect scaffolds after poor weather conditions to ensure they have not been damaged.

If scaffold has been damaged and deemed unsafe, it needs to be closed until a scaffolder or other suitably competent person can inspect the damage.

Often damage will appear localised. However, load transfer through scaffold structures means the inspection needs to cover the obvious damaged areas. Also look for:

- signs of movement at the scaffold base
- slipping/loosening of ties and tie anchorages.

Depending on scaffold design and the damaged components, the structural performance of the scaffold can be significantly affected. For example, damage to load-bearing parts such as standards or ladder beams.

Lightning can travel along conductive components, causing severe injuries or even fatalities. During lightning events, stay away from scaffolding to prevent exposure to lightning strike.

**Working near or over water**

Working near or over water can involve multiple hazards such as:

- fast currents
- tidal changes
- heights.

When working over or near water, employers need to assess the hazards and risks to decide what control measures should be in place. This includes what PPE may be needed. PPE can include self-inflating safety vests and a fall restraint harness system.

Risks that may be present when working over or near water are:

- falling from height
- drowning
- crushing against fixed structures when working from a buoyant platform
- tidal movements affecting the scaffolding.

When working over or near water, emergency procedures need to be reviewed and put in place before work starts. Emergency procedures should enable:

- employees to be rescued promptly, so far as is reasonably practicable
- any affected employees to be given first aid.

An employer needs to ensure that any risk associated with carrying out the emergency procedures is eliminated or reduced, so far as is reasonably practicable.

Further information on emergency procedures is in Part 7.

## 6.7 Manual handling hazards

When working on scaffolds, there is a risk of hazardous manual handling. For more information, see *Compliance code: Hazardous manual handling* at **worksafe.vic.gov.au.**

# Part 7: Emergency procedures

It is important for employers to have an emergency plan in place for any potential type of emergency during the erecting, using, altering or dismantling of a scaffold. The plan needs to be:

- site-specific
- easily accessible
- maintained
- regularly tested and reviewed
- if necessary, revised to remain effective.

Before the erection of a scaffold, emergency procedures must be developed in consultation with employees and any HSRs. Employees should be trained in the emergency procedures to ensure a coordinated response if an emergency happens. The emergency procedures should be:

- incorporated into any broader construction project emergency plan
- communicated to all employees.

The employer should also consider any risk associated with carrying out the emergency procedures and ensure that these risks are eliminated, so far as is reasonably practicable. If it is not reasonably practicable to eliminate the risk, it must be reduced so far as is reasonably practicable. Examples of risks associated with carrying out emergency procedures are:

- falls
- electric shock
- crushing
- musculoskeletal disorders
- further engulfment
- exposure to chemicals or substances.

When developing these procedures, an employer needs to consider any foreseeable type of emergency and rescue scenarios that might arise. This includes:

- engulfment by soil or other materials
- falls from height
- confined space entry.

Hazards identified at the work site will help an employer to plan a suitable response for the emergency specific to the site or situation.

> **Note:** It is important to have the access and egress established as a scaffold is being erected from the ground. This will ensure that emergency procedures can be carried out when required.

To ensure the emergency procedures enable the provision of first aid, the procedures should:

- Specify whether trained first aiders are required. If so:
  - how many are needed
  - the competencies required
  - the first aid equipment necessary.
- Identify the nearest hospital and medical treatment rooms.
- Establish means of contacting the emergency services promptly.
- Identify location of alarms, fire extinguishers and escape routes.
- Identity location of access and egress to reach and rescue persons.

Immediate attendance by emergency services may be restricted by factors such as:

- remote location
- lack of mobile telephone network
- extensive response times.

When developing emergency procedures, employers should not solely rely on emergency services responding and being able to deal with the emergency.

# Part 8: Inspecting and maintaining scaffold

Persons to whom the scaffold has been handed over need to have procedures in place for inspecting and maintaining scaffold and scaffold components. For example, the:

- person in control of the site
- principal contractor
- employer
- sub-contractor.

This will ensure:

- the scaffold remains in a safe condition
- no unauthorised changes are made.

Regular scaffold inspections are important, particularly when a scaffold has been erected for an extended time.

A supplier of scaffold components must ensure they are inspected and maintained in between times of hiring or leasing them. This ensures that any risk arising from the use of the scaffold components are eliminated or reduced, so far as is reasonably practicable.

## 8.1 Record-keeping

People with management and control of the erected scaffold, such as employers, need to keep records of all:

- design documentation
- inspections
- commissioning
- repairs and alterations.

They must also make these available on request. A register of the scaffolds is a useful tool to have for larger sites with multiple scaffolds.

Suppliers of scaffolding components for lease or hire must keep records of any inspection or maintenance carried out on the scaffolding components.

## 8.2 When should scaffold be inspected?

Scaffolds should be inspected regularly during use, especially after extreme weather events. This will determine if the scaffold is in a safe condition for use or needs to be repaired.

A competent and suitably qualified person should inspect, repair and alter scaffold, in consultation with the supplier of the scaffold to site. For scaffolds where there is a risk of an object or a person falling more than 4 m, a person who holds an appropriate HRW licence must do the alterations or repairs.

See Part 2.2 for more information on HRW licences.

The timing between regular inspections depends on the:

- site conditions
- nature of the work
- level of risk associated with failure of the scaffold
- information in the supplier's documents or the design specifications.

## 8.3 Inspection

Inspections should be done on:

- cantilevered scaffolds
- spur scaffolds
- hung scaffolds
- any other scaffold from which a person or object could fall more than 4 m.

These scaffolds and their supporting structures should be inspected:

- Before the first use.
- At least every 30 days.
- As soon as practicable and before using it after an event that could have affected the stability or safety of the scaffold. For example:
  - » a severe storm
  - » an earthquake
  - » after being struck by a vehicle or plant.

- Before next use after repairs or alterations have been done.
- After an incident.

Work should not be done from the scaffold until it is inspected by a suitably competent person and it is cleared as safe for use.

Advice may be needed from a suitably competent engineer where an inspection involves a:

- complex scaffold design
- check of the strength, rigidity or deterioration of supporting structures.

Some scaffolds with a complex scaffold design may require more frequent inspections.

Employers should keep on site:

- handover certificates
- records of inspection
- repairs and maintenance details.

These should be accessible until the scaffold has been dismantled.

Scaffold tags can be a useful indicator to show when the scaffold was last inspected. These are typically found at entry points. Scaffold tags do not include the minimum amount of information required for a valid handover certificate and cannot be used as such.

Inspection records should include:

- individual identification number or mark of the scaffold
- any relevant design or specification reference
- duty and classification of loading
- number of decked platforms
- maximum number of platforms that can be loaded or worked from at any one time
- location of the scaffold
- purpose for which the scaffold is provided
- date and time of each inspection
- comments on each inspection, including repairs
- name and signature of the person conducting the inspection.

For a scaffold from which a person or object could fall more than 4 m, the scaffolder needs to give a handover certificate to the client. For example, the:

- person in control of the workplace
- principal contractor
- employer
- sub-contractor.

For scaffolds under 4 m, a handover certificate should state that it has been erected to the manufacturer's instructions.

If the scaffold is self-erected, duty holders need to keep records of all design documentation to show that it has been erected and maintained as per the manufacturer's instructions.

For an example of the scaffold handover certificate, see Part 9.

## 8.4 Maintenance

Scaffolding that is no longer safe to use should:

- be taken out of service immediately until repairs have been done
- be tagged to warn people
- have access points closed off
- have damaged planks and components removed or replaced by the scaffold supplier or a licensed scaffolder.

# Part 9: Scaffold checklists and certificates

## 9.1 Scaffold checklist

The scaffold checklist is designed to help identify potential hazards or risks with an erected scaffold on site. It is NOT intended to be exhaustive. For more information and guidance, please refer to:

- Scaffolding industry standard
- AS/NZ 1576
- AS 4576.

For proprietary scaffold systems, refer also to the manufacturer's specifications.

The checklist has been designed to provide practical advice to principal contractors and employers on what they should expect from those responsible for the erection of a safe scaffold. The checklist has also been designed to provide guidance for principal contractors and employers on the maintenance, including alterations, of a safe scaffold.

The Scaffold checklist is 5 pages.

| | | | | | |
|---|---|---|---|---|---|
| **Site location:** | | | | **Team member:** | |
| **Date:** | | **Time:** | | **Site type:** | |

| | | | | | |
|---|---|---|---|---|---|
| **Scaffolder name:** | | | | **Scaffold company name:** | |
| **Scaffold type:** | | **Phone:** | | **ABN:** | |

**Note:** If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required.

| 1.0 Documentation/signage | | Yes | No | N/A |
|---|---|---|---|---|
| **1.1** | Is there a handover certificate for the scaffold? | ☐ | ☐ | |
| **1.2** | Is there a current scaffold tag displayed in a visible location? For example, scaffold access points. | ☐ | ☐ | |
| **1.3** | Does the scaffold tag show the duty rating per bay? | ☐ | ☐ | |
| **1.4** | Are appropriate danger tags and warning signs such as 'No entry. Scaffold incomplete' or 'Danger - workers above' in place and in obvious locations to warn people of hazards? | ☐ | ☐ | ☐ |
| **1.5** | Are incomplete scaffolding platforms blocked with a physical barrier? | ☐ | ☐ | ☐ |
| **1.6** | Are scaffold inspections recorded and available upon request? Minimum 30 days. | ☐ | ☐ | |
| **1.7** | After an inspection, are the identified safety issues addressed to ensure safe use of scaffold? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

| 2.0 Foundations, soleboards, baseplates | | Yes | No | N/A |
|---|---|---|---|---|
| 2.1 | Is trenching or other excavation works that could affect the foundation of the scaffold isolated from the vicinity of the scaffold? | ☐ | ☐ | ☐ |
| 2.2 | Have the ground conditions been assessed as suitable for the loads and duty rating of the scaffold before the scaffold is erected? | ☐ | ☐ | |
| 2.3 | Are soleboards, where required, in good condition, of the suitable material and are they secured or positioned to prevent them being dislodged? | ☐ | ☐ | ☐ |
| 2.4 | Are base plates of suitable dimensions and, where required, positioned centrally on the soleboards? | ☐ | ☐ | |
| 2.5 | Are the standards sitting plumb and firm on the base plates? | ☐ | ☐ | |
| **3.0 Isolation from mobile plant, other vehicles and public** | | **Yes** | **No** | **N/A** |
| 3.1 | Is there a system in place to prevent the scaffold being struck by vehicles, plant moving near the scaffold? For example, blocks, para-webbing, hoarding and traffic management. | ☐ | ☐ | ☐ |
| 3.2 | Have risks to pedestrians been controlled? | ☐ | ☐ | ☐ |
| **4.0 Scaffold structure** | | **Yes** | **No** | **N/A** |
| 4.1 | Are the standards plumb through the full height? | ☐ | ☐ | |
| 4.2 | Are ledgers and transoms level? | ☐ | ☐ | |
| 4.3 | Is bracing in place at the traverse ends of the scaffold? | ☐ | ☐ | |
| 4.4 | Is bracing located on the scaffold as per design? | ☐ | ☐ | |
| 4.5 | Does bracing extend to the full height? | ☐ | ☐ | |
| 4.6 | Are working load limits for each bay and working deck communicated, identified and maintained? Refer to the handover certificate. | ☐ | ☐ | |
| 4.7 | Are procedures in place for any alterations? | ☐ | ☐ | |
| **5.0 Access and egress** | | **Yes** | **No** | **N/A** |
| 5.1 | Is there access and egress to all working platforms, where applicable? | ☐ | ☐ | ☐ |
| 5.2 | If there is access to the structure, has adequate fall protection been installed between the structure and scaffold? | ☐ | ☐ | ☐ |
| 5.3 | Where access ladders are used:<br>a) Are they fitted internally? | ☐ | ☐ | ☐ |
| | b) Are they adequately secured? | ☐ | ☐ | ☐ |
| | c) Are they pitched 1:4? | ☐ | ☐ | ☐ |
| | d) Do they extend 900mm above the landing? | ☐ | ☐ | ☐ |
| | e) Are they in good condition and free of defects? | ☐ | ☐ | ☐ |
| | f) Is edge protection or hatch provided to the void created by the ladder access? | ☐ | ☐ | ☐ |
| 5.4 | Where access stairs are used:<br>a) Are they bearing squarely and adequately on transoms? | ☐ | ☐ | ☐ |
| | b) Are there no excessive gaps between the platform and transoms? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

| 6.0 Electrical | | Yes | No | N/A |
|---|---|---|---|---|
| 6.1 | Is scaffolding erected outside of the No Go Zone of overhead power lines? (4.6 m horizontally either side and 5 m vertically below power lines) Refer to the asset owners and Energy Safe. | ☐ | ☐ | |
| 6.2 | If scaffolding is erected within the No Go Zone, is written permission available from the asset owners? | ☐ | ☐ | ☐ |
| 6.3 | Are insulated hooks available so that leads are elevated rather than being in contact with any scaffold components such as handrails and ledgers, or wound around ties or couplers? | ☐ | ☐ | ☐ |
| **7.0 Containment sheeting** | | **Yes** | **No** | **N/A** |
| 7.1 | Has the scaffold been designed for wind loading on any containment sheeting? For example, hoardings, signage, temporary fencing, wire mesh or shade cloth. Note: For calculation of wind actions, refer to AS/NZS 1170.2:2021. | ☐ | ☐ | ☐ |
| 7.2 | Has sufficient sheeting or brick guards been provided to protect workers or members of the public who might be exposed to a risk of falling materials from the scaffold? | ☐ | ☐ | ☐ |
| 7.3 | Are the fixing ties secure? | ☐ | ☐ | |
| 7.4 | Is the integrity of the containment sheeting being maintained? For example, no gaps, rips or tears. | ☐ | ☐ | ☐ |
| **8.0 Edge protection** | | **Yes** | **No** | **N/A** |
| 8.1 | Are guardrails, midrails and toeboards installed on all working decks and access platforms from which a person or object could fall, and are they secure? | ☐ | ☐ | |
| 8.2 | Where the gap between the structure and the scaffold is more than 225 mm, has edge protection been provided? Minimum guard rail and midrail. | ☐ | ☐ | ☐ |
| 8.3 | Where any changes to the structure have occurred; for example, removal of cladding or formwork, is the gap between the structure and the scaffold still less than 225 mm? | ☐ | ☐ | ☐ |
| **9.0 Platform/decks** | | **Yes** | **No** | **N/A** |
| 9.1 | Are working platforms fully decked? For example, no gaps or missing boards or planks. | ☐ | ☐ | |
| 9.2 | Are boards and planks secured when required? For example, from uplift from wind and sliding. | ☐ | ☐ | ☐ |
| 9.3 | Are planks uniform and in good condition? For example, no splits, cracks, knots or bends. | ☐ | ☐ | |
| 9.4 | Are platforms free of obstructions? For example, electrical leads, building rubble and debris causing tripping hazards. | ☐ | ☐ | |
| 9.5 | Where materials are stacked on platforms, is there sufficient access provided? Minimum 450 mm wide for persons and tools, minimum 675 mm wide for persons and materials. | ☐ | ☐ | ☐ |
| 9.6 | Where brick guards are used, are bricks or other material stacked below the height of the brick guards? | ☐ | ☐ | ☐ |
| 9.7 | Are the loads on working platforms within their design load? | ☐ | ☐ | |

# Part 9: Scaffold checklists and certificates

| 10.0 Supporting structures | | Yes | No | N/A |
|---|---|---|---|---|
| 10.1 | Is the supporting structure in good condition? | ☐ | ☐ | ☐ |
| 10.2 | Has the supporting structure been assessed to have adequate strength by a suitably competent person? | ☐ | ☐ | ☐ |
| 10.3 | Are there sufficient controls to prevent deterioration of the supporting structure? | ☐ | ☐ | ☐ |
| 10.4 | Have all measures to strengthen the supporting structure been deemed adequate by a suitably competent person? | ☐ | ☐ | ☐ |
| 10.5 | Is the risk of the supporting structure being overloaded from other sources adequately controlled? | ☐ | ☐ | ☐ |
| **11.0 Ties and connections** | | **Yes** | **No** | **N/A** |
| 11.1 | Is the scaffold secured to the structure with ties? | ☐ | ☐ | ☐ |
| 11.2 | For unclad scaffolding, are ties being maintained at roughly every 2nd lift vertically and every 3rd bay horizontally? | ☐ | ☐ | ☐ |
| 11.3 | Is the scaffold stable when standing on the decks? | ☐ | ☐ | |
| 11.4 | Is there a system to ensure that if ties need to be removed or relocated, it will not affect the design of the scaffold and the integrity of the structure? | ☐ | ☐ | ☐ |
| 11.5 | Are all components secure? For example, handrail, midrail, transom and ledger connections. | ☐ | ☐ | ☐ |
| **12.0 Hop-up brackets** | | **Yes** | **No** | **N/A** |
| 12.1 | If a hop-up bracket is to be used outside of its intended design on the working face of a scaffold, has this been considered, approved and documented by the manufacturer/ supplier or a competent person? | ☐ | ☐ | ☐ |
| 12.2 | Are hop-up brackets being maintained within 500 mm above or below the working platform? | ☐ | ☐ | ☐ |
| 12.3 | Is each hop-up bracket secured in a way that prevents it from moving or planks falling out? For example, with a tie bar. | ☐ | ☐ | ☐ |
| **13.0 Mobile scaffolds** | | **Yes** | **No** | **N/A** |
| 13.1 | Is the supporting surface hard and flat? | ☐ | ☐ | |
| 13.2 | If the ground surface is unstable, are boards or steel channels used? For example, on dirt, uneven ground or a muddy or sloping surface. | ☐ | ☐ | ☐ |
| 13.3 | Is bracing erected correctly and is a plan brace included at the base of the scaffold? | ☐ | ☐ | |
| 13.4 | Are controls in place for any hazards in the operation area of the mobile scaffold? For example, floor penetrations, slab edge, powerlines. | ☐ | ☐ | |
| 13.5 | Are the castor wheel locks in working order? | ☐ | ☐ | |
| 13.6 | Are the castor wheel locks locked before workers work on the scaffold? | ☐ | ☐ | |
| 13.7 | Where the working platform is over 2 m in height, are handrails, midrails and toeboards being maintained and is there internal ladder access provided? | ☐ | ☐ | ☐ |
| 13.8 | Is the working deck complete? For example, no split decks. | ☐ | ☐ | |

# Part 9: Scaffold checklists and certificates

| Any further comments: |
| --- |
| |

# Part 9: Scaffold checklists and certificates

## 9.2: Scaffold handover certificate – scaffold over 4 m

An example of a typical scaffold handover certificate that a scaffolder would provide to the persons in management and control of the erected scaffold (for example, principal contractor, employer or sub-contractor) after the erection of a completed scaffold.

The Scaffold handover certificate is 2 pages.

| Scaffold supplier/erector | | | |
|---|---|---|---|
| **Certificate no.:** | | **ABN:** | |
| **Company name:** | | | |
| **Address:** | | | |
| **Contact phone:** | | **Email:** | |
| **Client** | | | |
| **Client name:** | | | |
| **Address:** | | | |
| **Contact phone:** | | **Email:** | |

| Project details | | | |
|---|---|---|---|
| **Project/reference no.:** | | | |
| **Site address:** | | | |
| **Description of area handed over:** | | | |
| **Drawings attached (tick box):** | **Yes** ☐ | **No** ☐ | |
| **Intended use of scaffold:** | | | |
| **Duty classification and loading:** | | | |
| **Number of decked platforms:** | | | |
| **Maximum number of platforms that can be loaded or worked from at any one time:** | | | |
| **Size of the scaffold:** | | | |
| **Top working platform height:** | | | |
| **Modular bays (LxWxH):** | | | |
| **Tube and coupler bays (LxWxH):** | | | |
| **Plant design registration no.:** | | | |
| **Additional details:** | | | |

**Note:** The person in management and control of the erected scaffold, such as the principal contractor, employer or sub-contractor, should communicate the above information to the end users of the scaffold.

# Part 9: Scaffold checklists and certificates

**Handover inspection of scaffold**

The scaffold detailed above is suitable for its intended purpose and has been erected in accordance with the:

- manufacturer's instructions
- attached drawings
- OHS Act and Regulations
- Scaffolding industry standard
- AS/NZS 1576 series
- AS/NZS 4576 series.

| | | | |
|---|---|---|---|
| **Name:** | | **High risk work licence no:** | |
| **Time:** | | **Date:** | |
| **Signature:** | | | |

| **Acceptance – on behalf of client** | | | |
|---|---|---|---|
| **Name:** | | **Date:** | |
| **Signature:** | | | |

Arrange for scaffold to be inspected at intervals not exceeding 30 days or immediately following an incident that may affect the adequacy of the scaffold.

A person with management or control of a suspended, cantilevered, spur, hung or other scaffold from which a person or thing could fall more than 4 m should receive written confirmation from a competent and suitably qualified person that the scaffold:

- has been inspected
- is completed
- is safe for use.

# Part 9: Scaffold checklists and certificates

## 9.3: Suspended scaffolds

Suspended scaffold means a scaffold incorporating a suspended platform that is capable of being raised or lowered when in use.

### Common types of suspended scaffolds

Common types of suspended scaffolds include:

- Swing stages.
- Double-rope scaffolds, with cradles supported by two rows of suspension ropes.
- Work cages, which are small cradles supported by one suspension rope only.
- Boatswain's chairs, where the platform is a seat for one person.
- False cars, which are specialised forms of suspended scaffolding. They are often used in the construction of lifts.

> **Note:** Hand-hauled industrial rope access systems are not seen as a form of scaffolding.

### Common types of scaffolding hoists

All suspended scaffolds rely on scaffolding hoists to allow them to be raised and lowered during use.

The two main sorts of scaffolding hoist are:

- Wrap-traction hoists, where the hoist 'climbs' a stationary suspension rope reeved through several sheaves within the hoist.
- Drum hoists, where the suspension rope is anchored to the hoist.

Scaffolding hoists include electrically, pneumatically and manually powered types.

### Common uses of suspended scaffolds

Suspended scaffolds are used to provide access and working platforms in the construction, alteration, inspection, repair, refurbishment and maintenance of:

- high-rise buildings
- industrial plant
- bridges
- other large structures.

### Suspended scaffold checklists

The following safety checklists and explanatory information can assist:

- Suppliers of suspended scaffold equipment, including hire companies.
- Principal contractors where suspended scaffolds are used.
- Employers whose employees are required to operate or work from suspended scaffolds.
- Scaffolding contractors, scaffold designers and personnel directly responsible for the erection, alteration and dismantling of suspended scaffolds.
- HSRs whose Designated Work Groups include workers operating, using or working in the vicinity of suspended scaffolds.
- Employees or contractors who use suspended scaffolds.

# Part 9: Scaffold checklists and certificates

## 9.3(a) Checklist for suppliers of suspended scaffolds

Suppliers of suspended scaffolding equipment have a general duty under the OHS Act to ensure that:

- The plant, so far as is reasonably practicable, is safe and without risks to health when used for a purpose for which it was designed, manufactured and supplied.
- Adequate information is given to each person who the supplier supplies plant to about:
  - » the purposes for which the plant was designed, manufactured or supplied
  - » any conditions necessary to ensure that the plant is safe and without risks to health, if it is used for a purpose for which it was designed, manufactured and supplied.

Suppliers of plant also have further obligations under the OHS Regulations, including for suspended scaffolding equipment.

Suppliers should obtain and keep written confirmation that:

- The suspended scaffolding system has been designed in accordance with:
  - » *AS/NZS 1576.1:2019 Scaffolding, General requirements*
  - » *AS 1576.4:2013 Scaffolding, Suspended scaffolding.*
- Couplers supplied for use with suspended scaffolding have been designed, tested and marked in accordance with *AS/NZS 1576.2:2016 Couplers and accessories.*
- Scaffolding hoists have been designed, manufactured and tested in accordance with *AS 1418.2:1997 Cranes.*

**Checklist for suppliers of suspended scaffolds (3 pages)**

If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required. Please see the Explanatory notes for more information for each question.

| No. | Pre-delivery of equipment | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Is there written confirmation of design notification for new types of powered scaffolding hoists? | ☐ | ☐ | ☐ |
| 2 | Do scaffolding hoists and the secondary protective devices have legible data plates bearing the necessary information? | ☐ | ☐ | |
| 3 | Does the Residual Current Device (RCD) in the cradle have a legible data label bearing the necessary information? | ☐ | ☐ | |
| 4 | Do the controls have all necessary labels and operational functions displayed? | ☐ | ☐ | |
| 5 | Are the hoist(s) and the central control box compatible? | ☐ | ☐ | |
| 6 | Are measures in place to ensure that the scaffold is secure to prevent unauthorised operation when not in use? For example, a removable central control box. | ☐ | ☐ | |
| 7 | Has the correct type, size and length of flexible power cord been provided? | ☐ | ☐ | |
| 8 | Is the correct size and type of wire rope provided? | ☐ | ☐ | |
| 9 | If required, has the secondary protective device been adjusted for the size of wire rope to be used? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

| | | | | |
|---|---|---|---|---|
| **10** | Has each hoist and secondary protective device undergone inspection and load testing before being installed onsite? | ☐ | ☐ | |
| **11** | Have all scaffolding components been inspected before being sent to site? | ☐ | ☐ | |
| **12** | Are the counterweights specifically manufactured for the purpose and correctly labelled? | ☐ | ☐ | |
| **13** | Are the supplied components compatible with the design plan? | ☐ | ☐ | |
| **14** | Have all relevant safe use instructions and checklists been provided to the user? | ☐ | ☐ | |

**Explanatory notes**

1. For those hoists where the design began after 1995, the design of the powered scaffolding hoists being supplied must have been registered with WorkSafe Victoria or an equivalent interstate workplace statutory authority.

2. All scaffolding hoists and secondary load-holding protective devices should have legible data plates bearing the following information:
   - type model identification
   - serial number
   - details of steel wire rope used with the hoist – nominal size, grade (quality), construction and maximum length (where applicable)
   - classification of mechanism of the hoist
   - rated capacity hoisting
   - name or identification mark of the manufacturer of the hoist
   - reeving requirements, where applicable
   - power supply requirements, where applicable.

3. The RCD for the cradle should have a legible data label bearing the following information:
   - rating load in amps
   - residual tripping current (not exceeding 30 ma)
   - power supply in volts.

4. All hoisting controls must be suitably identified to indicate their nature and function.

5. The control box should be compatible with the operation of the specific type and model of hoist. If multiple hoists are used, each hoist should have the same operating specifications.

6. Measures should be in place to ensure that the scaffold is secure to prevent unauthorised operation when not in use. This could include:
   - a removable central control box
   - the ability to isolate power to the cradle, for safety and security when the suspended scaffold is not in-service.

7. Any suspended flexible cord should be:
   - the heavy-duty double-insulated type
   - able to support its own weight over the length of the drop.

   The flexible cord needs to be long enough to allow the cradle to descend to the ground or a lower structure for egress in an emergency.

8. Only the wire rope recommended by the manufacturer for the hoist should be used. Details of the wire rope construction can be located on the hoist data plate. The use of the wrong construction of wire rope in a scaffold hoist has resulted in sudden failure, with the rope severing in the hoist.

9. It is essential that the secondary protective device's internal mechanism (safety brake) is correct and compatible with the size of the wire rope being used. Some devices may be capable of using different sizes of wire rope. In this case, the mechanism needs to be adjusted for the size of wire rope fitted.

# Part 9: Scaffold checklists and certificates

10. Before each site delivery, each scaffolding hoist, secondary protective device and load-limiting device should have been inspected and subjected to an operational test in accordance with the recommendations given in AS/NZS 1576.4. If an electrically powered scaffolding hoist, it should be fitted with a load-limiting device that will prevent the hoist from lifting more than 125% of its rated load. If a secondary protective device, it should be capable of preventing the cradle from falling due to a failure within the hoist.

11. Before each site delivery, the supplier needs to ensure that all scaffolding components are inspected. For example, the cradle, stirrups, needles and counterweights.

12. Any counterweight should be:
    - manufactured for that purpose
    - labelled with its mass in kg
    - placed directly on the needle or innermost support in the designed location
    - secured so it cannot be displaced or removed without the use of a tool.

13. A detailed design plan needs to be prepared for the erection of each suspended scaffold. The design plan should include:
    - the design specifications of the suspended scaffold
    - the limitations of the support structure
    - any wind loading or lateral forces it may be exposed to during erection or operation.

    The supplier should ensure that all components to be supplied are in accordance with the design plan.

14. The supplier of the suspended scaffold must provide information for the users of the equipment. This may include:
    - operating and safe use instructions
    - manufacturer's specifications
    - the daily safety checklists, including permissible environmental conditions.

# Part 9: Scaffold checklists and certificates

## 9.3(b) Checklist for designers of suspended scaffold installations

Designers of suspended scaffold installations must ensure that any scaffolding configuration they design, modify or allow to be modified is suitable for the:

- location
- intended use of the equipment.

They must also ensure that the scaffold is safe and without risks to health before and during erection and when properly used.

**Checklist for designers of suspended scaffold installations (3 pages)**

If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required. Please see the Explanatory notes for more information for each question.

| No. | Initial planning and design | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Has the supporting structure been assessed by a competent person? | ☐ | ☐ | |
| 2 | Has a statement of assessment for the supporting structure been provided to the site? | ☐ | ☐ | |
| 3 | Has a detailed design plan been prepared for the erection of the scaffold? | ☐ | ☐ | |
| 4 | Have alterations or changes to the scaffold been amended to the design plan? | ☐ | ☐ | ☐ |
| 5 | Have the tasks that are to be carried out from the scaffold been considered when selecting and designing the scaffold? | ☐ | ☐ | |
| 6 | Has the protection of the public been addressed? | ☐ | ☐ | ☐ |
| 7 | Has the protection of other workers been addressed? | ☐ | ☐ | ☐ |
| 8 | Has the protection of workers who have to erect the scaffold been addressed? | ☐ | ☐ | |
| 9 | Has the issue of proximity to overhead powerlines been addressed? | ☐ | ☐ | ☐ |
| 10 | Has the issue of vehicle traffic around the scaffold been addressed? | ☐ | ☐ | ☐ |
| 11 | Have the voltage drop (electrical power) limitations of the installation been considered? | ☐ | ☐ | ☐ |
| 12 | Have measures to restrict lateral movement of the scaffold during operation been addressed? | ☐ | ☐ | ☐ |
| 13 | Have issues of safe access and egress of the workers who are to use the platform been addressed? | ☐ | ☐ | |
| 14 | Has the storage and security of the scaffold, when not in use, been addressed? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

**Explanatory notes**

1. The building or structure to which the suspended scaffold is to be mounted needs to be capable of supporting the scaffold and all intended loads (dead, live and environmental loads). The supporting structure needs to be assessed by a competent person such as a structural engineer.
2. A statement of assessment for the supporting structure is provided to the site.

> **Note:** This statement may be included in the design plan.

3. A detailed design plan needs to be prepared for the erection of each suspended scaffold. The design plan should include:
   - the design specifications of the scaffold
   - the limitations of the support structure
   - any wind loading or lateral forces it may be exposed to during erection or operation.
4. Where structural alterations to the suspended scaffold are made, the changes should be recorded on an amended design plan. The designer or another competent person should review and approve the changes before the scaffold is used for the first time.
5. The nature of the activities to be undertaken need to be considered when selecting and designing the scaffold.

   Damage can be caused to the cradle or hoisting systems if certain activities are undertaken without adequate protective measures being in place. For example, welding, water or pressure blasting, demolition activities.

   Where corrosive substances are to be used on the scaffold or in its vicinity, it may be necessary to develop specific procedures to minimise the risk of damage to critical scaffolding components.
6. Where the scaffold is erected adjacent to or over public space or adjoining property, specific controls may need to be provided. For example, hoardings, catch platforms, barricades.
7. Where the possibility exists for other workers to enter the area below the suspended scaffold, specific controls may need to be provided. For example, catch platforms, barricades, signs.
8. If working near an exposed edge, ensure that:
   - fall protection is in position at the building edge
   - the scaffolders are using safety harnesses with adequate anchorage points.
9. Powerlines are a major hazard. No part of the suspended scaffold should be within 5 m below and 4.6 m across horizontally from the powerlines. This includes suspension and secondary ropes, which should be anchored. For more information, see the *Using powered mobile plant near overhead assets* guidebook at **worksafe.vic.gov.au**.
10. Uncontrolled vehicle movement near a suspended scaffold (collision), the trailing power cable or hoisting cables (entanglement) may lead to:
    - structural collapse
    - uncontrolled movement of the platform
    - mechanical damage.

    Protective measures may need to be provided to control the movement of vehicles.
11. An adequate power supply should be available for electrically powered hoists to operate correctly. Victorian electricity safety legislation prohibits voltage drop from exceeding 5% of the nominal supply voltage.

    This requirement is for the entire installation. The flexible cord for the suspended scaffold is only part of this 5%.
12. Lateral restraints should be used to prevent instability of the platform that may result from work activities or wind. Restraints may include:
    - lanyards
    - tensioned wire ropes
    - removable ties
    - fan units
    - suction units.

13. Where access and egress are not from the ground or a protected landing, safety harnesses and lanyards should be provided and used when entering or leaving the cradle. During this procedure, safety harnesses should be attached to suitable anchorage points on the main structure. The cradle should also be effectively secured to prevent movement.

14. During breaks, the platform should be secured to the structure to prevent damage due to wind. Power should also be disconnected from the scaffold hoists or supply point.

    Overnight or longer periods require:

    - Where on a secured site, the platform to be parked in its storage position and secured to the structure.
    - Where not on a secured site, the platform to be parked in an inaccessible position.
    - All trailing ropes and cables to be securely stored within the platform.
    - Protective devices to be locked onto ropes.
    - Power cables to be disconnected from supply.
    - Air-operated air-lines to be disconnected and pressure released.

# Part 9: Scaffold checklists and certificates

## 9.3(c) Checklist for erectors of suspended scaffold

Under the OHS Act:

- A person who installs, erects or commissions plant who knows, or ought reasonably to know, that the plant is to be used at a workplace must ensure that nothing about the way in which the plant is installed, erected or commissioned makes its use unsafe or a risk to health. They must do this so far as is reasonably practicable.

Part 3.5 of the OHS Regulations place a series of more detailed obligations on erectors of plant.

**Reminder:** Scaffolds are 'plant' under the OHS Regulations.

**Checklist for erectors of suspended scaffold (5 pages)**

If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required. Please see the Explanatory notes for more information for each question.

| No. | Scaffold erection and installation | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Is the erection, alteration or dismantling of the scaffold carried out or directly supervised by the holder of an appropriate HRW licence (advanced scaffolding or advanced rigging)? | ☐ | ☐ | |
| 2 | Has the supporting structure been assessed by a competent person? | ☐ | ☐ | |
| 3 | Has a statement of assessment for the supporting structure been provided to the site? | ☐ | ☐ | |
| 4 | Does the scaffold erector have a copy of the scaffold design plan, prior to erection? | ☐ | ☐ | |
| 5 | Do the scaffolders erecting the scaffold have adequate fall protection? | ☐ | ☐ | |
| 6 | Are emergency rescue procedures in place to remove trapped worker(s)? | ☐ | ☐ | |
| 7 | Has the protection of the public been addressed? | ☐ | ☐ | ☐ |
| 8 | Has the protection of other workers been addressed? | ☐ | ☐ | ☐ |
| 9 | Has the issue of the proximity to overhead powerlines been addressed? | ☐ | ☐ | ☐ |
| 10 | During the erection, are the areas around the support rigging, underneath and adjacent to the cradle barricaded off, if needed? | ☐ | ☐ | ☐ |
| 11 | During erection, is a safety observer positioned to prevent access to the area below the scaffold, if needed? | ☐ | ☐ | ☐ |
| 12 | Are the supplied counterweights labelled with their weight in kg and have they been manufactured for the purpose? | ☐ | ☐ | |
| 13 | Are the counterweights correctly and securely attached to the suspended scaffold support rigging? | ☐ | ☐ | |
| 14 | If used, are traversing tracks fitted with stops at each end of the rails? | ☐ | ☐ | ☐ |
| 15 | If used, are traversing trolleys rated at least 500 kg? | ☐ | ☐ | ☐ |
| 16 | Are the outboard ends of the needles higher than the inboard ends? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

| No. | Scaffold erection and installation | Yes | No | N/A |
|---|---|---|---|---|
| 17 | Is the suspension rig stable? | ☐ | ☐ | |
| 18 | Is the wire rope used the correct size and type for the hoist? | ☐ | ☐ | |
| 19 | Is each hoist fitted with a secondary protective device? | ☐ | ☐ | |
| 20 | Has the secondary protective device been adjusted for the size of wire rope fitted? | ☐ | ☐ | |
| 21 | Are all wire ropes independently attached to the rigging? | ☐ | ☐ | |
| 22 | Has the suspended cradle been assembled correctly? | ☐ | ☐ | |
| 23 | Is the safe working load limit displayed in the cradle? | ☐ | ☐ | |
| 24 | Is the cradle in good mechanical condition? | ☐ | ☐ | |
| 25 | Has the scaffold been erected as per the design plan? | ☐ | ☐ | |
| 26 | Has safe access been provided for workers to enter and leave the cradle? | ☐ | ☐ | |
| 27 | Has the scaffold been erected as per the design plan, with any modifications or changes approved and recorded on an amended plan? | ☐ | ☐ | |
| 28 | Has an adequate power supply been provided for the suspended scaffold? | ☐ | ☐ | ☐ |
| 29 | Have the voltage drop requirements for suspended flexible cable been taken into consideration? | ☐ | ☐ | ☐ |
| 30 | Is the construction power-board situated near the support rigging of the suspended scaffold? | ☐ | ☐ | ☐ |
| 31 | Can the suspended flexible cable be accidentally removed from the power-board? | ☐ | ☐ | ☐ |
| 32 | Has the suspended flexible cable been correctly secured to the support rigging and the cradle? | ☐ | ☐ | ☐ |
| 33 | Is the suspended flexible cord the correct type? | ☐ | ☐ | ☐ |
| 34 | Has the suspended cable adequate running clearance? | ☐ | ☐ | ☐ |
| 35 | Is the suspended cable of sufficient length? | ☐ | ☐ | ☐ |
| 36 | Is the control box attached to the outside guardrail? | ☐ | ☐ | ☐ |
| 37 | Are the electrical cables from the control box to each hoist correctly installed? | ☐ | ☐ | ☐ |
| 38 | Are the cables from the control box to each hoist adequately protected from mechanical damage? | ☐ | ☐ | ☐ |
| **No.** | **Handover of scaffolds** | **Yes** | **No** | **N/A** |
| 39 | Has the completed or altered scaffold been inspected before being used for the first time? | ☐ | ☐ | ☐ |
| 40 | Has a written statement of completion been supplied? | ☐ | ☐ | ☐ |
| 41 | Has the user of the scaffold been supplied with all safe use information? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

**Explanatory notes**

1. The person carrying out or directly supervising erection or modification work on any suspended scaffold must have an appropriate HRW licence in either advanced scaffolding or advanced rigging.
2. The building or structure to which the suspended scaffold is to be mounted needs to be capable of supporting the scaffold and all intended loads (dead, live and environmental loads). The supporting structure needs to be assessed by a competent person.
3. A statement of assessment for the supporting structure is provided to the site.

> **Note:** This statement may be included in the design plan.

4. The person supervising the erection of the scaffolding needs to have a copy of the design plan prior to the erection or modification of the suspended scaffold. The design plan should specify rigging requirements including the number, size and positioning of the counterweights.
5. The person supervising the erection of the scaffolding should ensure that:
   - fall protection is in position at the building edge
   - the scaffolders are using safety harnesses with adequate anchorage points if working near an exposed edge.
6. The people suspended on the platform need to have a method of safe egress. Procedures must be in place for the rapid retrieval of the suspended people in the event of an emergency. This could be an onsite crane and work box or another method.
7. Where the scaffold is erected adjacent or over public space or adjoining property, there may be the need to provide specific controls. For example, hoardings, catch platforms, barricades.
8. Where the possibility exists for other workers to enter the area below the suspended scaffold, specific controls may need to be provided. For example, catch platforms, barricades, signs.
9. Powerlines are a major hazard. No part of the suspended scaffold should be within 5 m below and 4.6 m across horizontally from the powerlines. This includes suspension and secondary ropes, which should be anchored. For more information, see the *Using powered mobile plan near overhead assets* guidebook at **worksafe.vic.gov.au.**
10. To prevent injury to persons from dropped cables, rigging components or tools, a sufficiently large area below the scaffold should be barricaded off to prevent access. The area around the support rig should be restricted to only those workers engaged in assembling the scaffold.
11. During erection, a safety observer should be positioned, if necessary, where:
    - there is no physical barrier at the edge to prevent objects falling off the supporting structure
    - work is occurring over the edge.

    This will prevent people accessing the barricaded area below the scaffold.
12. Any counterweight should be manufactured for that purpose, labelled with its mass in kg.
13. The counterweights should be placed directly on the needle or innermost support in the designed location. They should be secured so they cannot be displaced or removed without the use of a tool.
14. When used, traversing tracks should be fitted with through-bolted stops at the ends, to prevent any trolley from running off.
15. Each traversing trolley needs to have a rated working load of at least 500 kg, if used.
16. The outboard end of a needle should never be lower than the inboard end.
17. The suspension rig needs to form a structure that is rigid and stable under working conditions.

18. Only the wire rope recommended by the manufacturer for the hoist should be used. Details of the wire rope construction can be located on the hoist data plate. The use of the wrong construction of wire rope in a scaffold hoist can result in sudden failure if the rope were to sever in the hoist.

19. A secondary protective device should be provided for each scaffolding hoist, to operate on the secondary wire rope. This device will provide an emergency brake to hold the cradle if the hoist or wire rope within the hoist fails. Some types may also prevent an over-speed descent. When using a double-rope scaffold, the secondary protective device is to be fitted to the suspension wire rope.

20. It is essential that the secondary protective device's internal mechanism (safety brake) is correct and compatible with the size of the wire rope to be used. Some devices may be capable of using different sizes of wire rope. In this case, the mechanism needs to be adjusted for the size of wire rope fitted.

21. If used, the secondary wire rope for any scaffolding hoist should be attached to the suspension rigging, at a point that is independent of the main suspension rope attachment.

22. All cradle components should be inspected onsite prior to assembly to ensure all locating pins and clips are fitted and in position.

23. A sign that clearly displays the safe working load limit in kg should be fixed to the inside of each cradle.

24. The cradle should have guardrails, midrails and toe boards fitted. The working deck needs to be fixed, be of a non-slip type and with adequate drainage holes. None of these components should have visible signs of mechanical damage. For example, cracked or split welds, missing or broken decking, cut or bent guardrails.

25. The finished suspended scaffold needs to conform to the design plan and be tested as per the manufacturer's instructions.

26. Where access and egress are not from the ground or a protected landing, safety harnesses and lanyards should be provided and used when entering or leaving the cradle. During this procedure, safety harnesses should be attached to suitable anchorage points on the main structure. The cradle should also be effectively secured to prevent movement.

27. Alterations due to installation conditions need to be included on an amended design plan. The designer or another competent person needs to review these variations and approve the modified plan before the scaffold is first used.

28. This may include:
    - positioning the power-board close to the scaffold
    - dedicated power circuits
    - larger sub-mains
    - alternative methods of positioning the power-board.

29. To limit voltage drop, the suspended flexible cord should not be of excessive length. If extra length is required, have larger size conductors to compensate.

**Note:** An electrician or electrical inspector can provide guidance in this matter.

30. The power supply for the suspended scaffold should be close to the scaffold, to limit the length of flexible cord needed to descend to the platform. This will help to limit voltage drop.

31. The construction power-board should be designed so the removal of the suspension flexible cord from the socket-outlet requires a person to complete a deliberate act. This is to ensure that a person cannot accidentally remove it and create a potentially hazardous situation.

32. The suspended flexible cord should be secured to the support rigging in a way that:
    - protects the cable from mechanical damage
    - prevents the cable from bending at a radius less than the manufacturer's minimum.

    If manufacturer's information is not available, AS/NZS 3000 gives the minimum internal radius as six times the cable diameter.

33. Any suspended flexible cord should be:
    - heavy-duty double-insulated
    - able to support its own weight over the length of the drop.

34. The flexible cord needs to be supported to prevent the cradle from fouling or causing mechanical damage to the cable. The cable should be installed so that it is not pulled across the structure of the cradle.

35. The flexible cord needs to be long enough to allow the cradle to descend to the ground or a lower structure for egress in an emergency.

36. When in use, the control box should be attached to the guardrail of the cradle on the side away from the working face.

37. The electrical cables installed in the cradle should not be excessive in length. This will:
    - prevent mechanical damage occurring to the cables
    - limit voltage drop.

38. Electrical cables from the control box to the hoists should be:
    - enclosed for protection from mechanical damage
    - securely attached to the cradle.

    Additional mechanical protection may be required. This is dependent on the work undertaken; for example, demolition, grinding, abrasive blasting. There should be a system that allows the suspended scaffold to be effectively isolated from the power supply when not in use, to prevent unauthorised operation. This may be located within a locked power-board or by using a readily removable control panel on the cradle.

39. The finished suspended scaffold needs to conform to the design plan and be tested as per the manufacturer's instructions. Alterations due to installation conditions needs to be included on an amended design plan. The designer or another competent person needs to review these variations and approve the modified plan before the scaffold is first used.

40. A competent person or the HRW licence-holder responsible for erecting or altering the scaffold should supply a written statement that the scaffold is complete and safe for use before the scaffold is used for the first time and after every alteration.

41. All safe use information of the scaffold should be supplied to the users of the scaffold.

# Part 9: Scaffold checklists and certificates

## 9.3(d) Swing stage and Boatswain's chair in-service checklist

The suppliers, erectors and operators of swing stage and Boatswain's chair scaffold should consider the:

- suspended scaffold checklists for suppliers, installation designers and erectors
- following requirements specific to the scaffold type.

**Swing stage and Boatswain's chair in-service checklist (6 pages)**

If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required. Please see the Explanatory notes for more information for each question.

| No. | Operation | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Has the supporting structure been assessed by a competent person and a statement of assessment been provided to the site representative? | ☐ | ☐ | |
| 2 | Has the completed or altered scaffold been inspected before being used for the first time and a written statement of completion been supplied? | ☐ | ☐ | |
| 3 | Has the scaffold been erected as per the design plan? | ☐ | ☐ | |
| 4 | Are emergency rescue procedures in place to remove trapped worker(s)? | ☐ | ☐ | |
| 5 | Has sufficient protection been provided for the public? | ☐ | ☐ | ☐ |
| 6 | Has sufficient protection been provided for other workers? | ☐ | ☐ | ☐ |
| 7 | Are measures in place to protect the worker(s) on the suspended scaffold from falling debris? | ☐ | ☐ | |
| 8 | Has the supplier provided a copy of the operator's manual and copies of the daily checklist? | ☐ | ☐ | |
| 9 | Are the operator(s) authorised by their employer to operate the scaffolding hoist? | ☐ | ☐ | |
| 10 | Have the operator(s) received instruction on the operation of the equipment? | ☐ | ☐ | |
| 11 | Have all persons working in the suspended scaffold received instruction in the safe systems of work and the emergency procedures for the equipment? | ☐ | ☐ | |
| 12 | Can the seated operator of a Boatswain's chair activate all controls, including emergency descent? | ☐ | ☐ | ☐ |
| 13 | Have the dangers of overhead electric powerlines been addressed? | ☐ | ☐ | ☐ |
| 14 | Are the supplied counterweights adequate for the purpose, of the correct number and securely attached to the suspension support rigging? | ☐ | ☐ | |
| 15 | Is the suspension rigging stable? | ☐ | ☐ | |
| 16 | Is the wire rope used of the correct construction and size for the hoist? | ☐ | ☐ | |
| 17 | Is each hoist fitted with a secondary protective device? | ☐ | ☐ | |
| 18 | Has the secondary protective device been adjusted for the size of wire rope fitted? | ☐ | ☐ | |
| 19 | Are all wire ropes independently attached to the support rigging? | ☐ | ☐ | |

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| No. | Operation | Yes | No | N/A |
|---|---|---|---|---|
| 20 | Has the cradle or chair been assembled correctly? | ☐ | ☐ | |
| 21 | Does the cradle or chair appear to be in good mechanical condition? | ☐ | ☐ | |
| 22 | Is a sign with the safe working load in kg fixed inside the cradle or to the chair? | ☐ | ☐ | |
| 23 | Is the load on the platform within its safe working load? | ☐ | ☐ | |
| 24 | Is safe access provided for workers to enter and leave the cradle? | ☐ | ☐ | |
| 25 | If required, are lateral restraints being used? | ☐ | ☐ | ☐ |
| 26 | Is there safe access along the entire work platform of the cradle? | ☐ | ☐ | ☐ |
| 27 | Is there sufficient control over the movement of vehicles in the area of the scaffold? | ☐ | ☐ | ☐ |
| 28 | Is there sufficient control of cranes working in the vicinity? | ☐ | ☐ | ☐ |
| 29 | Are there sufficient controls over the storage, handling and use of hazardous substances on the cradle? | ☐ | ☐ | ☐ |
| 30 | Is the selection of the type of scaffold hoist appropriate for the location? | ☐ | ☐ | ☐ |
| 31 | Is there an effective method of communication between the occupants of the work platform and the ground? | ☐ | ☐ | |
| 32 | Has the correct type and size of suspended flexible electrical power cord been provided? | ☐ | ☐ | ☐ |
| 33 | Does the suspended flexible cable have adequate running clearance? | ☐ | ☐ | ☐ |
| 34 | Is the suspended flexible electrical cable of sufficient length? | ☐ | ☐ | ☐ |
| 35 | Is the suspended flexible cable installed so that it cannot be accidentally removed from the power-board? | ☐ | ☐ | ☐ |
| 36 | Has the suspended flexible cable been correctly secured to the support rigging and the cradle? | ☐ | ☐ | ☐ |
| 37 | Is the control box attached to the outside guardrail? | ☐ | ☐ | ☐ |
| 38 | Are the electrical cables from the control box to each hoist correctly installed and are they protected from mechanical damage? | ☐ | ☐ | ☐ |
| 39 | Has the operator(s), prior to using the scaffold, checked the allowable wind speed for the suspended scaffold's proposed operating working range? | ☐ | ☐ | ☐ |
| **No.** | **Unattended scaffolds** | **Yes** | **No** | **N/A** |
| 40 | When the scaffold is unattended for short periods, are appropriate safety measures observed? | ☐ | ☐ | ☐ |
| 41 | When left unattended for longer periods, are appropriate safety measures observed? | ☐ | ☐ | ☐ |
| **No.** | **Inspection, servicing and maintenance** | **Yes** | **No** | **N/A** |
| 42 | Have the operator(s) been completing the daily checklist prior to using the scaffold? | ☐ | ☐ | ☐ |
| 43 | Has the scaffold undergone the monthly inspection? | ☐ | ☐ | ☐ |
| 44 | Have all the electrical leads, components and electrical protection devices been inspected and tested (as per the *Electrical installations on construction sites* industry standard)? | ☐ | ☐ | ☐ |

# Part 9: Scaffold checklists and certificates

**Explanatory notes**

1. The building or structure to which the suspended scaffold is to be mounted needs to be capable of supporting the scaffold and all intended loads (dead, live and environmental loads). The supporting structure needs to be assessed by a competent person such as a structural engineer and a statement of assessment provided.

> **Note:** This statement may be included in the design plan.

2. A competent person or the HRW licence-holder responsible for erecting or altering the scaffold should supply a written statement that the scaffold is complete and safe for use before the scaffold is used for the first time and after every alteration.

3. The finished suspended scaffold needs to conform to the design plan and be tested as per the manufacturer's instructions. Alterations due to installation conditions need to be included on an amended plan. The designer or another competent person needs to review these variations and approve the modified plan before the scaffold is first used.

4. The people suspended on the platform need to have a method of safe egress. Procedures need to be in place for the rapid retrieval of the suspended people in the event of an emergency. This could be an onsite crane and work box or another method.

5. Where the scaffold is erected adjacent or over public space or adjoining property, there may be the need to provide specific controls. For example, hoardings, catch platforms, barricades.

6. Where the possibility exists for other workers to enter the area below the suspended scaffold, specific controls may need to be provided. For example, catch platforms, barricades, signs.

7. The risk of debris from higher work falling onto workers in the cradle may exist. Measures may need to be in place to control this risk. For example, drop zones, gantries.

8. The supplier of the suspended scaffold needs to provide written operating and safe use instructions and the daily safety checklists. This information should include permissible environmental conditions and be provided to all users of the scaffold.

9. The employer should nominate the designated operator(s) and provide written authorisation that the designated operator(s) is suitably qualified to operate the scaffold hoist.

10. The employer needs to provide employees with such information, training or instruction on the specific type of equipment to enable them to carry out the daily inspections and to use the equipment safely.

    This includes safety features like:

    - the emergency stop, load limiting device and rope lock device
    - emergency evacuation devices or equipment
    - raising and lowering operation generally and in the event of an emergency

11. The employer needs to ensure workers are trained in the safe work practices for suspended scaffolds, including any emergency procedures. Workers should be able to demonstrate these safe work practices before working in the suspended scaffold. The employer should maintain and have available up-to-date records of this training.

12. The operator needs to be able to activate all controls, including the emergency descent system, from the seated position.

13. Powerlines are a major hazard. No part of the suspended scaffold should be within 5 m below and 4.6 m across horizontally from the powerlines. This includes suspension and secondary ropes, which should be anchored. For more information, see the *Using powered mobile plant near overhead assets* guidebook at **worksafe.vic.gov.au**.

14. During erection, a safety observer should be positioned, if necessary, where:
    - there is no physical barrier at the edge to prevent objects falling off the supporting structure
    - work is occurring over the edge.

    This will prevent people accessing the barricaded area below the scaffold.

15. The suspension rig needs to form a structure that is rigid and stable under working conditions.

16. Only the wire rope recommended by the manufacturer for the hoist should be used. Details of the wire rope construction can be located on the hoist data plate. The use of the wrong wire rope in a scaffold hoist may result in sudden failure if the rope were to sever in the hoist.

17. A secondary protective device should be provided for each scaffolding hoist, to operate on the secondary wire rope. This device provides an emergency brake to hold the cradle if the hoist or wire rope within the hoist fails. Some types may also prevent an over-speed descent. When using a double-rope scaffold, the secondary protective device is to be fitted to the suspension wire rope.

18. It is essential that the secondary protective device's internal mechanism (safety brake) is correct and compatible with the size of the wire rope to be used. Some devices may be capable of using different sizes of wire rope. In this case, the mechanism needs to be adjusted for the size of wire rope fitted.

19. If used, the secondary wire rope for any scaffolding hoist should be attached to the suspension rigging at a point that is independent of the main suspension rope attachment.

20. All cradle components should be inspected to ensure all locating pins and clips are fitted and in position.

21. The cradle or chair should be in good mechanical condition and in accordance with the manufacturer's specifications.

22. A sign that clearly displays the safe working load limit in kg should be fixed to the inside of each cradle.

23. The total load of all persons, materials and equipment cannot exceed the safe working load limit of the suspended scaffold.

24. Where access and egress are not from the ground or a protected landing, safety harnesses and lanyards should be provided and used when entering or leaving the cradle. During this procedure, safety harnesses should be attached to suitable anchorage points on the main structure. The cradle should also be effectively secured to prevent movement.

25. If the scaffold is subjected to movement due to wind forces or the work procedures being undertaken, lateral restraints are required. For example, lanyards, wire ropes.

26. The cradle platform should be in a tidy condition with unobstructed access along the entire length.

27. Uncontrolled vehicle movement near to a suspended scaffold (collision) or the trailing power cable or hoisting cables (entanglement) may lead to:
    - structural collapse
    - uncontrolled movement of the platform
    - mechanical damage.

    Protective measures may be needed to control the movement of vehicles.

28. Where cranes operate near a suspended scaffold, there is a risk of the load snagging the scaffold or endangering persons on the platform. Specific risk controls may need to be implemented to minimise the risk. For example, using barricades.

29. Where corrosive substances are being used on the scaffold or in its vicinity, specific procedures may need to be developed to minimise the risk of damage to critical scaffolding components.

# Part 9: Scaffold checklists and certificates

30. The use of certain types of hoists in some areas may place persons at high risk. The dangers presented by hazardous areas should be assessed before selecting equipment. For example, non-intrinsically safe electric hoists should not be used where dust can form an explosive atmosphere.

31. Effective communications needs to be in place between the cradle or chair and other workers to alert others onsite in case of an emergency. It may include people onsite always being in sight of the cradle/chair to:
    - observe hand signals
    - hear whistles or bells
    - be in radio or telephone communication.

32. Any suspended flexible cord should be:
    - the heavy-duty double-insulated type
    - able to support its own weight over the length of the drop.

33. The flexible cord needs to be supported to prevent the cradle from fouling or causing mechanical damage to the cable. The cable should be installed so that it is not pulled across the structure of the cradle.

34. The flexible cord needs to be long enough to allow the cradle to descend to the ground or a lower structure for egress in an emergency.

35. The construction power-board should be designed so the removal of the suspension flexible cord from the socket-outlet requires a person to complete a deliberate act. This is to ensure that a person cannot accidentally remove it and create a potentially hazardous situation.

36. The suspended flexible cord should be supported to:
    - protect the cable from mechanical damage
    - prevent the cable from bending at a radius less than the manufacturer's minimum.

    If manufacturer's information is not available, AS/NZS 3000 gives the minimum internal radius as six times the cable diameter.

37. When in use, the control box should attach to the guardrail of the cradle on the side away from the working face.

38. The electrical cables installed in the cradle should not be excessive in length. This will:
    - prevent mechanical damage occurring to the cables
    - limit voltage drop.

    Electrical cables from the control box to the hoists should be:
    - enclosed for protection from mechanical damage
    - securely attached to the cradle.

    Additional mechanical protection may be needed. This depends on the work undertaken; for example, demolition, grinding, abrasive blasting. There should be a system that allows the suspended scaffold to be effectively isolated from the power supply when not in use, to prevent unauthorised operation. This may be located within a locked power-board or by using a readily removable control panel on the cradle.

39. Operation of the suspended scaffold needs to stop and it should be returned to its designated parking position if winds exceeding the allowable wind speed of the suspended scaffold are identified by:
    - a wind speed meter connected to the suspended scaffold
    - a wind speed meter connected to another appliance on site
    - a handheld wind speed meter
    - observation of excessive movement of the suspended scaffold.

    The suspended scaffold should not be returned into service until it has been confirmed with a wind speed meter that the wind speed is under the allowable wind speed for the suspended scaffold's proposed operating working range.

40. During breaks, the platform should be secured to the structure to prevent damage due to wind. Power should also be disconnected from the scaffold hoists or supply point.

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41. Overnight or longer periods require:
    - Where on a secured site, the platform to be parked in its storage position and secured to the structure. This will prevent movement or damage due to wind.
    - Where not on a secured site, the platform to be parked in an inaccessible position.
    - All trailing ropes and cables to be securely stored within the platform.
    - Protective devices to be locked onto ropes.
    - Power cables to be disconnected from supply.
    - If air-operated, air-lines to be disconnected and pressure released.
42. Each day, the operator should, prior to commencing work from the scaffold, carry out a safety inspection in line with the requirements of the supplier.
43. A competent person should inspect the cradle and suspension system at not greater than monthly intervals if the scaffold has been onsite and not altered during that time.
44. All portable electrical equipment, including scaffolding hoists and cabling, is required to be inspected and tested every three months. The RCD protection devices are to be time/current tested monthly.

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## 9.3(e) False cars in-service checklist

The suppliers, erectors and operators of false cars, used in lift installation, should consider the:

- suspended scaffolding checklists for suppliers, designers and erectors
- following requirements specific to false cars.

**False cars in-service checklist (5 pages)**

If there is a 'No' answer to any of the questions, assess the risks and take corrective actions. Where corrective actions involve modifications of the scaffold, works are to be conducted by licensed scaffolders where required. Please see the Explanatory notes for more information for each question.

| No. | Installation and operation | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Prior to work commencing, are written procedures to rescue trapped or injured workers in place and provided to relevant persons? | ☐ | ☐ | |
| 2 | Has sufficient protection been provided for other persons? | ☐ | ☐ | |
| 3 | Is the erection, alteration and dismantling of the false car carried out or appropriately supervised by the holder of a HRW licence (advanced scaffolding or advanced rigging)? | ☐ | ☐ | |
| 4 | Are the wire ropes used of the correct construction and size for the scaffold hoists? | ☐ | ☐ | |
| 5 | Are the scaffold hoists fitted with an independent secondary load holding device? | ☐ | ☐ | |
| 6 | Has the secondary load holding device on the scaffold hoist been adjusted (if necessary) for the size of wire rope fitted? | ☐ | ☐ | ☐ |
| 7 | Are the suspension and secondary wire ropes independently attached to the supporting structure or rigging? | ☐ | ☐ | ☐ |
| 8 | Are the wire ropes adequately protected against mechanical damage from activities being undertaken from the false car? | ☐ | ☐ | ☐ |
| 9 | Has the false car been assembled consistent with the false car design and assembly instructions? | ☐ | ☐ | |
| 10 | Has the safety gear been fitted to the false car platform in accordance with the assembly instructions? | ☐ | ☐ | |
| 11 | Does the false car have adequate edge protection that prevents persons, equipment or other material from inadvertently falling from it? | ☐ | ☐ | |
| 12 | Are measures in place to prevent and protect persons on the false car from overhead falling debris? | ☐ | ☐ | |
| 13 | Are measures in place to protect persons below the false car or near lift shaft openings from being struck by any falling debris from the false car? | ☐ | ☐ | |
| 14 | Is the false car in a good mechanical condition and has maintenance been undertaken in accordance with a suitable maintenance schedule as per the manufacturer's specifications? | ☐ | ☐ | |
| 15 | Is the working load limit of the false car displayed where it is readily observable and is it legible? | ☐ | ☐ | |

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| No. | Installation and operation | Yes | No | N/A |
|---|---|---|---|---|
| 16 | When the false car is unattended, are appropriate safety measures in place to prevent unauthorised access? | ☐ | ☐ | |
| 17 | Is the lift shaft and false car working platform lighting adequate? | ☐ | ☐ | ☐ |
| 18 | Has the lift shaft and false car working platform been fitted with adequate emergency lighting? | ☐ | ☐ | ☐ |
| 19 | Does the installation of electrical wiring to the false car comply with *AS/NZS 3012.6.6:2019 Electrical Installations – Construction and demolition sites?* | ☐ | ☐ | |
| 20 | Has safe access been provided for entry and exit of the false car? | ☐ | ☐ | |
| 21 | Has the employer ensured that the false car operator(s) have been trained and authorised to operate the false car? | ☐ | ☐ | |
| 22 | Have all persons working from the false car received instruction in the safe systems of work and all emergency procedures applicable to the false car? | ☐ | ☐ | |
| 23 | Are there sufficient controls over the storage, handling and use of hazardous substances? | ☐ | ☐ | ☐ |
| **No.** | **Operational checks and maintenance** | **Yes** | **No** | **N/A** |
| 24 | Have the commissioning inspections and tests been completed? | ☐ | ☐ | |
| 25 | Have the daily pre-operation inspections (checklist) been done? | ☐ | ☐ | |
| 26 | Have the three-monthly tests been carried out? | ☐ | ☐ | |
| 27 | Have the six-monthly safety system tests been done? | ☐ | ☐ | |
| 28 | Are maintenance and inspection records available and up to date? | ☐ | ☐ | |

# Part 9: Scaffold checklists and certificates

**Explanatory notes**

1. Written rescue and recovery procedures for a person supported by a safety harness need to be in place prior to installation. These procedures should be available onsite and distributed to all relevant persons.
2. Where the possibility exists for other workers to enter the area below the suspended scaffold, specific controls may need to be provided. For example, catch platforms, barricades, signs.
3. The erection, alteration and dismantling of the false car should be carried out or appropriately supervised by the holder of a HRW licence (advanced scaffolding or rigging) holder.
4. Only the wire rope recommended by the manufacturer for the hoist should be used. Details of the wire rope construction can be located on the hoist data plate. The use of the wrong construction of wire rope in a scaffold hoist may result in sudden failure if the rope were to sever in the hoist.
5. A secondary protective device should be provided for each scaffolding hoist to operate on the secondary wire rope. This device provides an emergency brake to hold the cradle if the hoist or wire rope within the hoist fails. Some types may also prevent an over-speed descent. When using a double-rope scaffold, the secondary protective device is to be fitted to the suspension wire rope.
6. It is essential that the secondary protective device's internal mechanism (safety brake) is correct and compatible with the size of the wire rope to be used. Some devices may be capable of using different sizes of wire rope. In this case, the mechanism should be adjusted for the size of wire rope fitted.
7. If used, the secondary wire rope for any scaffolding hoist should be attached to the suspension rigging at a point that is independent of the main suspension rope attachment.
8. All ropes should be protected against damage for least 2 m above the floor of the platform. Such protection should be removable for inspection.
9. All cradle components should be:
   - inspected onsite prior to assembly
   - checked to ensure all locating pins and clips are fitted and in position.
10. The installer or other qualified person should inspect and test the installation before the car is used for the first time. For example, safety gear. This procedure should be based on the requirements of AS/NZS 4431 and include the:
    - false car
    - hoisting system
    - safety gear.
11. The platform should be fitted with edge protection, where the gap between the edge of the platform and the face of the wall exceeds 225 mm. Edge protection should include:
    - guardrail between 900 mm and 1100 mm
    - toeboard at least 100 mm high
    - midrail approximately halfway between the guardrail and toeboard
    - vertical bars with a gap of no more than 450 mm fitted between midrail and toeboard.

    Where the possibility exists of persons accessing the area beneath the platform while work activities are being undertaken, the platform should be fitted with toeboards. For more information, see *Lift work on construction projects: A handbook for workplaces* at **worksafe.vic.gov.au**.
12. The risk of debris falling onto workers in the cradle from higher work may exist and measures may need to be in place to control this risk. For example, exclusion zones, gantries.
13. Persons below the false car or near lift shaft openings could be struck by debris falling from the false car. Control measures should be in place to control this risk. For example, lift well enclosures.
14. The cradle should have guardrails, midrails and toe boards fitted. The working deck needs to be fixed, of a non-slip type and with adequate drainage holes. None of these components should have visible signs of mechanical damage. For example, cracked or split welds, missing or broken decking, cut or bent guardrails.

15. A sign clearly displaying the safe working load limit in kg should be fixed to the inside of each cradle.

16. During breaks, the platform should be secured to the structure to prevent damage due to wind. Power should also be disconnected from the scaffold hoists or supply point.

    Overnight or longer periods require:

    - Where on a secured site, the platform to be parked in its storage position and secured to the structure to prevent movement or damage due to wind.
    - Where not on a secured site, the platform to be parked in an inaccessible position.
    - All trailing ropes and cables to be securely stored within the platform.
    - Protective devices to be locked onto ropes.
    - Power cables to be disconnected from supply.
    - If air-operated, air-lines to be disconnected and pressure released.

17. Lift shafts should have adequate light. Guidance for lift shaft lighting is provided in the *Electrical installations on construction sites* industry standard at **worksafe.vic.gov.au.**

18. Emergency lighting should be provided for a minimum of one hour to allow safe egress from the lift shaft upon loss of normal lighting.

19. Guidance for false-car wiring is given in *AS/NZS 3012.6.6:2019 Electrical Installations – Construction and demolition sites.*

20. Where access and egress are not from the ground or a protected landing, safety harnesses and lanyards should be provided and used when entering or leaving the cradle. During this procedure, safety harnesses should be attached to suitable anchorage points on the main structure. The cradle should also be effectively secured to prevent movement.

21. The employer should nominate the designated operator(s) and provide written authorisation that the designated operator(s) is suitably qualified to operate the false car.

22 The employer needs to ensure workers are trained in the safe work practices for suspended scaffolds (false cars), including any emergency procedures. Workers should be able to demonstrate these safe work practices before working in the suspended scaffold.

    The employer should maintain and have available up-to-date records of this training.

23. Where corrosive substances are to be used on the scaffold or in its vicinity, it may be necessary to develop specific procedures to minimise the risk of damage to critical scaffolding components.

24. The installer or other qualified person should inspect and test the installation before the car is used for the first time. This procedure should be based on the requirements of AS/NZS 4431 and include:

    - the false car
    - the hoisting system
    - safety gear.

25. The operator should inspect the false car and suspension systems, and complete the manufacturer's checklist daily, prior to use.

26. The hoisting winch and the instantaneous safety devices should be tested to the manufacturer's specifications at three-monthly intervals, as outlined in AS/NZS 4431.

27. Every six months after commissioning, the safety gear should be tested. Details of these tests are outlined in AS/NZS 4431.

28. A written record of all maintenance, inspections and repairs should be:

    - signed by the individual(s) carrying out the procedures
    - kept on site for the life of the installation work.

An operational inspection and safety procedure should be attached to the platform. A notice stating the safe working load in kg should be prominently displayed on the platform.

# Key terms

**Access and egress:** Entry and exit.

**Anti-tamper devices:** scaffold components such as couplers or bolts that are designed and manufactured to prevent alteration by persons who are not suitably competent.

**Decommissioning:** in relation to plant, includes performing necessary adjustments, tests and inspections before the plant ceases operation and during the process of ceasing operation.

**Fall:** a person's involuntary fall of more than 2 m.

**Fall height:** taken to be the vertical distance from the top working platform to the lowest point to which an object or person could fall.

**Goings:** the horizontal distance between two steps.

**Hazardous manual handling:** work requiring the use of force exerted by a person to lift, lower, push, pull, carry or otherwise move, hold or restrain:

- A thing if the work involves one or more of the following:
  - » repetitive or sustained application of force
  - » sustained awkward posture
  - » repetitive movement
  - » application of high force involving a single or repetitive use of force that it would be reasonable to expect that a person in the workforce may have difficulty undertaking
  - » exposure to sustained vibration
- live persons or animals
- unstable or unbalanced loads or loads that are difficult to grasp or hold.

**Prefabricated scaffolding:** an integrated system of prefabricated components manufactured in such a way that the possible geometry of assembled scaffolds is pre-determined by the designer.

**Scaffold:** a temporary structure specifically erected to support access or working platforms.

**Scaffolding work:** the erection, alteration or dismantling of a scaffold, if the scaffold is such that a person or object could fall more than 4 m from the scaffold.

**Suitably competent engineer:** a person required to assess the performance of a scaffold structure and determine its suitability for a particular application. See Part 2.3 for more information.

**Suitably competent person:** a person required to erect, alter and dismantle scaffolding correctly, safely and efficiently. See Part 2.3 for more information.

**Suitably qualified person:** a person with the knowledge, skills and experience to provide advice on issues impacting the health and safety of employees. For more information, see *Employing or engaging suitably qualified persons to provide health and safety advice* at **worksafe.vic.gov.au.**

**Suspended scaffold:** a scaffold incorporating a suspended platform that is capable of being raised or lowered when in use.

**Tool tethering:** a set-up requiring:

- a tether point on the tool
- an anchor point attached to the worker or a scaffolding belt or frog.

A tool lanyard then connects the anchor point to the tool, preventing it from falling in case of a drop.

**Working face:** face of a building or structure at which a scaffold has been erected to enable work to be carried out at some stage during the project.

# Further information

## Legislation

- Occupational Health and Safety (OHS) Act 2004
- Occupational Health and Safety (OHS) Regulations 2017

## WorkSafe Victoria publications

- Information about Safe work method statements (SWMS)
- Compliance code: Hazardous manual handling
- Compliance code: Plant
- Compliance code: Prevention of falls in general construction
- Compliance code: Prevention of falls in housing construction
- Guidebook: Using powered mobile plant near overhead assets
- Lift work on construction projects: A handbook for workplaces
- Electrical installations on construction sites: Industry standard

## Australian standards

- AS/NZS 1576 Scaffolding series
- AS 4576:2020 Guidelines for scaffolding
- AS/NZS 4994.1:2023 Temporary edge protection, Part 1: General requirements
- AS/NZS 1170 Structural design actions series
- AS 4431:2019 Safe working on new lift installations in new constructions
- AS/NZS 3012:2019 Electrical installations – Construction and demolition sites
- AS/NZS 3000:2018 Electrical installations (known as the Australian/New Zealand Wiring Rules)
- AS 1418.2:1997 Cranes (including hoists and winches), Part 2: Serial hoists and winches
- AS 3610.1:2018 Formwork for concrete, Part 1: Specifications
- AS/NZS 1577:2018 Scaffold decking components

## Energy Safe Victoria

- Guideline: Scaffolding near overhead powerlines, 2020
- Guideline: Scaffolding near service lines, 2020

# WorkSafe Victoria

## WorkSafe Agents

Agent contact details are all available at
**worksafe.vic.gov.au/agents**

## Advisory Service

Toll-free 1800 136 089
Email info@worksafe.vic.gov.au

## Head Office

1 Malop Street, Geelong 3220
Toll-free 1800 136 089
Website worksafe.vic.gov.au

## Information in your language

For information about WorkSafe in your own language, call our Translating and Interpreting Service (TIS National) on **131 450.**

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