



The Guide to **Safer Scaffolds**

A publication produced by
The Victorian Scaffolding Safety Committee



Foreword

A key element of the employer duty to provide a safe place and system of work is to ensure that plant which is provided for use in the workplace is safe and fit for purpose. A further element of that duty is to ensure that any item of plant is not only safe and fit for purpose when it is provided but that it remains safe and fit for purpose.

During the course of 2009 a number of serious incidents involving scaffolds highlighted the particular need for simple, practical guidance for the construction industry on the construction and use of this important item of plant.

The Prahran scaffold collapse which occurred in April 2009 was described by the then Executive Director of WorkSafe Victoria, John Merritt, as being a 'third world incident' and not the type of incident which should be seen in the Victorian Construction Industry in the 21st century.

This guidance was developed by The Victorian Scaffolding Safety Committee, which is a sub-committee of Foundations For Safety Victoria. The Committee comprises of representatives from:

- Scaffold Association of Victoria
- CFMEU
- WorkSafe Victoria
- The Master Builders Association of Victoria
- Housing Industry Association
- Victorian Volume Home Builders Safety Alliance

It has been designed to provide practical advice to builders on what they should expect from those responsible for the erection of a safe scaffold and what is subsequently expected of the builder in terms of maintaining a safe scaffold.

Introduction

While the responsibility to ensure a scaffold is erected in a safe manner rests with the experts (e.g. the scaffolding company engaged to erect the scaffold), the responsibility to ensure it remains safe and fit for purpose rests with the person or persons in management and control of a work site, beginning with the principal contractor and any subsequent subcontractors using or engaging the scaffold.

Having scaffolding erected by a licensed scaffolder is one of many steps required to ensure that scaffolds are erected and maintained in a condition that is safe for all workers on site, as well as the public.

Builders must remember that there are four key requirements for a safe scaffold:

- The scaffold must be appropriate for the task
- All scaffolding components must be compatible
- There is safe and clear ladder access and egress to all working platforms
- The scaffold must be complete

This tool is designed to assist builders manage the safety of scaffolding and scaffold users on site, from the time an order for scaffolding is placed, to the day it is dismantled and taken away.

Procurement of Scaffolding

Once it has been established that scaffolding is required, the type and configuration of the scaffold needs to be considered, including determining what the scaffold will be used for, so that a 'fit for purpose' scaffold is designed and erected.

Different trades will require differing duty/load ratings. Bricklayers, concreters and demolition workers need heavy duty scaffolds, which can support up to 675 kg per platform per bay. Carpenters and general trades may need medium duty scaffolds that can support up to 450 kg per platform per bay. This information must be specified to the scaffold supply company so that the load rating, including point loads, can be determined with consideration to the number of allowable platforms/levels. The minimum/maximum width of platforms is also critical for material stacking & access.


Specific designated bays or special duty platforms may also need to be factored in to the design, that might be wider than the standard bay. Such bays might be required for specific tasks, such as for cutting blueboard or certain demolition work. Note that no materials are permitted on platforms 450mm wide or less.

The required height and existing ground and/or supporting surface conditions are also considered in the design process. The principal contractor should assess the location of underground drains or pits, or recently filled trenches. Work should be planned to avoid excavation work under, through or adjacent to areas scaffolding is likely to be needed.

If hoarding, shade cloth or brick guards are required, the scaffold must be engineered for the different types of loads that will apply to the scaffold structure. The supplier should also be informed of any access points for brick and tile elevators or materials hoists so that appropriate fall prevention measures can be included adjacent to them.

What the Scaffold Supply Company Should be Providing

When engaging a scaffolder or scaffold supply company to supply and erect scaffolding on your site, it is imperative that you ensure the workers are suitably qualified to do the task. Anyone constructing, or directly supervising the workers constructing any scaffold from which a person or materials could fall more than 4 metres (including mobile scaffolds), must have a current high risk work license or equivalent certificate of competency appropriate to that type of scaffold.



Similarly anyone altering or dismantling the scaffold must have a current high risk work license or equivalent certificate of competency appropriate to that type of scaffold. A register of workers license numbers (with expiry dates) and Construction Induction card numbers should be kept as part of the site induction process.

An area should be set aside on site for the set down of scaffold components.

The scaffold supply company should supply a set of design drawings for the erectors on site to build in accordance with. Scaffolds fitted with containment sheeting have increased dead loads and are exposed to increased wind and rain loads. The design of such scaffolds and ties must be approved by a competent person, such as an engineer experienced in structural design.

Where construction work is performed that involves a risk of a person falling more than 2 metres, a safe work method statement is required. This is something that the scaffolder must supply to the principal contractor, describing how the scaffold will be erected in a safe manner. It should also cover off on any alterations required on the scaffold, and the dismantling processes.

“Scaffold Incomplete” signs should be displayed around the perimeter of the scaffold while it is under construction, until a handover certificate is issued and the scaffold is ready for use.

The scaffolder should supply a scaffold handover certificate after the initial erection and each time alterations are made to the scaffold. If one is not supplied, ask for one. The handover certificate will contain such important information as the duty rating of the scaffold, type of scaffold, size, the number of lifts, number of working platforms and a sign-off that the scaffold has been erected in accordance with the design specifications. The handover certificate must be kept on site until the scaffold has been dismantled.

The erector should also place scaffold tags (Scafftag or an agreed equivalent) at each access point. The scaffold tag is important for a variety of reasons; it informs the users of the scaffold’s erection date, the last inspection date and most importantly, the duty or load rating of each scaffold platform per bay.

Protection from Vehicular Traffic

If the scaffold is to be built in an area that is used by vehicles and other mobile plant, the following precautions are recommended to prevent or minimise exposure from the hazards of mobile plant and traffic:

- Re-route the traffic away from the location of the scaffold,
- Provide physical barriers, guards and signs to prevent contact with the scaffold,
- Assign a person to direct the traffic.
- Ensure scaffolding does not have any unnecessary protrusions, such as over-length transoms, putlogs, tie tubes or over-height standards.

Isolation of the Public and Unauthorised Users

The public and other workers must be isolated from the work area and protected from any potential hazard. The following precautions are recommended:

- Install physical barricades or divert unauthorised personnel away from the work area.
- Obtain advice and the appropriate permits from the local council and/or power companies.
- If necessary perform the work outside normal work hours.
- Prevent access when the scaffold is left unattended.

Scaffolding Used for Demolition Work

Scaffolding used for demolition work should be no less than heavy duty class. Care should be taken to prevent damage to scaffold planks and components from falling debris. Damaged planks and components should be removed and replaced by the scaffold supplier or licensed scaffolder. The scaffold should be dismantled progressively as the structure is demolished, otherwise what will remain above the structure will be an unstable scaffold with increased risks of internal falls.

Ongoing Maintenance

Scaffolds will fail structurally for generally one of three main reasons:

- The supporting surface gives way (backfilling, flooding, excavations, lack of support), or
- The scaffold is overloaded (too much material or too many working platforms), or
- Insufficient ties or bracing (which results in distortion of the standards and general instability of the structure),
- or varying combinations of all three.

Other factors may include mixing different brands or components in modular scaffolds that are not compatible with each other, or wind loads on shade cloth that was not factored into the original design.

For these reasons, principal contractors & all others involved with its use need to ensure the scaffold remains safe for the duration of the time it remains on site. All workers on site need to be made aware of the requirement and importance of keeping the integrity of the scaffold intact. Also important is that once erected, the scaffold must only be used for the purpose for which it was designed.

Training and Induction of Users

All persons using the scaffold should have sufficient knowledge and training to use the scaffold correctly. Users must understand the load limitations and restrictions relating to the particular scaffold (as per the scaffold tags). They must be inducted about work practices for the safe use of the scaffold, including maintaining clear access along the full length of platforms, not climbing on guardrails to gain extra height, not altering the scaffold in anyway, such as removing planks, ties, guardrails or signage and the emergency procedures relating to the scaffold.

Alterations to the Scaffold

Where an alteration to a scaffold is required, the scaffold supply company or the scaffold designer should be consulted prior to any alterations made. Ideally the persons that erected the scaffold should be the ones that alter the scaffold, due to their knowledge of the original structure.

All scaffold users must understand that any unauthorised modification or alteration to any part of the scaffold may result in catastrophic collapse. There are times when certain alterations can be critical to the stability of the scaffold structure (e.g. the removal of ties or braces, or the addition of bays, lifts or shade cloth).

Procedures therefore need to be put in place to ensure users understand who, when and how modifications may be permitted. This information should be passed on to workers as part of their site induction, but it would also be beneficial to occasionally remind workers of these procedures as part of a toolbox meeting. Any alteration without management approval should be strictly forbidden and also regularly discouraged through toolbox meetings.



All alterations must be coordinated through site management to ensure that control and management of the scaffold is not haphazard. The “innocent” removal of the odd tie or handrail for access purposes may seem innocuous enough, however a series of small alterations of individual components can lead to a very dangerous piece of plant.

“Do Not Alter Scaffold” signs should be placed around the scaffold to reinforce the issues discussed during inductions and toolbox meetings.

Alterations to a scaffold of any height, but particularly scaffolding from which a person or materials could fall more than 4 metres, should only be made by a trained and competent person.

Upon completion of a major alteration such as the addition of an extra bay or lift, another hand over certificate must be issued to the builder.

The scaffold will need to be inspected by a suitably qualified person and the scaffold tag updated.

Inspection of Scaffolds

Verification that the scaffold and its supporting structures have been inspected and comply with AS/NZS 4576 should be obtained for each of the following events:

- Before first use of the scaffold
- Prior to use following repairs or modifications
- Prior to further use following an incident or dangerous occurrence or other occurrence that could have affected the integrity, stability or adequacy of the scaffold, such as severe storm conditions or being struck by mobile plant or similar, and,
- At regular intervals not exceeding 30 days.

Discuss appropriate intervals for inspection with the supplier when the scaffold is first installed. The scaffold supply company should be invited back to conduct inspections of the scaffold on a monthly basis, to make any repairs or alterations as required and to provide the builder with a copy of the inspection report.

It is prudent to inspect the scaffold more frequently, especially after adverse weather or climatic conditions. Any unauthorised alterations or other site hazards are best picked up by conducting an inspection prior to commencing on-site activities, rather than only relying on a formal monthly inspection. The attached checklist is designed to assist a Site Supervisor or builder’s representative that may not hold a scaffold licence, conduct scaffold inspections in the interim. Weekly inspections are recommended to ensure the scaffold continues to remain safe and fit for purpose and it should be combined with the builder’s normal housekeeping inspection program.

Inspection Checklist

The following checklist is made up of a set of 12 sections. Sections 1 through 7 are items that can be inspected from the ground, while sections 8 through 11 should be inspected by walking the scaffold. Section 12 specifically relates to the inspection of mobile scaffolds. **If the answer is "No" to questions marked in red text**, or if there is any doubt as to the integrity of the scaffold, then it is critical that the scaffold supply company is immediately called back to inspect the scaffold and make any required rectifications.

*Some points on the checklist requiring clarification:

2.2 Is trenching or other excavation works isolated from the vicinity of soleplates?

Any activity that can compromise the scaffold's foundations will be detrimental to its structural integrity. Besides excavation work, the existing ground conditions can change suddenly with surface run-off after heavy rain, severely dry conditions that could lead to shrinkage or tension cracks appearing in the soil, which may indicate that the ground support system is shifting under the load.

4.5 Are platforms limited to no more than 2 full working decks?

Check with the handover certificate. This will provide the information on the number of permissible full working decks per bay across the scaffold length (usually 2, sometimes 3 or 4).

6.1 Is scaffolding erected beyond the No Go Zone of overhead power lines? (4.6m horizontally either side and 5m vertically above or below power lines)

If scaffolding is to be erected near overhead electrical power lines that may breach the No Go Zone, no work should be undertaken without first obtaining permission from the electrical supply company and a SWMS developed for the scope of work. Note, there are no spotter provisions applicable to scaffolding within the No Go Zone.

9.5 Where materials are stacked on platforms, is there sufficient access provided? (min. 450mm for persons and tools [2 planks], min 675mm wide for persons and materials [3 planks])

No materials are permitted on platforms 450mm wide or less. All other scaffolds must have a clear platform width of at least 450mm.

9.7 Are the loads on working platforms within their design load?

If it looks overloaded, it probably is.

Light duty, 225kg per platform per bay with a concentrated load of 100kg

Medium duty, 450kg per platform per bay with a concentrated load of 150kg

Heavy duty, 675kg per platform per bay with a concentrated load of 200kg

Special duty, see the designer, manufacturer, supplier or engineer.

10.2 Are ties being maintained at roughly every 2nd lift vertically and every 3rd bay horizontally?

Ties should be secured to a part of the building that can handle a force of 600kN. A single stud does not provide this strength. Ties are what prevent inward and outward movement of the scaffold and keep the standards plumb.



Scaffolding Inspection Checklist

Site address:

Scaffold location:

QUESTION	Y/N/NA	COMMENTS
1. Documentation/Signage		
1.1 Is there a handover certificate for the scaffold?		
1.2 Is there a current scaffold tag displayed in a conspicuous location (eg scaffold access points)?		
1.3 Does the scaffold tag indicate the duty rating per bay?		
1.4 Is there any signage indicating "No Entry. Scaffold Incomplete" or "Men Working Overhead" where required?		
1.5 Are incomplete scaffolding platforms blocked with a physical barrier as well as signage?		
2. Foundations. Soleplates/base plates		
2.1 Are soleplates (where required on soft ground) in good condition and are they secured or positioned to prevent them being dislodged?		
2.2 Is trenching or other excavation works isolated from the vicinity of soleplates?*		
2.3 Are base plates positioned centrally on the soleplates?		
2.4 Are the standards sitting plumb and firm on the base plates?		
3. Isolation from mobile plant & other vehicles		
3.1 Is there a system in place (eg blocks, parawebbing, hoarding, traffic management) to prevent the scaffold being struck by vehicles or plant moving in close proximity to the scaffold?		
4. Scaffold structure		
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 Does bracing extend to the full height?		
4.5 Are platforms limited to no more than 2 full working decks?*		
4.6 Have unauthorised additions, attachments or improvisations to the scaffold been eliminated?		
5. Access and egress		
5.1 Is there access and egress to all working platforms from the ground?		
5.2 If there is access from the structure, has adequate fall protection been installed between structure and scaffold?		
5.3 Where access ladders are used: <ul style="list-style-type: none"> • are they fitted internally? • are they adequately secured at the top and bottom? • are they pitched 1:4? • do they extend 900mm above the landing? • are they in good condition and free of defects? 		
5.4 Where access stairs are used, are they bearing squarely and adequately on transoms and are there no excessive gaps between the platform and transoms?		
6. Electrical		
6.1 Is scaffolding erected beyond the No Go Zone of overhead power lines? (4.6m horizontally either side and 5m vertically above or below power lines)*		
6.2 If within the No Go Zone, is written permission available from the power supply company and have the lines been de energized?		
6.3 Are electrical leads being restricted to the level they originate rather than being run from one scaffold level to another?		
6.4 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 Containment sheeting		
7.1 Has the scaffold been designed for wind loading on any containment sheeting (hoardings, wire mesh or shade cloth)?		
7.2 Has sufficient sheeting or brick guards been provided to protect workers or members of the public that might be exposed to a risk of falling materials from the scaffold?		

7.3 Are the fixing ties secure?		
7.4 Is it's integrity being maintained (no gaps, rips or tears)?		
8. Perimeter edge protection		
8.1 Are handrails, midrails and kick plates installed on all working decks and access platforms from which a person or object could fall 2m or more, and are they secure?		
8.2 Where the gap between the structure and the scaffold is more than 225mm, has edge protection been provided?		
8.3 Where any changes to the structure have occurred (eg removal of formwork), is the gap between the structure and the scaffold still less than 225mm? If not, edge protection or hop-up brackets must be provided.		
9. Platforms / decks		
9.1 Are working platforms fully decked? (no gaps or missing boards / planks)		
9.2 Are boards / planks secured against uplift from wind?		
9.3 Are planks uniform and in good condition? (no splits, cracks, knots or bends)		
9.4 Are platforms free of obstructions? (electrical leads, building rubble and debris causing tripping hazards)		
9.5 Where materials are stacked on platforms, is there sufficient access provided? (min. 450mm for persons and tools [2 planks], min 675mm wide for persons and materials [3 planks])*		
9.6 Where brick guards are used, are bricks or other material stacked below the height of the guardrail?		
9.7 Are the loads on working platforms within their design load?*		
10. Ties and connections		
10.1 Is the scaffold secured to the structure with ties?		
10.2 Are ties being maintained at roughly every 2nd lift vertically and every 3rd bay horizontally?*		
10.3 Is the scaffold stable when standing on the top deck? If it shakes or doesn't feel stable, chances are it isn't.		
10.4 Is there a system to ensure that if ties need to be removed or relocated, they are replaced in positions which maintain structural stability?		
10.5 Where Wedgelok fixings are used, are wedges securely inserted into the connection? (handrail, midrail, transom & ledger connections)		
11. Hop-up brackets		
11.1 Where hop-up brackets are used are they on the inside face only?		
11.3 Are they being maintained at no more than one V-pressing above or below the working platform?		
12. Mobile scaffolds		
12.1 Is the supporting surface hard and flat?		
12.2 If the ground surface is unstable (on dirt, uneven ground, muddy or sloping surface) are boards or steel channels used?		
12.3 Is the area of operation free of floor penetrations, power lines and other hazards?		
12.4 Are the castor wheel locks in working order and are they locked when workers are on the scaffold?		
12.5 Where the working platform is over 2m in height, are handrails, midrails and kick plates being maintained and is there internal ladder access provided?		
12.6 Is the working deck complete? (no split decks)		

Further Comments:

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Inspected by:

Date:

If the answer is "No" to questions marked in red text, then it is critical that the scaffold supply company is immediately called back to inspect the scaffold and make any required rectifications.

If the scaffold supply company needs to be called back to make any rectifications, ensure a new handover certificate is issued.