

GENERAL GUIDE FOR SCAFFOLDS AND SCAFFOLDING WORK

This General Guide provides information on how to manage risks associated with scaffolds and scaffolding work at a workplace. It is supported by guidance material for specific types of [scaffolds and scaffolding](#), [suspended \(swing stage\) scaffolds](#), [scaffold inspection and maintenance](#), and advice for small businesses and workers on managing the risks associated with [tower and mobile scaffolds](#) and related scaffolding work.

What is a scaffold, scaffolding and scaffolding work?

A **scaffold** is a temporary structure erected to support access or working platforms. Scaffolds are commonly used in construction work so workers have a safe, stable work platform when work cannot be done at ground level or on a finished floor.

Scaffolding in this Guide means the individual components, for example tubes, couplers or frames and materials that when assembled form a scaffold. Scaffolding is classified as plant under Work Health and Safety (WHS) Act.

Scaffolding work is erecting, altering or dismantling a temporary structure erected to support a platform and from which a person or object could fall more than 4 metres from the platform or the structure. Scaffolding work must be undertaken by a person holding the appropriate class of high risk work licence. This definition applies whenever the term 'scaffolding work' is used in this Guide.

Who should use this Guide?

You should use this Guide if you own, hire, lease, handle, store, transport, maintain, use scaffolds and scaffolding or manage scaffolding work in the workplace.

You should read this Guide in conjunction with the [Code of Practice: Construction work](#).

Who has duties under the law?

Everyone in the workplace has work health and safety duties. A range of people have specific responsibilities for scaffolds and scaffolding including:

- designers
- scaffolding contractors and workers who carry out scaffolding work, and
- principal contractors for a 'construction project' where the cost of construction work is \$250 000 or more.

The main duties are set out in Table 1.

Table 1 Duty holders and their obligations

Who	Duties
A person conducting a business or undertaking	<p>A person conducting a business or undertaking has the primary duty to ensure, so far as is reasonably practicable, workers and other people are not exposed to health and safety risks arising from the business or undertaking.</p> <p>This duty requires the person to manage risks by eliminating health and safety risks so far as is reasonably practicable, and if it is not reasonably practicable to eliminate the risks, by minimising those risks so far as is reasonably practicable. It also includes ensuring so far as is reasonably practicable the:</p> <ul style="list-style-type: none"> • provision and maintenance of safe scaffolding and scaffolds • safe erection, alteration, dismantling and use of scaffolds, and • safe use, handling, storage and transport of scaffolding. <p>The WHS Regulations include specific duties for a person conducting a business or undertaking with management or control of scaffolding plant, powered mobile plant and plant that lifts or suspends loads.</p>
Designers, manufacturers, suppliers and importers	<p>Designers, manufacturers, importers and suppliers of scaffolding or scaffolds must ensure, so far as is reasonably practicable, the plant or structure they design, manufacture, import or supply is without risks to health and safety. This duty includes carrying out analysis, testing or an examination and providing specific information about the plant. Information must, so far as is reasonably practicable, be passed on from the designer through to the manufacturer and supplier to the end user.</p>
People installing, constructing or commissioning plant or structures	<p>People installing, constructing or commissioning scaffolding or scaffolds must ensure, so far as is reasonably practicable, all workplace activity relating to the plant or structure including its decommissioning or dismantling is without risks to health or safety.</p> <p>In this Guide the scaffolding contractor is the person responsible for installing, constructing and commissioning scaffolds.</p>
Officers	<p>Officers, such as company directors, have a duty to exercise due diligence to ensure the business or undertaking complies with the WHS Act and Regulations. This includes taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to eliminate or minimise risks from plant.</p>
Workers and others	<p>Workers and other people at the workplace must take reasonable care for their own health and safety, co-operate with reasonable policies, procedures and instructions and not adversely affect other people's health and safety.</p>

How can risks be managed?

Use the following steps to ensure, so far as is reasonably practicable, that workers and other people are not exposed to health and safety risks.

1. Find out what could cause harm.

The following can help you identify potential hazards:

- Observe the workplace to identify areas where scaffolds are used or scaffolding work is performed and where there is interaction with vehicles, pedestrians and fixed structures.
- Look at the environment in which the scaffold is to be used including checking ground conditions.
- Identify the major functional requirements of the scaffold like the maximum live and dead loads and access requirements.
- Inspect the scaffolding before and after use.
- Ask your workers about any problems they encounter or anticipate at your workplace when constructing or interacting with scaffolds and scaffolding work—consider operation, inspection, maintenance, repair, transport and storage requirements.
- Inspect the erected scaffold.

- Review your incident and injury records including near misses.

2. Assess the risk. In many cases the risks and related control measures will be well known. In other cases you may need to carry out a risk assessment to identify the likelihood of somebody being harmed by the hazard and how serious the harm could be. A risk assessment can help you determine what action you should take to control the risk and how urgently the action needs to be taken.

3. Take action to control the risk. The work health and safety laws require a business or undertaking do all that is reasonably practicable to eliminate or minimise risks.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control. You must work through this hierarchy to manage risks.

The first thing to consider is whether hazards can be completely removed from the workplace. For example, risks can be eliminated by carrying out work at ground level or on completed floors of a building.

If it is not reasonably practicable to completely eliminate the risk then consider the following options in the order they appear below to minimise risks, so far as is reasonably practicable:

- substitute the hazard for something safer e.g. using mechanical aids like cranes, hoists, pallet jacks or trolleys to move equipment and materials wherever possible instead of manually lifting scaffolding
- isolate the hazard from people e.g. install concrete barriers to separate pedestrians and powered mobile plant from scaffolds to minimise the risk of collision, and
- use engineering controls e.g. provide toeboards, perimeter containment sheeting or overhead protective structures to prevent objects falling hitting workers or other people below the work area.

If after implementing the above control measures a risk still remains, consider the following controls in the order below to minimise the remaining risk, so far as is reasonably practicable:

- use administrative controls e.g. storing scaffolding as close as practical to the work area to minimise the distance over which loads are manually moved, and
- use personal protective equipment (PPE) e.g. hard hats, protective hand and footwear and high visibility vests.

A combination of the controls set out above may be used if a single control is not enough to minimise the risks.

You need to consider all possible control measures and make a decision about which are reasonably practicable for your workplace. Deciding what is reasonably practicable includes the availability and suitability of control measures, with a preference for using substitution, isolation or engineering controls to minimise risks before using administrative controls or PPE. Cost may also be relevant, but you can only consider this after all other factors have been taken into account.

4. Check your control measures regularly to ensure they are working as planned. Control measures need to be regularly reviewed to make sure they remain effective, taking into consideration any changes, the nature and duration of work and that the system is working as planned.

Further information on the risk management process is in the [Code of Practice: How to manage work health and safety risks](#).

Who is involved?

You must consult your workers and their health and safety representatives (if any) when deciding how to manage the risks of scaffolds and scaffolding work.

If there is more than one business or undertaking involved at your workplace you must consult them to find out who is doing what and work together so risks are eliminated or minimised, so far as is reasonably practicable.

This may involve discussing workplace-specific requirements including the type of scaffold to be erected, the scaffolding to be used and what training is required for workers particularly if a scaffolding high risk work licence is not required.

Further information on consultation requirements is in the [Code of Practice: Work health and safety consultation, co-operation and co-ordination](#).

BEFORE STARTING SCAFFOLDING WORK

A primary objective of scaffold planning and design is to prevent scaffold collapse before, during and after placement of the scaffold. The collapse of a scaffold can cause death or significant injury to workers or passers-by and damage to structures.

Choosing a scaffold

Managing the risks associated with scaffolds and scaffolding work begins when you first start making decisions about how scaffolds are going to be used at a workplace and what type of scaffold will be best and safest for the job.

Further information on different scaffold types is in the:

- [Guide to scaffolds and scaffolding](#)
- [Guide on suspended \(swing stage\) scaffolds, and](#)
- [Information Sheet: Tower and mobile scaffolds.](#)

You should read the relevant information before commencing the next stage.

Designing the scaffold

The first step in controlling the identified risks should be at the design stage where the focus is on eliminating risks through good design of:

- scaffolding—the Act classifies these individual components as “plant”
- the scaffold—the Act classifies this as a “structure” that is covered by both Parts 5 and 6 of the WHS Regulations, and
- work systems and processes for the safe erection, alteration and dismantling of the scaffold.

More information on the safe design of plant and structures is in the:

- [Code of Practice: Safe design of structures, and](#)
- [Guide for safe design of plant.](#)

The scaffolding plant

Scaffolding designers have a duty to design scaffolding that is safe to manufacture, assemble and use for the purpose it was designed for. They design the scaffolding system.

The scaffolding may be purchased, hired in or supplied, for example by a scaffolding contractor.

The scaffold structure

The scaffold designer will be responsible for selecting the appropriate scaffolding and preparing a scaffold design for the job. They design the scaffold installation.

The scaffold designer should consider:

- the intended use of the scaffold
- hazards and risks for people who erect, dismantle, use or are near the scaffold
- the foundations including ground conditions
- the load bearing capacity of the surface where the scaffold is to be erected or the suspension systems for hung or suspended scaffolds
- dead loads e.g. resulting from the size and weight of the scaffold
- live loads e.g. workers, plant and material on the scaffold
- environmental loads e.g. wind loads
- bracing, tying and anchors—where anchors will be placed on the supporting structure and types of anchors to be used
- supporting structures
- edge protection
- protection against falls and falling objects

- containment sheeting, and
- safe entry and exit.

Where necessary, improved scaffold stability may be achieved by:

- tying the scaffold to a supporting structure
- guying to a supporting structure
- increasing the dead load by securely attaching counterweights near the base, and
- adding bays to increase the base dimension.

Scaffolds should be designed by a competent person, for example a person holding a relevant scaffolding high risk work licence.

The system of work

Systems of work should be clear but flexible to meet changing circumstances as the work progresses. The system of work should provide for the assessment and control of any new risks arising from proposed changes to the work before they are implemented.

A documented safe system of work is an administrative control. For scaffolding work this could include consideration of:

- worker competency and licensing requirements
- consultation and coordination of the work with others
- access and exit
- exclusion zones
- permit-to-work systems
- fall arrest systems
- inspection and maintenance
- emergency arrangements, and
- changes to the work arrangements.

Competency and licensing

A person who erects, alters or dismantles any scaffold must be competent to do the work safely.

A person undertaking **scaffolding work** must hold the relevant class of scaffolding high risk work licence as required by the WHS Regulations. The scaffolding high risk work licence classes are:

- **Basic scaffolding licence**—required for scaffolding work involving:
 - modular or prefabricated scaffolds
 - cantilevered materials hoists with a maximum working load of 500 kilograms
 - ropes
 - gin wheels
 - fall arrest systems including safety nets and static lines, and
 - bracket scaffolds (tank and formwork).
- **Intermediate scaffolding licence**—required for scaffolding work involving:
 - cantilevered crane loading platforms
 - cantilevered scaffolds
 - spur scaffolds
 - barrow ramps and sloping platforms
 - scaffolding associated with perimeter safety screens and shutters
 - mast climbing work platforms, and
 - tube and coupler scaffolds including tube and coupler covered ways and gantries.
- **Advanced scaffolding licence**—required for scaffolding work involving:
 - cantilevered hoists
 - hung scaffolds including scaffolds hung from tubes, wire ropes or chains, and

- suspended scaffolds.

Where a person undertakes construction work they must have successfully completed general construction induction training.

A person who erects, alters or dismantles a scaffold where there is a risk of a person or object falling four metres or less from the platform or structure does not require a high risk work licence. This sort of work may involve tasks like erecting a small frame scaffold to repair the eaves of a house or to paint a ceiling. These types of scaffolds are not generally used to provide a work platform at a height in excess of one storey or for use by many workers at once.

Documentation

A range of documentation may be required depending on the scaffolding and scaffold. For example, prefabricated scaffolding requires plant design registration. The construction of a scaffold where a person can fall more than two metres will generally require a Safe Work Method Statement (SWMS) for construction work.

Designer's safety report for construction work

Most erecting and dismantling of a scaffold is construction work as it involves the construction of a structure or is undertaken at a construction workplace.

A designer must prepare a safety report for a specific or unusual scaffold designs but not for common scaffold designs where the risks are already known. For example, a design specifying an unusual base structure that has to be erected to support the scaffold may introduce unique hazards and risk controls.

The person commissioning the construction work must consult with the designer of the whole or any part of the structure about eliminating and controlling risks. The general duty to provide information under the WHS Act may be met through the designer's safety report prepared under Chapter 6 of the WHS Regulations for construction work.

A designer's written safety report may include proprietary documentation setting out how to use the scaffolding or scaffolding system to safely erect a scaffold. Where there is a principal contractor for a construction project, the person who commissioned the scaffold design must give a copy of the relevant designer's safety report to the principal contractor.

Further information on designer's safety reports is in the [Code of Practice: Construction work](#).

Safe work method statements for construction work

Erecting a scaffold or work on a scaffold may involve activities defined as high risk construction work under the WHS Regulations.

High risk construction work includes any construction work where there is a risk of a person falling more than two metres. Scaffolding work is defined with a four metre threshold for licensing purposes. This means in some cases a high risk work licence may not be required to erect a scaffold—because it is less than four metres—but there may still be need for a SWMS because it is more than two metres.

High risk construction work also includes work which:

- involves structural alterations or repairs that require temporary support to prevent collapse
- is carried out on or near energised electrical installations or services, and
- is carried out in an area at a workplace in which there is movement of powered mobile plant.

A SWMS must be prepared for high risk construction work before the work starts. The SWMS must:

- identify the type of high risk construction work being done
- specify the health and safety hazards and risks arising from the work
- describe how the risks will be controlled, and
- describe how the control measures are to be implemented, monitored and reviewed.

The SWMS must be developed in consultation with workers and their representatives who are carrying out the high risk construction work.

Further information on high risk construction work, SWMS and a SWMS template is in the [Code of Practice: Construction work](#).

Scaffolding plan

Where required, a SWMS will set out the work method to safely erect, use and dismantle a scaffold. Where a SWMS is not required a scaffolding plan will help identify ways to protect people who are:

- erecting, using, maintaining, altering and dismantling the scaffold, and
- near the scaffold or scaffolding work e.g. other workers and members of the public.

For more complex scaffolds a scaffolding plan should be prepared by a competent person. In preparing a scaffolding plan the person should consult with a range of other people relevant to the work and workplace, for example:

- the scaffold designer e.g. to discuss the design loads and the capability of the structure to support extra loadings
- the scaffolding contractor or builder—this may be the person conducting a business or undertaking or a principal contractor—e.g. to assess where underground drains or pits and underground services are located. The work should be planned to avoid excavating service trenches under, through or adjacent to scaffolds
- workers, work health and safety committees and health and safety representatives regarding erecting, maintaining, altering and dismantling the scaffold
- other competent people familiar with similar structures e.g. an engineer or a person holding an intermediate or advanced scaffolding high risk work licence, and
- the electricity supply authority if the scaffold is being erected near overhead electric lines.

The scaffolding plan should include a site layout plan and detail the elevations and sections of the scaffold. It should be kept at the workplace if reasonably practicable, or be readily accessible near the scaffold should it be required. The scaffolding plan should address:

- basis of design
- type of scaffold
- foundations including ground conditions
- the weight bearing capacity of the surface where the scaffold is to be erected
- dead loads e.g. resulting from the size and weight of the scaffold
- live and environmental loads e.g. wind loads
- containment sheeting
- supporting structures
- entry and exit
- tying and anchors—where anchors will be placed on the supporting structure and types of anchors to be used
- bracing, and
- edge protection.

WHS management plan for a construction project

Where the cost of the construction work is \$250 000 or more a principal contractor for a construction project must:

- take all reasonable steps to obtain a copy of the SWMS relating to the work from each person conducting a business or undertaking carrying out the high risk construction work before the work starts, and
- prepare a written WHS management plan for the workplace before work on the construction project starts.

A WHS management plan must include:

- a list of people who have health and safety responsibilities, and
- arrangements for consulting workers, managing incidents that occur and any site specific health and safety rules.

Further information on WHS management plans is in the [Code of Practice: Construction work](#).

Plant design registration

Prefabricated scaffolding is defined as an integrated system of prefabricated components manufactured in such a way that the geometry of assembled scaffolds is pre-determined. Prefabricated scaffolding can include modular, tower, cantilever, hung and suspended (swing-stage) scaffolds.

Prefabricated scaffolding must be design registered as required under Part 1 of Schedule 5 of the WHS Regulations.

The person with management or control of the prefabricated scaffolding must ensure the design registration number is kept where it is readily accessible. If you are hiring prefabricated scaffolding, the supplier must provide the design registration number, usually on the supply docket or agreement.

Further information on plant registration is in the [Code of Practice: Managing the risks of plant in the workplace](#).

Emergency plan

An emergency plan must be prepared and maintained so it remains effective for the workplace. The emergency plan should provide for emergency response, evacuation procedures, medical treatment and assistance, and communication with emergency service organisations and others at the workplace. For example, emergency contact numbers should be displayed where they can be easily seen.

Workers must be provided with information and training on the emergency procedures for the workplace and the procedures must be tested.

Responses to an emergency should be coordinated. The scaffolding contractor should consult with the principal contractor who prepares the broader workplace emergency plan, so unexpected incidents, for example scaffold collapse or people falling from height are included in the broader emergency plan.

Emergency arrangements for evacuating an injured worker from, for example a multi-level perimeter screened scaffold should consider how to safely remove an immobilised or unconscious person. This may include creating emergency access points through screens and decks.

For further information see the:

- [Fact Sheet: Emergency plans](#), and
- [Code of Practice: Managing the work environment and facilities](#).

Inspection and maintenance

A person with management or control of a scaffold at a workplace has a responsibility to ensure a scaffold is inspected and maintained so it is safe to use. This includes inspections at hand-over and post-handover and after scaffold repairs, modifications or additions.

For registered plant like prefabricated scaffolding, a record of all commissioning and decommissioning, inspection, maintenance, alterations and dismantling must be kept.

Further information on scaffold inspection and maintenance is in the [Guide to scaffold inspection and maintenance](#).

ERECTING, DISMANTLING AND MODIFYING A SCAFFOLD

The sequence of work should be planned and followed for each type of scaffold to be constructed. The sequence of work should include consideration of the following unless you have developed an alternative process that provides an equivalent or higher level of work health and safety.

Erecting a scaffold safely

Erecting a scaffold safely will include preparing the foundations for the scaffold, installing soleboards and baseplates where required, and erecting the scaffold including for adequate access and work platforms that minimise the risk to those doing the scaffolding work and people who will use the scaffold.

Foundations

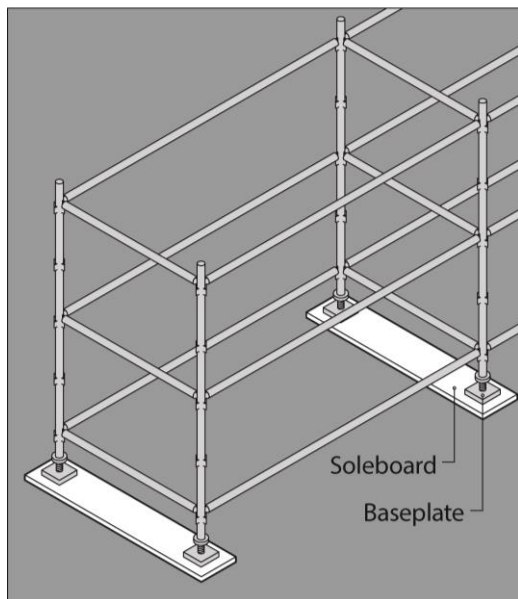
Scaffold foundations should be designed and constructed to carry and distribute the full weight of the scaffold including both dead and live loads.

Ground conditions, the effects of the weather—particularly wind and rain—and live loads should be considered when designing and preparing the scaffold foundation.

Soleboards and baseplates

Soleboards and baseplates should evenly distribute the load from the scaffold to the supporting surface to provide scaffold stability (see Figure 1). A soleboard distributes the load from a load-bearing member to a supporting surface and is intended for use underneath baseplates.

Figure 1 Soleboards and baseplates



Both soleboards and baseplates may be required for use on less stable surfaces, for example soil, gravel, or fill. The size of the soleboard will vary depending on the supporting surface. They can be placed under a single standard or multiple standards as in Figure 1. Where necessary a competent person should determine the bearing capacity of the ground or other supporting structure.

Soleboards and baseplates should be level. Adjustable bases can be used on uneven surfaces for modular scaffold systems to give a level base lift. No part of the baseplate or adjustable base should protrude over the side of the soleboard to ensure the loads are carried evenly on the soleboard.

Needles and spurs should be considered where ground conditions are very unstable.

Scaffold erection

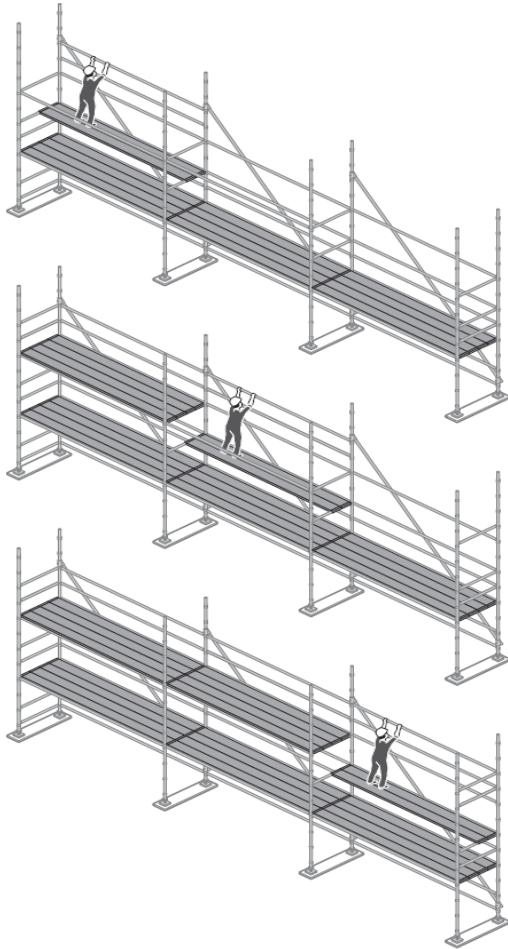
The following safe work practices should be used when erecting a scaffold:

- Develop and follow a methodical work sequence—e.g. in a SWMS or scaffolding plan.
- Scaffold fittings and other connections should be securely tightened where required. Fittings should be in accordance with the manufacturer's or designer's specifications and the scaffolding plan.
- Scaffolding including all bracing and ties, guy ropes or buttresses should be installed as the scaffold is erected.
- Consider using specifically designed loading platforms or back propping to prevent overloading the building floor or the scaffold.
- Get certification from a competent person before erecting scaffold on awnings.
- Check live loads arising from the work of erecting or dismantling the scaffold are within the specification for the final design—the number of workers on the scaffold at any one time may need to be limited.
- Work from a full deck of planks whenever possible.
- Do not overload scaffold bays with scaffolding awaiting installation.
- Do not climb on guardrails to gain extra height.
- Do not climb on outside of scaffold.

- Implement measures to control the risk of a fall if the internal gap—the gap between the inner edge of the length of the platform and the face of the building or structure immediately beside the platform—on scaffolds including hanging bracket scaffolds is greater than 225 mm. For example, install:
 - edge protection, and
 - extra scaffold planks to minimise the size of the internal gap.

An example of scaffold erection is shown in Figure 2. In this example the scaffold is being erected against an existing building so guardrails are only needed on external faces. Access ladders and toeboards have been omitted for clarity.

Figure 2 Erecting a scaffold



After enough components of the scaffold have been erected to support it, immediately install:

- a platform at least 450 mm wide along the full length of the section of scaffold
- edge protection across the space between the standards forming the outer frame of the scaffold at the level the scaffold has reached, and
- a way to access the scaffold e.g. temporary stairs or a ladder to the level the scaffold has reached.

Before the next level of the scaffold is erected, a platform should be installed not more than two metres below the position of the next level.

When erecting scaffolding:

- A section of the platform may be left open to allow the passing of planks or other scaffolding between levels.
- A platform may be removed after work has started two levels above the level from which the platform is to be removed.
- When installing or erecting scaffolds over or beside water, risk controls may include alternative erection methods, for example prefabrication away from the water and installation by crane.

- The scaffolding should be checked and any defective scaffolding should be clearly marked with paint or tags so it is identified and can be removed from the work area to prevent use.

Tying and anchoring

Tie methods and spacing should be in accordance with the manufacturer, designer or supplier instructions. Consult the scaffold designer, manufacturer, supplier or an engineer if it is not practical to position the ties in accordance with the instructions.

Control measures for tying scaffold include:

- Using more ties if:
 - the scaffold is sheeted or netted due to increased wind loadings
 - it is used as a loading platform for materials or equipment, and
 - lifting appliances or rubbish chutes are attached.
- Regularly inspecting scaffold ties to check they are not modified or altered by unauthorised people e.g. finishing trades who may loosen, relocate or remove ties to gain access to walls and openings.
- Not attaching extra loads to the scaffold e.g. signs and perimeter containment screens, without first consulting a competent person like the scaffold design engineer or the supplier.
- Using cast-in anchors or through bolts that pass through a wall in preference to expansion or chemical anchors for securing scaffold ties because of possible failure due to faulty tensioning or chemical adhesion.
- Deformation-controlled anchors, thread cutting anchors and insert type anchors should not be used.
- Drill-in expansion anchors should be limited to the load (torque) controlled type—the working load limit (WLL) should be limited to 65 percent of the ‘first slip load’ stated in the information provided by the supplier.
- All drill-in expansion anchors should be installed using a torque wrench set to the required torque, unless the anchor has an in-built torque indicator. Documented verification should be kept on site stating:
 - the anchor setting torque
 - install date, and
 - location and name of the competent person installing the anchors.
- Where chemical anchors are used, all anchors should be tested and proof loaded to the working load multiplied by a factor of 1.25.
- All insert anchors including expansion and chemical anchors should have a safety factor of 3 to 1 on their failure load. If any anchors fail the remaining anchors on the same level should be tested.
- Ties should not obstruct access along the working and access platforms.
- Ties should interconnect with both the inner and outer scaffold standards unless otherwise specified by an engineer to increase the rigidity of the scaffold.
- Ties from scaffold to structure should be designed to be non-pivoting and fully secured to ensure they cannot be loosened.

Working platforms

Working platforms, except suspended scaffolds, should have duty classifications and dimensions complying with the manufacturer’s information on loadings. Scaffold working platforms are generally rated as light, medium or heavy duty:

- **Light Duty** – up to 225 kg per platform per bay including a concentrated load of 120 kg. Platforms should be at least two traditional scaffold planks wide—approximately 450 mm. Use examples include painting, electrical work, many carpentry tasks and other light tasks.
- **Medium Duty** – up to 450 kg per platform per bay including a concentrated load of 150 kg. Platforms should be at least four traditional scaffold planks wide—approximately 900 mm. Use examples include general trades work like tiling and light steel framing.
- **Heavy Duty** – up to 675 kg per platform per bay including a concentrated load of 200 kg. Platforms should be at least 1000 mm wide. This duty scaffold is needed for 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.

Each scaffold should be designed to carry the required number of working platforms and to support the dead and live loads. Where tools or materials are to be used or stored on working platforms, an unobstructed access width of at least 450 mm should be maintained.

Scaffold planks on working platforms should:

- have a slip-resistant surface
- not be cracked or split
- be of uniform thickness
- be secure—so it cannot be kicked off or susceptible to uplift or displacement during normal use
- be positioned so no single gap between planks exceeds 10 mm, and
- not be lapped on straight runs of modular and tube and coupler scaffolding but may be lapped on hanging bracket scaffolds where butting of planks at a pair of brackets cannot be achieved.

Lapped scaffold planks may sometimes be used to cover gaps around corners of scaffold. These planks should be safely secured. In some circumstances they may not need to be secured provided the following are met:

- timber is lapped over metal planks
- planks are 1.2 metres long or greater
- plank overlap—past the edge of the plank underneath—is 300 mm or greater, and
- standards prevent planks from moving sideways on the scaffold.

In these cases wind forces should be considered and if wind is a potential hazard then the lapping planks should be secured.

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

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

Metal planks lapped on other metal planks should be secured using fixings, for example metal strapping. Tie wire or another system not structurally rated should not be used to secure planks on hop-up brackets.

More generally:

- Planks should be secured.
- Each hop-up bracket should be provided with tie bars unless constructed with scaffold planks locked into position to stop brackets from spreading apart or causing planks to dislodge unless otherwise specified by the scaffold designer.
- The overhang of planks which are supported by putlogs should be greater than 150 mm but less than 250 mm—otherwise uplift might occur.
- Avoid nailing or screwing laminated planks into position unless otherwise specified by the manufacturer. Moisture penetrating the planks can cause damage and may not be easily detected.

Dismantling a scaffold safely

The following safe work practices should be used when dismantling a scaffold:

- Edge protection and a way to enter the scaffold can be removed as the scaffold is dismantled, provided it is removed at the last possible stage.
- Where possible a platform of at least 450 mm wide at the level the dismantling has reached should be in place.
- Ensure when dismantling the scaffold the platform immediately below the level the worker is standing on has a full set of planks across its width and is no lower than 2 metres.
- A section of the scaffold may be left open to allow the lowering of planks or other scaffolding between levels.
- Scaffolding should never be dropped in an uncontrolled way when dismantling the scaffold.

Altering a scaffold

When altering a scaffold you should:

- consult the scaffold designer before making alterations
- ensure scaffold alterations are in accordance with the scaffolding plan
- ensure alterations do not compromise the structural integrity of the scaffold, and
- ensure systems are in place to identify unauthorised interference with the scaffold e.g. regular inspections.

COMMON HAZARDS AND RISK CONTROLS

The following should be considered to control risks associated with scaffolds and scaffolding work. More specific requirements apply to suspended, cantilevered, spur or hung scaffolds and a scaffold from which a person or thing could fall more than 4 metres—see regulation 225 of the WHS Regulations. More information is available in the:

- [Guide to scaffolds and scaffolding, and](#)
- [Guide to suspended \(swing stage\) scaffolds.](#)

Adjacent buildings or structures

No part of the scaffolding work should adversely affect the structural integrity of other buildings. You should ensure risks are controlled to prevent injury to people or damage to adjacent buildings or structures from the:

- collapse of the scaffold onto an adjacent building or structure, and
- collapse of an adjacent building or structure, or a part of a building or structure due to scaffolding work or related activities.

Electric lines

Electric lines whether overhead or underground can be a significant hazard. Construction work carried out on or near energised electrical installations or services is high risk construction work and a SWMS must be prepared before this work starts.

Further information on managing risks associated with electricity and scaffolds is in the:

- [Information Sheet: Scaffolding work near overhead electric lines](#), and
- [Code of Practice: Managing electrical risks at the workplace.](#)

Entry and exit

Safe entry and exit is required for workers when erecting, using and dismantling a scaffold. Common means of entry and exit include:

- temporary stairs or ladder access systems installed at the start of erection and progressed with the scaffold
- permanently installed platforms or ramps e.g. part of an adjacent building
- personnel hoists—non-mechanical forms of exit e.g. a ladder or stair tower should be provided in case of emergency, and
- the existing floor level of a building if entry from there is safe.

Stairs should be secured to the scaffold bay. If stairs cannot be self-secured to the scaffold they should be lashed. If not secured the designer or supplier should provide documentation showing the maximum amount of clearance allowed between the transom and the top and bottom of the stair module. The gap between the end of a stair module and a transom should be as small as possible. Large gaps can lead to stairs dislodging and falling when a load is placed onto it.

Falls

A risk to health and safety associated with a fall by a person from one level to another that is reasonably likely to cause injury to the person or any other person must be managed. Hazards that may increase the risk of falls include:

- poor environmental conditions like:
 - strong winds that may cause workers to lose balance
 - rain causing slippery work surfaces
 - glare emitted from work surfaces or poor lighting affecting visibility
- materials, equipment or protruding objects below or in adjoining work areas like:
 - pallets of construction materials
 - vertical reinforcing steel
 - rubbish skips
 - exposed starter bars
 - large tools
- void areas not identified or protected e.g. ladder access voids
- incomplete scaffolds or loose scaffolding in areas where work is being done or is likely to be done, and
- inadequate training, instruction and supervision of scaffold workers.

Passive engineering controls like handrails and edge protection can minimise the risk of a fall during work at height. Catch platforms can be used to minimise the distance a person could fall during work at height and also to catch falling objects.

Fall arrest systems should only be used during the following scaffold activities:

- Erecting or dismantling drop or hung scaffolds where the scaffold is constructed from top to bottom—this allows for a clear fall zone in the event of a fall.
- Fixing and removing trolley tracks on suspension rigs.
- Erecting or dismantling cantilevered needles and decking between the needles. Fall arrest systems could also be used when the first lift of scaffold is erected where workers are standing on the deck between the needles.
- Erecting and dismantling the first lift of a cantilevered scaffold including the first platform.
- Attaching and removing spurs projecting from the supporting structure.

Further information on falls is in the [Code of Practice: Managing the risk of falls at workplaces](#).

Falling objects

Falling object risk control measures include fall arrest platforms, overhead protective structures, perimeter containment screens and exclusion zones to eliminate or minimise the risk of falling objects.

Perimeter containment screens can be made of mesh, high quality shade cloth, timber, plywood, metal sheeting or other suitable material. Before using perimeter containment screening, consider other risks like conductivity of electricity and additional dead and live loads. For example, the extra wind loading on the scaffold should be considered when selecting a screening material and the framework supporting a screen must be able to support loads resulting from the screen.

Perimeter containment screens should be located inside the standards on working platforms or in accordance with the manufacturer's specifications. Where used, the lining should be attached to the inside of the mesh.

The scaffold design and its ties fitted with containment sheeting should be approved by a competent person, for example an engineer with experience in structural design.

Ladders

Ladders may be used where entry to the working platform is needed by only a few people and where tools and equipment can be delivered separately to the working platform, for example by materials hoist, crane or a rope and gin wheel. Ladders used for entry to or exit from a scaffold should be:

- fixed industrial single ladders—not extensions ladders

- located within a separate ladder access bay of the scaffold wherever space permits, and
- set up on a firm, level surface, be securely fixed and not used on scaffold bays to gain extra height above the scaffold structure.

If the access bay is part of the working platform a trap door should be provided. Ladder entry should be far enough away from the working platform where possible to prevent people falling through openings. Engineering controls and safe work procedures should be implemented so that the trap door remains closed while working from the platform. Platforms should also allow correct use of ladders, for example a person passing through the trap door should not need to hold it open. Gates should be self-closing and not open away from the platform.

Ladders should not be used as a work platform or to gain extra height to carry out work from a scaffold.

More detailed guidance on ladders is in the [Code of Practice: Managing the risk of falls at workplaces](#).

Ground conditions

Ground conditions should be stable and those doing the scaffolding work should be aware of any factors that may affect ground stability before the scaffold is erected or during its use.

Ground conditions should be assessed by a competent person to check the ground is stable and able to bear the most adverse combination of dead, live and environmental loads that can reasonably be expected during the period the scaffold is to be erected and dismantled and while it is in use.

Water and nearby excavations may lead to ground subsidence and the collapse of a scaffold. Any likely watercourse, for example a recently filled trench that has the potential to create a wash out under the scaffold base should be diverted away from the scaffold.

Loading

A scaffold should be designed for the most adverse combination of dead and live loads that can reasonably be expected during the period the scaffold is in use.

Dead loads relate to the self-weight of the scaffold structure and scaffolding including:

- working, catch or access platforms
- stairways, ladders, screens and sheeting
- platform brackets, suspension ropes, secondary ropes, traversing ropes and tie assemblies, and
- hoists and electrical cables.

Live loads include the:

- weight of people
- weight of materials and debris
- weight of tools and equipment
- environmental loads e.g. wind, rain, and
- impact forces.

The specifications of the designer, manufacturer or supplier should be followed for the maximum loads of the scaffold. The dead and live loads should be calculated during the design stage to ensure the supporting structure and the lower standards are capable of supporting the loads that will be applied at the workplace.

If the scaffold is to be altered at the workplace, consider any new loads that may apply and consult the scaffold designer. For example, wind and rain loads may increase if perimeter containment, shade cloth or signs are attached to the scaffold. Staggering the joints in standards may help control the risk of scaffold collapse from additional environmental loads.

Scaffolds should not be used to support formwork and plant, for example hoist towers and concrete pumping equipment unless the scaffold is specifically designed for this purpose.

Mixing scaffolding from different systems

Scaffolding from different manufacturers or suppliers, while sometimes looking compatible, often has different dimensions and tolerances.

Mixing incompatible scaffolding can reduce the structural integrity of a scaffold and could lead to the collapse of the scaffold. It can also lead to increased wear on the scaffolding and difficulties in disassembly which in turn may increase the risk of musculoskeletal injury to workers.

The following controls can be used to prevent or minimise the risk of injury and scaffold collapse due to the incorrect mixing of scaffolding:

- Do not mix scaffolding from different manufacturers unless a competent person e.g. an engineer has determined that:
 - the different scaffolding is of compatible size and strength
 - the different scaffolding has compatible deflection characteristics
 - the different fixing devices are compatible, and
 - mixing the different scaffolding does not lessen the strength, stability, rigidity or suitability of the designed scaffold.
- Do not mix scaffolding couplers and tubing of different outer diameters and strengths unless designed specifically for the task by a competent person or the coupler manufacturer has designed the couplers for this purpose. For example, do not mix aluminium and steel scaffolding as steel clamps may cause aluminium tubing to be crushed and reduce the strength of the tube.

Beam clamps or flange clamps should be provided with information about safe use including tightening torque required. If no information is provided contact the supplier, manufacturer or designer of the scaffold.

Powered mobile plant and traffic

Powered mobile plant and vehicular traffic are hazards which can potentially affect worker safety and the safe use and structural integrity of a scaffold.

Control measures to minimise the risks associated with moving plant and traffic include:

- re-routing vehicles and mobile plant away from where the scaffold is located e.g. by using traffic controllers to redirect traffic
- using barricades, signs, posts, buffer rails, guards, concrete or timber kerbs to prevent mobile plant and traffic from coming into contact with a scaffold, and
- ensuring the scaffold does not have unnecessary protrusions e.g. over-length transoms, putlogs, tie tubes or over-height standards.

Further information on managing traffic risks is in the [General Guide for Workplace traffic management](#).

Supporting structures

You should consider the capability of a supporting structure such as a building to bear the most adverse combination of loads possible when erecting and using the scaffold. Get advice from a competent person before anchoring a scaffold to a building or erecting scaffolds on verandas, suspended flooring systems, parapets and awnings.

Propping of the supporting structure may be required where the supporting structure is not capable of bearing the most adverse combination of loads.

Unauthorised access

A person with management or control of a scaffold at a workplace must prevent unauthorised access to the scaffold while the scaffold is incomplete or unattended. This applies to suspended, cantilevered, spur or hung scaffolds, as well as any scaffold from which a person or thing could fall more than 4 metres.

Entry to scaffold areas should be restricted to those carrying out the scaffolding work while the scaffold is being erected, altered, repaired or dismantled. Control measures, for example barriers and warning signs should be used to prevent unauthorised access when the scaffold is left unattended.