

Compliance code

Prevention of falls in general construction

Edition 1

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This Compliance Code (**Code**) provides practical guidance for those who have duties or obligations in relation to the prevention of falls in construction work under the *Occupational Health and Safety Act 2004 (OHS Act)* and *Occupational Health and Safety Regulations 2017 (OHS Regulations)*.

The Code was developed by WorkSafe Victoria (**WorkSafe**). Representatives of employers and employees were consulted during its preparation. It was made under the OHS Act and approved by Robin Scott MP, Minister for Finance.

Duty holders under the OHS Act and OHS Regulations should use the Code together with this legislation. This Code replaces the Compliance code (No. 1) – *Prevention of falls in general construction* (2008) which is no longer in force and effect.

While the guidance provided in the Code is not mandatory, a duty holder who complies with the Code will – to the extent it deals with their duties or obligations under the OHS Act and OHS Regulations – be considered to have complied with those duties or obligations.

If conditions at the workplace or the way work is done raise different or additional risks not covered by the Code, compliance must be achieved by other means. WorkSafe publishes guidance to assist with this at [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

Failure to observe the Code may be used as evidence in proceedings for an offence under the OHS Act or OHS Regulations. However, a duty holder will not fail to meet their legal duty simply because they have not followed the Code.

A WorkSafe inspector may cite the Code in a direction or condition in an improvement notice or prohibition notice as a means of achieving compliance.

A health and safety representative (**HSR**) may cite the Code in a provisional improvement notice when providing directions on how to remedy an alleged contravention of the OHS Act or OHS Regulations.

Approval for the Code may be varied or revoked by the Minister. To confirm the Code is current and in force, go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

Part 1 – Introduction

Purpose

1. The purpose of this Code is to provide practical guidance to duty holders about how to comply with their duties under the OHS Act and Part 3.3 (Prevention of falls) of the OHS Regulations in relation to the prevention of falls in the general construction industry.

Scope

2. This Code provides information for duty holders about meeting their obligations under Part 3.3 of the OHS Regulations as well as providing information about how to identify hazards and control risks associated with falls when undertaking construction work. This Code also provides information for duty holders about compliance with the OHS Act, where relevant (for example, an employer's duty to consult with employees).
3. It is not possible for this Code to deal with all risks associated with falls that a duty holder may encounter at their workplace. The guidance in this Code needs to therefore be considered with regard to the particular characteristics and circumstances of the workplace.
4. **Construction work** is any work performed in connection with the construction, alteration, conversion, fitting out, commissioning, renovation, refurbishment, decommissioning or demolition of any building or structure, or any similar activity. **OHS Regulations r321(1)** It expressly includes:
 - (a) installation, testing, maintenance and repair work performed in connection with the construction work
 - (b) the removal from the workplace of any product or waste resulting from the demolition
 - (c) the prefabrication or testing of elements at a place specifically established for the construction project
 - (d) the assembly of prefabricated elements to form a building or structure or the disassembly of prefabricated elements, that, immediately before the disassembly, formed a building or structure
 - (e) the installation, testing and maintenance of gas, water, sewerage, electricity or telecommunications services in or of any building or structure
 - (f) any work in connection with any excavation, landscaping, preparatory work, or site preparation performed for the purpose of any work referred to in regulation 321(1) or 321(2) of the OHS Regulations (ie this paragraph)
 - (g) any work referred to in regulation 321(1) of the OHS Regulations performed under water, including work on buoys, obstructions to navigation, rafts, ships and wrecks. **OHS Regulations r321(2)**

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5. Construction work does not include:
 - the assembly, disassembly, prefabrication or manufacture of fixed plant
 - the prefabrication of elements, other than at a place specifically established for the construction project
 - routine or minor testing, maintenance or repair work performed in connection with a building or structure, or
 - the exploration for, or extraction of, minerals or stone. [OHS Regulations r321\(3\)](#)
6. For the purposes of this Code, construction work includes all aspects of civil construction, including but not limited to trenching, excavations and retaining walls.
7. This Code is not specifically tailored to housing construction. The *Prevention of falls in housing construction compliance code* needs to be used in the first instance for such work.

Application

8. This Code applies to: employers, self-employed persons, persons with management or control of a workplace, employees and persons who install, erect or commission plant to be used at any workplace in Victoria. Additionally, it may be useful for HSRs.

Note: The word ‘must’ indicates a legal requirement that has to be complied with. The words ‘need(s) to’ are 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 an optional course of action.

Who has duties?

9. An **employer** is a person who employs one or more other persons under contracts of employment or training. [OHS Act s5\(1\)](#)
At a construction workplace employers may include the principal contractor and subcontractors.
10. Employers have a general duty to provide and maintain, so far as is reasonably practicable, a working environment for their employees that is safe and without risks to health. [OHS Act s21](#) To ensure that employers provide a working environment that is safe and without risk to health, they must eliminate risks to health and safety so far as is reasonably practicable, and if it is not reasonably practicable to eliminate the risks to health and safety, reduce those risks so far as is reasonably practicable. [OHS Act s20](#)
11. Employers must, so far as is reasonably practicable, monitor conditions at any workplace under the employer’s management and control. [OHS Act s22](#)
12. Employers must also, so far as is reasonably practicable, ensure that persons other than their employees are not exposed to risks to their health or safety arising from the business activities undertaken by the employer. [OHS Act s23](#)
13. The employer’s duties may also extend to independent contractors engaged by the employer and any employees of the independent contractor working at the workplace. The duties may extend, for example, to subcontractors and persons engaged to work through a labour hire agency. However, these extended duties are limited to matters over which the employer has control or would have control if there was not an agreement in place purporting to limit or remove that control. [OHS Act s21\(3\) and s35\(2\)](#)

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14. Regulations that set out the way an employer complies with their duties to employees under s21 and s35 of the OHS Act also extend those employer duties in respect to independent contractors engaged by the employer and any employees of the independent contractor in relation to matters over which the employer has control. [OHS Regulations r8\(1\)](#)
15. Employers have a number of specific duties under the OHS Regulations to prevent involuntary falls from more than two metres in the workplace, including the duty to:
 - (a) identify all tasks that involve a fall hazard of more than two metres [OHS Regulations r43](#)
 - (b) eliminate any risk associated with a fall hazard of more than two metres, so far as is reasonably practicable, such as by arranging for the task to be done on the ground or on a solid construction [OHS Regulations r44\(1\)](#)
 - (c) where it is not reasonably practicable to eliminate the risk, adopt a means of control in accordance with the specified hierarchy to reduce the risk associated with a fall, so far as is reasonably practicable. Specific duties apply if ladders or administrative controls are used [OHS Regulations r44\(2\)–\(5\)](#), [r45](#) and [r46](#)
 - (d) ensure that any plant used as a means of control for a risk associated with a fall is:
 - designed and constructed for the task(s) to be undertaken
 - designed and constructed in such a way as to enable its safe use in the physical surroundings in which it is to be used, and the conditions during which it is to be used, and
 - installed, erected or dismantled in a way that reduces any risk while that installation, erection or dismantling is being carried out, so far as is reasonably practicable. [OHS Regulations r47](#)
 - (e) review and, if necessary, revise any measures implemented to control risks associated with falls:
 - before altering plant or systems of work that are likely to result in a fall
 - after a notifiable incident involving a fall or the risk of a fall
 - if, for any other reason, the risk control measure does not adequately control the risk
 - after receiving a request from an HSR. [OHS Regulations r48](#)
 - (f) establish emergency procedures for rescue and first aid in the event of a fall occurring [OHS Regulations r49](#)
 - (g) ensure that high risk construction work (HRCW), including construction work where there is a risk of a person falling more than two metres, is not performed unless a safe work method statement (SWMS) is prepared before the work starts, and the work is performed in accordance with the SWMS. This duty applies if there is a risk to the health and safety of any person arising from the HRCW. [OHS Regulations r324](#) and [r327](#)

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16. Employers also have general duties in relation to the prevention of falls from two metres or less under the OHS Act. **OHS Regulations r41(1) note (2)** Section 21 of the OHS Act imposes duties on employers to, so far as is reasonably practicable, provide and maintain a working environment for employees that is safe and without risks to health. This includes managing risks associated with falls of two metres or less. To ensure that employers provide a working environment that is safe and without risks to health, they must eliminate risks to health and safety, so far as is reasonably practicable. If it is not reasonably practicable to eliminate the risks, employers must reduce those risks so far as is reasonably practicable. **OHS Act s20**

For information about what 'reasonably practicable' means when complying with Part 3 of the OHS Act or the OHS Regulations, see the WorkSafe position *How WorkSafe applies the law in relation to reasonably practicable* at **worksafe.vic.gov.au**.

17. A **self-employed person** must ensure, so far as is reasonably practicable, that persons are not exposed to risks to their health or safety arising from the business activities of the self-employed person. **OHS Act s24 and OHS Regulations r11** A self-employed person has specific duties under Part 5.1 (Construction) of the OHS Regulations, including duties related to HRCW and SWMS.

18. A **person who has management or control** of a workplace must ensure that the workplace and the means of entering and leaving it are safe and without risks to health, so far as reasonably practicable. **OHS Act s26(1)** A builder is typically the person with management or control of a construction site. This duty only applies in relation to matters over which the person has management or control. **OHS Act s26(2)**
19. A **principal contractor** of a construction project costing \$350,000 or more has a duty to ensure a health and safety coordination plan is prepared before construction work commences, and that this plan is monitored, maintained and kept up-to-date during the course of the construction work. Principal contractors also have a duty to put in place signs that are clearly visible from outside the workplace, showing the name and telephone numbers of the principal contractor. **OHS Regulations r332–337**

The **principal contractor** is the owner of the workplace where the construction project is to be carried out, unless the owner has appointed and authorised another person to manage or control the workplace, in which case that person is the principal contractor. **OHS Regulations r5 and r333**

An **employer** is a person who employs one or more other persons under contracts of employment or training. **OHS Act s5(1)**

The principal contractor may be an employer or a self-employed person.

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Note: The duties under Part 5.1 of the OHS Regulations do not apply to the owner of domestic premises where they personally perform construction work at those premises, or where the premises become a workplace due to construction work being performed, and the owner engages another person to manage or control the workplace. OHS Regulations r320(2) and r333(2)

20. **Employees**, while at work, have a duty to take reasonable care for their own health and safety and that of other persons who may be affected by their acts or omissions in the workplace. Employees must also co-operate with their employer in relation to actions taken to comply with the OHS Act or OHS Regulations (for example by following any information, instruction or training provided). OHS Act s25
21. A **person who installs, erects or commissions plant** who knows, or ought reasonably to know, that it 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, so far as reasonably practicable. OHS Act s31

The risk management process

22. This Code outlines a **risk management process** (see diagram 1) to help employers comply with their duties under the OHS Act and OHS Regulations. It involves the following steps:

- **Identifying** fall hazards
- **Assessing**, where necessary, any associated risks (if unsure of appropriate risk controls)
- **Controlling** risks associated with falls
- **Monitoring, reviewing**, and where necessary, **revising** risk controls.

Note: There are certain circumstances where each step of the risk management process needs to occur, see Part 2 of this Code for more information on these duties.

Diagram 1 – The risk management process



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Consultation

23. Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect, or are likely to directly affect them. This duty to consult also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control (see paragraph 13). [OHS Act s35](#)

Note: The characteristics of the workplace will have an impact on the way consultation is undertaken. For example, consider:

- the size and structure of the business
- the nature of the work
- work arrangements (such as shift work)
- characteristics of employees (such as language or literacy).

For more information on consultation go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

24. An employer has a duty to consult with employees (including HSRs) when identifying or assessing hazards or risks to health or safety at the workplace, making decisions about measures to control such risks and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#)
25. It is important to consult with your employees as early as possible at each step of the risk management process, including when planning to:
- introduce new work or change existing work
 - select new plant
 - refurbish, renovate or redesign existing workplaces
 - carry out work in new environments.
26. Employers who are required to consult on a matter must share information about the matter with employees, including relevant contractors and HSRs, give them a reasonable opportunity to express their views, and take those views into account before making a decision. If employees are represented by an HSR, the consultation must involve that HSR (with or without the involvement of the employees directly). If the employer and the employees have agreed to procedures for undertaking consultation, the consultation must be undertaken in accordance with those procedures. [OHS Act s36](#)
27. Employers also need to encourage employees and contractors to report any problems immediately so that risks can be managed before an injury occurs.
28. Employees and contractors may have practical suggestions or potential solutions that can be implemented.
29. For more information on consultation go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

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Information, instruction, training and/or supervision

30. Employers must provide employees with any necessary information, instruction, training or supervision to enable them to perform their work in a way that is safe and without risks to health. **OHS Act s21(2)(e)** This duty also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control. **OHS Act s21(2)(e)**
31. The mix of information, instruction, training and supervision required will depend on the frequency and type of hazards in the workplace, and how much employees already know about the risks and necessary risk control measures.
32. Where employees are exposed to potential falls, including falls from two metres or less, information, instruction and training needs to cover the nature of hazards associated with falls and the need for risk control measures, including how to properly use them. For example, ensuring employees understand how to identify and report hazards associated with falls, how to use risk control measures implemented for their protection and how to follow emergency procedures.
33. Training programs should be practical and 'hands on'. The structure, content and delivery of the training needs to take into account any special requirements of the employees and independent contractors being trained (eg specific skills or experience, disability, language, literacy and age).
34. Employers must provide supervision to employees where such supervision is necessary for safe work. **OHS Act s21(2)(e)** This is particularly important with employees who are more vulnerable in their work areas, such as new, inexperienced or young employees.
35. Supervision is important in dynamic working environments such as construction sites. Employers need to ensure that supervisors take action to enable persons to perform their work in a way that is safe and without risks to health. This should include correcting any unsafe work practices as soon as possible.
36. Where the employees undertaking work are new or inexperienced, such as apprentices or other young workers, it is often necessary to provide additional supervision.
37. When providing information, instruction and training to employees and independent contractors to ensure work is able to be performed in a manner that is safe and without risks to health, it is important to include information about:
 - the nature of the fall hazards
 - the need for and proper use of measures to control risk
 - the selection, use, fit, testing and storage of any personal protective equipment (PPE)
 - the content of any relevant SWMS, health and safety coordination plan and emergency response procedures.
38. Employers need to review their training program regularly and also when there is a change to work processes, plant or equipment; new control measures are implemented; changes are made to relevant legislation; or if any other issues might impact on the way the work is performed. Employers should also keep records of all induction and training given to employees.

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39. Refresher training needs to be provided as appropriate for a particular workplace. The frequency of refresher training should be determined having regard to the frequency with which employees and independent contractors are required to carry out tasks associated with fall hazards.
40. In addition to the employer's general duty to provide employee training, two specific types of training are required in the construction industry – **construction induction training** and **site induction** (site specific training).
41. An employer must ensure that any person employed to do construction work has completed construction induction training before they start work. This includes employees and apprentices working at the site. The construction induction training must be provided by a construction registered training organisation (construction RTO). **OHS Regulations r339** A person's construction induction card lapses if that person has not performed any construction work for any consecutive period of two years. **OHS Regulations r349**
42. An employer must accept any of the following things as evidence that the employee has done construction induction training including:
- a card evidencing completion before 1 July 2008 of the Construction Industry Basic Induction training course (known as a 'red card')
 - a current 'construction induction card' issued by WorkSafe following successful completion of induction training by a construction RTO
 - a construction statement of attainment issued by a construction RTO within the previous 60 day period, or
 - recognised evidence of construction induction training (for example a statement or card issued under similar requirements in another Australian state or territory). **OHS Regulations r343**
43. For more information about construction induction training go to **worksafe.vic.gov.au**.

construction induction training means a unit of competency of general occupational health and safety induction training to the construction industry endorsed or accredited under the Australian Qualifications Framework **OHS Regulations r5**

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Site induction

44. An employer must ensure that any person employed to perform construction work is given OHS training about the particular workplace where the construction work will be performed. **OHS Regulations r330** This site induction needs to be undertaken before the person starts work at the workplace (that is, before starting work on the construction site).
45. The aim of site induction is to make sure employees and contractors are familiar with site specific hazards, risk controls, OHS rules and site procedures. For example, the emergency procedures, arrangements for supervision of the work, who the HSRs are and any specific issues on the site.
46. The detail required in the site induction may vary between construction sites and between phases of a project. The length of time it takes may depend on things such as the size of the site, the number and variety of trades working on the site as well as how much the site is expected to change as work progresses.
47. There should be an opportunity for employees and contractors to ask questions about their responsibilities and have any issues clarified.
48. Where an employer has information about the particular site that would form part of a site induction (eg OHS information, site specific hazards or risk controls), they need to provide that information to persons (such as contractors) performing construction work.
49. For more information about site induction go to **[worksafe.vic.gov.au](https://www.worksafe.vic.gov.au)**.

Part 2 – Overview of the risk management process

50. This Part provides an overview of the risk management process as it applies to the prevention of falls in general construction. It includes information on legal duties that an employer must comply with to prevent falls of more than two metres under Part 3.3 of the OHS Regulations, which are further detailed in Part 3 of this Code.
51. Although Part 3.3 of the OHS Regulations does not apply to risks associated with a fall of two metres or less, the general duties under the OHS Act do apply to these risks (see paragraph 16 and part 5 of this Code). **OHS Act s21** Employers should follow the risk management process to control risks associated with falls from two metres or less, as it may assist in complying with their general duties.

Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. The duty to consult applies when, for example, making decisions about risk control measures and proposing changes that may affect the health or safety of employees at the workplace. **OHS Act s35** See page 8.

Identifying hazards

52. The first step in the risk management process is to identify fall hazards. An employer must, so far as is reasonably practicable, identify any task (including moving to and from a task) that an employee is required to undertake at a workplace that involves a fall hazard of more than two metres including:
- on any plant or structure being constructed, demolished, inspected, tested, maintained, repaired or cleaned
 - on a fragile surface (eg cement sheeting roofs, rusty metal roofs, fibreglass sheeting roofs and skylights)
 - on a slippery or potentially unstable surface (for example areas where there is potential for ground collapse, including poorly backfilled or compacted ground, or unstable areas such as on top of stacks of building materials, timber pallets or bricks)
 - using equipment to gain access to an elevated level or to undertake the task at an elevated level (eg scaffolds, elevating work platforms or portable ladders)
 - on a sloping surface on which it is difficult to maintain balance (for example on glazed tiles or wet steel roof sheets)
 - in close proximity to an unprotected edge (for example near perimeters without guardrails or incomplete stairwells), or
 - in close proximity to a hole, trench, shaft or pit that is of sufficient dimensions to allow a person to fall into the hole, trench, shaft or pit. **OHS Regulations r5 and r43**

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53. The general duties under the OHS Act apply where there is a risk to health or safety associated with a fall of two metres or less (see paragraph 16 and Part 5 of this Code). OHS Act s21 Employers should follow the risk management process to control those risks, for example by identifying hazards, as it may assist in complying with their general duties.

Assessing the risks

54. A formal risk assessment is unnecessary if knowledge and understanding about the risk, and how to control it already exist. However, if employers are unsure how to control a risk associated with a fall, a risk assessment can help.
55. If similar tasks or processes are undertaken in a number of different work areas or workplaces, a single risk assessment may be sufficient. However, a single or generic risk assessment will only be appropriate if the hazards and risks for the work areas being covered by the assessment are the same or similar. If a standardised risk assessment template is used, the person completing the risk assessment needs to ensure that the generic assessment is valid for their workplace.
56. If a task involving a fall hazard has been identified, the risk of a fall can be assessed by determining:
- the likelihood of a fall occurring
 - the potential distance a person could fall, and
 - the extent of harm that a person could receive in the event of a fall.
57. The ultimate effectiveness of any risk assessment is dependent on the quality of the information available. Therefore, people carrying out risk assessments need to have the necessary information, knowledge and experience in the work environment and work processes.
58. In carrying out a risk assessment, it is helpful to break down each activity or process into a series of parts or smaller tasks and assess each one separately.
59. Ways to assess the risk arising from each identified hazard include:
- looking at similar workplaces or processes
 - looking at the workplace's previous incident and injury reports and data for falls
 - consulting with HSRs (if any) and other employees
 - looking at the way tasks or jobs are performed
 - looking at the way work is organised
 - determining the size and layout of the workplace
 - assessing the number and movement of all people at the workplace
 - determining the type of operation to be performed
 - identifying the type of machinery or plant to be used
 - assessing the adequacy of inspection and maintenance processes
 - examining the way all material and substances are stored and handled
 - assessing what knowledge and training is needed to perform tasks safely and the adequacy of current knowledge and training
 - examining the adequacy of procedures for all potential emergency situations (for example incidents and rescues).

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60. If the hazards identified relate to HRCW (for example there is a risk of a person falling more than two metres), an employer or self-employed person must ensure that a SWMS has been completed. **OHS Regulations r327(1)** The requirement to complete and comply with a SWMS for any HRCW applies regardless of whether a formal risk assessment is undertaken. For more information on HRCW and SWMS, see paragraphs 96–104.

61. For more information on how to conduct a risk assessment go to worksafe.vic.gov.au.

Controlling the risks

62. An employer must, so far as is reasonably practicable, eliminate any risk associated with a fall of more than two metres at the workplace. For example, the risk is eliminated by working on the ground or a solid construction. If it is not reasonably practicable to eliminate a risk associated with a fall of more than two metres, an employer must work their way down the hierarchy of control until the risk is reduced so far as is reasonably practicable. **OHS Regulations r44**

63. Employers must consult with their employees (including any HSRs and independent contractors) when making decisions about how to control risks. **OHS Act s35** Consulting with employees is likely to result in better risk control measures because it gives them the opportunity to contribute ideas, participate in trials for new risk control measures, and is likely to improve the uptake of risk control measures when they are implemented.

64. The general duties under the OHS Act apply where there is a risk to health or safety associated with a fall of two metres or less (see paragraph 16 and part 5 of this Code). **OHS Act s21** Employers should follow the risk management process to control those risks, as it may assist in complying with their general duties.

The hierarchy of control

65. When investigating risk control options, employers need to consider relevant information about the nature of the work to be performed and how this may create a risk to health or safety. The hierarchy of control in Part 3.3 of the OHS Regulations must be followed when controlling risks associated with a fall of more than two metres. **OHS Regulations r44** The hierarchy of control is the following:

- Level 1 control: work on the ground or a solid construction.
- Level 2 control: use a passive fall prevention device.
- Level 3 control: use a work positioning system.
- Level 4 control: use a fall arrest system.
- Level 5 control: use a fixed or portable ladder (in accordance with regulation 45 of the OHS Regulations) or administrative controls. **OHS Regulations r44(2)–(5)**

66. Under this hierarchy of control, employers must consider and apply the highest level of control (starting from level 1), so far as is reasonably practicable, before considering the level below it. The hierarchy of control for the prevention of falls of more than two metres is set out in table 1.

67. Often it will be necessary to use a combination of risk control measures to effectively control a risk associated with a fall from any height.

Part 2 – Overview of the risk management process

Note: In accordance with section 20(1) of the OHS Act, employers have a requirement to eliminate risks to health or safety so far as is reasonably practicable, including risks of falls from two metres or less. If it is not reasonably practicable to eliminate a risk to health or safety, employers are required to reduce that risk so far as is reasonably practicable. See paragraph 16 and Part 5 of this Code for more information.

Table 1 – Hierarchy of control

	Example
Level 1: Eliminate the risk	<ul style="list-style-type: none">▪ prefabricating roofs at ground level▪ prefabricating wall frames horizontally, then standing them up▪ using precast or tilt-up concrete construction instead of concrete walls constructed in situ.
Level 2: Use a passive fall prevention device	<ul style="list-style-type: none">▪ scaffolds▪ perimeter screens▪ perimeter guardrailing▪ guardrailing edges of roofs▪ safety mesh▪ elevating work platforms▪ mast climbing work platforms▪ work boxes▪ step platforms <p>Excavation fall protection</p> <ul style="list-style-type: none">▪ extended trench shields for trenching works▪ secure covers over trenches or backfilling of trenches.
Level 3: Use a work positioning system	<ul style="list-style-type: none">▪ travel restraint systems▪ industrial rope access systems.
Level 4: Use a fall arrest system	<ul style="list-style-type: none">▪ catch platforms▪ safety harness systems (other than travel restraint systems).
Level 5: Use a fixed or portable ladder, or implement administrative controls	<ul style="list-style-type: none">▪ installing electrical wiring or fixing light fittings from a portable ladder.

Note: In addition to the above hierarchy of control for the prevention of falls, the OHS Regulations include specific hierarchies of control for other particular hazard types including construction work, hazardous substances, hazardous manual handling, confined spaces, plant, noise, asbestos and lead. For information about applying the specific hierarchies for these hazards go to worksafe.vic.gov.au.

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68. After considering all higher level controls, if no reasonably practicable control measure has been identified, a level 5 control may be used.
69. Administrative controls are the least effective in controlling risks because they rely on human behaviour and supervision. They must only be used as the sole measure for reducing risk when higher order controls are not reasonably practicable.
70. When higher order controls are in place, administrative controls should be used to supplement those controls. For example, work procedures may be used to ensure the safe use of temporary work platforms, fall arrest systems and ladders.

Personal protective equipment

71. Using personal protective equipment (PPE) such as safety footwear, gloves and occupational protective helmets (hard-hats) is not a risk control measure for fall prevention.
72. PPE does not include safety harness systems. For information on the use of safety harnesses to reduce risks associated with falls see paragraphs 190 to 196 of this Code.

Operator skill

73. In general, the hierarchy of control ranks solutions requiring minimal operator skill at a higher (and therefore preferable) level than solutions requiring substantial or complex operator skill.
74. This principle needs to be applied when deciding between two otherwise equal solutions from the same hierarchy level. For example, providing all other factors are equal, a perimeter guardrail – which requires no ongoing skill from the person it protects – should be chosen in preference to an elevating work platform.

Maintaining risk controls

75. Employers have a duty to ensure that risk control measures are properly installed (if applicable), used and maintained.
OHS Regulations r18
76. The purpose of maintaining risk controls is to ensure that they are working as originally intended and continue to prevent or adequately control risks associated with falls. Maintenance of control measures should include:
 - monitoring activities and work practices
 - frequent inspections of physical controls such as guardrails, scaffolding and covers over trenches
 - visual checks to ensure risk controls that rely on human behaviour are being properly applied by employees
 - testing of equipment and PPE
 - preventative maintenance of engineering controls and PPE
 - any necessary remedial work to ensure physical controls continue to work effectively.
77. Employers need to have a maintenance procedure in place to ensure that any defects in risk controls are detected as early as possible.

Part 2 – Overview of the risk management process

Review and revision of risk controls

78. An employer must review any measures implemented to control risks associated with falls from more than two metres and revise them if necessary in the following circumstances:
- Before any alteration is made to plant or systems of work that is likely to result in a fall.
 - After any incident occurs to which Part 5 of the OHS Act applies that involves a fall or a risk associated with a fall.
 - If, for any other reason, the risk control measures do not adequately control the risks.
 - After receiving a request from an HSR. [OHS Regulations r48\(1\)](#)

Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. The duty to consult applies when, for example, making decisions about risk control measures and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#) See page 8.

79. An HSR may request a review of risk controls if they believe, on reasonable grounds, that:
- any of the circumstances listed in subparagraphs 78(a) to (c) exist
 - the employer has failed to properly review the risk controls, or
 - in conducting a review of, or revising, the risk controls, the employer has failed to take into account any of the circumstances listed above (for example the HSR believes that during the review of control measures the employer has failed to consider a change to a system of work that may increase risk). [OHS Regulations r48\(2\)](#)
80. The general duties under the OHS Act apply where there is a risk to health or safety associated with a fall of two metres or less (see paragraph 16 and Part 5 of this Code). [OHS Act s21](#) Employers should follow the risk management process to control those risks, for example by reviewing and revising risk controls, as it may assist in complying with their general duties.

Part 2 – Overview of the risk management process

Consider whether fall protection measures introduce new risks

81. When selecting the most practical control measure, any non-fall risks associated with those measures need to be considered. Non-fall hazards could include electrical hazards such as contact with overhead and temporary electrical cabling or crushing and entanglement from plant such as elevating work platforms.
82. An employer must reduce, as far as is reasonably practicable, any risks associated with the installation, erection or removal of plant, including equipment, intended to control a risk associated with a fall from more than two metres. **OHS Act s5 and OHS Regulations r47(2)** Employees (for example scaffolders and guardrail installers) who install, erect or remove a fall protection measure should not be exposed to a greater risk than the measure is designed to control, even if it is highly effective once in place.
83. If plant, including equipment, is used to control a risk, it must be designed and constructed:
 - for the task(s) to be undertaken, and
 - in such a way as to enable its safe use in the physical surroundings in which it is to be used and the conditions during which it is to be used. **OHS Regulations r47(1)**
84. When using plant to control risks associated with falls, an employer should consider whether:
 - the plant is designed to enable safe access and egress to both the plant and the work area (for example access onto a roof)
 - the fall risks for employees erecting or installing the plant have been identified and controlled
 - the plant is designed for all the intended loads, including temporary placement of materials
 - the foundations of the plant have been assessed to take the imposed loads
 - any after-market alterations have been undertaken by a suitably qualified person
 - during installation, use or dismantling, it is possible for employees or plant to come into contact with powerlines (for example when landing roof trusses onto the house frame by crane) or with underground services in the case of working in the vicinity of excavations
 - sufficient information, instruction, training and supervision has been provided to employees who may operate or alter plant so that they do not put themselves or others at risk.
85. Employers need to ensure that any after-market alterations to plant have been undertaken by a suitably qualified person. If the employer or any other person modifies the design of the plant or any component of the plant they may take on additional duties under the OHS Act (for example designer duties).
86. For more information on plant see the *Plant compliance code*.

Part 2 – Overview of the risk management process

Establish emergency procedures

87. Unless risks associated with a fall of more than two metres have been eliminated by arranging for work to be done on the ground or from solid construction, an employer must ensure that emergency procedures are established in accordance with the OHS Regulations. [OHS Regulations r49\(1\)](#)
88. The employer must ensure that the emergency procedures:
 - so far as is reasonably practicable, enable:
 - the rescue of an employee in the event of a fall, and
 - the provision of first aid to an employee who has fallen, and
 - can be carried out immediately after a fall. [OHS Regulations r49\(2\)](#)
89. The employer must ensure that any risk associated with carrying out the emergency procedures is, so far as is reasonably practicable, eliminated. 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 risks associated with falls, electric shock, crushing and musculoskeletal disorder. [OHS Regulations r49\(3\)](#)
90. The employer must ensure that the emergency procedures are carried out immediately after the fall. [OHS Regulations r49\(4\)](#)
91. When developing these procedures an employer needs to consider the different types of emergency and rescue scenarios that might arise. Information from the risk assessment will aid an employer in this task.
92. To ensure that the emergency procedures enable the provision of first aid, the procedures should:
 - specify whether trained first aiders are required, and if so, the number needed, the competencies required, and the first aid equipment necessary
 - identify the nearest hospital and medical treatment rooms
 - establish means of contacting the emergency services promptly.
93. If the job is to be carried out in a remote location outside the mobile telephone network and other means of communication are not available, alternative procedures that do not rely on the rapid attendance of emergency services need to be developed.
94. An employer needs to make sure that all employees likely to be involved in performing emergency procedures know what to do in the event of a fall from height, for example by rehearsing the emergency procedures.

Part 3 – Working at heights above two metres

95. Depending on the circumstances, serious injury or death can result from a fall from any height. However, the likelihood of serious injury or death increases with the height from which a person falls. This Part provides guidance to help employers comply with their legal obligations for construction work at heights exceeding two metres.

Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. The duty to consult applies when, for example, making decisions about risk control measures and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#) See page 8.

Safe work method statements

96. An employer or self-employed person must not perform high risk construction work if there is a risk to the health or safety of any person arising from the work unless:
- a SWMS has been prepared before the work commences, and
 - the work is performed in accordance with that statement. [OHS Regulations r327\(1\)](#)
97. If there is non-compliance with a SWMS when work is being performed, an employer or self-employed person must:
- stop the work immediately or as soon as it is safe to do so, and
 - not resume the work until the SWMS is complied with or reviewed and, if necessary, revised. [OHS Regulations r327\(2\)](#)
98. An employer or self-employed person performing high risk construction work for which a SWMS is required must review and, if necessary, revise the SWMS:
- whenever the high risk construction work changes, or
 - if there is an indication that risk control measures are not controlling the risks adequately, including after any incident that occurs during high risk construction work. [OHS Regulations r328](#)
99. HRCW includes construction work where there is a risk of a person falling more than two metres. [OHS Regulations r322\(a\)](#)
100. A SWMS is a document that:
- identifies work that is high risk construction work
 - states the hazards and risks to health or safety of that work
 - sufficiently describes measures to control those risks
 - describes the manner in which the risk-control measures are to be implemented, and
 - is set out and expressed in a way that is readily accessible and comprehensible to the persons who use it. [OHS Regulations r324](#)

Part 3 – Working at heights above two metres

101. A SWMS should be developed after, or in conjunction with, a risk assessment and needs to describe all risk control measures that are being used in relation to the high risk construction work. For example if a passive fall prevention device is being implemented in combination with administrative controls, each of those level 2 and level 5 risk controls need to be described in the SWMS.
102. Describing the control measures and how they will be implemented needs to include providing, where applicable, a description of any plant, including equipment, used in the work, the qualifications of the people doing the work and the training required to do the work safely.
103. A SWMS may be recorded on a standardised template. However, if a template is used the employer remains responsible for ensuring the completed SWMS meets the requirements in paragraph 100.
104. For more information on SWMS go to worksafe.vic.gov.au.
107. A current and valid equivalent licence issued by a corresponding Authority in other Australian jurisdictions, being used in accordance with the terms and conditions under which it was granted, will also be valid in Victoria. [OHS Regulations r131](#)
108. An employer has a duty to ensure that any employee who performs high risk work holds an appropriate high risk work licence in relation to that work. [OHS Regulations r129](#)
109. For more information about licensing, including how to apply for a high risk work licence and exceptions that apply, go to worksafe.vic.gov.au.

corresponding Authority means a Government department or a statutory authority of the Commonwealth Government, or of the Government of another State or of a Territory, that is responsible for administering law corresponding to the OHS Act, the *Dangerous Goods Act 1985* or the *Equipment (Public Safety) Act 1994*. For example, SafeWork NSW.

High risk work licences

105. A person must not do any high risk work unless they hold an appropriate high risk work licence in relation to the work. [OHS Regulations r128](#)
106. The classes of high risk work licences are listed in Schedule 3 of the OHS Regulations and include licences for scaffolding, dogging, rigging and boom-type elevating work platforms that have a boom length of 11 metres or more. [OHS Regulations r5, r128–130 and Schedule 3](#)

Hierarchy of control

110. The following hierarchy of control is set out in the order that employers must consider and apply, so far as is reasonably practicable, to eliminate or reduce risks associated with falls from above two metres, as described in paragraphs 65–70.

Part 3 – Working at heights above two metres

Level 1 controls: Eliminate the risk

111. An employer must, so far as is reasonably practicable, eliminate any risk associated with a fall from above two metres at the workplace. [OHS Regulations r44\(1\)](#)

Work on the ground

112. Eliminating work at height is the most effective way of protecting employees from a risk associated with a fall at a workplace.

113. Duty holders need to consider how work can be done at ground level to eliminate the need for work at height. Examples of elimination include:
- prefabricating roofs at ground level
 - prefabricating wall frames horizontally, then standing them up
 - using precast or tilt-up concrete construction instead of concrete walls constructed in situ
 - using paint rollers with extendable handles
 - using remote release clutches for crane-lifted loads positioned at height.

Work on a solid construction

114. Careful and ongoing assessment of the physical location needs to be undertaken to eliminate areas in which employees could fall. Many areas of a construction site can be turned into a solid construction area.

solid construction means an area that has:

- a surface that is structurally capable of supporting persons, material and any other loads applied to it
- barriers around its perimeter, and any open penetrations, to prevent a fall from the area
- an even and readily negotiable surface and gradient
- a safe means of entry and exit.
[OHS Regulations r5](#)

115. Ladders, trestle scaffolding or similar, should not be used on a solid construction unless additional control measures are in place to control the risk of persons falling over guardrailing, in accordance with the hierarchy of control.
116. An area will meet the definition of a 'solid construction' if it satisfies all of the following elements:

(a) Structural strength

The surface (and its supports) must be structurally capable of supporting persons, material and any other loads applied to it. [OHS Regulations r5](#) Different types of work involve different loads on the supporting surface. If the duty holder is unsure of the structural strength of the surface, a structural engineer needs to determine the safe load capacity before use.

Where props are used to support suspended floors, formwork or similar areas, the props need to meet the following:

- proprietary brand props are marked with their safe working load
- timber props are designed for the loads imposed
- the props are secured top and bottom, and
- the props are tied to each other in the longitudinal and transverse directions to form a stable, free-standing structure.

Part 3 – Working at heights above two metres

(b) Surface and gradient

The area must have an even and readily negotiable surface and gradient. **OHS Regulations r5** Surfaces need to be non-slip and free from trip hazards and penetrations. Smooth surface working areas should not be steeper than 7 degrees (1 in 8 gradient). Cleated or grated surfaces, which provide greater slip resistance, should not be steeper than 23 degrees (approximately 1 in 2.4 gradient).

(c) Edge protection

The solid construction must have barriers around its perimeter to prevent a fall from the area. **OHS Regulations r5** Perimeter protection needs to be provided for all exposed edges, including:

- the perimeters of buildings or other structures
- the perimeters of skylights or other fragile roof materials.

(d) Void protection

The solid construction must have barriers around any open penetrations to prevent a fall from the area. **OHS Regulations r5** For example, open penetrations such as stair voids and service penetrations need to be covered or provided with barriers, such as guardrailing (see figure 1). Where there is a risk that employees performing tasks from work platforms or ladders may fall over the guardrailing, voids need to be covered. Coverings need to be secured in place to prevent dislodgement and be designed to withstand any loads that may be applied (for example during construction work or in the event of a fall). Fall protection may be provided using embedded wire mesh as shown in figure 3. Holes or openings protected with embedded wire mesh should not be used as a work platform.

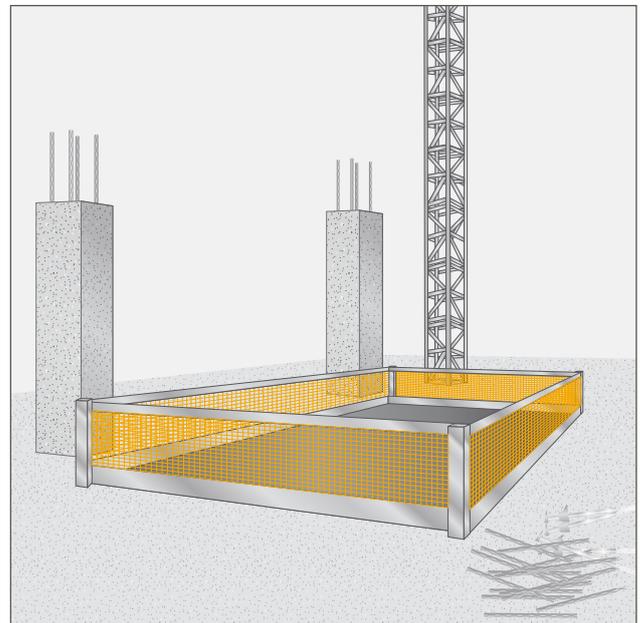


Figure 1 Open void through slab protected by guardrails.

Part 3 – Working at heights above two metres

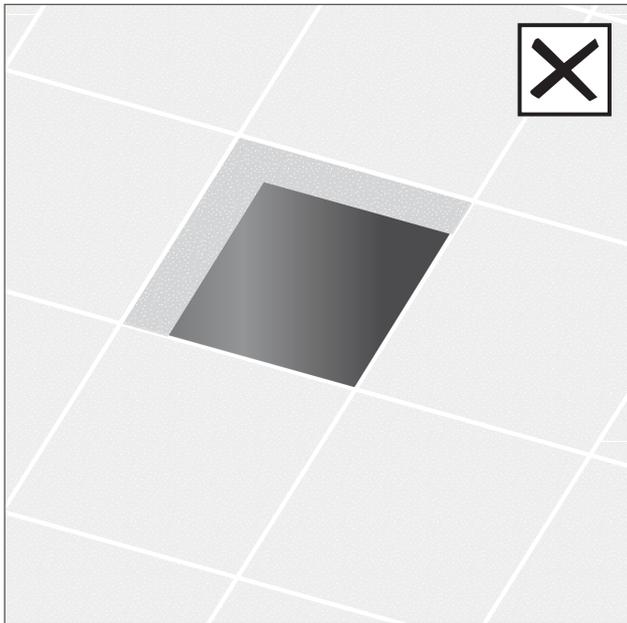


Figure 2 Unprotected holes are a severe hazard and need to be covered.

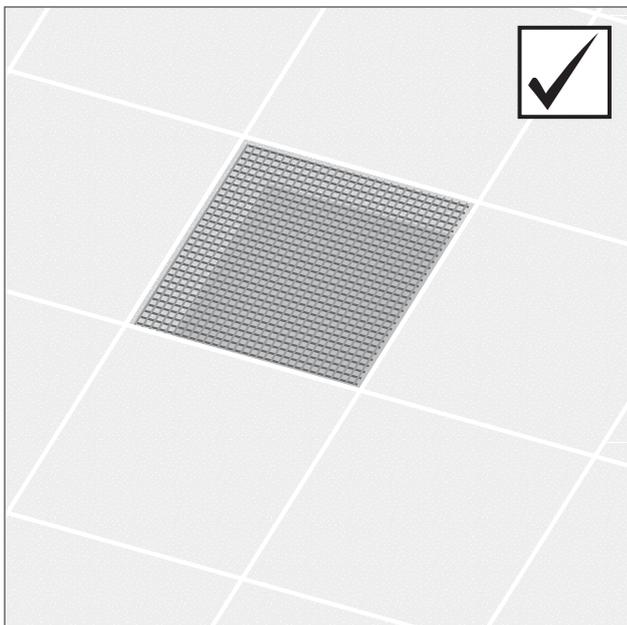


Figure 3 4mm mesh embedded in the concrete floor. The hole also needs to be covered to prevent objects falling through.

(e) Access and egress

The area must have a safe means of entry and exit. OHS Regulations r5 Common means of entry and exit include:

- existing floor levels
- permanently installed platforms, ramps, stairways and fixed ladders, that comply with AS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*
- temporary access ways and temporary stair systems
- secured single portable ladders set up at a slope of between 4:1 and 6:1, and extending at least 1m above the stepping-off point.

117. Ladder and stairway landings need to have the same level of edge protection adjacent to their open sides and ends as a solid construction.
118. Step ladders and trestle ladders should not be used for entry to or exit from a solid construction.

Part 3 – Working at heights above two metres

Level 2 controls: Passive fall prevention devices

119. A 'passive fall prevention device' is material or equipment, or a combination of material and equipment, that is designed for the purpose of preventing a fall and that, after initial installation, does not require any ongoing adjustment, alteration or operation by any person to ensure the integrity of the device to perform its function. [OHS Regulations r5](#) Examples include temporary work platforms, perimeter screens, guardrails, roof safety mesh and covers over trenches.
120. If it is not reasonably practicable to eliminate a risk associated with a fall of more than two metres, employers must reduce the risk, so far as is reasonably practicable, by using a passive fall prevention device. [OHS Regulations r44\(2\)](#)

Temporary work platforms

121. A 'temporary work platform' is:
- a fixed, mobile or suspended scaffold
 - an elevating work platform
 - a mast climbing work platform
 - a work box supported and suspended by a crane, hoist, forklift truck or other form of mechanical plant
 - building maintenance equipment, including a building maintenance unit
 - a portable or mobile fabricated platform, or
 - any other temporary platform that provides a working area for the duration of work performed at height and is designed to prevent a fall. [OHS Regulations r5](#)

Scaffolds

122. Scaffolds are a common means of providing a safe work platform for working at height. There is a wide variety of scaffolding systems available (see figures 4 and 5).



Figure 4 Perimeter scaffold with a fully decked working platform, guardrails and toeboard.



Figure 5 Mobile scaffold with an access ladder and a trapdoor to provide the largest possible hazard-free working platform.

Part 3 – Working at heights above two metres

123. Scaffold working platforms are generally rated as light, medium or heavy duty:
- Light duty – up to 225kg per bay. This is suitable for plastering, painting, electrical work and other light tasks. Platforms need to be at least two planks wide.
 - Medium duty – up to 450kg per bay. This is suitable for general trades work. Platforms need to be at least four planks wide.
 - Heavy duty – up to 675kg per bay. This is suitable for bricklaying, concreting, demolition work and other tasks involving heavy loads or heavy impact forces. Platforms need to be at least five planks wide.
 - Special duty – has a designated allowable load as designed, not less than 1 kpa.
124. These safe load limits include the weight of people (which is taken to be a nominal 100kg per person) plus the weight of any materials, tools and debris on the working platform. Therefore, a properly constructed mobile scaffold with a light duty platform can safely support one employee and 125kg of tools and materials, or two employees and 25kg of tools and materials.
125. All scaffolding needs to be erected, altered and dismantled by competent people. High risk work licence requirements apply to the erection, alteration and dismantling of any scaffold from which a person or object could fall more than four metres from the scaffold. [OHS Regulations Schedule 3](#) For more information on high risk work licence requirements, see paragraphs 105–109.
126. For more information on safety considerations when using scaffolding, see **Appendix H – Scaffolding (safety considerations)**. For more information on plant, including scaffolds, see the *Plant compliance code*.

Information, instruction and training for employees using scaffolds

127. Where work is performed from a scaffold, employers need to ensure that employees understand:
- what loads the scaffold can safely take (such as how many bricks per bay)
 - not to make any unauthorised alterations to the scaffold (such as removing guardrails, planks, ties, toeboards and braces)
 - that working platforms need to be kept clear of debris and access obstructions along their length
 - that incomplete or defective scaffolds should never be accessed except for rectification works.
128. Where work is performed using mobile scaffolds, employees need to understand that the scaffold:
- needs to remain level and plumb at all times
 - be kept well clear of powerlines, open floor edges and penetrations
 - never be accessed until the castors are locked to prevent movement
 - never be moved while anyone is on it
 - never be accessed from the outside – use internal ladders only.

Trestle scaffolds

129. Trestle scaffolds used at heights greater than two metres need to incorporate guardrailing and toeboards to prevent people and materials falling from the open side or end of the working platform.
130. The system, including planks, needs to be assembled according to the manufacturers' specifications.

Part 3 – Working at heights above two metres

131. Some trestle ladder scaffolds include outriggers to increase stability (see figure 6). Trestle ladder scaffolds are only suited to light duty tasks, such as painting and rendering.

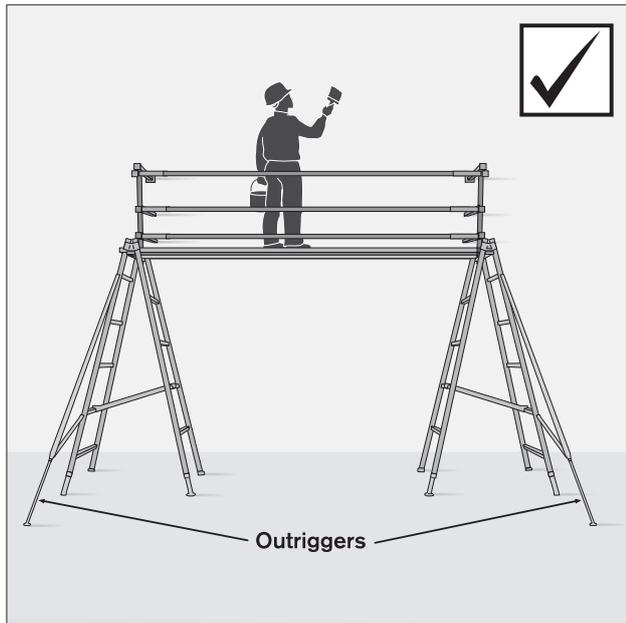


Figure 6 A correctly set up trestle ladder scaffold showing guardrailing and outriggers (toeboard not shown).

132. When adjusting the height of a trestle scaffold, only the purpose-designed pins should be used. Nails or pieces of reinforcing bar should not be used.
133. Work should only be performed between the trestles. The maximum spacing of trestles should not exceed the maximum recommended span of the scaffold planks. Scaffold planks manufactured in accordance with AS 1577 *Scaffold planks* have this information marked on them. Where this information is not known, refer to table 2.

Table 2 – Maximum span of solid timber scaffold planks complying with AS 1577

Nominal thickness of plank (mm)	Maximum span (m)
38	1.5
50	2.0
63	2.5

Perimeter screens

134. Perimeter screens that are purpose-designed for a building provide a high level of protection in preventing persons and any debris, tools or building material from falling from the building (see figure 7).

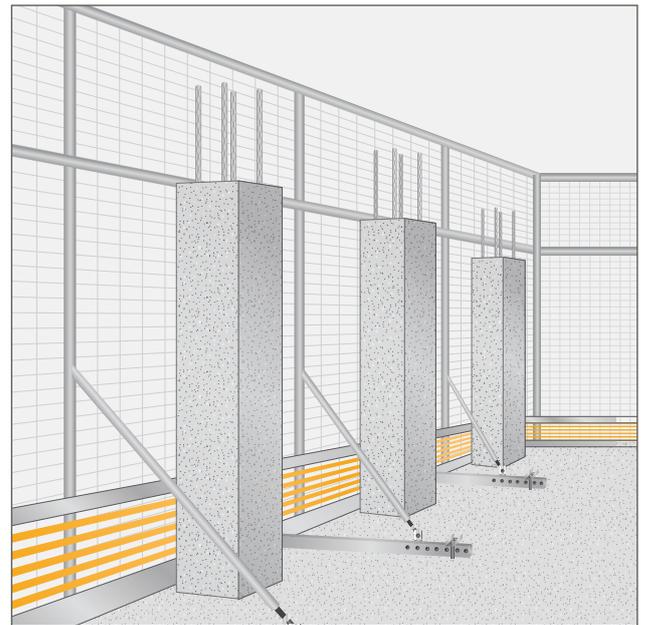


Figure 7 An example of a perimeter screen secured by props.

135. Some screens incorporate prefabricated formwork to enable the casting of perimeter edge beams or stop ends for the edge of the floor. They may also be designed to cover two or more floors, with trailing screens to protect construction employees on lower levels while they are stripping the formwork and installing back propping.

Part 3 – Working at heights above two metres

136. Perimeter screens normally extend one floor above the floor they are supported from. The top of the screen needs to be high enough to provide perimeter protection for the floor that is to be built before anyone has to access this floor or its formwork deck. The framework supporting the screen needs to be able to bear the load of the screen. The mesh needs to be of minimum gauge 2.5mm, and have a maximum mesh opening size of:
- 25mm nominal where no lining is used, or
 - 50mm nominal where lining is used.
137. Perimeter screens need to be designed by an engineer and fitted by licensed riggers in accordance with the design engineer's requirements. Gaps between screens and between the screens and the structure should not exceed 25mm.

Perimeter guardrails

138. Guardrails should be used to provide effective fall prevention at:
- the edges of roofs and roof framing
 - the edges of scaffolds
 - the edges of work platforms, suspended slabs, formwork and falsework, walkways, stairways, ramps and landings
 - the perimeters of buildings and other structures
 - the perimeters of skylights and other fragile roof material
 - openings in floor and roof structures
 - the edges of shafts, pits and other excavations.
139. Before a guardrail system is adopted, the employer needs to ensure it will be adequate for the potential load of a falling person.
140. Proprietary systems need to be configured, installed, used and dismantled by a competent person in accordance with the manufacturers' instructions.

Guardrailing the edges of roofs

141. Guardrailing may be used as fall prevention around the edge of a roof as a proprietary designed system or through incorporation into scaffolding. Figures 8(a–g) show common examples of appropriate roof guardrailing arrangements on scaffolding.
142. Guardrails need to comply with AS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*, AS/NZS 4576 *Guidelines for scaffolding* or AS/NZS 4994 *Temporary edge protection*, which also contains further information on guardrails.
143. Where the slope of the roof exceeds 35 degrees, the roof is an inappropriate surface to stand on. Perimeter guardrails and catch platforms alone are inappropriate measures to protect employees on a steeply sloping roof.
144. In these circumstances, roof employees need to have a system to prevent sliding and to prevent falls from the perimeter, comprising one or more of the following:
- aerial access equipment, such as an elevating work platform
 - a work positioning system, such as a travel restraint or industrial rope access system
 - a scaffold platform, located at the roof edge
 - a roof ladder.
145. Proprietary systems need to be configured, installed, used and dismantled in accordance with the manufacturers' instructions.
146. See **Appendix I – Guardrailing (safety considerations)** for information on further safety considerations when guardrailing the edges of roofs.

Part 3 – Working at heights above two metres

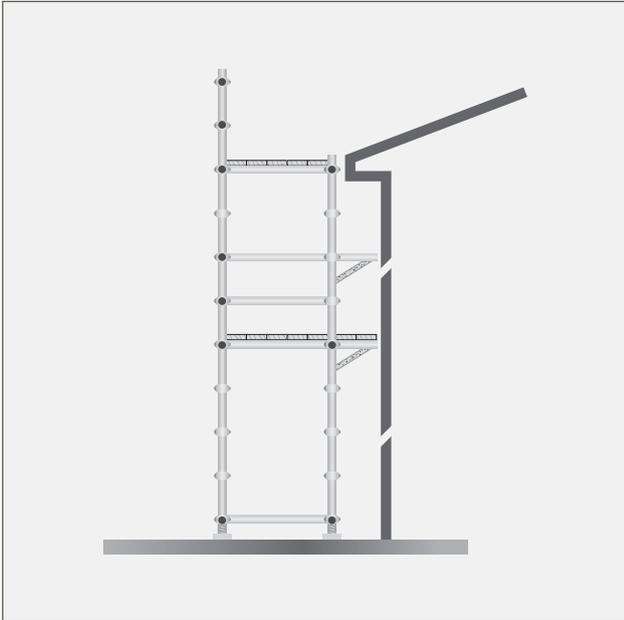


Figure 8(a) Scaffold platform at edge of roof with hop-up bracket for other trades.

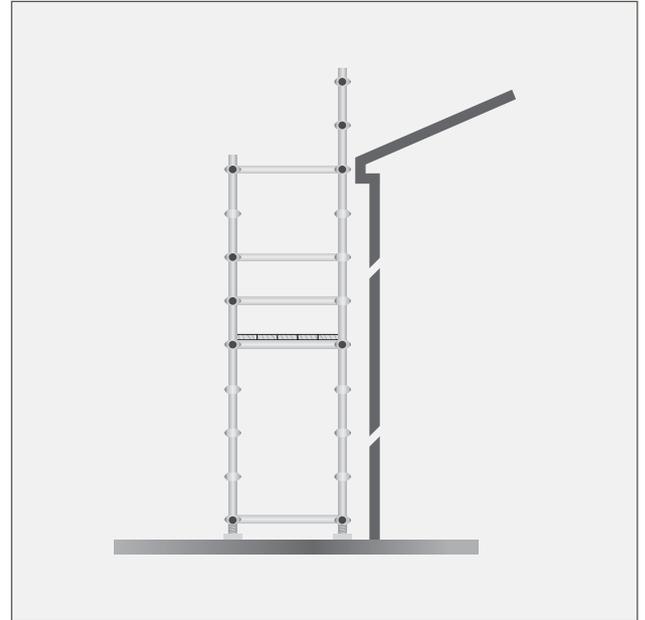


Figure 8(b) Inside standards supporting guardrails.

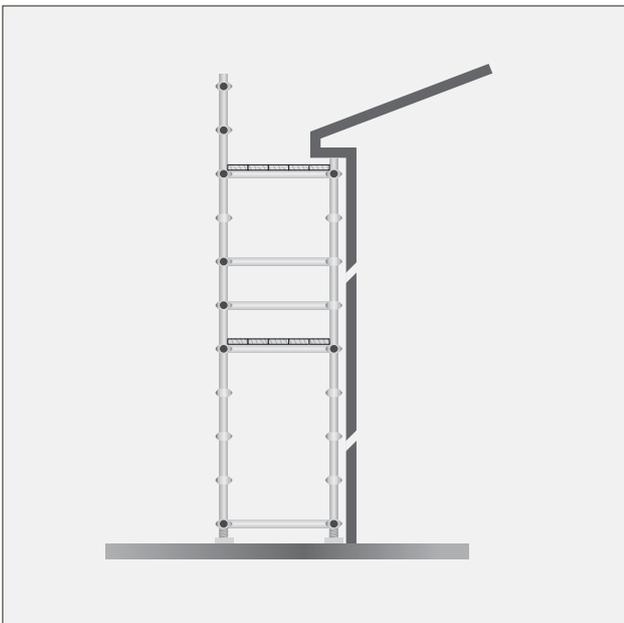


Figure 8(c) Scaffold platform below edge of roof.

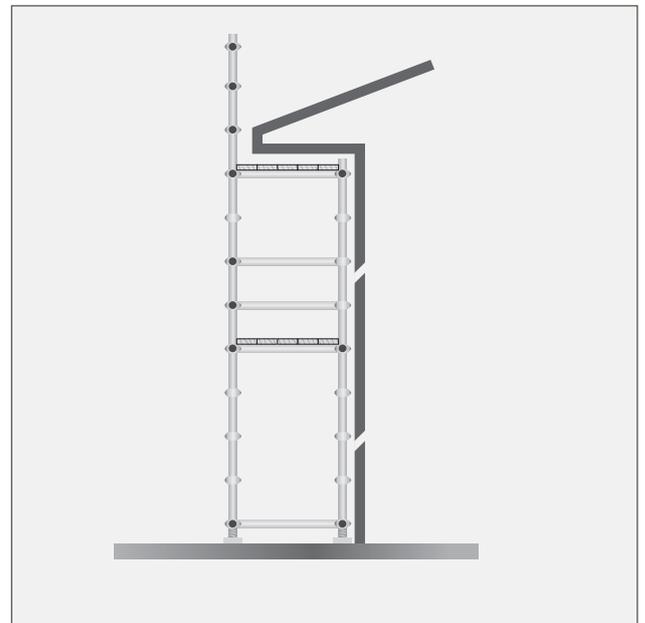


Figure 8(d) Outside standards supporting guardrailing.

Part 3 – Working at heights above two metres

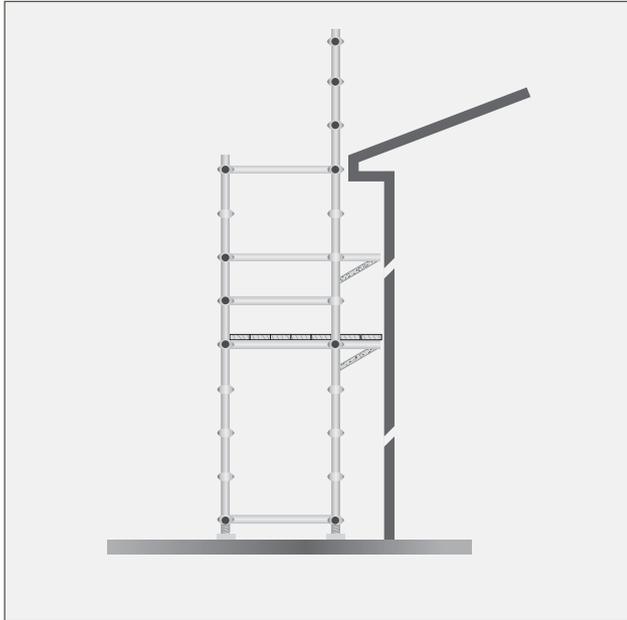


Figure 8(e) Inside standards supporting guardrail with hop-up bracket for other trades.

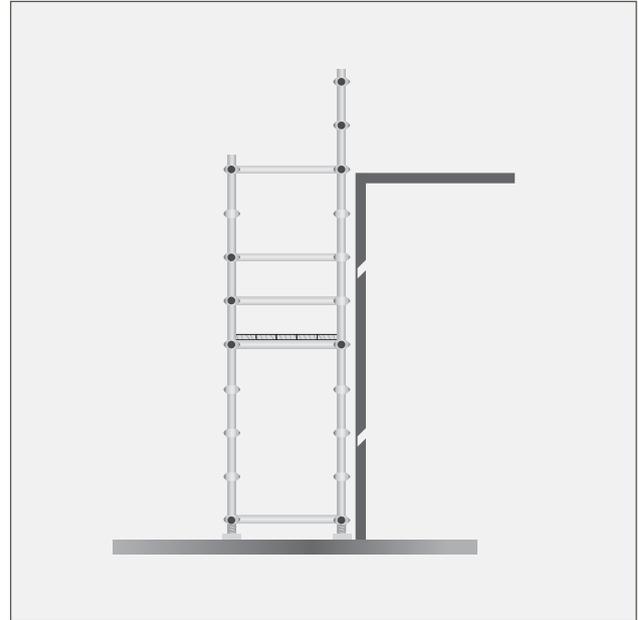


Figure 8(f) Inside standards supporting guardrail adjacent to a flat roof structure.

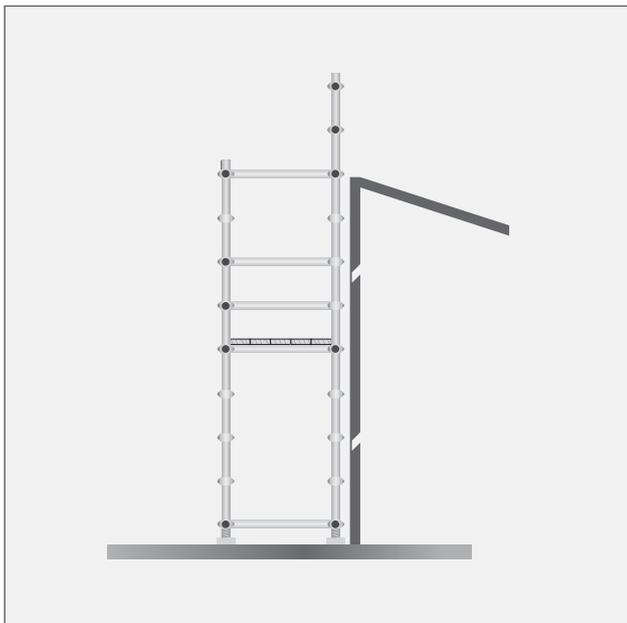


Figure 8(g) Inside standards supporting guardrail adjacent to a roof structure that slopes away from the top edge.

Barriers to restrict access

147. Barriers need to be used to cordon off elevated areas including roofs and balconies where edge protection is not provided and access is not permitted. The barriers need to be secure and restrict access to authorised people only. Signage needs to be erected that warns against entry to those areas. Suitable barriers may include locking the door to a balcony and controlling the possession of the key.
148. Where possible, barriers need to be placed at least two metres inside any unprotected edge or opening. They can include steel mesh panels, metal posts and rails and metal posts with timber rail assemblies. They need to be highly visible and securely fixed to prevent displacement.

Part 3 – Working at heights above two metres

Safety mesh

149. Safety mesh is designed to prevent falls through a roof, which is one of the most common fall problems in the construction industry. If securely fixed, safety mesh provides fall protection for roof installers and offers long-term protection against falling for maintenance and repair employees.
150. Where new or existing safety mesh is to be used to control the risk of employees falling, the integrity of the mesh and its fixings needs to also be verified by a competent person prior to use.
151. Safety mesh does not control the risk of falling from the perimeter or through penetration hazards. Therefore, safety mesh always needs to be used with appropriate edge protection, guardrails or fall arrest systems and devices. Used in conjunction with these control measures, safety mesh is the preferred system for protecting employees from falling when they are laying roof sheets.
152. For more information on the installation of safety mesh see **Appendix E – Installing safety mesh**.

Elevating work platforms

153. Elevating work platforms (EWPs) are available in a wide variety of types and sizes. They include scissor lifts, cherry pickers, boom lifts and travel towers (see figures 9 and 10). There are battery powered and internal combustion engine types. Some are designed for hard and flat surfaces only, while others are designed for operation on rough terrain. Units powered by internal combustion engines are not suitable for use in buildings or areas with poor natural ventilation unless appropriate artificial ventilation is provided.
154. EWPs:
 - need to be used on a solid level surface; the surface area needs to be checked to make sure that there are no penetrations or obstructions that could cause uncontrolled movement or overturning of the platform
 - may be used on other surfaces (when designed as 'rough terrain' units) in accordance with the manufacturers' directions; the surface area needs to be checked for hazards (eg penetrations or obstructions)
 - need to be clearly marked with the safe working load limit.
155. Operators working in travel towers or boom type EWPs need to wear an anchored safety harness that is able to arrest a fall before the user hits the ground. The lanyard needs to be as short as possible and be attached directly to the designated anchor point, not to the handrail.
156. A safety harness system only needs to be used for a scissor-lift EWP if advised by the manufacturer or indicated in the risk assessment. Where a safety harness is used a suitable anchor point needs to be provided.

Part 3 – Working at heights above two metres

157. People operating boom-type EWPs with boom lengths exceeding 11 metres must have an appropriate high risk work licence. OHS Regulations r128, r129 and Schedule 3 For more information on high risk work licences, see paragraphs 105–109.
158. The design of a boom-type EWP must be registered with WorkSafe or a corresponding Authority. OHS Regulations r125, Schedule 2
159. Employees should not exit a raised EWP unless a risk assessment shows that it is the highest risk control method that is reasonably practicable and the conditions set out in AS 2550.10 *Cranes, hoists and winches – Safe use – Mobile elevating work platforms* are met.



Figure 9 An example of a boom-type elevating work platform. The safety harness and lanyard assembly are not shown for purposes of clarity. The lanyard needs to be as short as possible and be attached directly to the designated anchor point, not to the handrail.

Part 3 – Working at heights above two metres



Figure 10 An example of a scissor-lift elevating work platform. As with boom-type platforms, people should not climb onto or off the platform when it is in an elevated position. A safety harness system is not required on this item of plant unless advised by the manufacturer or indicated in the risk assessment and a suitable anchor point is provided.

Mast climbing work platforms

160. Mast climbing work platforms are hoists with a working platform that is used to raise personnel and materials to a temporary working position. They use a drive system mounted on an extendable mast. The mast may need to be tied to a building in accordance with the manufacturers' directions (see figure 11).

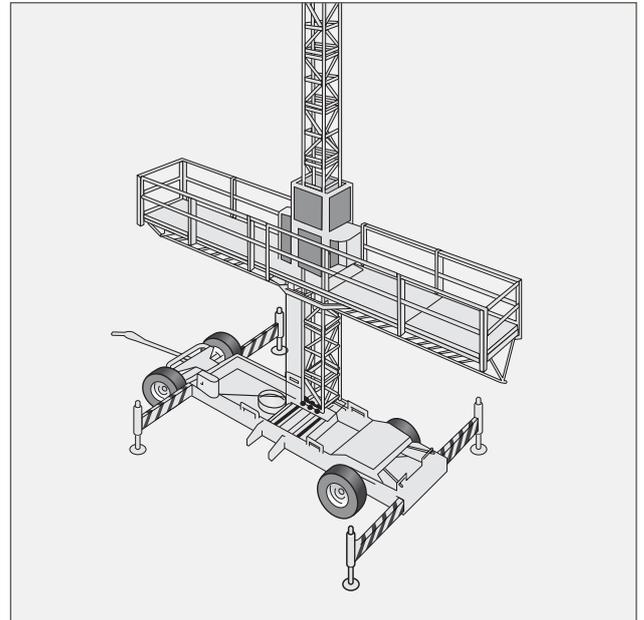


Figure 11 An example of a typical mast climbing platform.

161. Mast climbing work platforms can be set up in either single-mast or multi-mast configurations. They are generally not suitable for use if the profile of a structure changes at different elevations (for example if the upper floors of a building 'step back' or balconies protrude from the building).
162. The erection and dismantling of mast climbing work platforms must be carried out by a person holding a high risk work licence of the appropriate type of rigging or scaffolding licence. **OHS Regulations r128, r129 and Schedule 3** For more information on high risk work licences, see paragraphs 105–109.
163. The design of a mast climbing work platform must be registered with WorkSafe or a corresponding Authority. **OHS Regulations r125 and Schedule 2**

Part 3 – Working at heights above two metres

Work boxes

164. Work boxes are personnel-carrying devices designed to be suspended from a crane for the purpose of providing an elevated working area. They consist of a platform surrounded by an edge protection system, and need to be designed in accordance with AS 1418.17 *Cranes – Design and construction of workboxes* (see figure 12).
165. Other types of temporary work platforms need to be used instead of work boxes where reasonably practicable.
166. The design of a work box intended to be suspended from a crane must be registered with WorkSafe or a corresponding Authority. [OHS Regulations r125, r127 and Schedule 2](#)
167. Cranes used to lift work boxes need to have two independent braking systems so that the failure of any single component will not result in the loss of control of the load.

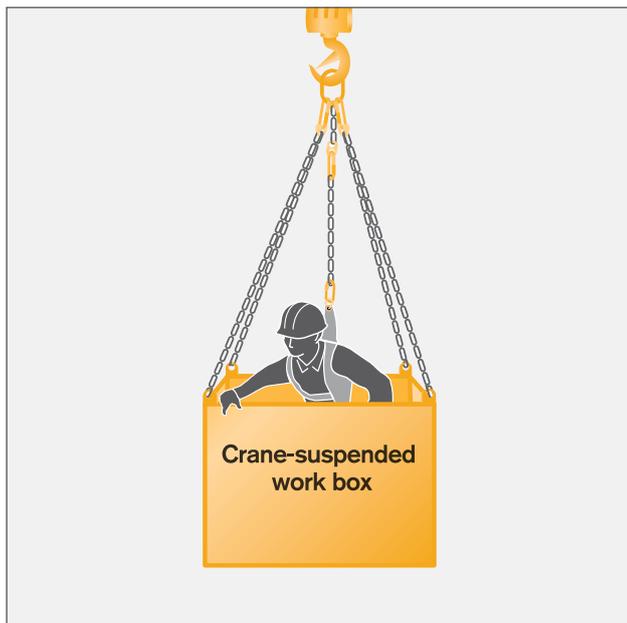


Figure 12 An example of a crane-suspended work box.

Covers over trenches

168. Covers over open trenches may be used to control the risk of a fall. Covers need to be:
 - designed to withstand any loads imposed during construction or in the event of a fall
 - sufficiently robust to withstand rough handling
 - inspected to ensure they have not degraded over time
 - installed in a manner which prevents ready dislodgement by non-authorised persons.
169. For more information on the prevention of falls during trenching and excavation work see Part 4 of this Code.

Level 3 controls: Work positioning systems

170. A work positioning system is:
 - an industrial rope access system
 - a travel restraint system, or
 - any other equipment, other than a temporary work platform, that enables a person to be positioned and safely supported at a work location for the duration of the task being undertaken at height. [OHS Regulations r5](#)
171. If it is not reasonably practicable to reduce a risk associated with a fall by using higher level control measures of the types described in pages 22–34 (level 1 and 2 controls), the employer must reduce the risk so far as is reasonably practicable by using a work positioning system. [OHS Regulations r44\(3\)](#)
172. Work positioning systems require a higher level of operator competency and supervision than higher order controls (see table 1).

Part 3 – Working at heights above two metres

Industrial rope access systems

173. An industrial rope access system is a system designed for the purpose of performing work on a building or structure by a person and consists of:
- equipment that enables the person to manually raise or lower themselves in a harness or seat supported by one or more fibre ropes, and
 - equipment used to anchor the ropes.
OHS Regulations r5
174. Industrial rope access systems are used for gaining access to and working at elevated work areas, usually by means of vertically suspended ropes. Although fall arrest components are used in the industrial rope access system, the main purpose of the system is to gain access to a work area rather than to provide backup fall protection.
175. Other methods of accessing such work areas (eg elevating work platforms or building maintenance units) also need to be considered before implementing rope access systems, as a high level of skill is essential for safe use.
176. Users, including supervisors, need to undertake a competency-based course of training such as those approved by the Australian Rope Access Association (ARAA).

Travel restraint systems

177. A travel restraint system is a type of work positioning system, and is equipment worn by, or attached to, a person and designed for the purpose of physically restraining the person from reaching an edge or elevated surface from which the person may fall.
OHS Regulations r5
178. Generally, the system consists of a safety harness that is connected by a lanyard to a suitable anchorage point or static line. The system needs to be set up to prevent the wearer from reaching the edge.
179. Each anchorage point needs to be designed as a fall arrest anchorage point and comply with the requirements of AS 1891:4 *Industrial fall arrest systems and devices selection, use and maintenance*.
180. Where a temporary roof anchor is used as an anchorage for a travel restraint system, it needs to be installed in accordance with the manufacturers' or designers' instructions.
181. The roof or other building component to which an anchor is to be attached needs to be checked by a competent person to verify that it is suitable for supporting the anchor.
182. It is preferable that travel restraint systems are used in conjunction with other fall prevention methods, such as guardrails, safety nets and catch platforms.
183. Travel restraint systems need to conform to the AS/NZS 1891 *Industrial fall arrest systems and devices series*.

Part 3 – Working at heights above two metres

Travel restraint systems are not fall arrest devices

184. Where there is any possibility that a person using a travel-restraint device may approach an edge from where a fall is possible, a travel-restraint system should not be used (see figure 13).

Use of a fall arrest system instead of a restraint system

185. Although fall arrest systems are not generally preferred (being low in the hierarchy of control measures), an individual fall arrest system needs to be used instead of a travel-restraint system if any of the following situations apply:

- The user can reach a position where a fall is possible.
- The user has a restraint line that can be adjusted in length so that a free fall position can be reached.
- There is a danger the user may fall through the surface (for example fragile roofing material).
- There is any other reasonably likely use or misuse of the system, which could lead to a free fall.

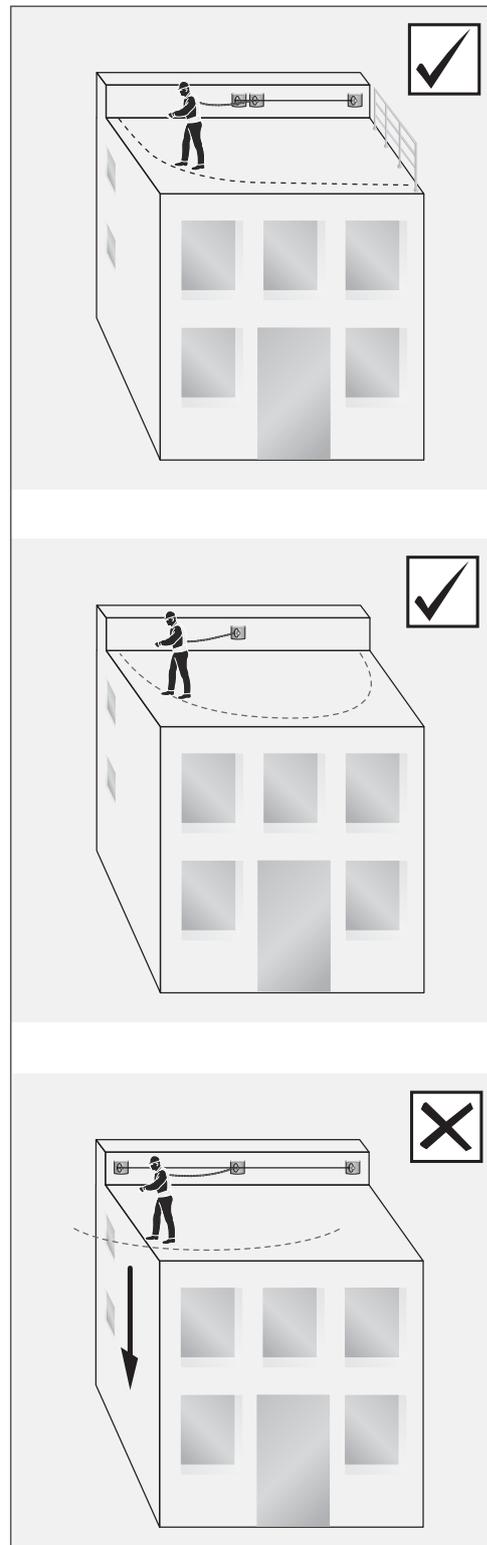


Figure 13 Travel restraint system options – right and wrong.

Part 3 – Working at heights above two metres

Level 4 controls: Fall arrest systems

186. A fall arrest system means equipment or material, or a combination of equipment and material, that is designed to arrest the fall of a person. **OHS Regulations r5** Examples include industrial safety nets, catch platforms and safety harness or inertia reel systems (other than a travel-restraint system).
187. Fall arrest systems must only be used if it is not reasonably practicable to use higher level control measures of the types described in pages 22–36 (level 1, 2 and 3 controls). **OHS Regulations r44(4)**

Catch platforms

188. A catch platform is a temporary platform located below a work area, designed to catch a falling person. The platform needs to be of robust construction and designed to withstand the maximum potential impact load. Scaffolding components may be used to construct fixed and mobile catch platforms.
189. A catch platform should:
- incorporate a fully planked-out deck
 - be positioned so the deck extends at least two metres beyond all unprotected edges of the work area, except where extended guardrailing is fitted to the catch platform
 - be positioned as close as possible to the underside of the work area (the distance a person could fall before landing on the catch platform should be no more than one metre)
 - always be used with an adequate form of edge protection.

Safety harness systems

190. There are considerable hazards in using a safety harness fall arrest system. Their use should only be considered where measures higher in the control hierarchy are not reasonably practicable.
191. A safety harness fall arrest system should only be used where it is not reasonably practicable to use a fall-prevention measure, or where the fall prevention applied is not fully effective on its own. A safety harness fall arrest system requires considerable skill to use safely, and in the event of an arrested fall, it is likely to cause some physical injury to the user. Where it is possible for a person to strike their head, a protective helmet needs to be provided and worn.
192. A safety harness fall arrest system is intended to safely control a fall and reduce any impact. The system is an assembly of interconnected components, comprising a harness connected to an anchorage, either directly or by means of a lanyard. Safety harness fall arrest systems can be used where employees are required to carry out their work near an unprotected edge.
193. Each anchorage point needs to comply with the requirements of *AS 1891:4 Industrial fall arrest systems and devices selection, use and maintenance*.
194. Safety harness fall arrest systems need to be evaluated to ensure not only that they will be effective, but also that no new hazards will be created by their use. Examples of possible new hazards include trip hazards and such severe restrictions on a person's movements that they cannot safely perform their work.
195. A person should not use a safety harness fall arrest system unless there is at least one other person on the site who has been trained and can rescue them if they fall. In some situations, at least two people are required to safely rescue a person who has fallen.

Part 3 – Working at heights above two metres

196. For more information on safety harness fall arrest systems see **Appendix G – Safety harness fall arrest systems**.

Industrial safety nets

197. Industrial safety nets can provide a satisfactory means of protection while allowing employees maximum freedom of movement. In some circumstances, an internal safety net may be an effective method of arresting falls for buildings, structures or stairwell openings.

Level 5: Administrative controls and fixed or portable ladders

Ladders

198. Ladders must only be used when it is not reasonably practicable to use a higher order control measure. **OHS Regulations r44(5)**
199. Ladders need to be used primarily as a means of access to or egress from a work area.
200. Ladders should only be used as a work platform if other methods of working at the required height are not reasonably practicable.
201. If a fixed or portable ladder is used to control the risk of a fall, the employer must ensure that the ladder is:
- fit for purpose
 - appropriate for the duration of the task, and
 - set up in a correct manner.
- OHS Regulations r45**

Selection of ladders

202. Ladders must be correctly selected for the task to be undertaken and appropriate for the duration of the task. **OHS Regulations r45** The physical surroundings of where the task is to be undertaken and the prevailing weather conditions should be taken into consideration. For example, metal ladders or metal-reinforced ladders should not be used for live electrical work.
203. Typically, construction work involves repetitive, high volume use and handling of ladders, requiring them to be of robust design and construction. Therefore, ladders used for construction work need to comply with the **AS/NZS 1892 Portable ladders** series. They also need to be industrial grade rather than domestic grade.
204. Fixed vertical ladders are generally not suitable for construction work.

Safe use of ladders

205. Any ladder used at a workplace needs to be used on a surface that is solid and stable, and set up so as to prevent the ladder from slipping.
206. Slipping of ladders can be prevented by:
- placing single and extension ladders at a slope of 4:1
 - setting up stepladders in the fully opened position
 - securing single and extension ladders at both the top and bottom (see figure 14).

Part 3 – Working at heights above two metres

207. People using ladders should not:

- handle or use ladders where it is possible for the employee or the ladder to make contact with powerlines
- use metal or metal-reinforced ladders when working on live electrical installations
- set up the ladder in places, such as driveways and doorways, where a person or vehicle could hit it (if necessary, erect a barrier or lock the door shut)
- use a ladder near the edge of an open floor, penetration or on scaffolding to gain extra height
- over-reach (the employee's belt buckle needs to be within the ladder stiles throughout the work)
- use any power (air, hydraulic, electric or battery) equipment or tool specifically designed to be operated with two hands, such as concrete cutting saws and circular saws
- use tools that require a high degree of leverage type force (such as a pipe wrench or pinch bars) which, if released, may cause the user to overbalance or fall from the ladder
- carry out work such as arc welding or oxy cutting
- work over other people, or
- allow anyone else to be on the ladder at the same time.

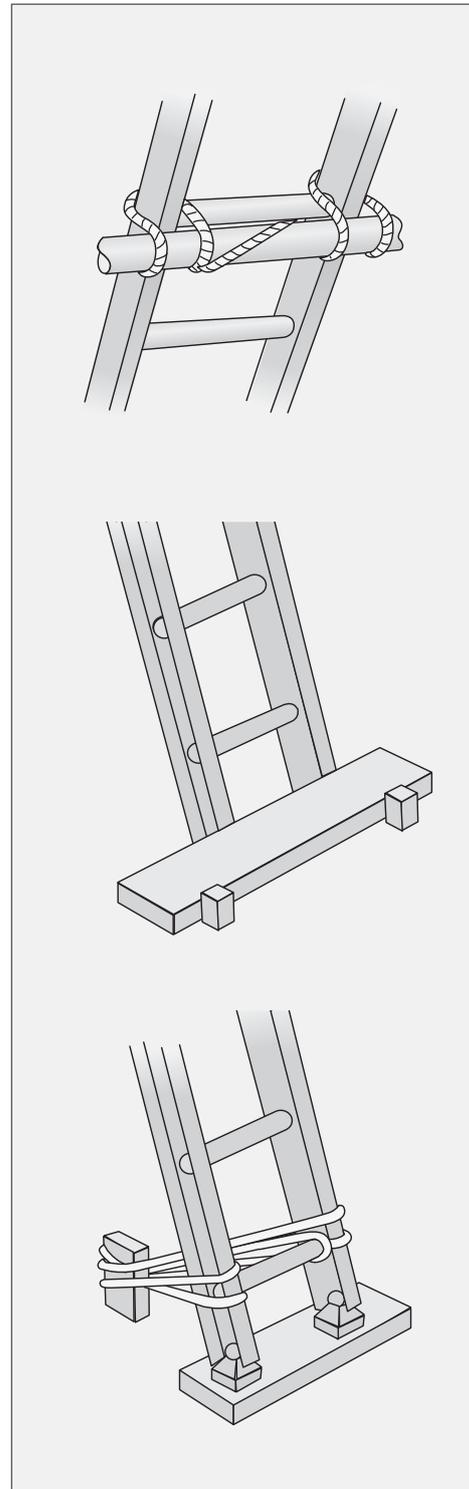


Figure 14 Some effective ways of securing a ladder.

Part 3 – Working at heights above two metres

208. Except where a pole strap (or similar device providing the user with full body support) is used (see figure 15), any person using a ladder should not:

- face away from the ladder when going up or down, or when working from it
- stand on a rung closer than 900mm from the top of a single or extension ladder
- stand higher than the second tread below the top plate of any stepladder.



Figure 15 Pole straps used with portable ladders.

209. Where possible, ladders being used for access need to be set up at right angles to the working surface to allow employees to step off the ladder rather than having to step around or over the ladder (see figures 16 and 17).

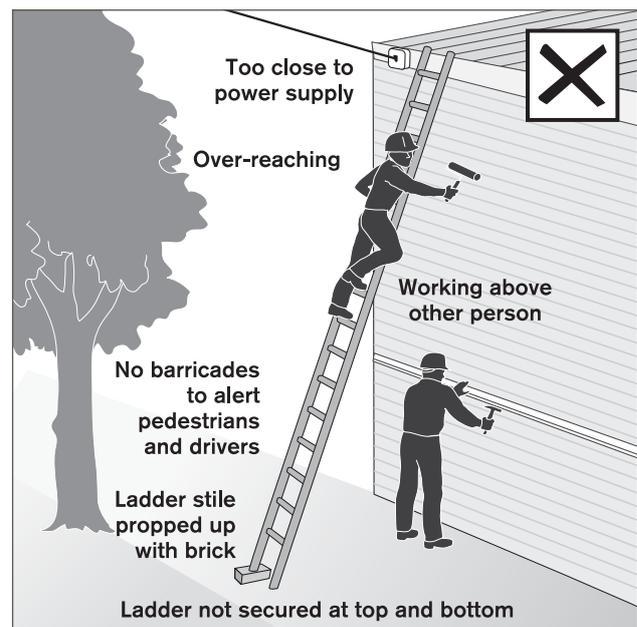


Figure 16 Unsafe ladder use.

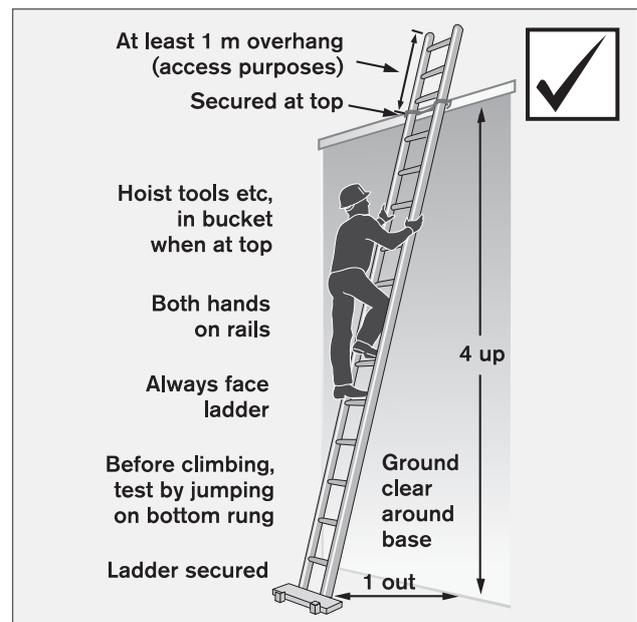


Figure 17 Acceptable ladder use.

Part 3 – Working at heights above two metres

Ladder maintenance

210. Ladders need to be regularly inspected by a competent person. Ladders with any of the following faults need to be replaced or repaired by a competent person:
- Timber stiles that are warped, splintered, cracked or bruised.
 - Metal stiles that are twisted, bent, kinked, crushed or have cracked welds or damaged feet.
 - Rungs, steps, treads or top plates that are missing, worn, damaged or loose.
 - Tie rods that are missing, broken or loose.
 - Ropes, braces, or brackets that are missing, broken or worn.
 - Timber members that, apart from narrow identification bands, are covered with opaque paint or other treatment that could disguise faults in the timber.

Note: This refers to the purchaser painting a ladder, not painting that is integral to the ladder's manufacturing process.

211. For more information about the safe use of ladders go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

Administrative controls

212. An 'administrative control' is a system of work or a work procedure that is designed to reduce a risk, but does not include a physical control or the use of personal protective equipment. [OHS Regulations r5](#)
213. Administrative controls must only be used when it is not reasonably practicable to use a higher order control measure. [OHS Regulations r44\(5\)](#)
214. Administrative controls are often used to support other fall protection measures. They may also be used to limit the time employees are exposed to a fall hazard or the number of employees involved in the task.
215. If an administrative control is used as the only means of reducing the risk associated with a particular task, the employer must, before the task is undertaken, record:
- a description of the administrative control used, and
 - a description of the task to which the administrative control relates. [OHS Regulations r46\(1\)](#)
216. The preparation of a SWMS in accordance with regulation 327 of the OHS Regulations is taken to be compliance with this duty. [OHS Regulations r46\(4\)](#)

Part 3 – Working at heights above two metres

Recording administrative controls

217. If a task is routinely carried out, it may be appropriate to record a standard safe work procedure for the task. An employer may make a generic record in respect of a task to which an administrative control relates if the task will be undertaken in the same or similar circumstances at more than one workplace or at more than one area within a workplace.
OHS Regulations r46(2) However, the record must include a description of the task to which the administrative control relates. OHS Regulations r46(1)(b) A generic record cannot be relied on if the task is undertaken in conditions that are not the same or similar, for example if there is variation in the working environment.
218. The employer must keep the records until the work covered by the administrative control has been completed.
OHS Regulations r46(3)
219. If relying on administrative controls, a high level of training and supervision needs to be provided to ensure that the safe work procedure is being followed. The procedures need to be regularly reviewed to determine their effectiveness.

Examples of administrative controls

220. Administrative controls may include 'no-go' areas, permit systems, the sequencing of work and safe work procedures.

'No-go' areas

221. 'No-go' areas can be an effective method of making sure people are not exposed to fall hazards. They require adequate delineation from the general work area. They can be used to control the risks of entry to an area where there is an unguarded fall hazard or to areas where work is being undertaken overhead and there is a risk of falling material.
222. Delineation needs to include a physical barrier such as temporary fencing or guardrailing where the distance is less than two metres to the hazard or, where the distance is more than two metres, secured para webbing or barrier tape may be suitable. All controls need to include adequate signage to warn against access to the hazardous area (see figure 18).
223. Employers need to ensure that relevant information and instruction is provided to construction employees at the workplace (for example on the construction site) about 'no-go' areas, and ensure there is adequate supervision so that unauthorised employees do not enter the 'no-go' areas.



Figure 18 Example of signage for a 'no-go' area.

Part 3 – Working at heights above two metres

Permit systems

224. Permit systems ensure that only competent people who are trained in the use of appropriate control measures work in an area where there is a fall hazard.

Examples of permit systems include:

- Tagging all access points to a scaffold with wording such as '*Only licensed scaffolders permitted on an incomplete scaffold*', to prevent unauthorised access during erection and dismantling.
- Requiring permits for access to areas where travel restraint systems or fall arrest systems are to be used.

Organising and sequencing of work

225. Work needs to be organised so that people do not increase the risk of a fall for themselves or others. For example, by sequencing jobs so that different trades are not working above or below each other at the same time. Work should be planned so tasks are not performed for extended periods from a ladder and work at height is minimised in extremely hot or cold weather.

Safe work procedures

226. An administrative control may be as simple as a safe work procedure that describes in a SWMS the steps involved in safely undertaking a task (see paragraphs 96–104). It may also include any particular training, instruction and supervision required.

227. A safe work procedure can be generic and applicable to a task that is routinely or repeatedly carried out. However, safe work procedures that rely on a generic record must only be used where the task is undertaken in the same or similar circumstances (see paragraph 217).
OHS Regulations r46(2)

Part 4 – Trenching and excavation work

228. Excavation work can expose people to the risk of injury from a wide range of hazards. This section, however, focuses on trenching and excavation work that involves the risk of a fall from height and provides general guidance only.
229. Many incidents on construction sites have involved people, including young children, sustaining serious injury from falls into open trenches, excavations, bore holes and pile holes. Even shallow excavations can be trip and fall hazards, although the likelihood of injury when a person falls increases with the depth of the trenching or excavation work.
230. If there is a risk associated with a fall of more than two metres, the duties set out in Parts 2 and 3 of this Code apply, including the duty for an employer to implement risk controls in accordance with the prescribed hierarchy of risk controls. [OHS Regulations r44](#)
231. In accordance with section 20(1) of the OHS Act, employers have a requirement to eliminate risks to health or safety, so far as is reasonably practicable, including risks of falls from two metres or less. If it is not reasonably practicable to eliminate a risk to health or safety, employers are required to reduce that risk so far as is reasonably practicable. See paragraph 16 and Part 5 of this Code for more information.
232. For more information on excavation work see the *Excavation compliance code*.

Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. The duty to consult applies when, for example, making decisions about risk control measures and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#) See page 8.

Risk assessment

233. An assessment of risks associated with falls at an excavation site needs to take into account the security of the excavation, both during work and when left unattended. Consideration also should be given to factors such as:
- how long the excavation will be left open
 - who may gain access to the excavation (including pedestrians and children).
234. For more information on risk assessments see Part 2 of this Code.

Part 4 – Trenching and excavation work

Risk control measures

235. Risk control measures that should be considered to control risks associated with falls at excavation sites include:
- the application of physical fall prevention measures, such as, isolating the trench or excavation using perimeter fencing, barricades, physical barriers, screens, handrails and trench covers capable of preventing access or preventing a person from falling
 - pedestrian detours that are clearly defined and protected
 - establishing a safe entry point where employees should enter a trench or excavation, that protects them from falling into the trench or excavation
 - the provision of a safe means of movement between different levels of the excavation
 - the use of intermediate platforms for deep excavation
 - backfilling the trench or excavation as work progresses.
236. Physical fall prevention measures are also suitable for controlling falls risks associated with shallower excavations, such as those with depths of two metres or less. Other controls for these risks include isolating the area around the excavation to prevent access, by installing warning barriers such as star pickets and parawebbing. Warning barriers are not physical fall protection and will not prevent a fall.
237. Warning barriers need to be highly visible and securely fixed, to ensure they are capable of remaining in place during adverse weather conditions. Star pickets should be fitted with protective caps. They need to be installed at least two metres from the edge of the excavation, or where the depth of the excavation is less than two metres, at a distance that is at least equal distance to the depth. When set at a distance greater than two metres from the edge, two rows of safety tape or a single row of flagging or bunting can be used instead of parawebbing.
238. Physical fall protection measures (such as perimeter fencing or covers) need to be used for excavations in areas accessible to the public. For more information on controlling risks associated with excavations see the *Excavation compliance code*.

Part 4 – Trenching and excavation work

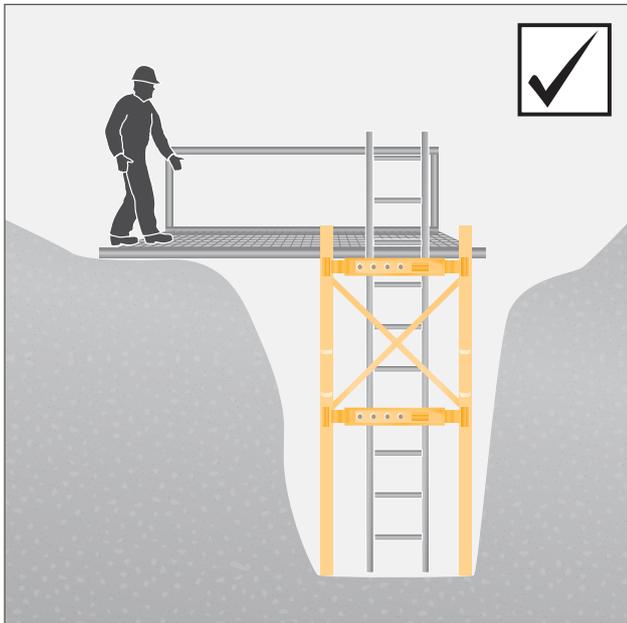


Figure 19 Example of a safe entry point for trenching.

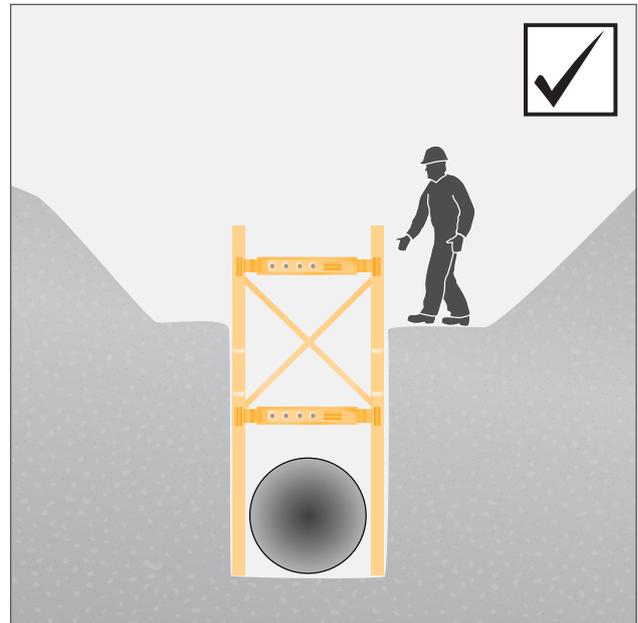


Figure 20 Example of a section of trench shoring extending above the excavation for fall protection.

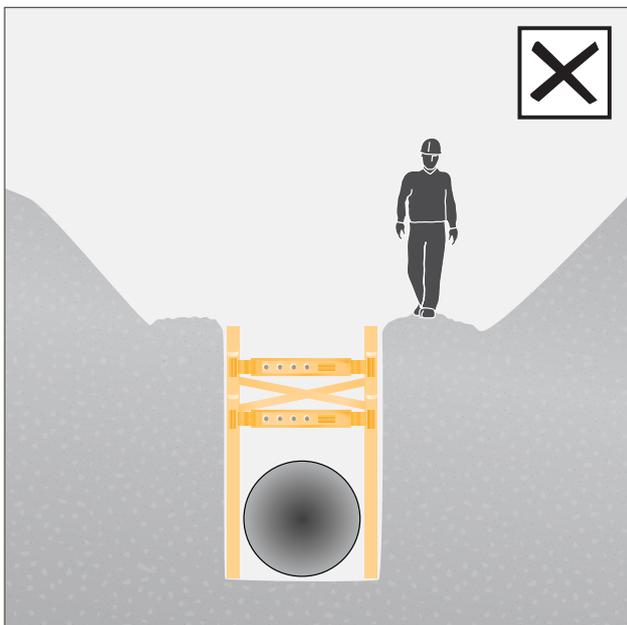


Figure 21 Example of an unguarded trench.

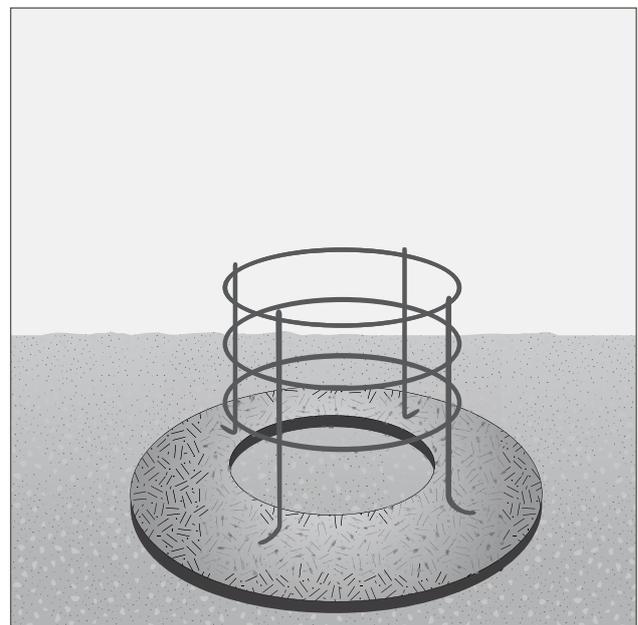


Figure 22 Typical bore hole guard with footplate.

❖ Part 5 – Working at heights not exceeding two metres

239. A fall from almost any height can result in injury. A person falling onto a hard surface such as concrete may suffer serious injury or death if they strike their head first, even if the fall is from a low height. If the ground surface is asphalt or packed earth, a fall of one metre has the potential to cause fatal or serious injury.
240. Risks associated with falls from heights of two metres or less are not covered under Part 3.3 of the OHS Regulations. However, section 21 of the OHS Act imposes duties on employers to, so far as is reasonably practicable, provide and maintain a working environment for employees that is safe and without risks to health. This includes managing risks associated with falls of two metres or less. In accordance with section 20(1) of the OHS Act, employers have a requirement to eliminate risks associated with falls of two metres or less so far as is reasonably practicable and, if it is not reasonably practicable to eliminate the risks, reduce those risks so far as is reasonably practicable, having regard to the matters set out in section 20(2) of the OHS Act.

Risk management

241. In situations where people are working at heights not exceeding two metres, the standard risk management process needs to be adopted. For more information on the risk management process, see paragraph 22 and Part 2 of this Code.

Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. The duty to consult applies when making, for example, decisions about risk control measures and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#) See page 8.

Information, instruction and training

242. An employer must provide information, instruction and training to employees as is necessary to enable them to perform their work in a way that is safe and without risks to health. [OHS Act s21\(2\)\(e\)](#) Employers need to ensure employees understand the hazards, risks and control measures identified in the risk management process for working at heights not exceeding two metres.
243. The amount and type of information, instruction and training that needs to be provided will depend on the risks involved. The complexity of the work procedures and the type of fall prevention measures adopted also need to be taken into account.
244. For more information on duties in relation to information, instruction, training and supervision see paragraphs 30–40.

Part 5 – Working at heights not exceeding two metres

Examples of control measures for work up to two metres

245. In accordance with section 20(1) of the OHS Act, employers have a requirement to eliminate risks to health or safety so far as is reasonably practicable, including risks of falls from two metres or less. If it is not reasonably practicable to eliminate a risk to health or safety, employers are required to reduce that risk so far as is reasonably practicable. See paragraph 240 for more information.
246. Some common work tasks performed at heights of two metres or less are illustrated here, along with reasonably practicable solutions that control the risks associated with these tasks.

Hazard: Using stilts

247. The use of stilts raises an employee's centre of gravity, making them much more unstable and prone to tripping, overbalancing or falling through openings in floors or walls. Guardrails are usually not designed for people using stilts and will not protect the user from falling. Sometimes employees will use an unstable support which exposes them to the risk of falling. For example, using as a stepladder as a support while putting on stilts.

Solution: Provide a trestle scaffold

248. Trestle scaffolds are quick and easy to erect and can be configured in a variety of ways to suit the particular job (see figure 23). They are particularly useful for light and medium duty activities such as plastering, painting and general fit-out and finishing.
249. Where it is not reasonably practicable to use scaffolds, see the *Prevention of falls in housing construction compliance code* for more information about how to safely use stilts.

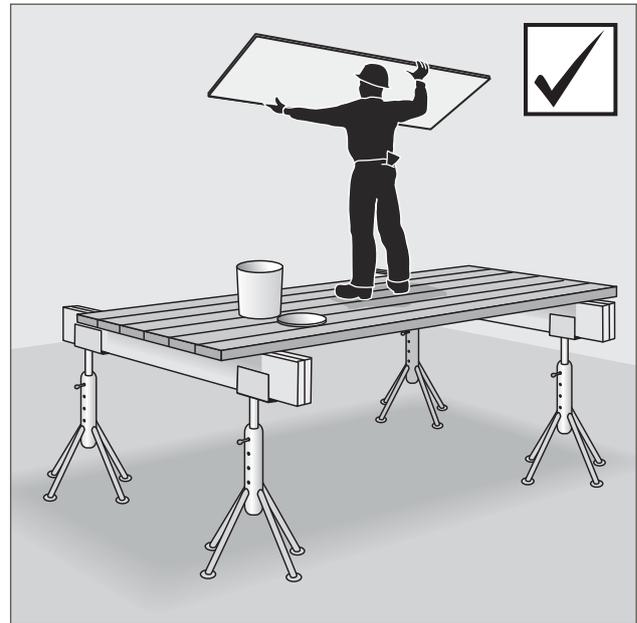


Figure 23 A split-head trestle scaffold.

Hazard: Performing a task from a stepladder

250. Most ladder-related injuries occur as a result of falls from low heights. Sideways tipping is the cause of many stepladder injuries, and this risk increases as the employee ascends the ladder. In figure 24, for example the employee is working above the second tread from the top of the ladder and is at extreme risk of falling. The employee is often working alone and does not have anyone to hold the stepladder to stabilise it.

Solution: Use a step platform

251. A commercially available step platform provides a safer alternative to a stepladder, especially where the task involves working at height for extended periods or restricted vision (such as welding or other hot work). The step platform is more stable and provides a much larger work surface than the stepladder (see figure 25). Some models are collapsible.

Part 5 – Working at heights not exceeding two metres

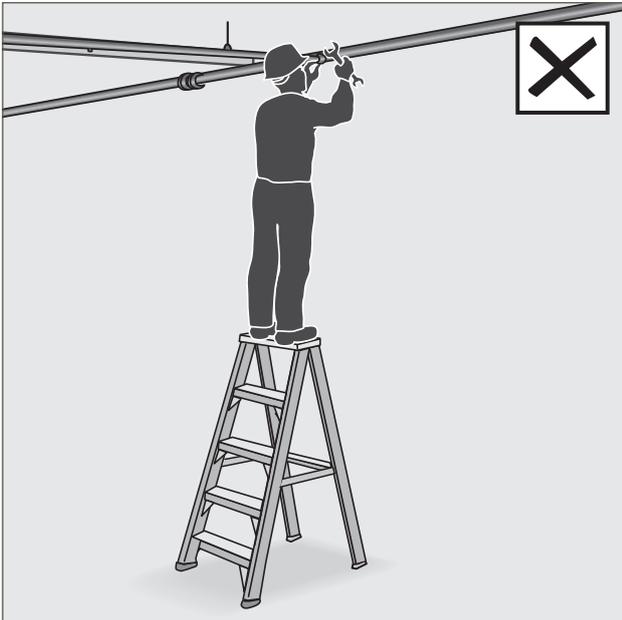


Figure 24 Hazard – standing above second topmost tread of stepladder.

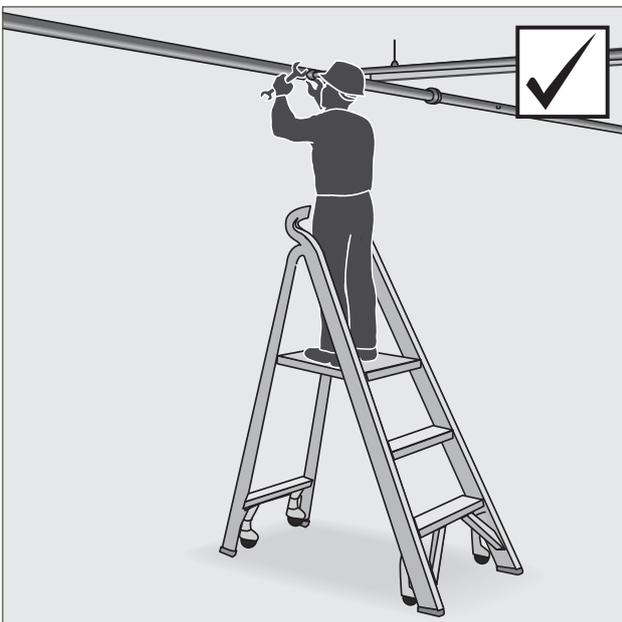


Figure 25 A step platform provides a stable work surface.

Safe use of common control measures for work up to two metres

252. Reasonably practicable solutions for common work tasks performed at heights of two metres or less include, when used safely, portable ladders or trestle scaffolds. These methods should only be used when the task and work environment is suitable.

Portable ladders

253. For general information on the selection and maintenance of ladders, see pages 38–41.

254. People using ladders should not:

- handle or use ladders where it is possible for the person or the ladder to make contact with powerlines
- use metal or metal-reinforced ladders when working on live electrical installations
- set up the ladder in places, such as driveways and doorways, where a person or vehicle could hit it (if necessary, erect a barrier or lock the door shut)
- use a stepladder near the edge of an open floor, penetration or on scaffolding to gain extra height
- over reach (the employee's belt buckle needs to remain within the ladder stiles throughout the work)
- use any power (air, hydraulic, electric or battery) equipment or tool specifically designed to be operated with two hands and which may require the operator to brace themselves against the high level of torque exerted by the tool
- carry out work such as arc welding or oxy cutting, unless step platforms or other temporary work platforms are not feasible and the task is of short duration and a safe work procedure is followed

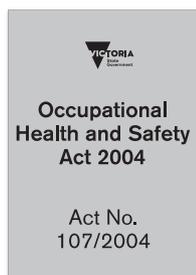
Part 5 – Working at heights not exceeding two metres

- use tools requiring the use of both hands and dynamic movement, such as axes and crowbars
 - use tools that require a high degree of leverage type force (such as a pipe wrench or pinch bars) which, if released, may cause the user to overbalance or fall from the ladder
 - work over other people
 - allow anyone else to be on the ladder at the same time.
255. Except where additional and appropriate fall protection equipment is used in conjunction with the ladder, any person using a ladder should not:
- face away from the ladder when going up or down, or when working from it
 - stand on a rung closer than 900mm to the top of a single or extension ladder
 - stand higher than the second tread below the top plate of any stepladder.
256. A ladder needs to be set up on a surface that is solid, stable and secure. It also needs to be set up to prevent it from slipping.

Trestle scaffolds

257. Except where provided in paragraphs 129–133, trestle scaffolds are only suitable for tasks requiring a work platform at a height of two metres or less.
258. An employer must, so far as is reasonably practicable, provide and maintain plant that is safe and without risks to health. **OHS Act s21(2)(a)** An employer must also make arrangements to ensure, so far as is reasonably practicable, the safe use of plant. **OHS Act s21(2)(b)** If a trestle scaffold is used, it needs to be suitable for the task(s) to be undertaken and set up correctly.
259. When adjusting the height of a trestle scaffold, only the purpose-designed pins should be used. Nails or pieces of reinforcing bar should not be used.

Appendix A – The compliance framework



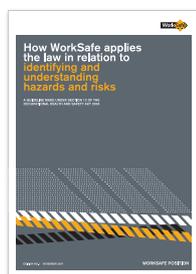
The Occupational Health and Safety Act 2004 (OHS Act) sets out the key principles, duties and rights in relation to occupational health and safety.



The Occupational Health and Safety Regulations 2017 (OHS Regulations) specify the way in which a duty imposed by the OHS Act must be performed, or prescribe procedural or administrative matters to support the OHS Act (eg requiring licences for specific activities, the keeping of records or giving notice).



Compliance codes provide practical guidance to duty holders. If a person complies with a provision of a compliance code, they are deemed to comply with the OHS legislative duty covered by the code provision. However, compliance codes are not mandatory, and a duty holder may choose to use some other way to achieve compliance.



WorkSafe positions are guidelines made under section 12 of the OHS Act that state how WorkSafe will apply the OHS Act or OHS Regulations or exercise discretion under a provision of the OHS Act or OHS Regulations. WorkSafe positions are intended to provide certainty to duty holders and other affected parties.



Non-statutory guidance includes information published by WorkSafe aimed at building people's knowledge and awareness of OHS issues, risks to health and safety, and the disciplines and techniques that can be applied to manage and control risks. Non-statutory guidance is not mandatory, nor does it provide any *deemed to comply* outcomes for duty holders. This guidance does, however, form part of the *state of knowledge* about OHS.

Appendix B – Documents associated with this compliance code

The references listed below are not incorporated into this compliance code. This means that they do not form part of this compliance code, although they may have regulatory status in their own right. They are included only to provide an indication of sources of further information.

Electrical installation work

- AS 3012 *Electrical installations – Construction and demolition sites*

Elevating work platforms

- AS 2550.10 *Cranes, hoists and winches – Safe use – Mobile elevating work platforms*

Fixed platforms, walkways, stairways and ladders

- AS/NZS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*

Guardrailing

- AS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*
- AS/NZS 4576 *Guidelines for scaffolding*
- AS/NZS 4994 *Temporary edge protection*

Industrial rope access systems

- AS/NZS 4488.1 *Industrial rope access systems – Specifications*
- AS/NZS 4488.2 *Industrial rope access systems – Selection, use and maintenance*
- Australian Rope Access Association (ARAA) *Industry Code – Industrial Rope Access Method (2005)*

Mast climbing work platforms

- AS 2550.16 *Cranes – Safe use – Mast climbing work platforms*

Portable ladders

- AS/NZS 1892 *Portable ladders series*

Personal Protective Equipment (PPE)

- AS 1800 *Occupational protective helmets – Selection, care and use*

Safety harness fall arrest systems

- AS/NZS 1891 *Industrial fall arrest systems and devices series*

Safety signs

- AS 1319 *Safety signs for the occupational environment*

Safety mesh

- AS/NZS 4389 *Safety mesh*

Scaffolding

- AS/NZS 1576 *Scaffolding series*
- AS/NZS 4576 *Guidelines for scaffolding*
- AS 1577 *Scaffold planks*

Work boxes

- AS 1418.17 *Cranes – Design and construction of workboxes*
- AS 2550.1 *Cranes, hoists and winches – Safe use – General requirements*

Appendix C – Common fall hazards

Some of the more common issues that need to be taken into consideration when identifying fall hazards in the workplace are set out below.

Surfaces

- The stability, fragility or brittleness.
- The ability to slip (for example where surfaces are wet, polished, glazed or oily in the case of new steelwork).
- The safe movement of employees where surfaces change.
- The strength or capacity to support loads.
- The slope of work surfaces.

Levels

- Where levels change and employees may be exposed to the risk of a fall from one level to another.

Structures

- The stability of temporary or permanent structures.

The ground

- The evenness and stability of the ground for the safe support of scaffolding or a work platform.

The working area

- Whether it is crowded or cluttered.

Scaffolding

- Check for platform fully decked, bracing, tying, guardrailing, access.

Edges

- Edge protection for open edges of floors, working platforms, walkways, walls or roofs.

Penetrations, openings and holes

- Guarding (similarly unguarded shafts, trenches and excavations).

Proximity of employees to unsafe areas

- Where loads are placed on elevated work areas.
- When objects are below a work area, such as reo bars and star pickets.
- Where work is to be carried out above employees (for example potential hazards from falling objects).
- Power lines near working areas.

Plant and equipment

- Access to, egress from and movement around elevated areas of plant and equipment for operational and maintenance activities (check work areas for perimeter protection and for obstructions).

Multiple contractors are working in the same area

Manual handling

- Checking safe work practices for carrying awkward material, such as plaster boards and roof sheeting, which may be caught by the wind.

Vision is impaired

- Vision impaired or restricted by the use of goggles, face shields, respirators or other devices.
- Reflective glare off surfaces.

Lighting

- Needs to be adequate for the task.

Appendix C – Common fall hazards

Weather conditions

- When heavy rain, dew, extreme heat or cold or wind are present.

Footwear and clothing

- Suitable for the conditions.

Ladders

- Where and how they are being used.

Appendix E – Installing safety mesh

Safety mesh

1. Safety mesh is the preferred system for protecting construction employees against falling through the roof while they are laying roof sheets.
2. Safety mesh is designed to prevent falls through the interiors of roofs. If securely fixed, it provides fall prevention not only for roof installers but for maintenance and repair employees.
3. Safety mesh does not prevent falls from the edge of a roof or through unmeshed holes in a roof, so it needs to always be used in conjunction with appropriate edge protection such as guardrailing or, where passive fall prevention devices are not reasonably practicable, safety harness systems.
4. Safety mesh needs to comply with AS/NZS 4389 *Safety mesh*, which specifies the minimum requirements for the design, construction, testing and installation of safety mesh for use in domestic, commercial and industrial building applications.
5. The mesh needs to be formed from 2mm diameter wire of not less than 450MPa tensile strength, welded into a mesh with the longitudinal wires not more than 150mm apart and the cross wires not more than 300mm apart.

Installing safety mesh

6. People installing safety mesh should only use mesh where the necessary information has been made available by the manufacturer or supplier, including evidence of compliance with AS/NZS 4389 *Safety mesh*. Particular care should be taken so that the mesh is securely connected to the structure and the overlap between adjacent sections of mesh is sufficient to generate the necessary strength to resist the force of a person falling onto it.
7. The method of installation needs to be safe. Use scaffolding or elevating work platforms to protect employees installing the mesh.
8. The safety mesh needs to be covered by the roof cladding as soon as possible after it has been installed. However, the employer needs to ensure this does not happen until such time as the mesh has been formally inspected and confirmed as being installed in accordance with the manufacturers' instructions.
9. Figure 26 shows one satisfactory method for installing safety mesh. The mesh is first cut to the right length from the roll and is then run out over the roof using a continuous rope system. Installers should not walk across the open purlins to draw the mesh.
10. The mesh needs to be fixed to the purlins by passing each longitudinal wire through a hole drilled in the top of the purlin and tied off with at least four full turns around the wire. If the mesh is being fixed to timber purlins, 40mm x 3.5mm staples need to be used (see figure 27).

Appendix E – Installing safety mesh

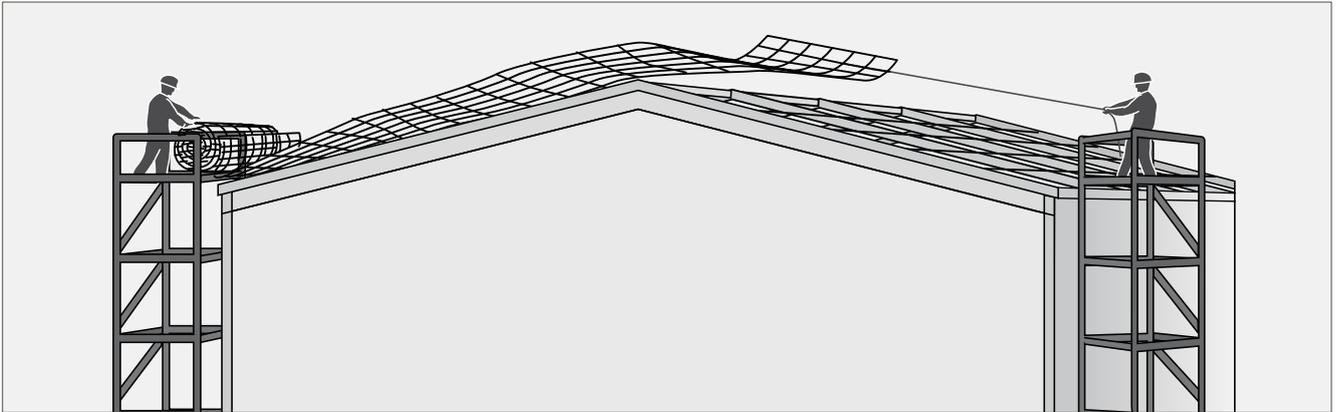


Figure 26 Mesh can be installed safely from scaffolding positioned at each end of the roof.

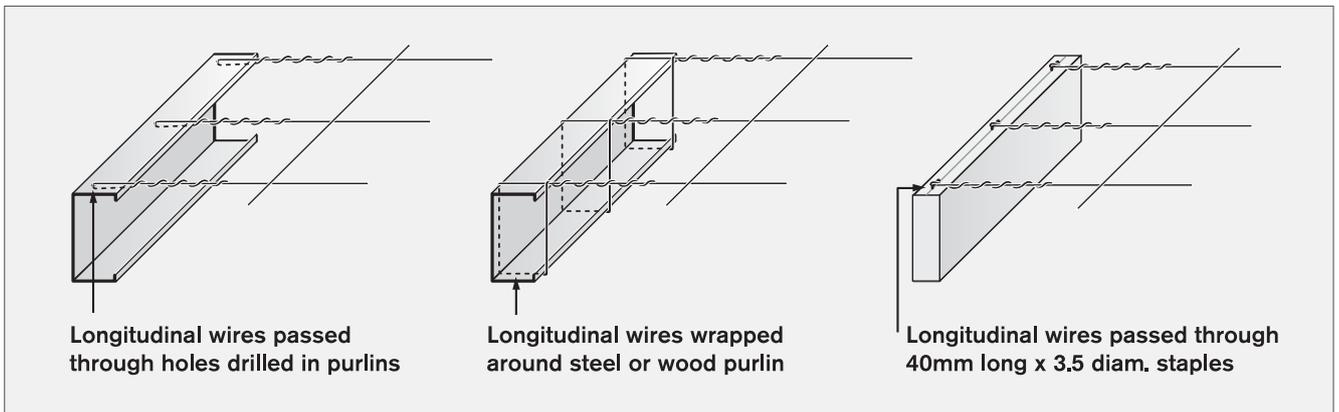


Figure 27 Means of fixing wire mesh to purlins, tied off with at least four full turns around the wire.
Note: Where a lap occurs, both wires are to be fixed, not just one wire.

Appendix E – Installing safety mesh

Joining of wires in the safety mesh

11. Adjacent runs of mesh need to be side lapped by 150mm (one opening width). If the purlin spacing exceeds 1.7 metres, intermediate fixing with 2mm staples needs to be provided every second square, as shown in figure 28. This intermediate stapling of the mesh needs to be carried out from underneath the mesh, by people using suitable fall prevention measures.
12. If it is necessary to join two lengths of mesh at their ends, the join needs to be across the full width of the mesh, with every longitudinal wire being joined. The knot and tie need to be the full length of the tail wire, which needs to be 300mm long. This tail wire needs to be tied at least three times around the knot, and the other tail wire placed under the longitudinal wire and tied around the transverse wire (see figure 29).
13. The entire area of the roof frame needs to be meshed and the mesh then formally inspected to confirm that it has been installed in accordance with the manufacturers' instructions, before the roof is loaded with any bundles of sheeting.
14. Safety mesh is not a working platform in its own right, and people should not walk on it where it spans between purlins. Where it is necessary to stand or walk on purlins, this should only be done once the mesh has been installed and inspected (see figure 30).

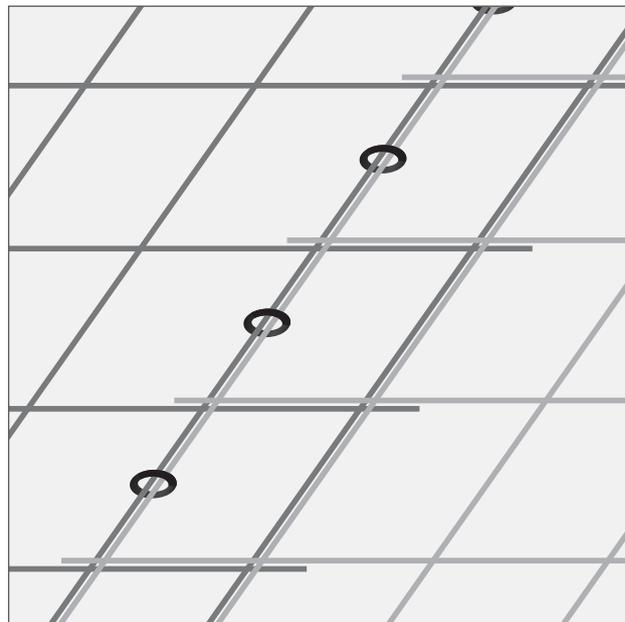


Figure 28 Overlapping of adjacent runs of mesh by one opening width. Steel staples are required to fix runs of mesh where purlin spacing exceeds 1.7 metres.

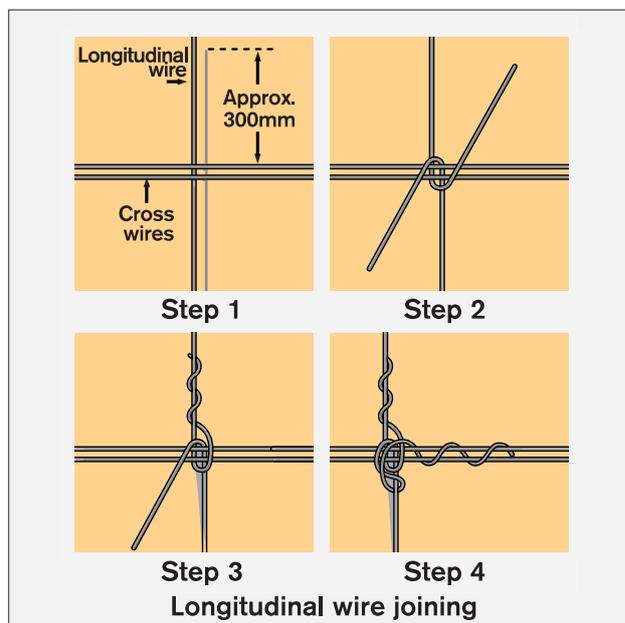


Figure 29 Method for joining longitudinal wires and cross wires (steps 1 to 4).

Appendix E – Installing safety mesh

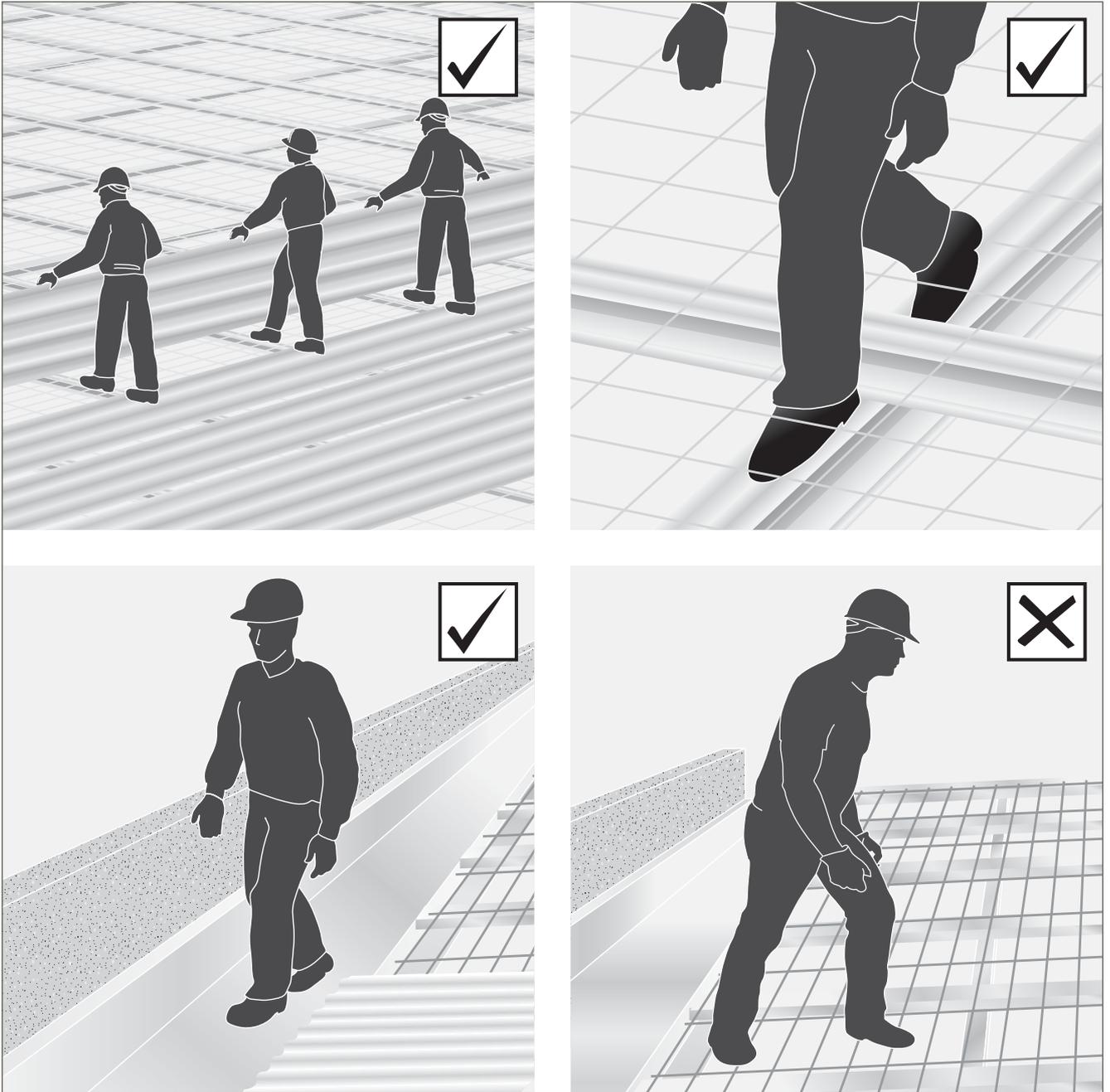


Figure 30 Walking alongside and on a meshed roof – good and bad examples.

Appendix F – Roof work

Roof laying

1. This appendix provides guidance on the laying of metal deck and similar roofing. Subject to a site-specific risk assessment, roof sheets can be installed on a portal frame structure as follows:
 - Install the roof mesh and guardrails as described in **Appendix E – Installing safety mesh**. If any areas of the roof, such as box gutters, are not provided with mesh, other means of fall prevention need to be installed.
 - Install an access tower to provide a safe means of access to, and egress from, the roof area. The access tower needs to be located as close as possible to the load position for the first pack of sheets (see figure 31).
 - Load the first pack of sheets as close as possible to the access tower. If the crane operator needs help on the ridgeline in order to control the swing of the load, access may be gained to the ridgeline by walking up the main rafter of the portal frame. This should occur only after the roof mesh has been installed. Access across the roof should not be gained by 'purlin hopping' from one purlin to the next.
 - Load each subsequent pack of sheets as close as possible to a portal frame. Where the pitch of the roof is not greater than 15 degrees, access between packs of sheets may be provided along the eave purlin using the guardrail as a support to maintain balance (see figure 32). The eave purlin should not be used for general access around the roof.

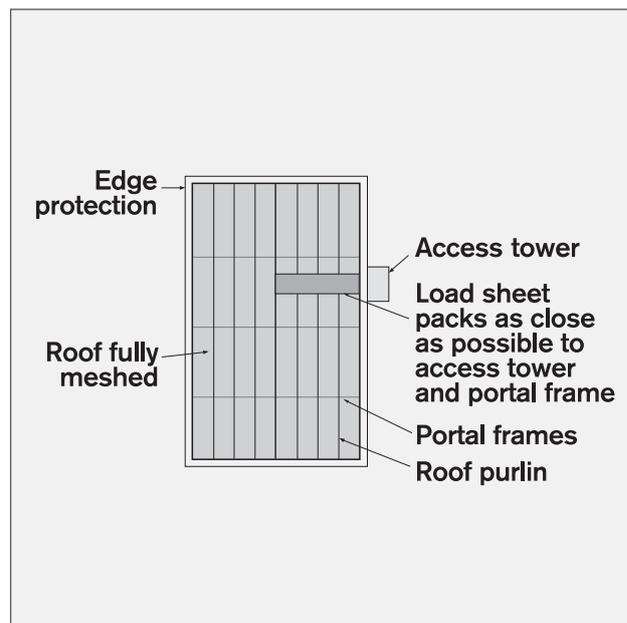


Figure 31 Positioning of the first pack of sheets in proximity to the access tower.

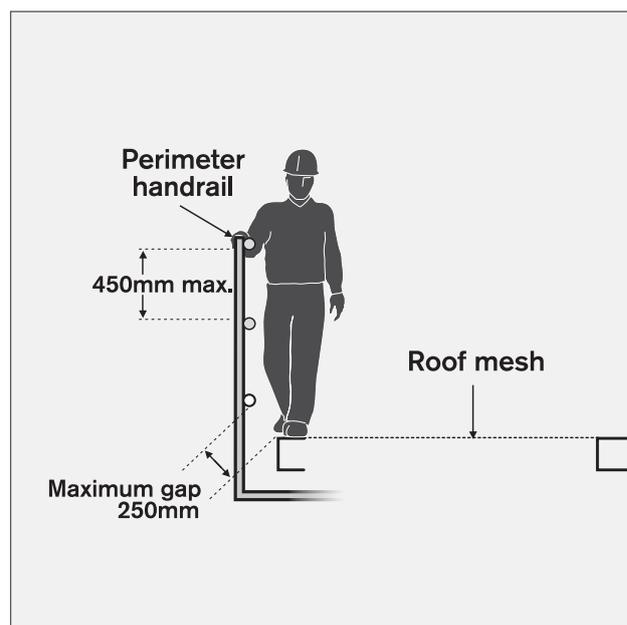


Figure 32 Using the eave purlin for access between packs of sheets (perimeter toeboard not shown for clarity).

Appendix F – Roof work

- Roof sheets need to be laid out and fixed consecutively to provide a progressive working platform for the roof employees. To accommodate the laying of insulation, a gap needs to be left between roof sheets. Where, in order to complete the roof-fixing procedure, employees are required to cross this gap by stepping onto the purlin, the spacing between sheets needs to be minimised.

Perimeter guardrails

2. The installation of guardrailing should include the following:
 - toeboards or mesh infill to prevent tools, materials and debris falling from the roof, unless a 'no-go' zone is established below the area where roofing works are being carried out and the slope of the roof is less than 15 degrees
 - an additional mid-rail to ensure the nominal clear distance between rails does not exceed 450mm
 - a third rail where there is no toeboard or in-fill panel.

Roof access

3. The means provided for roof employees to move to and from the actual work area needs to be safe, so far as is reasonably practicable.
4. In determining the suitability of access and egress, the tools and equipment roof employees may be required to carry to and from the work area need to be taken into account. For example, where employees carry tools or materials up to the work area by hand, ladder access is not recommended, whereas stair access may be suitable.

5. A temporary stair access tower needs to be provided for new roof installations and for extensive repairs to, or replacement of, existing roofs where the eave-height above the ground exceeds six metres. Where the eave-height of such works exceeds 15 metres, a personnel and materials hoist needs to be installed in addition to a stair or ladder access tower which can be used for evacuation in case of a failure of the hoist.
6. Where permanently installed access and egress is used, it needs to comply with *AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation*.
7. Where portable ladders are used for access, they should be used as follows:
 - The ladder is secured against displacement at the top and are provided with non-slip feet.
 - The ladder is pitched at a vertical-to-horizontal slope of 4:1.
 - Employees using the ladder have a safe place to stand when alighting from it.
 - The stiles of the ladder extend at least 1m above the stepping-off point.
 - Metal or wire bound ladders are not used in the vicinity of powerlines.

Fragile and brittle roofs

8. Roofs need to be assumed to be covered with a brittle or fragile material unless they are specifically identified as metal and in sound condition. Brittle or fragile roofing material can include roofing made of asbestos cement roof sheets, cellulose cement roof sheets, glass, fibreglass, acrylic or other similar synthetic moulded or fabricated material used to sheath a roof or contained in a roof.

Appendix F – Roof work

9. Where a roof or part of a roof covering comprises fragile or brittle material, warning signs need to be displayed at all points of access to any work area where fragile material is present and are securely fixed in positions where they will be clearly visible to people accessing the work area.
10. Where it is necessary for work to be carried out on a roof containing fragile materials, the employer needs to ensure that the underside of the roof is inspected to determine the extent of fragile roof material, the existence of any safety mesh and the structural soundness of the roof and any safety mesh and its fixings.
11. To enable work to be carried out safely on or adjacent to any part of a roof sheathed in brittle material, the employer should ensure that:
 - temporary walkways at least 450mm wide are provided, with edge protection, as a means of access to and egress from any work area where permanent walkways are not provided
 - where the slope of the roof exceeds 1:6, cleats need to be fixed to the top side of the walkway planks, and the walkway need to be adequately secured
 - temporary roof ladders are provided if the roof is steep (for example in excess of 35 degrees); these need to be used in conjunction with a fall arrest system.

Roof work checklist

1. Is there safe access to roof areas?

Where there is no permanent access to roof areas, properly constructed temporary access needs to be provided. Portable industrial-grade ladders with a load rating of at least 120kg, secured against movement, pitched at about 75 degrees (4:1) and extending at least 1m above the stepping-off point may be suitable for minor work. For major roofing work, provide a scaffold stairway access tower. Never allow employees to use barrow hoists to gain access to the roof. Any roof work where an employer intends to use EWP's needs to include a 'DO NOT EXIT' statement in the SWMS, unless they comply with paragraph 140 of this Code.

2. Have existing roofs been thoroughly checked?

Before commencing work on an existing roof, make sure it has been thoroughly inspected to determine its strength. Check the condition of roof trusses, rafters, purlins and roof battens. Identify all areas of fragile roofing, such as cement sheeting and fibreglass skylights. Check the fixing and strength of safety mesh, paying particular attention to any signs of heavy corrosion. Strengthen any suspect areas of roof support with temporary props or similar.

Appendix F – Roof work

3. Are employees protected from falling off roof edges?

A fall from height is the most serious risk associated with roof work. Where a scaffold has been provided for the construction of the walls or guttering, leave it in place until the roof work is complete. Where this is not possible, use a temporary guardrailing system. There are proprietary guardrailing systems available that are suitable for a wide range of roofing situations. For the rare occasions when guardrailing is not reasonably practicable, consider using other measures such as safety line systems, including travel restraint systems and fall arrest systems. Make sure that any safety line system is securely anchored and is set up so that inertia reel lines or other types of lanyards cannot be severed on sharp edges. Also make sure that the lines can be used without creating the 'pendulum effect' in the event of an employee falling.

4. Are employees protected from falling from incomplete roofs?

For metal deck roofing, the best way to protect employees from falling over leading edges is to cover the entire roof area with safety mesh before the roof is laid. This also provides ongoing protection for future roof maintenance and repair work. Where roofs are being constructed or re-roofed in distinct stages, barriers or travel-restraint lines need to be fixed in order to physically separate roof employees from areas not yet meshed.

5. Are employees protected from falling through skylights and penetrations?

Skylights and penetrations left for the installation of air-conditioning that are not protected with safety mesh can be a danger to roof employees. Securely cover them or fix temporary guardrailing around them.

6. Are people protected from the dangers of falling material?

Isolate the area below roof work wherever there is any danger of people being struck by falling material, debris or tools. Also isolate areas under roof edges unless toeboards are fixed to temporary guardrailing to contain all material, debris and loose tools.

7. Do roof employees have appropriate footwear?

Roof employees need protective footwear that gives them a non-slip and flexible grip on the roof surface.

8. Is electrical supply available at roof level?

A readily accessible electrical power supply is needed for most forms of roof work.

To avoid the need for an electrical power supply to roof level, consideration needs to be given to the use of battery operated power tools.

Where an electrical power supply is needed for roof work, satellite power boards need to be installed at roof level. Where this is not reasonably practicable, measures need to be taken to ensure extension leads are protected from mechanical damage and can be safely connected to a power board at the level below.

All electrical installation work undertaken needs to comply with AS 3012 *Electrical installations – Construction and demolition sites*.

Appendix G – Safety harness fall arrest systems

1. Safety harness systems can be used to arrest falls where employees are required to carry out their work near an unprotected edge. However, they must only be used as the primary means of risk control if it is not reasonably practicable to use measures higher in the control hierarchy. [OHS Regulations r44\(4\)](#)
2. Safety harnesses and lanyards can also be used as travel-restraint systems to prevent employees moving from safe to unsafe areas on roofs.

Preparation

Compliance with published technical standards

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

Provide adequate training

4. Employers need to ensure that any employee required to use a safety harness fall arrest system is properly trained in its use.

Installation and use

Limit free fall distance

5. Safety harness fall arrest systems, incorporating a lanyard, need to be installed so that the maximum distance a person would free fall before the fall arrest system takes effect is two metres. There needs to be sufficient distance between the work surface and any surface below to enable the system, including the action of any shock-absorber, to fully deploy. Personal energy absorbers complying with AS/NZS 1891.1 *Industrial fall arrest systems and devices – Harnesses and ancillary equipment* needs to be used in conjunction with the lanyard.
6. Lanyards should not be used in conjunction with inertia reels as this can result in an excessive amount of free fall before the fall is arrested.

Note: Figure 33 is only illustrative of cumulative fall distances in safety harness systems. The left-hand drawing is not intended to show a recommended work practice.

Appendix G – Safety harness fall arrest systems

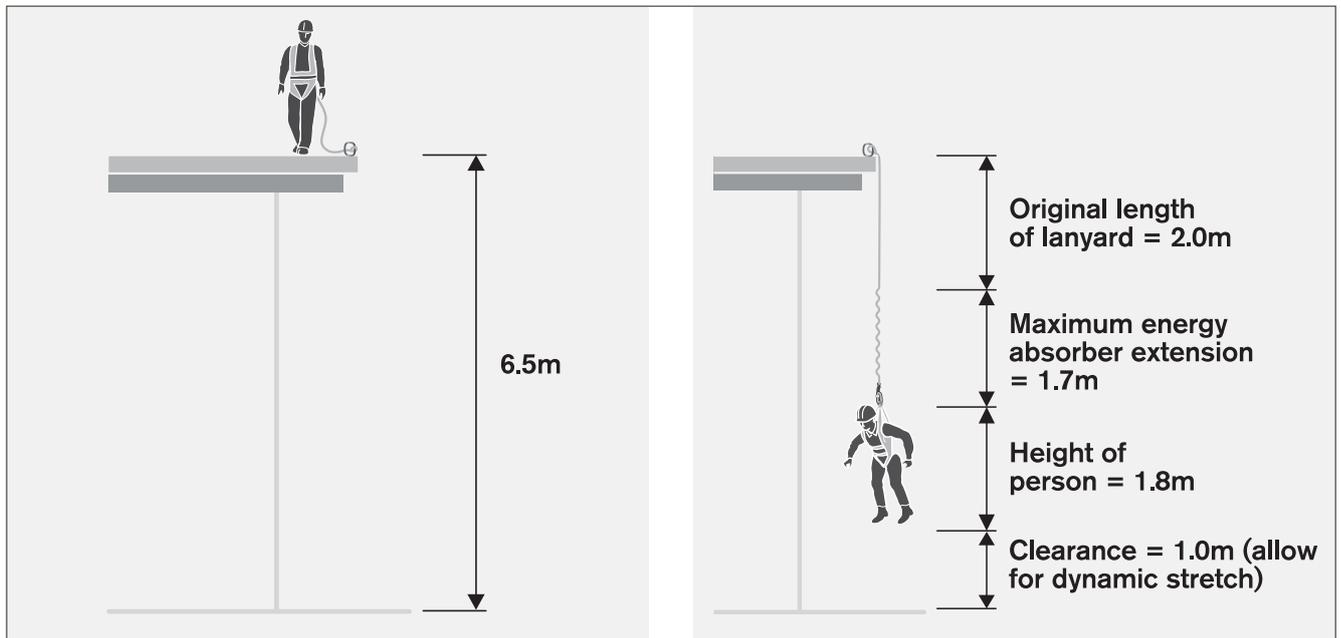


Figure 33 The required minimum fall clearance below the level of the line anchorage. The total fall distance before this particular configuration would be effective in arresting a fall is 6.5m.

Use full body fall arrest harnesses

7. Full body fall arrest harnesses need to be used. Waist-type belts should not be used as injuries can result when the wearer's fall is arrested. The harness connection point to the fall arrest line needs to be made at the top dorsal position. An alternative attachment position is when a line and rope-grab device is used on steeply sloping roofs and the user needs to manually operate the device by having the device in front. In these circumstances, the user can make the connection on to a front connection point, as recommended by the manufacturer.

Maintain minimum of slack in fall arrest line

8. There needs to be a minimum of slack in the fall arrest line between the user and the attachment. The anchorage point needs to be as high as the equipment permits. Never work above the anchor point, as this will increase the free fall distance in the event of a fall, resulting in higher forces on the body and greater likelihood of the arrest line snagging on obstructions.

Use inertia reels correctly

9. When considering the use of inertia reels, bear in mind that they might not be effective in certain situations. For example, if an employee falls down the inclined surface of a steeply pitched roof, the inertia reel line may keep extending from the reel – it may not lock.
10. Inertia reels should not be used as working supports by locking the system and allowing it to support the user during normal work. They are not designed for continuous support.
11. Vertical and self-retracting anchorage lines can be used as a risk control measure in connection with work performed from boatswains' chairs and ladders. Where such lines are used, no more than one person should be attached to any one line.

Appendix G – Safety harness fall arrest systems

Use compatible components

12. Fall arrest systems and safety harnesses should only be used with the individual manufacturers' components that are known to be compatible. The use of non-compatible components may lead to 'roll-out' with some hook/karabiner configurations, and could result in a user being injured or killed. The hazard cannot always be avoided by using components produced by the same manufacturer under the one brand name. If unsure whether components of a fall arrest system are compatible, contact the manufacturer for further information.
13. Snap hooks need to be of the double action type, requiring at least two consecutive deliberate actions to open. Snap hooks should not be connected to each other as this could prevent the safe operation of the snap hook (for example roll-out may occur).
14. Some double action hooks are susceptible to roll-out. Screw gate karabiners or hex nut connectors may sometimes be appropriate.

Ensure prompt rescue in event of fall

15. It is imperative that the rescue of an employee who is suspended in a full body harness occurs promptly. Suspension trauma is a condition where a person suspended in a harness in a substantially upright position may experience blood pooling in the legs. Depending on the susceptibility of the individual, this may lead to loss of consciousness, renal failure and death.
16. To enable employees to be removed from the suspended position as quickly as possible, employers need to consider having a pre-rigged retrieval system in place and ensure that employees using safety harnesses do not work alone.

Damage to lines and lanyards

Preventing failure of the fall arrest line

17. Safety harness fall arrest systems can be used to arrest falls where employees are required to carry out their work near an unprotected edge. However, when fall arrest anchorages are located lower than head-height or the system user is situated at a horizontal distance away from the anchorage, the fall arrest line is likely to make abrupt contact with an edge if the employee falls through or from the perimeter of the structure, as in figure 34. This could lead to failure of the fall arrest line.
18. This also applies to lanyard systems. Precautions need to be taken to ensure that the lanyard will not be damaged or fail if it comes into contact with any edge during a fall.
19. Damage or failure occurs because contact with an edge (such as a steel I-beam or brick parapet) reduces the breaking strength of the inertia reel line. In addition, the shock loading is transferred to the snagging point of the line and not to the internal energy absorber of the inertia reel.
20. In the event of a fall, the inertia reel line should not make contact with an obstruction or edge, unless the manufacturer can verify that such contact will not impair the safe use of the inertia reel. It is important that the verification applies to the specific type of edge involved in the work process.

Appendix G – Safety harness fall arrest systems

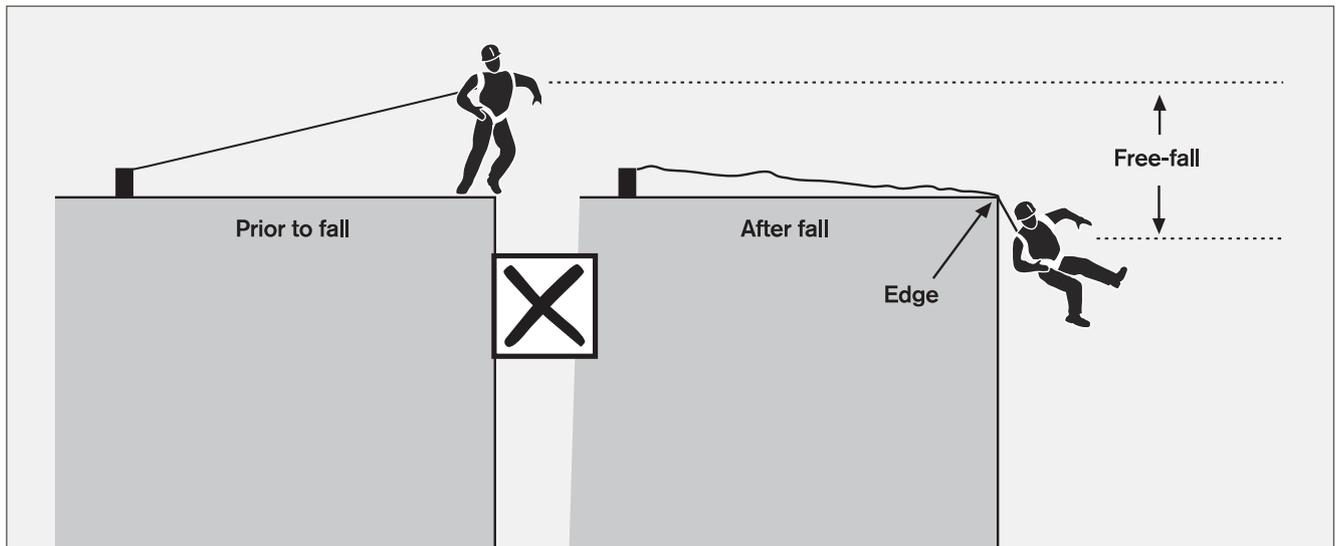


Figure 34 Incorrect set up of the fall arrest line.

Positioning the inertia reel anchor points

21. Inertia reels need to be anchored above head-height to prevent the line making contact with an obstruction and to limit the free fall distance to that recommended by the designer or manufacturer. The user needs to work within an arc below the inertia reel, as illustrated in figure 35.

Note: Provision of an anchorage point above head height is difficult to achieve in demolition operations. Other control measures need to therefore be provided.

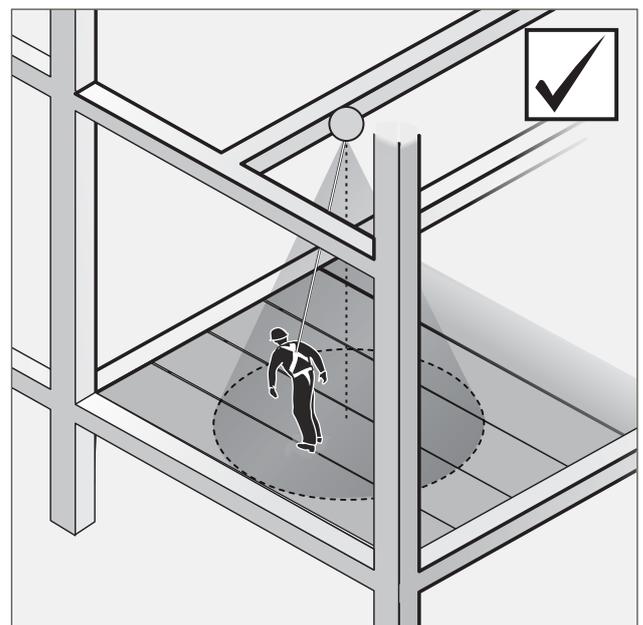


Figure 35 Working within an arc below the inertia reel.

Appendix G – Safety harness fall arrest systems

Hazards with safety harness fall arrest systems

Pendulum effect

22. If a person using a safety harness fall arrest system falls, the system may act as a pendulum, and in some situations the user may swing onto the ground ('swing down') or swing back onto the building or structure ('swing back').

Swing down

23. 'Swing down' can occur if the fall arrest line slides back along the perimeter edge of the roof until it is vertical. When this happens, the person may hit the ground, or the arrest line may break as a result of its contact with the edge of the roof (see figure 36).
24. Measures to address the hazard of 'swing down' include:
- installing guardrails
 - placing the anchorage point at a right angle to the position of the line at the perimeter edge (for example by using a mobile anchorage)
 - installing a second anchorage point and belay devices (intermediate anchorages).

Swing back

25. With 'swing back', the user swings back into the building structure and collides with any obstructions on the path of this swing (see figure 37).
26. If there is any risk of 'swing back', the use of a safety harness fall arrest system would not be appropriate.

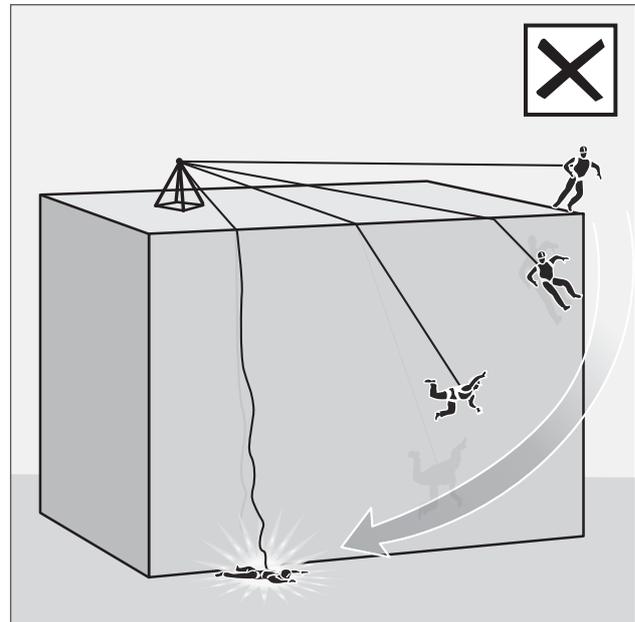


Figure 36 During 'swing down' the length of the lanyard and positioning of the anchor allow contact with the ground.

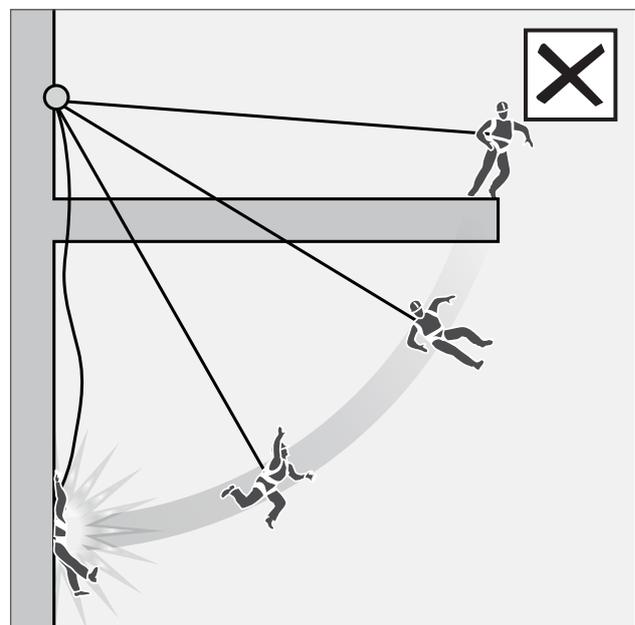


Figure 37 During 'swing back' the person may hit the structure.

Inspection of safety harness fall arrest systems

27. All equipment needs to be correctly maintained, with inspections and examinations of all components carried out by a competent person at regular intervals.

Inspection of anchorages

28. Employers need to ensure that a permanently fixed anchorage is inspected by a competent person, and it is regularly inspected during the construction phase of a project at no less than six-month intervals if it is permanently fixed and in regular use.
29. If a permanently fixed anchorage is not in regular use, it needs to be inspected before it is used.
30. When the competent person doing an inspection assesses the anchorage as impaired, the employer should ensure that:
 - the anchorage is not used and is tagged to indicate it is not to be used
 - the repaired anchorage is not used until it is inspected by a competent person who can confirm it is safe to use.
31. All anchorages need to be visibly checked prior to use.

Inspections for faults and condition

32. Checklists for inspections to detect any equipment faults and assess the condition of fall arrest belts, lanyards and harnesses can be found in the equipment manufacturers' documentation.

Inspections after a fall arrest

33. A safety harness fall arrest system that has arrested a fall needs to be checked by a competent person following the fall and not be used until it has been verified as being fully serviceable.

Appendix H – Scaffolding (safety considerations)

Safety requirements and other considerations for scaffolds include:

- a) Scaffolding needs to conform to the AS/NZS 1576 *Scaffolding* series. Further advice on the safe erection and use of scaffolding may be found in AS/NZS 4576 *Guidelines for scaffolding*.
- b) Employers must provide the necessary information, instruction and training to employees to enable them to perform their work safely and without risks to health. OHS Act s21(2)(e) This includes ensuring that all people required or permitted to erect, alter or dismantle scaffolding (regardless of its height or type) have received the information and instruction necessary for them to be able to perform the work safely.
- c) A person should not alter scaffolding without authority from the employer who has control of the use of the scaffold.
- d) Scaffolding work includes the erection, alteration or dismantling of a scaffold, if the scaffold is such that a person or object could fall more than four metres from the scaffold. OHS Regulations r5 Under Schedule 3 of the OHS Regulations, high risk work licences are required for scaffolding work. A person must not perform high risk work (including scaffolding work) without a licence unless the person holds an appropriate licence in relation to the work. OHS Regulations r128
- e) Scaffold platforms need to be a minimum of 450mm wide.
- f) Modular scaffolds need to be of the same type – not made up of mixed components. Mixed components from different manufacturers have resulted in scaffold incompatibilities and failures, posing significant risks to people using the scaffolding.
- g) Mobile tower-frame scaffolds can be used to provide safe working platforms.
- h) Brick guards or mesh panels need to be fitted to working platforms where bricks are being stacked and laid.
- i) Employers must ensure that scaffolds are secure and capable of supporting the work to be performed on them. OHS Regulations r118(b)
- j) A scaffold that is incomplete and left unattended needs to have danger tags and warning signs attached at particular locations to prevent use, and have access points to the incomplete scaffold blocked off.
- k) All long-term scaffolds, regardless of height, need to be checked regularly for structural integrity by a competent person (such as an engineer experienced in the design of temporary structures).
- l) Scaffolds exceeding four metres in height need to be inspected and tagged by a competent person (such as a licensed scaffolder) before use, after any alteration or repair, and at intervals of not more than 30 days.
- m) Additional inspections need to be carried out in certain circumstances, such as after a severe storm or earthquake.

Appendix H – Scaffolding (safety considerations)

- n) An employer must, so far as is reasonably practicable, provide a working environment for employees that is safe and without risks to health. **OHS Act s21** This includes providing safe access to and egress from scaffold working platforms.
- o) Edge protection (guardrails and toeboards) needs to be provided at every open edge of a scaffold working platform. Meshing needs to be installed over access and egress points.

Appendix I – Guardrailing (safety considerations)

The safety requirements for guardrailing include:

- (a) Every open edge of a stair, landing, platform or shaft needs to be protected to prevent a person falling.
- (b) Guardrailing, including fixings, needs to comply with *AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation*, *AS/NZS 4576 Guidelines for scaffolding*, or *AS/NZS 4994 Temporary edge protection*.
- (c) Top-rails need to be a minimum of 900mm above the working surface.
- (d) Mid-rails and toeboards, or mid-rails and bottom rails, need to be provided. The nominal clear distance between rails should not exceed 450mm.
- (e) Wire mesh infill panels incorporating a toeboard may be used instead of the mid-rail. A mid-rail and infill mesh panel may assist in preventing people and objects from falling through.
- (f) If access points are required for equipment (such as a hoist), they need to be protected with gates, safety chains or other means to prevent a person from falling through.
- (g) Where guardrail systems are intended to be used in conjunction with steel structures or tilt-up construction, designers and builders need to plan for the guardrails and fixings to be attached to the panels prior to the structures being raised from the ground.
- (h) Guardrailing should be fixed and installed in accordance with manufacturers' requirements.



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