SafeWork NSW

NSW GOVERNMENT

Work on roofs – commercial and industrial buildings

Code of practice

May 2026

Editorial note

This Code of practice has been developed by SafeWork NSW and has been approved under section 274 of the NSW *Work Health and Safety Act 2011*. Notice of that approval was published in the NSW Government Gazette referring to this Code of practice as Work on roofs – commercial and industrial buildings on Friday 22 May 2026. This Code of practice commenced on 22 May 2026. It replaces the 2009 Safe Work on Roofs – Part 1: Commercial and Industrial Buildings Code of practice.

This Code of practice (this Code) should be read in its entirety.

When reading this Code, please be aware that any reference to:

- the 'Work Health and Safety Act' refers to the *Work Health and Safety Act 2011* (NSW), or any successor legislation,
- the 'Work Health and Safety Regulation' refers to the *Work Health and Safety Regulation 2025* (NSW), or any successor regulation,
- a code of practice refers to the relevant NSW Code of practice, or any successor code of practice.

This Code may contain references to relevant withdrawn or superseded Australian Standards or Australian/New Zealand Standards.

Copyright information

Acknowledgment

SafeWork NSW wishes to acknowledge the contribution and collaboration of industry and social partners through the public comment period and technical development of this Code.

Contents

Foreword

This Code of practice (this Code) on how to manage work health and safety risks associated with work on commercial and industrial building roofs is an approved code of practice under section 274 of the *Work Health and Safety Act 2011* (the WHS Act).

An approved code of practice provides practical guidance on how to achieve the standards of work health and safety required under the WHS Act and the *Work Health and Safety Regulation* (the WHS Regulation) and effective ways to identify and manage risks.

A code of practice can assist anyone who has a duty of care in the circumstances described in the code of practice. Following an approved code of practice will assist the duty holder to achieve compliance with the health and safety duties in the WHS Act and WHS Regulation, in relation to the subject matter of the code of practice. Like regulations, codes of practice deal with particular issues and may not cover all relevant hazards or risks. The health and safety duties require duty holders to consider all risks associated with work, not only those for which regulations and codes of practice exist.

Codes of practice are admissible in court proceedings under the WHS Act and WHS Regulation. Courts may regard a code of practice as evidence of what is known about a hazard, risk, risk assessment or risk control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code of practice relates. For further information see Safe Work Australia's *Interpretive Guideline: The meaning of 'reasonably practicable'*.

Compliance with the WHS Act and WHS Regulation may be achieved by following another method if it provides an equivalent or higher standard of work health and safety than the code.

An inspector may refer to an approved code of practice when issuing an improvement or prohibition notice.

Scope and application

This Code is intended to be read by a person conducting a business or undertaking (PCBU). It provides practical guidance to PCBUs on how to manage risks to health and safety associated with work on commercial and industrial building roofs. Other approved codes of practice should be referenced for guidance on managing the risk of specific hazards, including the *Code of practice: Managing the risk of falls at workplaces*.

This Code may be a useful reference for other persons interested in the duties under the WHS Act and WHS Regulation.

This Code applies to all types of work and all workplaces covered by the WHS Act where work on commercial and industrial building roofs is carried out. This includes those who design, construct, import, supply, install and maintain roofs and roof mounted plant and structures, and those who plan and supervise work. These roofs are typically flat or low pitched, often requiring repeat access throughout the life of the building.

This Code is not intended to apply to work on residential roofs, demolition work, or the construction of the roof support structure. Refer to the *Code of practice: Managing the risk of falls in housing construction, Code of practice: Demolition work* and *Code of practice: Construction work*.

How to use this Code of Practice

This Code includes various references to the legal requirements under the WHS Act and WHS Regulation. These references are included for convenience only and should not be relied on in place of the full text of the WHS Act or WHS Regulation. The words 'must', 'requires' or 'mandatory' indicate a legal requirement exists that must be complied with.

The word 'should' is used in this Code to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

1. Introduction

1.1 What is work on commercial and industrial building roofs?

Working on roofs includes the following:

- installation, cleaning, removal or replacement of roofing material and cladding,
- installation, inspection, maintenance and removal of roof mounted plant and structures e.g. Heating Ventilation and Air Conditioning (HVAC) equipment, solar panels,
- installation, inspection, maintenance and removal of roof work related control measures e.g. walkways, guardrails, lifelines, anchor points,
- accessing roofs to undertake work,
- planning, designing, and providing quotes, etc,
- emergency access and rescue.

Work on roofs can be of short or long duration. It can occur on buildings under construction and established buildings. Risks associated with work on roofs include:

- falls over edges,
- falls through holes, voids,
- falls though weak/fragile surfaces,
- falling objects,
- weakened/damaged structural elements,
- electrical hazards,
- remote/isolated work,
- biological hazards,
- environmental (extreme temperature, wind, rain, ice, etc),
- slippery and/or sloping surfaces,
- hazardous chemicals,
- radiofrequency (RF) radiation.

1.2 Who has health and safety duties?

There are a number of duty holders who have a role in managing the risks of work on commercial and industrial building roofs, including those listed below.

A person can have more than one duty and more than one person can have the same duty at the same time.

The main duty holders and key legislative provisions have been referenced in the table below, however the list is not exhaustive.

Duty holder	Application
Person conducting a business or undertaking (PCBU) WHS Act sections 19, 46 and 47 WHS Regulation sections 54, 55, 55C, 78 – 80	A PCBU must eliminate risks to health and safety arising from work on commercial and industrial building roofs, or if that is not reasonably practicable, minimise the risks so far as is reasonably practicable. This includes: • managing the risk of falls and falling objects, • the provision and maintenance of a work environment without risks to health and safety, • the provision and maintenance of safe plant and structures, • the provision and maintenance of safe systems of work, • the safe use, handling, and storage of plant, structures and substances, • the provision of information, training, instruction and supervision necessary to protect people from risks to health and safety, • the provision of adequate facilities for the welfare at work of workers, • monitoring the health and conditions of the workplace to prevent illness and injury, • managing psychosocial hazards. PCBUs also have duties to: • consult workers about work health and safety, • consult, cooperate and coordinate with other duty holders, • ensure that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.
PCBU with management or control of a workplace WHS Act section 20	Must ensure, so far as is reasonably practicable, that the workplace, the means of entering and exiting the workplace and anything arising from the workplace are without risks to the health and safety of any person.
Designers, manufacturers, importers, installers and suppliers of plant, substances or structures WHS Act sections 22-26	Must ensure, so far as is reasonably practicable, the plant / substances / structures they design, manufacture, import, supply or install are, so far as is reasonably practicable, without risks to health and safety including carrying out testing and analysis and providing adequate information about the risks posed to users of the plant, substances or structures.

Duty holder	Application
Persons with management or control of fixtures, fittings and plant at a workplace WHS Act section 21	Must ensure, so far as is reasonably practicable, that the fixtures, fittings and plant are without risks to the health and safety of any person.
Officers WHS Act section 27	Officers of the PCBU must exercise due diligence to ensure the PCBU complies with the WHS Act and WHS Regulation. This includes maintaining up to date WHS knowledge and taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to eliminate or minimise risks to health and safety from work on commercial and industrial building roofs. Further information on who is an officer and their duties is available in Safe Work Australia's *Interpretive Guideline: The health and safety duty of an officer*.
Workers WHS Act section 28 WHS Regulation section 46	While at work, workers must: • take reasonable care for their own health and safety, • take reasonable care that their actions or omissions do not adversely affect the health and safety of other persons, • comply with any reasonable instructions given by the PCBU, as far as they are reasonably able, • cooperate with any reasonable health and safety policies or procedures of the PCBU. If personal protective equipment (PPE) is provided by the PCBU, the worker must, so far as they are reasonably able, use or wear it in accordance with the information, instruction and training provided.
Other persons at the workplace WHS Act section 29	A person at a workplace must: • take reasonable care for their own health and safety, • take reasonable care that their acts or omissions do not adversely affect other people's health and safety, • comply, so far as they are reasonably able, with reasonable instructions given by the PCBU to allow the PCBU to comply with the WHS Act.

Duty holder	Application
Principal contractors on construction projects WHS Act section 20 WHS Regulation clauses 293, 299, 301 and 307-315	Principal contractors are a PCBU who commissions a construction project or is engaged to be a principal contractor by the person who commissioned the project. Principal contractors hold additional duties under the WHS Regulation, including that they must: • prepare a written WHS management plan for the workplace, • ensure, so far as is reasonably practicable, that each worker is made aware of the content of the WHS management plan before they start work, • review and as necessary revise the WHS management plan to ensure that it remains up to date, • establish and maintain consultation arrangements with other PCBUs, contractors, subcontractors and workers, • manage risks associated with the construction project, • ensure a Safe Work Method Statement (SWMS) is prepared for high risk construction work, • take all reasonable steps to obtain a copy of the SWMS and ensure it is followed when conducting high risk construction work, • take all reasonable steps to obtain a copy of the SWMS and ensure that it is followed when conducting high risk construction work, • put in place arrangements for ensuring that PCBUs and other duty holders comply with their obligations under the WHS Regulation. When engaging specialist businesses and/or workers to deliver specific works, a Principal Contractor should: • verify that mobile plant supplied is suited to task and maintained, • ensure there are processes for the verification of worker competency in the operation of mobile plant, • ensure workers are inducted to the site requirements.
PCBUs working on construction projects, including principal contractors and subcontractors WHS Act section 19	Subcontractors must: • work within the requirements of the WHS management plan, • develop SWMS for the high risk construction work that they control, • verify that works are being completed in accordance with SWMS, • verify that any mobile plant used or supplied is suited to work and maintained, • ensure workers are provided with suitable and adequate information, training and instruction in completing the required work.

1.3 Consultation

This table includes recommendations in how to comply with the WHS legislative requirements.

Duty / Provisions	Application
Consulting workers WHS Act sections 47-49	• PCBUs have a duty to consult with workers, so far as reasonably practicable, on WHS matters which affect them. • Consultation is a two-way process with workers to identify WHS issues, share information, give workers a reasonable opportunity to express views and take those views into account before making decisions about health and safety matters. • While consultation may not always result in agreement, agreement should be the objective as it will make it more likely the decisions are effective and actively supported. • Workers should be encouraged to report hazards and health and safety problems immediately so the risks can be managed before an incident occurs. • If workers are represented by a health and safety representative, the consultation must involve that representative. • Workers must be advised of consultation outcomes in a timely manner. • PCBUs must have effective mechanisms to consult with workers, including when: — identifying hazards and assessing risks, — making decisions about ways to eliminate or control risks, — changing or updating workplace facilities, — proposing changes that may affect the health and safety of workers, — making decisions about consultation procedures, resolving safety issues, monitoring workers' health and conditions, and providing information and training, — selecting new equipment, — introducing new tasks, changing existing tasks or carrying out work in new environments.

Duty / Provisions	Application
Consulting, cooperating and coordinating activities with other duty holders WHS Act section 46	• PCBUs must, as far as reasonably practicable, consult, cooperate and coordinate activities with all other persons who have a WHS duty in relation to the same matter. • Duty holders should exchange information about who is doing what to ensure effective coordination of works and management of risks, this includes: — the PCBU engages workers to carry out work, — the PCBU directs or influences workers in carrying out work, — other persons may be put at risk from work carried out in their business or undertaking, — the PCBU manages or controls a workplace or the fixtures, fittings or plant at a workplace, — the PCBUs business or undertaking involves designing, manufacturing, importing or supplying plant, substances or structures for use at a workplace, — the PCBUs business or undertaking involves installing, constructing or commissioning plant or structures at a workplace.

Example: a builder, HVAC installer, and permanent access system supplier may all consult on the design, installation and commissioning of roof mounted plant, to ensure suitable control measures are in place that allow the plant to be safely installed and maintained.

Further guidance on consultation requirements is available in the *Code of practice: Work health and safety consultation, cooperation and coordination*.

1.4 Information, training, instruction and supervision

Duty / Provisions	Application
Information, training, instruction or supervision WHS Act section 19 WHS Regulation section 39	• PCBUs must provide any information, training, instruction, or supervision necessary to protect all persons from health and safety risks, including when working on commercial and industrial building roofs. • The information, training and instruction: — must be suitable and adequate for the nature of the works, risks and control measures implemented, — must be readily understandable to the person it is being provided to, so far as is reasonably practicable, — should be supported by relevant safe work procedures, ie. emergency procedures, traffic rules, PPE. — training should be provided to workers by a competent person, — training programs should be practical and ‘hands on’ and take into account the particular needs of workers.

2. Risk management process

Risk management is a systematic process to eliminate or minimise the potential for harm to people.

2.1 Hierarchy of control

The hierarchy of control measures set out in Part 3.1 of the WHS Regulation can be applied in relation to any risk.

The WHS Regulation makes it mandatory for duty holders to work through this hierarchy when managing certain risks. The sections that require the process in Part 3.1 to be followed are set out below.

WHS Regulation reference
Chapter 3 General risk and workplace management, Part 3.2 General workplace management
Division 6 Remote or isolated work, Section 48 Remote or isolated work
Division 8 Hazardous atmospheres, Section 51 Managing risks to health and safety
Division 8 Hazardous atmospheres, Section 52 Ignition sources
Division 10 Falling objects, Section 54 Management of risk of falling objects
Division 11 Psychosocial risks, Section 55C Managing psychosocial risks
Chapter 4 Hazardous work, Part 4.1 Noise
Section 57 Managing risk of hearing loss from noise
Chapter 4 Hazardous work, Part 4.2 Hazardous manual tasks
Section 60 Managing risks to health and safety
Chapter 4 Hazardous work, Part 4.3 Confined spaces
Division 3 Duties of person conducting business or undertaking, Section 66 Managing risks to health and safety
Chapter 4 Hazardous work, Part 4.4 Falls
Section 78 Management of risk of fall
Chapter 4 Hazardous work, Part 4.7 General electrical safety in workplaces and energised electrical work
Division 2 General risk management, Section 147 Risk management
Chapter 4 Hazardous work, Part 4.8 Diving work
Division 3 Managing risks-general diving work, Section 176 Management of risks to health and safety
Chapter 5 Plant and structures, Part 5.1 General duties for plant and structures
Division 7 General duties of a person conducting a business or undertaking involving the management or control of plant, Section 203 Management of risks to health and safety
Division 7 General duties of a person conducting a business or undertaking involving the management or control of plant, Section 214 Powered mobile plant — general control of risk
Chapter 6 Construction work, Part 6.3 Duties of person conducting business or undertaking
Division 1 General, Section 297 Management of risks to health and safety
Division 3 Excavation work, Section 305 Management of risks to health and safety associated with excavation work
Chapter 6 Construction work, Part 6.4 Additional duties of principal contractor
Section 315 Further health and safety duties — specific risks
Chapter 7 Hazardous chemicals, Part 7.1 Hazardous chemicals
Division 5 Control of risk-obligations of persons conducting businesses or undertakings, Section 351 Management of risks to health or safety
Division 9 Pipelines, Section 391 Management of risks to health and safety by pipeline operator
Chapter 8 Asbestos, Part 8.4 Management of naturally occurring asbestos
Section 431 Naturally occurring asbestos

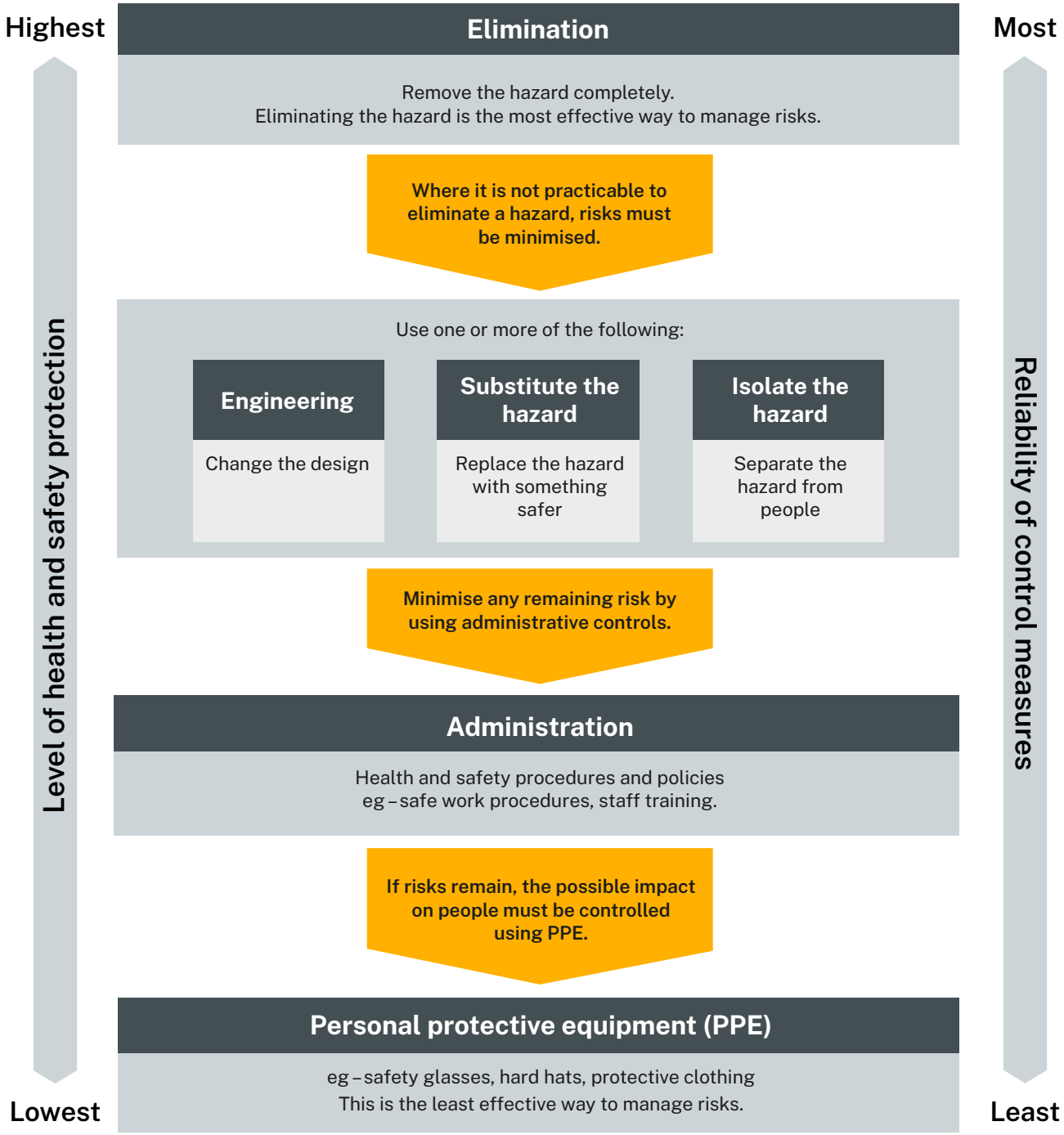


Figure 1: An overview of the hierarchy of control measures

Further risk management guidance is available in the:

- *Code of practice: How to manage work health and safety risks*
- *Code of practice: Managing psychosocial hazards at work*
- *Code of practice: Sexual and gender-based harassment*

3. Planning and preparation

3.1 Planning by designers

Risks associated with work on roofs can be eliminated or minimised during the design stage. Many PCBUs perform design work, including:

- architectural and engineering design of roofs, including the supporting structure and roofing material,
- design of plant and equipment that is intended to be installed onto roofs,
- design of safety equipment and systems intended to control risks when accessing and working on roofs.

Designers should consider the work practices necessary to safely install, inspect, maintain and remove the roof, plant, or equipment throughout its service life. Designers should also consider how their designs may impact or change how work on a roof is carried out.

Installing equipment onto an existing roof may fundamentally change the design and use of the roof, for example, adding a solar installation to a roof may add additional loads, alter access routes, restrict access to other roof mounted equipment, and change maintenance routines (frequency of access and number of workers). Where such changes have occurred, there should be an assessment of existing control measures to determine whether they remain effective or need to be modified, supplemented or replaced with other measures to minimise risks so far as reasonably practicable.

Designers should consider the hierarchy of control when designing buildings and where reasonably practicable:

- minimise work at heights during construction e.g. designing components that can be pre-assembled, or have control measures pre-installed at ground level,
- incorporate control measure to minimise risks during construction,
- incorporate higher order control measures to prevent falls from roofs, e.g. permanent access systems, edge protection, parapet walls (900mm minimum height), trafficable walkways and skylight covers,
- provide permanent fall protection for foreseeable activities throughout the service life of the roof including installation, commissioning, inspection, maintenance and decommissioning,
- provide anchorage points for harness-based systems, where required, for use during installation and subsequent work on the roof,
- ensure roof members and other elements of the building are structurally capable of supporting imposed loads from control measures e.g. guardrails, lifelines and anchorages.

3.2 Planning by PCBU or principal contractor

Before roof work commences, the PCBU or principal contractor, in consultation with the contractors undertaking the work, should undertake a risk assessment of the work to be carried out and:

- where reasonably practicable use building methods that reduce work at heights,
- consider the type and placement of scaffolding required for access and fall prevention,
- consider the most effective methods of controlling the risk of falls at roof edges around the perimeter, at roof penetrations, and through weak or fragile roof materials,
- ensure that the roof structure is complete and braced,
- ensure that the strength of the roof members is adequate to support the system to be used to control the risks of a fall injury,

- provide suitable and safe access to and from the construction site, including the working areas on the roof,
- implement specific controls if the surface is steep or slippery, brittle or fragile roofing materials are encountered, or the work involves the removal of asbestos cement,
- place roofing materials in a position on the ground so that risks (including falling material) from moving and lifting to the roof are minimised,
- plan for positioning of bundles of roof materials to avoid excessive point loading on the structure,
- plan to prevent materials slipping or rolling off roofs,
- ensure ground conditions provide a firm, level surface capable of supporting the loads exerted by mobile plant to maintain stability,
- arrange any necessary analysis, testing or examination to ensure ground conditions are capable of supporting loads,
- ensure that electrical safety and systems of work align with the *Code of practice: Managing electrical risks in the workplace*,
- observe the approach distances from overhead electric (power) lines outlined in the *Code of practice: Work near overhead and underground electric lines*,
- identify the presence of any asbestos at the worksite or in the roof,
- ensure that all workers have received appropriate training and instruction,
- ensure that all contractors and subcontractors have been provided with the parts of the site safety management plan that are relevant to their work on the roof,
- obtain SWMS from the subcontractors, that adequately describe the work to be carried out.

3.3 Planning by contractors

In addition to consulting and coordinating with the PCBU or principal contractor, all contractors doing work should:

- control the risk of falls and falling objects, so far as is reasonably practicable, taking into account the nature of the work being done,
- maintain suitable and safe access to and from the roof,
- provide a written SWMS for any high risk construction work, describing how the work is to be done safely,

Additionally contractors should:

- undertake an assessment of the risk involved in carrying out the work – see the *Code of practice: How to manage work health and safety risks*,
- ensure roof edge protection, anchor points, or other fall prevention measures are installed,
- during installation ensure roofing materials and other equipment are suitably located and distributed to avoid excessive point loading on the roof structure,
- place roofing materials in locations that reduce hazardous manual task risks,
- implement specific controls if the surface is steep or slippery, brittle or fragile roofing material is encountered, or if the work involves removal of material containing asbestos,
- ensure that workers and others carrying out or affected by the work are provided with appropriate PPE where required,
- ensure there is adequate lighting; artificial lighting may be required to conduct operations safely, outside of daylight hours or in poor light,

- consider the experience, competency and training of a worker when allocating tasks, so as to minimise risks,
- as far as reasonably practicable, perform tasks at ground level in order to reduce the risk of falls or being struck by falling objects (e.g. tools),
- ensure that safety systems for electrical work align with the *Code of practice: Managing electrical risks in the workplace* and, when work is near electric (power) lines, the *Code of practice: Work near overhead and underground electric lines*,
- prior to installing the roof material, develop a system to ensure that safety mesh (when used) is inspected and certified by a competent person as being installed in accordance with the manufacturer's recommendations,
- determine the appropriate method for transferring old roof materials to the ground during removal or replacement activities. It may be appropriate to strap, bundle and secure the material in a designated location on the roof, taking into account load limits, weather conditions, and other relevant site factors. Secured bundles are to be removed using a safe and controlled method (e.g. crane),
- prevent workers and others from entering the area below the roof while any sort of roof work is being carried out, including the raising and lowering of material,
- minimise workers skin exposure to sun / UV radiation,
- control exposure to excessive electromagnetic radiation from devices such as antennas,
- control exposure to harmful bacteria, e.g. legionella in cooling towers.

3.4 Preparing for work to commence

Before work commences, PCBUs must put in place effective controls as outlined in the SWMS, risk assessments and the WHS management plan (where the work is for a construction project). Checks should be made to ensure that no new uncontrolled hazards have been introduced.

To control risks, preparing for the commencement of work should include checking or assessing:

- fall protection control measures, e.g. scaffolding, guardrails, safety mesh,
- access to and from the workplace, e.g. whether persons can pass through the edge protection system without having to climb over guardrails,
- the climatic and environmental conditions, e.g. moisture, lichen or dust on the roof, wind conditions, weather forecast,
- the availability, suitability and condition of PPE,
- the completion of induction training,
- specific instructions given to / provided to / required for workers,
- electrical practices, e.g. the condition and use of portable electrical tools and equipment,
- emergency and rescue procedures, e.g. rescuing a worker from a fall arrest harness,
- the identified dedicated areas for the operation of plant, such as cranes, elevating work platforms (EWP), elevators and personnel hoists,
- the crane placement and lifting schedule.

Prior to commencing work on an existing roof, an inspection should be conducted by a competent person to determine:

- the presence and integrity of safety mesh,
- the structural integrity / stability of the roof and supporting structures,

- the fragility of the roof and roof sheets,
- the presence of asbestos, sky lights, electrical, radio frequency, chemical, biological or other hazards.

Once work commences, ongoing review must be carried out to ensure that control measures are being applied as the construction of the roof progresses and are revised as necessary to maintain, so far as is practicable, a work environment that is without risks to health and safety. The SWMS and any WHS management plan must be reviewed and revised to ensure they remain up to date.

3.5 Safe work method statements (SWMS)

WHS Regulation Chapter 6

Part 6.3, Division 2, High risk construction work - safe work method statements

The WHS Regulation classifies a number of activities as 'high risk construction work' for which a SWMS must be prepared before the work commences. High risk construction work includes work that involves a risk of a person falling more than 2 metres.

At a minimum, a SWMS must:

- identify the work that is high risk construction work (e.g. work that involves a risk of a person falling more than two metres),
- specify the hazards (e.g. working on a roof) and associated risks (e.g. a fall from the roof),
- describe the measures to be implemented to control the risks (e.g. guardrails),
- describe how the control measures are to be implemented, monitored and reviewed (e.g. who will arrange the installation of temporary edge protection, who will verify the edge protection is installed correctly, the job sequence, safe access to the roof, communication and site induction for workers, supervision, intermittent checking of guardrails, review of work required for any additional controls, such as work extending to a section with skylights now requiring skylight covers),
- be understood by all persons using the document.

When developing the SWMS, consideration is to be given to all relevant matters, including the WHS management plan (where the work is carried out in connection with a construction project) and circumstances at the workplace that may affect the way in which the high risk construction work is carried out. This may include the site conditions and specifics e.g. site access/egress, proximity to other structures or electric (power) lines, ground conditions, other trades/or activities happening at the same time or access to safety equipment.

Further information on developing a SWMS can be found in the *Code of practice: Construction work*.

4. Types of control measures for work on roofs

There are various control measures that may be considered when working on roofs. The following content describes the types of common control measures and Chapter 5 provides information on the implementation of these control measures.

For further guidance on implementation refer to the manufacturer's instruction manual and relevant Australian Standards.

4.1 Fixed access systems

A PCBU must ensure, so far as is reasonably practicable, work that involves the risk of a fall is carried out on the ground or on a solid construction.

Fixed access systems comprise permanently installed stairways, ladders, walkways and platforms. They are used to provide permanent safe access to work areas and ensure that work can be performed on a 'solid' construction.

A 'solid' construction is an area that has:

- a surface that is structurally capable of supporting workers, materials and any other loads applied to it,
- barriers around its perimeter and any openings from or through which a person could fall,
- an even and readily negotiable surface and gradient, and
- a safe means of entry and exit.

Fixed access systems should comply with Australian Standard *AS 1657:2018 Fixed platforms, walkways, stairways and ladders - Design, construction and installation*.

4.2 Scaffolds and scaffolding

A scaffold is a temporary structure specifically erected to support access or working platforms.

Common scaffold use when working on roofs include:

- providing access to the roof/work area,
- protection against falls and/or falling objects at the roof edge,
- as a work platform for tasks at the roof edge e.g. fascia and gutter installation,
- as a landing or storage platform for equipment that cannot be loaded directly onto the roof.

Scaffolds used for access, storage or as a working platform should comply with Australian/New Zealand Standard *AS/NZS 1576 Scaffolding* (series). Scaffolding equipment used exclusively for temporary edge protection is covered in Chapter 4.3.

The following additional requirements apply to scaffolds where a person or object could fall more than 4 metres.

- Any person erecting, altering or dismantling the scaffold must hold a scaffolding high risk work licence.
- The scaffold must be inspected before first use, and re-inspected at the intervals prescribed by Section 225 of the WHS Regulation.
- Written confirmation (i.e. a handover certificate) must be provided by a competent person, who has inspected the scaffold, confirming that the construction of the scaffold has been completed before allowing non-scaffolders to access the scaffold.

Scaffolding work should be undertaken in accordance with Australian Standard *AS 4576:2020 Guidelines for scaffolding*.

Inspections and handover certificates should be completed in accordance with Safe Work Australia's *Guide to scaffold inspection and maintenance*.

Where work is carried out from a scaffold, workers must be provided with information, training and instruction on the risks associated with the scaffolding and control measures implemented to minimise the risk. This may include information, training and instruction on:

- emergency response procedures,
- the maximum live loads the scaffold can safely support (duty rating) and measures to prevent overloading,
- not making unauthorised alterations to the scaffold, such as removing guardrails, planks, ties, toe-boards and braces,
- keeping work platforms clear of debris and obstructions along their length,
- not accessing incomplete, unsecured or defective scaffolds,
- immediately reporting defects or damage, if they occur,
- isolating electrical leads from the metal components of the scaffold e.g. with plastic lead hooks or insulated materials, where reasonably practicable,
- complying with any electrical 'permit to work' requirements issued by the electricity supply authority for work conducted from a scaffold within a powerline 'no-go' zone.

For further information see Safe Work Australia's *General guide for scaffolds and scaffolding work*, and the SafeWork NSW *Scaffolding Industry Safety Standard*.

4.3 Temporary edge protection

Guardrail systems

Guardrail systems typically comprise top rails, mid rails, bottom rails and/or infill panels, supported by posts attached to the building structure.

Guardrail systems should comply with Australian/New Zealand Standard *AS/NZS 4994.1:2023 Temporary edge protection – General requirements* and should be erected in accordance with Australian/New Zealand Standard *AS/NZS 4994.2:2023 Temporary edge protection – Roof edge protection – Installation and dismantling*.

Before installing a guardrail system, the building structure should be assessed to determine that it can support the imposed loads. The roof design engineer may need to be consulted for advice on the compatibility of the roof structure with the proposed guardrail system.

Guardrail systems should be erected and dismantled by a competent person in accordance with the manufacturer's instructions. Particular attention should be given to geometric requirements, as excessive gaps between rails, or between the bottom rail and the roof edge, can create fall hazards. The addition or removal of items such as fascias, gutters and cladding can affect these gaps, and this should be considered to determine any adjustments required as the work progresses.

Installation methods that minimise working at heights should be implemented where reasonably practicable, for example installing systems from the ground or pre-installing components onto structural members during construction.

Some edge protection systems incorporate sacrificial brackets that remain in place when the roof is completed. A competent person should assess both the brackets and their fixings before they are reused for subsequent work on the roof.

Scaffolding equipment

Scaffolding equipment used solely to provide temporary edge protection at the roof edge (i.e. that is not intended to support access or working platforms) should comply with Australian/New Zealand Standard *AS/NZS 4994.2:2023 Temporary edge protection – Roof edge protection – Installation and dismantling*. Where a catch platform is incorporated, it should be positioned as close as practicable to the underside of the roof, and no lower than one metre below the roof edge.

For further information, refer to the SafeWork NSW *Roof edge protection fact sheet*.

4.4 Covers

Covers are used to provide protection at openings (i.e. holes, penetrations) and non-trafficable surfaces (e.g. polycarbonate sheeting, skylights). Covers may be used as either a temporary or permanent control measure.

Covers are generally not intended to be trafficable and may not provide equivalent performance characteristics to fixed walkways, such as surface friction, slope tolerance or slip resistance.

Covers must be strong enough to prevent workers or objects falling through the opening or surface and should be securely fixed to prevent dislodgement or accidental removal. Covers should be designed to safely withstand a concentrated load of at least 2 kilonewtons.

Covers may be constructed from a range of materials, however, it is preferrable that covers are clearly distinguishable from roofing material or other building materials in use to minimise the risk of covers being mistaken for waste material and removed unintentionally.

4.5 Roof safety mesh

Roof safety mesh comprises longitudinal and transverse wires welded together to form a mesh that, when fixed to suitable roof members, can prevent a person falling during installation of roof materials. In certain scenarios it may also provide ongoing fall protection.

Roof safety mesh is not typically designed to use as a working platform and therefore should not be walked on unless it is designed specifically for that purpose.

Roof safety mesh should be designed, manufactured, supplied, and installed in accordance with Australian/New Zealand Standard *AS/NZS 4389:2015 Roof safety mesh.* Installation should be undertaken by a competent person. Preference should be given to full length (gutter to gutter) mesh where practicable, as it eliminates the potential hazard of failure at lapped joints between adjacent sheets of mesh.

The durability and service life of roof safety mesh can vary depending on both the product and the environment where it is installed. Identical products can experience different in-service conditions and deteriorate at different rates (e.g. indoor vs outdoor exposure). Subsequent construction and maintenance activities within a building can also damage mesh.

Where existing installed roof safety mesh is to be used as a control measure, e.g. during subsequent roof maintenance, refurbishment or removal work, a competent person should inspect and confirm the integrity of the mesh and the supporting members.

4.6 Harness-based systems

Harness-based systems typically comprise a worker wearing a harness that is connected to one or more anchorages via a lanyard, self-retracting lifeline (SRL) or ropes. Harness-based systems include industrial rope access, restraint, and fall arrest systems.

Harness-based systems must only be used if it is not reasonably practicable to:

- prevent falls by carrying out work on the ground or on a solid construction, or
- minimise fall risks using fall prevention devices, such as edge protection and roof safety mesh.

The various components of a harness-based system should be compatible and used in accordance with manufacturer's instructions.

Anchorage points should be:

- compatible with the host structure,
- installed by a competent person,
- used in accordance with manufacturer's instructions,
- inspected in accordance with Australian/New Zealand Standard *AS/NZS 1891.4:2025 Personal equipment for work at height - Selection, use and maintenance* either on a scheduled basis or prior to use (if used infrequently).

Building structural elements such as roof trusses or steel beams should only be used as anchorage points if a competent person has verified they are capable of supporting the imposed fall-arrest loads. Temporarily braced or incomplete structural elements should not be used as anchorage points.

A worker that uses any harness-based system should be competent in its correct set-up, adjustment and use, and should inspect it for wear and damage before and after use and following storage or transport.

Workers must also be provided with suitable and adequate information, training and instruction in relation to emergency and rescue procedures.

4.6.1 Work positioning systems

Work positioning systems are harness-based systems that allow a person to be positioned and safely supported at a location in such a way that a fall is prevented. They may support all or part of a person's weight during normal use.

Whilst preventing a fall is generally safer than arresting a fall, work positioning systems are dependent on worker competency and correct configuration to ensure effectiveness.

Work positioning systems include:

- total restraint systems,
- industrial rope access systems,
- pole strap work.

Work positioning systems are not necessarily designed to withstand the dynamic loads associated with fall arrest. If there is a risk of a person falling, a fall arrest system should be used.

Work positioning systems that support the users weight during use should be supplemented with additional control measures such as a fall arrest system to provide protection in the event the primary system fails.

Total restraint system

A total restraint system controls a person's movement by physically preventing them reaching a position where there is a risk of a fall e.g. over an edge, or through a hole or weak surface. It typically comprises a harness connected to an anchorage or horizontal lifeline via a lanyard.

Lanyards may be fixed length or adjustable, however, adjustable components (including SRLs used in restraint mode) must prevent access to a fall location, i.e. incorrect adjustment or failure of any adjustment mechanism cannot allow a fall hazard to be reached.

(Note: for adjustable systems where a fall location could potentially be reached see restraint technique).

A total restraint system should incorporate sufficient controls to maintain its effectiveness in restraint e.g. having a prescribed lanyard and preventing workers introducing longer lanyards that would enable them to reach a position of risk.

Total restraint typically uses equipment that is specifically selected and configured to suit the specific features and access requirements of the building. It is most effectively implemented as a permanent installation on a completed roof.

Often systems thought to be total restraint are not, as they still have fall risks. Some examples include systems that:

- permit workers to use their own equipment,
- incorporate adjustable components that allow a fall hazard to be reached,
- provide edge protection but allow travel onto weak or non-trafficable surfaces,
- don't allow safe transition between anchorages,
- use temporary anchorages and equipment in generic configurations, rather than customised to suit the roof.

In such situations the system may instead be relying on restraint technique or other additional controls to prevent falls (refer 4.6.2).

Industrial rope access systems

An industrial rope access system allows a person to gain access to, and work at, a location by means of vertically suspended ropes. A rope access system should consist of two separately secured rope systems:

- a main line for descending, ascending and supporting the person in the work position, and
- an independently anchored safety line to provide fall protection in the event of a main line failure.

Industrial rope access is typically used to provide access to areas that cannot reasonably be reached by other methods such as scaffolding, EWPs and workboxes. It is not commonly used for work on roofs, although may be a method of providing infrequent or temporary access to steeply pitched roofs.

It is often necessary to access or work on a roof while setting up a rope access system. Access, setup and connection to an industrial rope access system should only occur from areas where the risk of a fall has been controlled i.e. working from a solid construction where practicable, or through use of other controls.

Rope access systems and equipment should conform with Australian/New Zealand Standard *AS/NZS ISO 22846 Personal equipment for protection against falls - Rope access systems* (series).

4.6.2 Industrial fall-arrest systems

An industrial fall-arrest system is designed to arrest or restrain a person's fall and minimise the risk of injury. Industrial fall arrest systems include:

- restrained fall-arrest systems,
- limited free fall / free fall-arrest systems,
- restraint technique systems.

Industrial fall-arrest equipment and systems should conform to Australian/New Zealand Standard *AS/NZS 1891 Personal equipment for work at height* (series).

When using a fall arrest system, emergency and rescue procedures must be in place and tested to ensure they are effective.

Adequate provision should be made for the prompt rescue of a worker who is suspended in a full body harness to reduce the risk of suspension intolerance and treat any injuries sustained during the fall and fall arrest. Workers should be equipped and trained with suitable rescue equipment and a worker should not use a fall arrest system unless there is at least one other person on site who can rescue them if they fall. Refer to Chapter 4.11 Emergency and rescue procedures for further information.

Restrained fall-arrest system

Restrained fall-arrest is where a worker is restrained from falling by a pole strap or similar device. This type of harness-based system is rarely used for work on roofs, although it may be used to climb poles or similar that are accessible from a roof.

Care should be taken to ensure continuous protection is maintained when transferring from roof-based fall protection systems to other systems such as a pole strap. This is achieved by ensuring the worker always remains connected to at least one system.

Limited free fall / free fall-arrest systems

Limited free fall and free fall-arrest systems consist of a full-body harness connected to an anchorage or lifeline via an energy-absorbing lanyard. These systems do not prevent a fall but are intended to minimise the severity of injury by controlling deceleration forces during a fall arrest.

Free fall distance is the vertical distance a user falls before slack in the system is taken up and the fall-arrest system begins to decelerate the fall:

- limited free fall-arrest is where the maximum free fall distance does not exceed 600mm,
- free fall-arrest is where the maximum free fall distance is greater than 600mm but does not exceed 2 metres.

Note: Fall-arrest equipment complying with Australian Standards is not designed for free fall distances exceeding 2 metres.

Free fall arrest systems should be designed to minimise the free fall distance. As free fall distance increases, the amount of kinetic energy that needs to be absorbed by the system also increases. If this energy exceeds the systems energy absorbing capacity, excessive shock loading may occur, potentially resulting in equipment failure or serious injury.

Minimising free fall distances typically requires the anchor point to be level with or above the harness attachment point. This can be difficult to achieve when working on roofs, particularly where the anchor point is mounted on the roof surface. In such circumstances, the anchorage point should be located as far behind the worker as

reasonably practicable, with the worker positioned as close as practicable to directly in front of the anchorage point. The lanyard should also be adjusted to the shortest length necessary to perform the work. These measures help minimise swing (pendulum) falls and limit free-fall distance.

Limited free fall and free fall-arrest systems should be selected, used and maintained in accordance with Australian/New Zealand Standard *AS/NZS 1891.4:2025 Personal equipment for work at height - Selection, use and maintenance.*

To ensure effective and reliable fall arrest, the system design must ensure:

- the maximum allowable free fall distance is not exceeded,
- there are no obstructions in the potential fall path,
- the risk of swing (pendulum) falls are controlled to prevent the worker from striking structures or other hazards,
- adequate fall clearance is available below the system (including deceleration distance) to arrest the fall prior to the worker impacting the next level below,
- anchorage points and their supporting structures are compatible and capable of withstanding the imposed loads.

Restraint technique

Restraint technique is a fall arrest system where the lanyard length is manually adjusted to prevent the worker from reaching a position where a fall could occur. Restraint is only maintained while the lanyard is correctly adjusted by the worker.

Unlike a 'total restraint' system, restraint technique still has a residual risk of falling due to possible incorrect lanyard adjustment which may cause the user to unknowingly reach a position in which a fall cannot be prevented or safely arrested, e.g. excessive lanyard length that allows a swing (pendulum) fall into a wall, the ground or other obstacle.

Restraint technique systems can range from relatively simple configurations (e.g. single-anchorage) to complex systems requiring frequent transfer between anchorages and repeated lanyard adjustment after each transfer. As a result, the level of training and competency required to implement restraint technique safely can vary considerably, and in many cases, may exceed that required for other harness-based fall arrest systems.

Restraint technique systems should use fall-arrest rated equipment, including an energy absorbing lanyard, and be selected, used and maintained in accordance with Australian/New Zealand Standard *AS/NZS 1891.4:2025 Personal equipment for work at height - Selection, use and maintenance*.

4.6.3 Inertia reel / Self-retracting lifeline (SRL) systems

Inertia reels or SRLs are a fall arrest device with a line that automatically extends and retracts. They may be used for restraint where the fully extended line physically prevents the worker from reaching an unprotected edge.

SRLs are not designed for the line to be locked off and relied upon as a fixed restraint device by engaging the brake mechanism to provide continuous support. For some applications, such as preventing the user from sliding down the inclined surface of a pitched roof, SRLs may not be effective and manufacturers should be consulted to determine product suitability for the intended use.

Most standard SRLs are designed to operate anchored above the user with the line oriented close to vertical. Advice should be sought from the manufacturer regarding the lines maximum safe angle of operation from the vertical. Standard SRLs should not be used in horizontal applications unless such use is permitted by the manufacturer.

Leading Edge (LE) SRLs are designed specifically for horizontal use from foot-level anchorages. These devices incorporate specific materials and energy-absorbing elements designed to manage edge-related hazards. LE SRLs may also be suitable for overhead anchorage where specified by the manufacturer.

4.6.4 Horizontal lifelines and Rail systems

Horizontal lifelines (also known as static lines) should comply with Australian/New Zealand Standard *AS/NZS 1891.2:2001 Industrial fall arrest systems and devices – Horizontal lifeline and rail systems*.

The installation of horizontal lifelines and rail systems should be carried out by a suitably trained and experienced person, deemed competent in installing temporary and permanent engineered systems, in accordance with the manufacturer or designer specifications.

4.7 Catch platforms and safety nets

A catch platform is a temporary platform located adjacent to or below a work area to arrest a falling person or object. Catch platforms should:

- be designed to withstand the maximum potential impact loads,
- extend at least 2 metres beyond unprotected edges of the work area (unless guardrailing, with sufficient height, is fitted to the catch platform),
- be positioned as close as practicable to, and no more than 1 metre below, the unprotected edges of the work area,
- be constructed so there are no openings or gaps through which a person or object could fall.

Safety nets may also be installed adjacent to or below a work area to arrest a falling person or object. Safety nets should:

- be constructed of material strong enough to catch a falling person or thing,
- be securely anchored and correctly tensioned before work commences,
- be positioned as close as practicable to, but no more than 2 metres below, the working area,
- have sufficient clearance to prevent a falling person contacting any surface or structure below the net,
- not be used if the work activity or falling objects could damage the net (e.g. during hot work).

Catch platforms and safety nets should be inspected after installation, relocation or repair, and at regular intervals. Catch platforms and safety nets should not be used to enter or exit a work area or as a work platform.

4.8 Administrative controls

Administrative controls are systems, methods, processes and procedures designed to influence the way people work. They are low on the hierarchy of control as they rely on workers adopting behaviours or taking particular actions to minimise risk and should only be used when other control measures are impracticable, or where a residual risk exists after implementing other controls. Examples of administrative controls that may be used in work on roofs include no-go areas, work sequencing, signs, roof access permits and SWMS.

No-go areas

No-go areas typically define areas where workers may be exposed to unguarded hazards, like falls or being hit by falling objects. They may also be used to define areas where only authorised workers may enter.

No-go areas reduce the risk of injury by ensuring safe distances from hazards are maintained. However, they still

rely on information, instruction, training and supervision to ensure that no unauthorised workers enter the area.

No-go areas should be clearly delineated by a barricade or similar measure that provides both a visual indication as to where the boundary of a no-go area is, and a tactile indication when the no-go area is being breached.

Barricades must be set at sufficient distance from the hazard to ensure workers erecting the barricade are not exposed to the hazard and persons inadvertently breaching the no-go area have time to stop before reaching the hazard. As a guide, on a flat, trafficable roof in good weather conditions, a minimum 3m exclusion zone from any fall hazard should be maintained.

No-go areas should have clear signs warning workers and others not to access the area.

Information and instruction should be provided to workers about no-go areas, with supervision to ensure that no unauthorised worker enters the area. Barriers should be used in conjunction with signs to cordon off areas where there is a risk of falling or being hit by falling objects. They should be highly visible and securely fixed to prevent displacement.

Signage

Signs may provide a warning indicator to highlight the risks of entering an area where there is an unguarded hazard, or to areas where work is being carried out overhead and there is a risk of falling objects. Signs may also indicate specific hazards e.g. bonded asbestos or fragile surface.

However, signs do not prevent exposure to hazards and may be unreliable if work is to be conducted close to the actual hazard. Additionally, in some circumstances a sign may be ineffective at providing a warning, e.g. where a worker has their back to the sign or is focused on the tasks they are performing.

4.9 Personal protective equipment (PPE)

PPE is anything used or worn by a person to minimise risk to the person's health and safety. The use of PPE to control risks is lowest on the hierarchy of control measures and should only be used when other control measures are impracticable, or where a residual risk exists after implementing other controls.

A risk assessment should be undertaken to determine suitable and appropriate PPE.

Where PPE is determined to minimise and control risks in certain tasks or situations, the PCBU must provide the required PPE to each person at risk and ensure that:

- the PPE is appropriate, fitted correctly, maintained in good condition, correctly stored, used correctly and controls the risk for that person,
- workers are trained to know how and when to use PPE properly, its limitations, and how to look after and store the equipment,
- PPE is regularly inspected and maintained in a clean and fully effective condition. Defective equipment must not be used,
- PPE is used or worn by workers (or other persons in the workplace to whom it is provided). Supervisors should regularly check the usage of PPE,
- PPE is repaired or replaced as necessary.

PPE that may be used when working on roofs includes:

PPE	Description	Relevant Australian or Australian/New Zealand Standard
Safety helmets	Helmets with ear and eye protection components and a chinstrap for protection against falling objects and impacts	*AS/NZS 1801:2024 Occupational protective helmets*
Safety harness	Protects against risk of falls from height	*AS/NZS 1891.1:2020 Personal equipment for work at height – Manufacturing requirements for full body combination and lower body harnesses* *AS/NZS 1891.4:2025 Personal equipment for work at height – Selection, use and maintenance*
Safety eye wear	Protects against flying debris such as wood dust	*AS/NZS 1337.1:2010 Personal eye protection – Eye and face protectors for occupational applications*
Sun protection	Protection from UV radiation, including tinted eye wear, sunscreen, hats, and UV protective clothing	N/A
Safety gloves	Provides protection, comfort, and durability when handling branches and debris	*AS/NZS 2161.3:2020 Occupational protective gloves – Protection against mechanical risks*
Protective footwear	Protects against falling objects and heavy equipment, such as chainsaws	*AS/NZS 2210.1:2025 Safety and occupational footwear – Guide to selection, care and use*
Respiratory protection	Reduces risk of inhaling dust and harmful particles	*AS/NZS 1716:2012 Respiratory protection devices*
Hearing protection	Prevents hazardous noise exposure from machinery and plant	*AS/NZS 1269 (series): Occupational noise management* *AS/NZS 1270*:2002 *Acoustics - Hearing protectors*
High visibility clothing	Increases visibility in areas with moving traffic or plant hazards	*AS 4602.1:2024 High visibility safety garments – Garments for high risk applications*

4.10 Ladders

Portable ladders

Falls from ladders have resulted in a significant number of serious and fatal injuries, even when accessing a roof of low height. While ladders are often considered the first option for roof access or egress, they should only be considered after safer alternatives, such as fixed ladders or a scaffold stair tower, have been considered first and determined as not being reasonably practicable.

Portable stepladders and trestle ladders should not be used for roof access or egress. Single or extension ladders should only be used where the use of safer systems are not reasonably practicable.

While climbing or descending both hands should be free to grip the ladder, meaning other control measures may be necessary to transport material and equipment onto or from a roof. For more information and guidance on portable ladders, refer to the *Code of practice: Managing the risk of falls at workplaces* - Section 9.1 Portable ladders.

Fixed ladders

Where fixed ladders form part of an existing building and provide safe access to the area where work is to be done, they should be considered as a means of access in preference to portable ladders.

For more information and guidance on fixed ladders, refer to the *Code of practice*: *Managing the risk of falls at workplaces* - Section 9.2 Fixed ladders.

4.11 Emergency and rescue procedures

A PCBU who implements a fall arrest system as a control measure must establish emergency and rescue procedures. Fall arrest systems include catch platforms, safety nets, and harness-based systems.

Emergency and rescue procedures must be tested to ensure that they are effective, and workers must be provided with suitable and adequate information, training and instruction in relation to the procedures.

The rescue of a worker who is suspended in a full body harness should occur promptly to reduce the risk of suspension intolerance and treat any injuries sustained during the fall and fall arrest. A worker should not use a fall arrest system unless there is at least one other person on site who can rescue them if they fall.

Suspension intolerance / Suspension trauma / Orthostatic intolerance

Suspension intolerance can occur with a fall arrest system when a person has an arrested fall and is suspended in an upright, vertical position. The capacity of the lower legs to store large amounts of blood reduces the return of blood to the heart, slowing the heart rate, which can cause the person to faint. This may lead to renal failure and eventually death, depending on a person's susceptibility. This condition may be worsened by heat and dehydration. It is important for workers to be able to recognise the signs of suspension intolerance and act quickly in the rescue of a person suspended in a harness.

Relevant workers must be trained in the rescue procedures. Workers should be capable of conducting a rescue of a fallen worker and be familiar with on-site rescue equipment and procedures.

Preventing suspension intolerance

To prevent suspension intolerance occurring as a result of an arrested fall, PCBUs should ensure that:

- workers never work alone when using a harness as fall protection,
- workers use a harness, which allows legs to be kept horizontal,
- where the rescue is likely to take more than five minutes the harness and connection point used should allow the suspended worker to raise their legs to near horizontal, or the worker should carry straps to provide footholds,
- workers are trained to do the following when they are hanging in their harness after a fall:
    - move their legs in the harness and push against any footholds, where these movements are possible. In some instances, the harness design and any injuries received may prevent this movement,
    - move their legs and/or body to a near horizontal position, where these movements are possible.

5. Managing the risk of falls

WHS Regulation section 78

Management of risk of fall

WHS Regulation section 79

Specific requirements to minimise risk of fall

In managing the risk of falls, the WHS Regulation requires specific control measures to be implemented, where it is reasonably practicable to do so. PCBUs must manage risks to health and safety associated with a fall by a person from one level to another that is reasonably likely to cause injury to the person or any other person.

In managing the risk of a fall, PCBUs must ensure, so far as is reasonably practicable, that any work involving a risk of a fall is carried out on the ground or on a solid construction.

If it is not reasonably practicable to eliminate the risk of a fall by carrying out work on the ground or on a solid construction, PCBUs must minimise the risk of a fall by providing adequate protection against the risk. Adequate protection against the risk can be achieved through the implementation and maintenance of a safe system of work that includes:

- providing a fall prevention device, for example perimeter guardrails, covers, scaffolding or temporary work platform, if it is reasonably practicable to do so, or
- if it is not reasonably practicable to provide a fall prevention device, providing a work positioning system, for example harness-based industrial rope access or total restraint system, or
- if it not reasonably practicable to provide a fall prevention device or work positioning system, providing a fall arrest system, for example an industrial safety net, catch platform or harness-based fall arrest-system, so far as is reasonably practicable.

If a risk remains after considering all the control measures mentioned above, PCBUs must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls, for example no-go areas, safe sequencing of work, permit systems and appropriate signs.

Administrative controls may also be used to support higher order control measures. However, the exclusive use of administrative controls to minimise the risk of falls is only appropriate when it is not reasonably practicable to use a higher order control.

Often a combination of control measures will be required to manage risks. Some examples are below.

- During construction, a PCBU may use:
    - scaffolding to provide access for workers and equipment,
    - temporary edge protection to prevent falls at the roof edge,
    - roof safety mesh to prevent falls during roof sheet installation.
- While repairing or maintaining roof mounted plant, a PCBU may use:
    - portable or fixed ladder access systems to access the roof,
    - no-go areas to delineate a work zone,
    - temporary edge protection to control fall hazards within 3 metres of the work zone.

5.1 Roof access

Safe access must be provided to enter and exit all areas in a workplace, including access to different levels and to all parts of the roof.

Common methods of access include:

- scaffolding,
- personnel hoists,
- permanent access (e.g. access from plant rooms, permanently installed access systems that comply with Australian Standard *AS 1657:2018 Fixed platforms, walkways, stairways and ladders - Design, construction and installation)*,
- portable ladders (refer to Chapter 4.10 Ladders),
- mobile EWPs.

Less common types of access for roofs include:

- industrial rope access,
- crane lifted workboxes or first aid cages (where permitted and appropriately controlled).

Access may be permanent or temporary, and the type that is reasonably practicable will depend on a range of factors. For example, portable ladder access may be appropriate for low risk, short duration activities such as site inspection, quoting and measuring, whereas permanently installed access should be used where regular access is required to inspect, service and maintain roof-mounted plant.

Before choosing a type of access, consideration should be given to:

- the specific area(s) of the roof required to be accessed,
- the frequency of access i.e. ongoing (e.g. regular maintenance) versus discrete (e.g. during construction),
- the duration of access i.e. short duration (e.g. quoting) versus longer duration (e.g. installation work),
- any tools, equipment and materials that may be required while on the roof, and the risks of carrying them (refer to Chapter 4.10 Ladders),
- the number of workers required to access the roof at any one time to ensure:
    - the roof structure is not overloaded,
    - limitations on simultaneous use of access systems is not exceeded (e.g. only 2 people connected to an anchor point, capacity of an EWP basket),
- the nature of the work, for example:
    - the qualifications / competence of workers,
    - proximity of hazards to the area(s) requiring access,
    - access to other control measures (e.g. installing ladder points close to anchor points),
- the versatility and suitability of the access system (e.g. a boom-type EWP may reach areas a scissor-type cannot),
- appropriate access and response in an emergency.

EWPs are generally not intended as a means of access however in some instances they may be the safest option to access a roof. If a worker is required to exit the basket of an EWP, they should do so in accordance with the procedure specified in Australian Standard *AS 2550.10:2025 Cranes, hoists and winches – Safe use – Mobile elevating work platforms.*

5.2 Falls at roof edges

Workers must be safeguarded against the risks of falling off roof edges when working on roofs.

Common control measures include:

- permanent guardrails,
- temporary edge protection,
- perimeter scaffolding,
- harness-based systems,
- barricaded no-go areas.

The type of control that is reasonably practicable depends on various factors; however, harness-based systems and no-go areas should only be used when higher-order controls, such as permanent or temporary edge protection, are not reasonably practicable.

For example, no-go areas may be an appropriate control measure where a permanent trafficable walkway is installed on a roof and clearly delineates a travel path that is a minimum of 3 metres from any fall hazard. However, where there is a risk of falling off that walkway and onto the roof, guardrails should be provided on either the walkway or roof edges.

Fall arrest is typically unsuitable for controlling falls at roof edges due to excessive free fall distance, insufficient fall clearance, and the potential for lanyard or lifelines being damaged by roof edges.

When selecting control measures to prevent falls at roof edges, consideration should be given to:

- the specific area(s) of the roof required to be accessed,
- the frequency and duration of access,
- the number of workers requiring access, e.g. anchor points and lifelines may not be rated for multiple users,
- the layout of the work area, e.g. some control measures may impede trades.

Control measures may be temporary or permanent. Generally, temporary controls are suitable for use during construction, short term or one-off work on existing roofs. However, permanent controls should be used where regular access to existing roofs is required e.g. for maintenance and repair of roof mounted plant.

When assessing control measures, consideration should be given to the expected life and use of the building. Where the use of the roof changes, existing controls must be reviewed to determine whether they continue to minimise risks so far as reasonably practicable. For example, installing roof mounted plant such as a PV solar system may increase the frequency and duration of roof access or interfere with the location of existing anchor points or lifeline systems, meaning an existing harness-based system is no longer appropriate and should be replaced with higher-order control measures such as a permanent access system and guardrails.

5.3 Falls through roofs

Workers must be safeguarded against the risks of falling through a roof during roof work. Hazards include:

- partially complete roofs,
- weakened, brittle or fragile roof material,
- skylights,
- roof penetrations, voids and openings.

Common control measures for preventing falls through roofs include:

- roof safety mesh,
- covers,
- barriers, fencing or guardrails,
- barricades,
- no-go areas,
- harness-based systems,
- signage and warnings.

Before any work is carried out on a roof, a risk assessment should be undertaken to identify whether there are any brittle or fragile surfaces, skylights, roof penetrations or other openings within the work area.

Where openings or other no-go areas have been identified, measures must be taken to prevent persons walking into them, e.g. by barricading or using a restraint system.

Hazardous areas should be clearly marked as no-go areas during set up. All workers on-site should be informed of the existence of such areas and how they can be identified, e.g. by inclusion in the site induction, in toolbox talks, and in the SWMS.

Roof safety mesh

Roof safety mesh is commonly used to prevent falls through a roof during building construction. It is generally installed between the roof structure and the roofing material, irrespective of the spacing of the purlins or rafters, and is used to protect those who install roofing material, particularly at the leading edge of the roof sheeting installation. Roof safety mesh is not designed to be a working platform and should not be walked upon unless it is designed for that purpose.

Roof safety mesh may also function as a long-term control measure to protect workers when carrying out work on existing roofs. However, roof safety mesh can deteriorate over time depending on the product type and environmental conditions. A competent person should inspect and confirm the integrity of existing roof safety mesh before use.

6. Managing risks of other hazards

6.1 Asbestos cement roofs

WHS Regulation section 420

Exposure to airborne asbestos at workplace

WHS Regulation section 429

Asbestos management plan

WHS Regulation section 445

Duty to train workers about asbestos

Asbestos is a hazardous substance made from naturally occurring fibrous silicate minerals found in some rock formations.

The disturbance of asbestos products may cause fine asbestos fibres to become airborne, presenting a health risk. When airborne, the fibres can be inhaled and can penetrate the deepest part of the lungs, causing lung cancer, mesothelioma or asbestosis.

Many buildings built before 1990 contain asbestos. Some common areas where asbestos is found include internal and external walls, lagging and pipe insulation, asbestos insulation, corrugated or compressed asbestos-cement (AC) sheeting, fire doors, roofing, guttering and downpipes. Asbestos roofing is often weathered and in poor condition.

There are risks not only of inhaling asbestos fibres, but also of falling off or through asbestos-containing roofs.

Identifying materials containing asbestos

It is a legal requirement to identify all materials within a workplace that contain asbestos. These materials must be recorded in an asbestos register, which forms part of an overall asbestos management plan.

Prior to commencing any work on roofs, the asbestos register must be reviewed.

A visual inspection of the work area and the identification of all hazards is to be conducted as part of the risk assessment process. If it is suspected that some materials contain asbestos, they must be assumed to contain asbestos or tested to confirm the presence or absence of asbestos.

Licensing of asbestos removalists

There are two types of licences for asbestos removal work:

(a) Friable asbestos removal licence, and

(b) Non-friable asbestos removal licence.

Non-friable asbestos is any asbestos containing material in a bonded matrix. It may consist of Portland cement or various resins or binders, and it cannot be crushed, or pulverised by hand when dry or in a powder form.

If fire, hail or water-blasting damages non-friable asbestos, or the material is showing signs of wear from water and age, it may become friable asbestos material.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

The removal of friable asbestos must only be undertaken by a licensed friable asbestos removalist. Licences to remove friable asbestos also permit the removal of non-friable asbestos.

All workers must be trained for the type of work they are undertaking.

All friable asbestos removal work, and non-friable asbestos removal work (over 10 square metres) must be notified in writing to SafeWork NSW at least 5 days before commencing the work.

Performing asbestos related work

Asbestos related work includes any work that involves repairing, removing (less than 10 square metres of non-friable asbestos) or disturbing asbestos or material containing asbestos, e.g. repair work on an asbestos roof.

All asbestos work must have a SWMS.

The following codes of practice provide practical guidance on how to comply with legislative requirements:

- *Code of practice: How to manage and control asbestos in the workplace*
- *Code of practice: How to safely remove asbestos*

All workers undertaking asbestos related work must be trained. This must include the identification, safe handling and control measures for the works being undertaken involving asbestos.

The person with management or control of the workplace or the structure must ensure that all asbestos that is likely to be disturbed by the work is identified, and so far as is reasonably practicable, removed before work commences.

Note: Water blasting or using compressed air on asbestos containing material is prohibited, refer section 446 of the WHS Regulation.

Further information about asbestos can be found at www.safework.nsw.gov.au/asbestos.

6.2 Hazardous manual tasks

WHS Regulation section 60

Managing risks to health and safety

Working on roofs involves physically demanding tasks that can expose workers to hazardous manual task risks. These risks arise from activities that require forceful exertion, repetitive movements, sustained or awkward postures, and exposure to vibration. Tasks such as lifting and positioning roofing materials, securing structural components, handling tools, and using mechanical aids can contribute to the development of musculoskeletal disorders (MSDs) if not properly managed.

PCBUs must manage risks to health and safety relating to a musculoskeletal disorder associated with a hazardous manual task in accordance with the hierarchy of control measures set out in Part 3.1 of the WHS Regulation. The *Code of practice: Hazardous manual tasks* provides practical guidance on how to meet your legal obligations.

Identifying hazardous manual tasks

Not all manual tasks are hazardous, but those that involve high-risk factors can lead to serious injuries or illnesses. Common hazardous manual tasks when working on roofs include:

- lifting and carrying heavy materials such as roof tiles, sheets, and insulation up ladders or across uneven surfaces,
- pushing and pulling loads, such as manoeuvring sheets into position or handling mechanical lifting equipment,
- sustained or awkward postures, including kneeling, crouching, reaching overhead, or working on sloped surfaces for extended periods,
- repetitive movements, such as hammering, drilling, or securing fixings over long durations,
- exposure to vibration from power tools such as drills, impact drivers, and saws.

Controlling risks

The most effective way to manage hazardous manual task risks during roof work is to eliminate or redesign the task to reduce exposure. Where elimination is not possible, the following controls should be implemented.

- Substitution
  - Use lighter roofing materials (e.g. metal sheeting instead of heavy tiles).
  - Utilise pre-fabricated roofing components to minimise on-site cutting and heavy lifting.
- Isolation
  - Use remote-controlled hoists or cranes to lift materials, keeping workers away from the load's path.
  - Install temporary barriers or safety nets around the roof's edge to prevent falls.
  - Designate no-go areas on the roof to separate workers from dangerous edges or fragile areas.
- Engineering controls
  - Use mechanical lifting aids such as tile elevators, hoists, or cranes to transport materials to the roof.
  - Install guardrails, work platforms, and scaffolding to provide stable working surfaces and reduce the need for sustained awkward postures.
  - Use rolling platforms or trolleys to move materials across the roof surface.
  - Use specifically designed roof jacks or anchors to secure workers.
- Administrative controls
  - Plan material delivery and staging to minimise manual handling on the roof.
  - Rotate tasks among workers to reduce prolonged exposure to repetitive movements and awkward postures.
  - Provide frequent rest breaks and encourage task variation to prevent fatigue and strain.
  - Schedule work during optimal weather conditions.
- PPE
  - Use appropriate fall protection equipment, such as harnesses and lanyards.
  - Wear appropriate footwear with good grip to maintain stability on sloped or uneven roof surfaces.
  - Use knee pads or cushioned work surfaces when working in kneeling or crouching postures.
  - Wear appropriate PPE, e.g. safety glasses and hard hats.

Mechanical lifting equipment

Where appropriate, mechanical lifting equipment, e.g. cranes, EWP, tile elevators and builders' hoists, should be provided in order to minimise the risk of MSDs associated with hazardous manual tasks.

If tile elevators or builders' hoists are used, consider the risk of:

- manual handling injuries during installation and removal of roofing material,
- injuries from unguarded drive mechanisms or nip points on elevator belts,
- injuries from falling objects or from moving machine parts, barricades to prevent access should be used.

When using, installing or removing mechanical lifting equipment, effective roof edge protection should be maintained. If parts of the edge protection are removed, alternative protection measures should be provided and the removed components should be replaced as soon as the equipment is installed or no longer required.

Some items of plant require a high risk work licence to operate.

6.3 Falling objects

WHS Regulation section 54

Management of risk of falling objects

WHS Regulation section 55

Minimising risk associated with falling objects

PCBUs must manage the risk of falling objects in accordance with the hierarchy of control measures set out in Part 3.1 of the WHS Regulation.

If it is not practicable for the risk to be eliminated, the PBCU must minimise the risk by providing adequate protection against the risk and maintain a safe system of work that provides adequate protection against falling objects. This includes:

- preventing an object from falling freely, so far as is reasonably practicable, or
- if it is not reasonably practicable to prevent an object from falling freely, providing, so far as is reasonably practicable, a system to arrest the fall of a falling object.

Risks associated with falling objects may be controlled by using:

- a safe means of raising and lowering plant, materials and debris,
- a secure physical barrier to prevent objects falling freely from buildings or structures in, or in the vicinity of, the workplace,
- measures to arrest the fall of objects, if it is not possible to provide a secure physical barrier,
- no-go areas to prevent workers and others from entering areas where objects may fall,
- securing equipment / material to prevent them being blown from the roof,
- appropriate PPE.

Measures to eliminate or minimise the risk of falling objects should be implemented when:

- apertures in the safety mesh allow materials or tools to fall through,
- gaps exist between the top of the roofing material and the bottom of a toe-board or infill panel, e.g. to slide roofing material onto the roof,

- working from elevated structures, such as working platforms, formwork, ladders or scaffolding.

Controls that can reduce the risk of objects falling from heights include:

- modifying the design or temporary works to incorporate toe-boards, chutes, splash plates or similar measures,
- prohibiting work above other workers,
- installing screens, overhead protection or protected walkways,
- isolating danger areas as 'no-go' areas,
- housekeeping floors and access ways, cleaning spillage,
- using lanyards on tools,
- securing loose materials, tools and equipment,
- providing appropriate information, instruction, training and supervision.

6.4 Electrical safety

WHS Regulation section 147

Risk management

WHS Regulation section 163

Duty of person conducting business or undertaking

WHS Regulation section 166

Duty of person conducting a business or undertaking

Work in close proximity to overhead electric lines

The WHS Regulation outlines specific safety measures that must be complied with when carrying out work in close proximity to overhead electric lines, including a risk assessment and a safe system of work.

Overhead electric lines located near the worksite are a potential hazard to those working on roofs. Where any overhead electric lines are in close proximity, observe the approach distances outlined in the *Code of practice: Work near overhead and underground electric lines.*

Hazard identification

A PCBU must ensure that an inspection is carried out at the worksite to identify any reasonably foreseeable hazards. This should be done before undertaking any work that might come closer to an overhead electric line than four metres. Hazards may include:

- live overhead electric lines, including low voltage overhead service lines and aerial consumers' mains,
- deteriorated or broken insulation on the conductors or electrical apparatus,
- scaffolding or temporary edge protection components coming into contact with overhead electric lines,
- the possibility of hand-held tools, equipment or roofing materials coming into contact with overhead electric lines,
- the possibility of cranes, crane ropes or suspended loads coming into contact with overhead electric lines, e.g. while lifting roofing material.

Risk assessment

If a hazard involving overhead electric lines has been identified, a risk assessment must be undertaken by the PCBU in relation to the proposed work. The risk assessment should determine the risk to those encroaching within four metres of the hazard identified. This will help to establish a priority list based on the level of risk.

The following factors should be included in the risk assessment:

- the type of work activities being undertaken, and the tools, equipment, scaffolding and roofing materials being used,
- the proximity of the work activity or scaffolding to the overhead electric lines,
- environmental conditions, such as wind, which may bring a risk of unexpected movement of the roofing material, tools, equipment or scaffolding.

Eliminating or controlling risks

Once the hazards associated with working on roofs near overhead electric lines have been identified and assessed, control measures must be implemented to eliminate the risk. If it is not practicable to do so, the risks must be controlled. Where an electricity supply authority (i.e. electricity network operator) is responsible for the overhead electric line, consult with the relevant electricity supply authority and implement control measures consistent with their requirements.

The use of specific control measures to eliminate or control identified risks should be based on the risk assessment. Consider:

- Eliminating the hazard – this could involve de-energising the overhead electric lines during the work, following consultation and agreement with the electricity network operator. Consideration may also be given to re-routing the overhead electric lines from the roofing work, or replacing existing overhead electric lines with underground cables.
- Separating the hazard – this could involve erecting a non-conductive physical barrier or a hoarding. Ensure the 4 metre approach distance or any other distance specified by the electrical network operator is maintained for any activities carried out to erect the physical barrier. Consider other risk control options or consult with the electrical network operator if that distance can not be maintained. Refer to *Code of practice: Work near overhead and underground electric lines*.
- Minimising the risk by engineering means – this could involve substituting the scaffold with another means of access and egress, such as an elevated work platform.
- Introducing administrative controls – this could involve planning and, where relevant, documenting the SWMS before starting work, using a safety observer to warn people before they encroach within the approach distances or making hazards visible by arranging for the electricity supply authority to use approved visual indicators (e.g. tiger tail or other marker approved by the electrical supply authority) to identify exposed live low voltage conductors (up to and including 1000 volts). Visual indicators such as tiger tails should not be regarded as providing electrical protection.

If no single measure is sufficient, a combination of the above control measures is required so as to minimise the risk to the lowest level reasonably practicable.

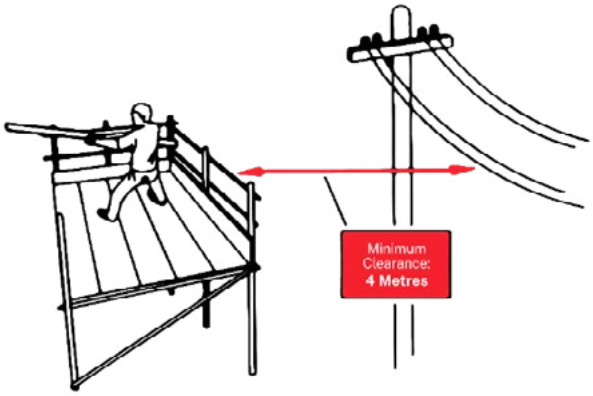


Figure 2: A four-metre distance applies in any direction where metallic scaffold is erected, used or dismantled near overhead electric (power) lines (end protection omitted for clarity) Consideration should also be given to the sag and swing of the conductors.

Electrical practices for roofing work

PCBUs must ensure that temporary construction wiring, switchboards and portable electrical equipment used in roofing work complies with Australian/New Zealand Standard *AS/NZS 3012:2019 Electrical installations–construction and demolition sites*. This standard outlines specific safety measures that must be followed when carrying out construction work, including:

- ensuring that temporary construction site switchboards are of a robust design, mounted securely and constructed from materials able to withstand mechanical damage,
- protecting all temporary construction wiring and portable electrical equipment by 30 mA residual current devices (RCDs),
- ensuring portable electrical equipment, extension leads, and portable power tools are maintained in good condition and regularly inspected, tested and tagged.

For further information, see the

- Australian/New Zealand Standard *AS/NZS 3012:2019 Electrical installations–construction and demolition sites*
- *Code of practice: Managing electrical risks in the workplace*.

Working and access roof space or ceiling space

PCBUs must ensure, so far as is reasonably practicable, that a worker does not enter or carry out work in a building's roof space unless the relevant electrical installation has been deenergised.

Working in roof or ceiling spaces presents significant electrical risks due to the confined environment and the potential for isolation. Hazards may include exposed conductive parts that could become energised as a result of electrical faults, illegal connections, deteriorated wiring, or failed insulation within the electrical installation.

All energy sources associated with the electrical installation must be identified and, so far as is reasonably practicable, deenergised before entry. It is essential to consider scenarios where, despite the main switch(es) being turned off, certain components such as consumer mains or solar panel cables may remain energised. These energised cables can present a serious risk to anyone entering or working within the roof space.

Where consumer mains or solar panel cables run through the roof space, a risk assessment and a SWMS or equivalent risk control documentation must be completed prior to any work or entry.

The risk management principles in the *Code of practice: Managing electrical risks in the workplace* should be followed when planning or conducting this type of work.

6.5 Work in close proximity to radio frequency radiation

Radiofrequency (RF) Electromagnetic Radiation (EMR) is non-ionising radiation. Adverse health effects from exposure to high levels of RF EMR include increased body temperature and heating of biological tissue, causing cellular damage.

Examples of sources of artificial RF EMR on roofs are satellite communications, radar and RF transmitting antennas.

Hazard identification

The most suitable way to identify any RF transmitters or other RF Electromagnetic Energy (RF EME) sources on a building is to consult with the building manager or owner before starting the task.

To access site owner and safety information refer to:

- the Radiofrequency National Site Archive (RFNSA) database which provides maps, EME guides, and carrier details,
- RadioWorkSafe which provides the basic safety steps for working at known RF transmitting sources and other resources.

The key document in identifying site and RF hazard information is the EME Guide which includes:

- building location address,
- site owner or manager details,
- RF EMR safe work procedures to be followed,
- a list of RF equipment on the roof,
- exclusion zone diagrams with location and dimensions of each exclusion zone type for each RF transmitter on site,
- the type of exclusion zone based on severity of the hazard.

Eliminating or controlling risks

When working with radiocommunications and mobile transmitters, thorough safety standards and safe work practices must be put into place to ensure EMR exposures are eliminated where reasonably practicable.

Risk is managed by adhering to the EME guide safe work procedures and the exclusion zone requirements for the site being accessed. This may include wearing an RF meter.

Where workers who are not RF workers need to access an exclusion zone, PCBUs and workers must consult with the building or facility manager and the persons with management and control of the transmitter to determine safe access procedures including the need and verification of transmitter power reduction or transmitter shutdown during access to the exclusion zone.

For further information refer to the *Radiofrequency (RF) Radiation* information on SafeWork NSW's website.

6.6 Remote or isolated work

WHS Regulation section 48

Remote or isolated work

PCBUs must manage risks to health and safety associated with remote or isolated work in accordance with the hierarchy of control measures set out in Part 3.1 of the WHS Regulation.

Remote or isolated work refers to work tasks carried out without immediate support from others due to location, time, or the nature of the work.

Workers performing tasks on roofs may face increased safety risks, particularly when working alone without immediate assistance. The absence of nearby workers can delay emergency response or make it difficult to manage complex or hazardous tasks safely.

A worker may still be considered isolated even if other workers are nearby, e.g. a worker working alone on the roof of an occupied office building. In such cases, the lack of direct communication or visibility can still pose significant risks.

The presence of another worker can minimise risks by helping identify hazards and implement controls, monitoring for fatigue or mistakes, and providing or seeking assistance in the event of medical or other emergency situations.

When managing the risks of remote or isolated work, consideration should be given to:

- the length of time the person may be working alone,
- the time of day when a person may be working alone,
- a communication plan with workers,
- the location of the work,
- the nature of the work, as well as the skills and capabilities of the worker including any medical considerations.

Section 48 of the WHS Regulation requires PCBUs to:

- manage the risks associated with remote or isolated work; and
- provide a system of work that ensures effective communication with the worker.

This can be achieved by:

- monitoring workers regularly, by phone calls or periodic visits,
- having a check-in process whereby workers are required to contact ‘home base’ at a nominated time,
- having an emergency response plan when workers fail to report in at an agreed time/s.

When implementing controls consideration should be given to:

- the use of buddy systems,
- workplace layout and design, including access and visibility,
- movement or work location records,
- provision of training, information and instruction,

- access to first aid in the workplace,
- communication systems.

Communication systems need to be provided to enable workers to call for help in the event of an emergency at any time. These could include:

- mobile phones,
- satellite communication systems,
- personal security systems or personal duress systems,
- radio communication systems,
- distress beacons such as a personal locator beacon (PLB).

7. Working on roofs

7.1 Preliminary

This chapter provides examples and guidance about control measures that may be suitable for common scenarios involving work on roofs.

The control measures that are reasonably practicable depend on the intended use of a roof or roof area, which can vary over the life of the building, e.g. from construction phase to in-service use, modification, repairs, refurbishment, dismantling or demolition.

During construction, it may be reasonably practicable to use temporary control measures that are not intended to remain in place after construction is complete and the building enters service e.g. scaffolding, EWPs, cranes, builders'/personnel hoists.

However, building designers must ensure adequate control measures are put in place at the design stage to ensure structures are designed to be without risks to health and safety. This should consider the expected service conditions of the roof.

Roofs or roof areas that are not intended to be accessed and are used only to protect the building structure from the weather may need different control measures to a roof or roof area that is multi-purpose, such as roofs with permanent roof mounted equipment, e.g. RF antennas, solar arrays, mechanical ventilation, HVAC.

Where access is infrequent or one-off it may be reasonably practicable to use temporary or lower order control measures, such as temporary edge protection, portable ladders, harness-based fall protection, and no-go areas. However, where regular or ongoing access is required, permanent or higher order controls should be provided, such as permanent access systems (stairs, walkways, guardrails), certified anchor point systems and/or flexible lifeline or rigid rail systems.

Permanent access and fall protection control measures, based on the planned use of the roof, need to be implemented at the design stage and maintained in accordance with the manufacturer's recommendations and the requirements of relevant Australian Standards, for the life of the building.

Where the use of a roof changes, for example installation of equipment onto the roof, then the design needs to be reviewed and where necessary additional control measures put in place. For example, a roof that once had no roof mounted equipment and therefore used temporary controls may require permanent, higher order controls after permanent equipment is installed onto the roof.

Some roofs may have a combination of temporary and permanent control measures for different parts of the roof, e.g. parts of the roof with permanent roof mounted equipment may have permanent access system, while parts of the roof with no equipment on the roof may use roof anchors.

7.2 Industrial roofs during construction

Construction of industrial roofs can provide some unique challenges when compared to work on existing in-service roofs. Generally, more workers require simultaneous roof access, more equipment needs to be placed onto the roof, and permanent control measures are not yet available. Work is often undertaken by multiple trades which may need to be sequenced.

Additionally, certain types of plant and equipment used for other construction activities may be available to assist with work on roofs, e.g. EWPs and cranes used for steel frame erection may also be used to install temporary roof edge protection.

For these reasons it is generally acceptable to use temporary control measures during construction, however, they should still be higher order controls, e.g. access to roof via scaffold stair tower rather than ladders.

Control measures that may be implemented during construction include:

- Assessing the roof area to identify fall hazards and planning the sequence of work to ensure suitable controls are in place prior to accessing the roof.
- Assessing the roof structure for load capacity and designating storage and landing locations to prevent overloading.
- Assessing ground areas and establishing temporary barriers and no-go areas to protect against falling objects, collisions with moving plant, etc.
- Providing access for workers and light equipment via scaffold stair towers.
- Providing access for heavier materials using cranes or other mechanical equipment.
- Installing temporary edge protection and roof safety mesh prior to work commencing on the roof.
  Note: temporary edge protection should comply with Australian/New Zealand Standard *AS/NZS 4994 Temporary edge protection* (series) to prevent falls at the roof edge and roof safety mesh should comply with Australian/New Zealand Standard *AS/NZS 4389:2015 Roof safety mesh* to prevent falls between roof structural members.
- Installing temporary edge protection from an EWP where this reduces the need to work at height.
- Installing roof safety mesh using pull lines or similar techniques to minimise work at height.
- Sequencing work across the roof to minimise the number of leading edges.
- Establishing delineated work zones 6 metres back from leading edges.
- Restricting roof access to workers directly involved in the task being undertaken.
- Using spotters as required.
- Ensuring all workers are trained and competent in work at height safety for the tasks they are to do, are aware of any site-specific rules and emergency and rescue procedures.

Refer to Figure 3 for examples of some of these control measures.

1. Pull wire
2. Roof cladding installer only zone (delineation of work areas)
3. Mobile crane landing pack of roof sheets
4. Storage area
5. Perimeter edge protection
6. Scaffold stair access
7. Barricade around base of scaffold
8. Spotter for EWP
9. EWP installation of edge protection
10. EWP installation of roof mesh
11. Roof safety mesh cradle

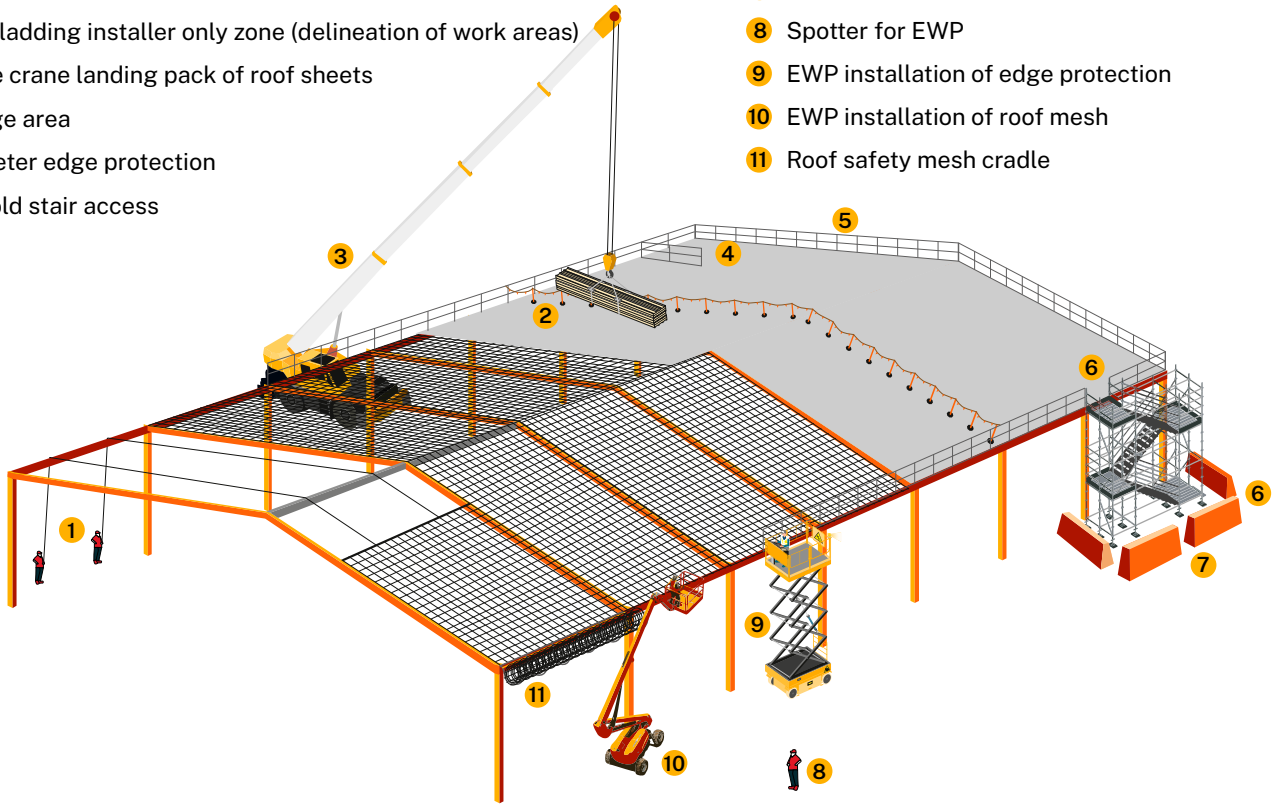


Figure 3: Examples of roof access methods and work on roof control measures during industrial metal roof construction

7.3 Industrial roofs – temporary access

Temporary access may be required for infrequent or irregular work on roofs, such as maintenance, inspection and repair. Where suitable permanent control measures are not provided, temporary control measures may be used provided they minimise the risk so far as is reasonably practicable.

Where the work involves changing the use of the roof, for example installing roof mounted plant and equipment, suitable permanent control measures may be needed. However, it may be necessary to use temporary controls while installing new permanent controls.

Control measures that may be implemented to provide temporary access to an existing roof include:

- Assessment of the roof surface by a competent person to confirm that the roof (excluding skylights or other fragile elements) is trafficable and capable of supporting the anticipated loads of workers, tools and equipment.
- Provision of temporary edge protection that is compatible with the structure, has appropriate strength for the pitch of the roof, and installed by a competent person.
- Temporary structural covers installed over skylights or other non-trafficable surfaces, securely fixed, marked and treated as non-trafficable while undertaking work.
- Use of temporary scaffold towers or similar access systems designed and installed by a competent person to provide safe access for workers and equipment.
- Restricting access to workers directly involved in the work being undertaken.

Refer to Figure 4 for examples of some of these control measures.

1. Whole roof assessed and trafficable
2. Temporary skylight covers
3. Full edge perimeter protection
4. Scaffold tower access (people and material)

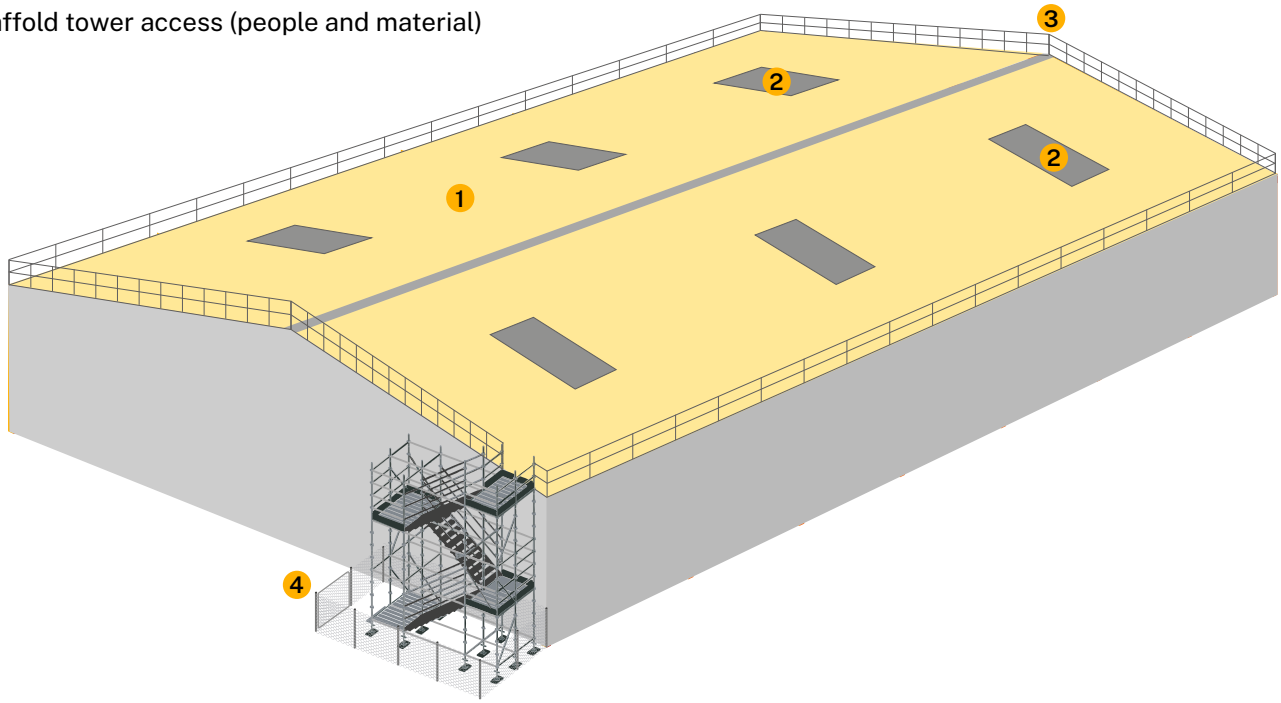


Figure 4: An example of an industrial roof with temporary control measures used for accessing the entire roof

Control measures that may be implemented to provide temporary access to a defined area of an existing roof include:

- The area of the roof to be accessed has been assessed by a competent person and confirmed as trafficable and capable of supporting the anticipated loads of workers, tools and equipment.
- The roof area is of low pitch (<7 degrees), free of slip, trip and other surface hazards, such that there is minimal risk of a person sliding or tumbling down the slope.
- The work is restricted to the clearly defined work zone.
- The perimeter of the defined work zone is clearly marked and access is controlled.
- The roof area outside of the defined work zone is designated and administered as a no-go area.
- Temporary edge protection is provided extending at least 3 metres beyond either side of the defined work zone.
- Access is provided using an EWP, that is used exclusively for the task and remains in position for the duration of the work.
- A gated opening in the edge protection at the designated access point.
- Installation of barricades or other physical controls to protect the EWP from interaction with other moving plant.

Refer to Figure 5 for examples of some of these control measures.

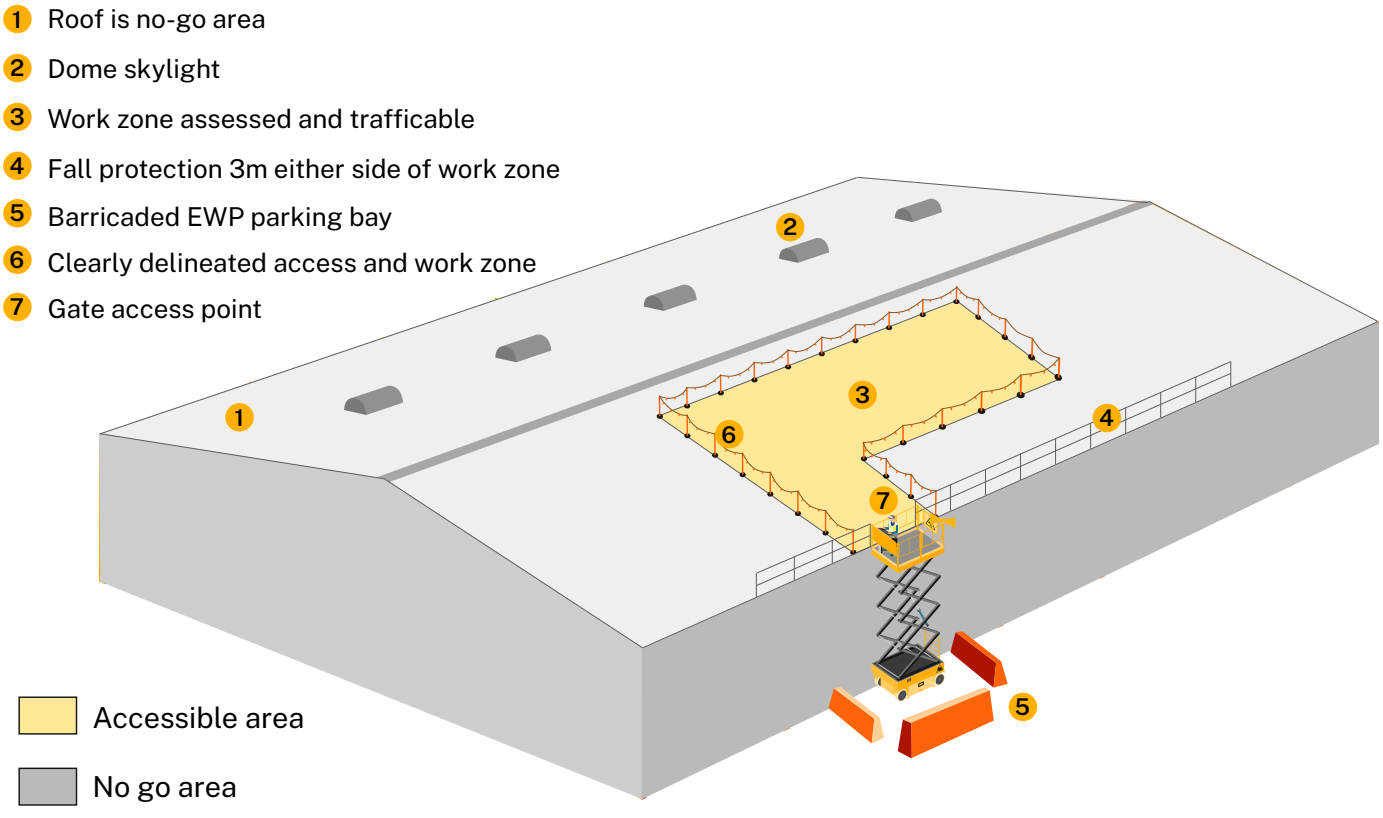


Figure 5: An example of temporary control measures used for accessing only a defined work zone on an industrial roof

Note - temporary controls should be considered reasonably practicable for maintaining the roof areas that do not have plant or equipment permanently mounted on them. For roofs that have permanent plant and equipment mounted on them see Chapter 7.4.

7.4 Industrial roofs – permanent access

Roofs that require frequent or regular access for activities such as cleaning, inspection, maintenance or repair, e.g. to roof mounted plant or equipment, skylights, glazed facades, should have permanent access and fall prevention control measures in place (see figures 6, 7 and 8 for examples).

Permanent control measures should be selected having regard to the intended use of the roof and should be maintained, in accordance with the manufacturer's recommendations and the requirements of relevant Australian Standards, for the life of the building.

Control measures that may be implemented on a roof with a pitch less than 7 degrees include:

- The roof has been assessed by a competent person and confirmed as trafficable and capable of supporting the anticipated loads of workers, tools and equipment, noting worker location still needs to be controlled to maintain separation from fall hazards.
- Surface friction and ambient weather conditions are assessed and do not create risk of sliding or tumbling down the roof slope.
- Trafficable walkways set back at least 3 metres from roof edge unless permanent guardrail edge protection is installed.
- Walkway cross-slope is assessed and does not create risk of slips, trips or falls.
- Walkways are clearly marked and delineated - all areas outside of walkways are designated a no-go area.
- Guardrail edge protection where there is risk of falling at work area.
- Permanent covers where there is a risk of falling through skylights.
- Guardrail protection at roof access points.
- Permanent stair access, suitable for transporting both people and equipment onto the roof.
- Supplementary harness-based fall protection system (static line and anchor points) provided for use when a worker needs to enter a no-go area.

Refer to Figure 6 for examples of some of these control measures.

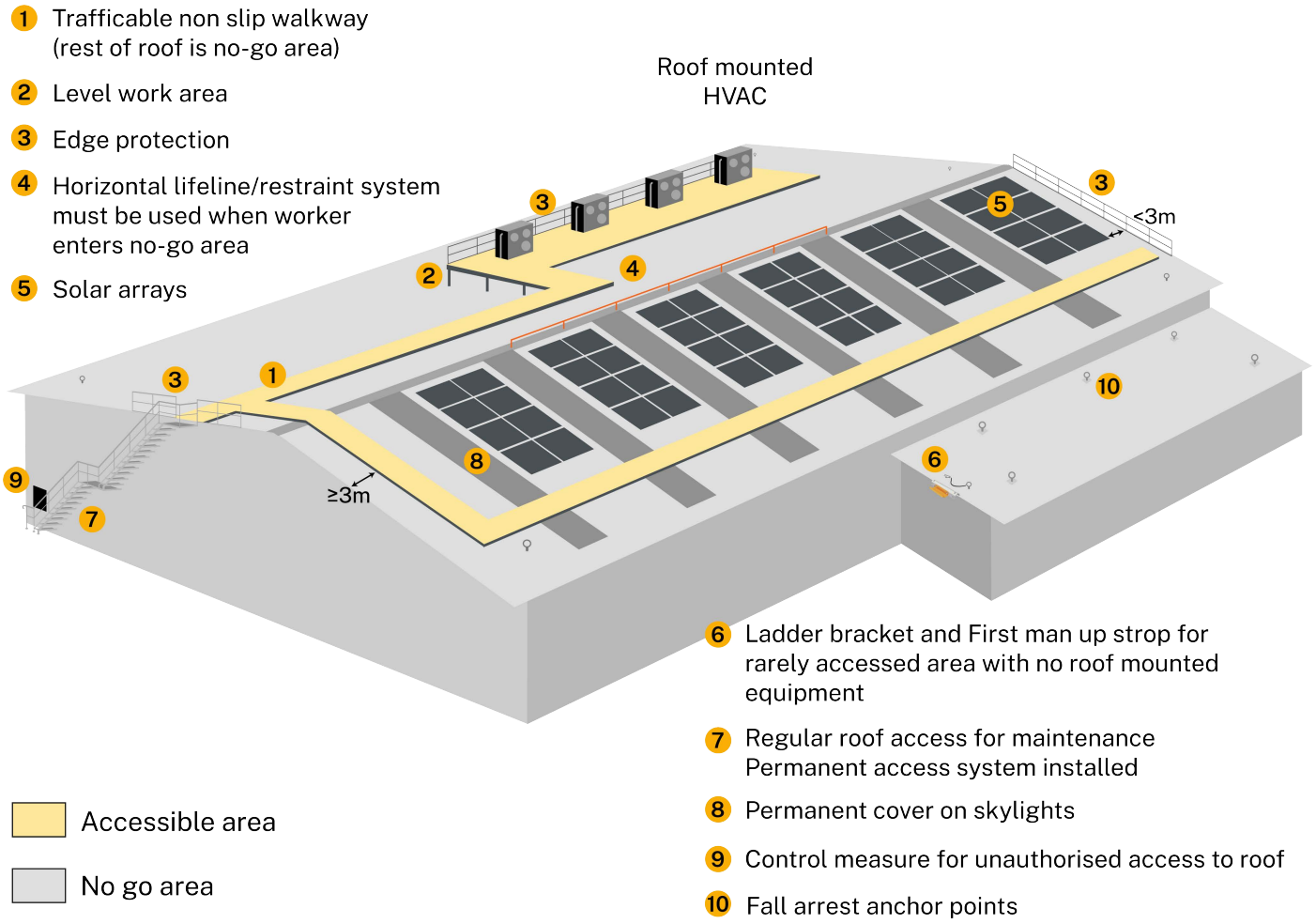


Figure 6: An example of implementing permanent control measures on a low pitch industrial roof, where the roof is generally trafficable but frequency of access varies

Figure 7 shows other examples of control measures that may be implemented on industrial roofs where the frequency of access varies at different locations on the roof. The entire roof area has been assessed by a competent person and confirmed as trafficable and capable of supporting the anticipated loads of workers, tools and equipment. However, the frequency of access varies in the areas marked T, L, and R.

The roof area marked **T**, requires frequent or periodic access to plant for service, repairs and maintenance. Here it is reasonably practicable to incorporate higher order controls such as:

- Permanent ladder access conforming to Australian Standard *AS 1657:2018 Fixed platforms, walkways, stairways and ladders - Design, construction and installation*, that is sufficient distance from any no-go areas on the roof.
- Permanent edge protection in accordance with Australian Standard *AS 1657:2018 Fixed platforms, walkways, stairways and ladders - Design, construction and installation.*

The roof area marked **L** requires frequent or periodic access to the ladder but is otherwise not regularly accessed. The roof area is of low pitch (<7 degrees) and free of slip, trip and other surface hazards. Surface friction and ambient weather conditions assessed and do not create risk of sliding or tumbling down the roof slope.

Here it may be reasonably practicable to use controls such as:

- A physical no-go area of at least 3 metres from all roof edges is clearly delineated by a horizontal lifeline.
- Signage indicating no-go area.
- No-go area can only be entered by appropriately trained workers who are connected to the horizontal lifeline.
- A barricade used to direct traffic exiting the doorway away from the no-go area and towards the ladder.
- Ladder access points to roof area marked **R** can be safely accessed without entering a no-go area.

The roof area marked **R** requires infrequent access, however the increased pitch (15 degrees) has prevented the use of no-go areas due to a risk of tumbling down the slope. Here it may be reasonably practicable to use controls such as:

- The area is deemed a no-go area unless fall protection system is used.
- A fall protection system comprising permanent horizontal lifeline and fall arrest anchor points system is permanently installed to provide safe access to the roof.
- A fall protection system comprising horizontal lifeline and fall arrest anchor point system permanently installed to provide safe access to the roof.
- An assessment of weather conditions (wind, rain etc) and roof surface conditions are undertaken prior to accessing, to determine the impact of trafficability of pitched roof (15 degrees).
- Measures to improve trafficability (cleats, non-slip surfacing, handrails) implemented where required (note: the fall protection system cannot be used as a support system to aid mobility or trafficability).
- Ladder access is provided to the area from a safe location at least 3 metres from the roof edge.
- A first man up strop allows connection to the fall protection system from a safe location.
- Harness based fall restraint is used in preference to fall arrest where practicable.

1. No-go area
2. Internal access with guard rail
3. Horizontal lifeline must be used if entering no-go area
4. Access required often, edge protection
5. Ladder access
6. Whirly-bird ventilation
7. RF antenna
8. Anchors
9. First man-up strop

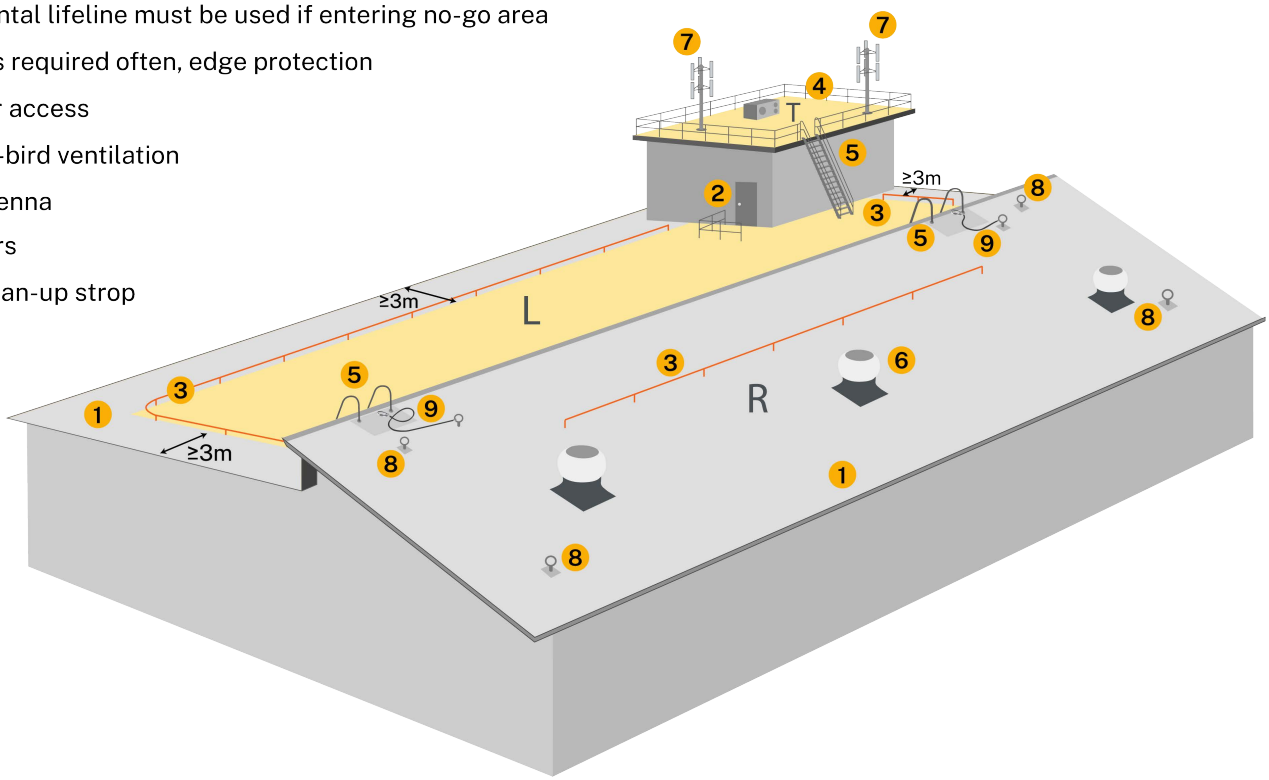


Figure 7: An example of implementing permanent control measures on a multi pitched industrial roof, where trafficability of roof varies

7.5 Commercial roofs

Commercial roofs may be more complex in design than industrial roofs, with some designed for multi-purpose use beyond providing basic protection to the building, its occupants and contents.

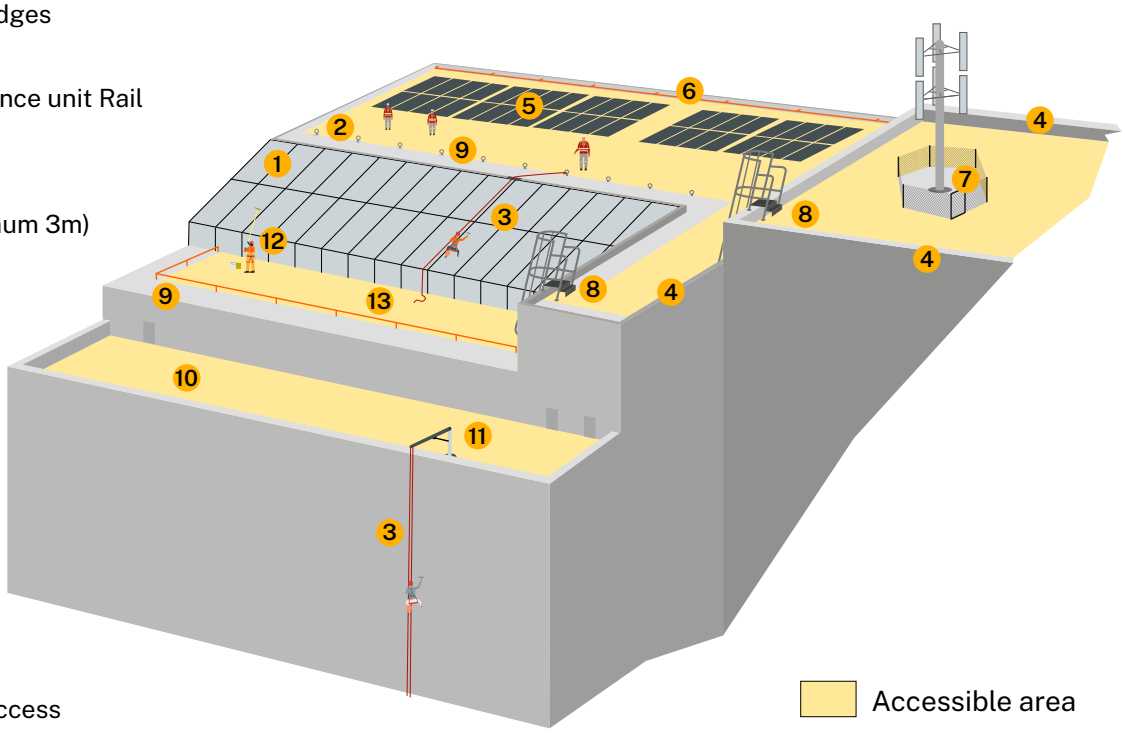
Some examples of complexity are large glassed areas (horizontal, vertical or sloping), habitable outdoor areas, roof top gardens, car parks and other permanent structures. This complexity should be accounted for when developing systems of work and access requirements, with the relevant application of control measures outlined in Chapters 4 and 5.

Each commercial roof should have its own site-specific set of access and fall protection controls depending on its design, intended use and access requirements. Examples of control measures that may be used when working on commercial roofs include:

- Assessing the entire roof area and building facades to identify potential fall hazards.
- Selecting and implementing control measures based on the intended use and access requirements for each roof area and what is reasonably practicable.
- Inspecting and maintaining all permanently installed roof access and fall-protection equipment in accordance with manufacturer's instructions and relevant Australian Standards.
- Keeping records of inspection, testing and maintenance of all permanently installed roof access equipment.
- Ensuring all safety signage related to permanent access equipment and fall-protection systems is maintained and remains clearly visible.
- Where applicable, building maintenance units are design and item registered.
- Providing permanent edge protection where reasonably practicable.
- Using competent persons where specialised access is required, such as industrial rope access.

Figure 8 shows examples of some control measures that may be implemented on commercial roofs.

1. Glass ceiling rope access cleaning
2. Rope access anchor points
3. Example of rope access in use
4. 900mm parapet edges
5. Solar arrays
6. Building maintenance unit Rail
7. RF Exclusion area
8. Fixed ladder
9. No-go area (minimum 3m)



10. Habitable balcony
11. Davit for facade access
12. Working using long handled tool to clean
13. Horizontal lifeline

Figure 8: Examples of control measures for commercial roofs

8. Incident notification

Part 3 of the WHS Act

WHS Act section 35

What is a "notifiable incident"

WHS Act section 38

Duty to notify of notifiable incidents

A 'notifiable incident' is:

- the death of a person,
- a 'serious injury or illness', or
- a 'dangerous incident' that exposes someone to a serious risk (even if no one is injured)

arising out of the conduct of a business or undertaking at a workplace.

'Notifiable incidents' may relate to any person — whether an employee, contractor or member of the public. A PCBU must ensure that SafeWork NSW is notified immediately after becoming aware that a notifiable incident has occurred. Notifications can be made by contacting SafeWork NSW on 13 10 50 or via the SafeWork NSW website: *Notify SafeWork*.

When a PCBU is made aware that a notifiable incident has occurred, the PCBU must:

- report it to SafeWork NSW immediately, and
- preserve the incident site so far as is reasonably practicable until an inspector arrives or directs otherwise. This doesn't prevent help being provided to an injured person, removing a deceased person, making the site safe to minimise the risk of a further notifiable incident, or to facilitate a police investigation.

Incidents involving multiple businesses or undertakings

If a 'notifiable incident' arises out of more than one business or undertaking then each must ensure that the incident has been notified to SafeWork NSW. There is no need for all duty holders to notify — only one needs to. However, all duty holders retain their responsibility to ensure SafeWork NSW is notified, regardless of any agreement between them.

In these circumstances the duty holders must, so far as is reasonably practicable, consult, cooperate and coordinate to put appropriate reporting and notification arrangements in place.

Examples of these incidents are available in Safe Work Australia's *Incident notification fact sheet*.

Enforcement action may be taken and penalties may be applied for not notifying notifiable incidents to SafeWork NSW. For more information see the SafeWork NSW website.

9. Appendices

9.1 Appendix A - Glossary

Terms used throughout this Code that require definitions or descriptions.

Term	Description
Anchorage points	A secure point of attachment on a structure to which a fall arrest device, work positioning, or travel restraint system may be connected, either directly or via a horizontal lifeline. Anchorage points and horizontal lifelines should comply with the relevant Australian Standards, including Australian/New Zealand Standard *AS/NZS 1891.2:2001 Industrial fall arrest systems and devices – Horizontal lifeline and rail systems* (as applicable) and Australian Standard *AS 5532:2025 Manufacturing requirements for single-point anchor device used for harness-based work at height* where the anchorage is installed on a roof.
Competent person	A person who has acquired through training, qualification or experience the knowledge and skills to carry out the task.
Construction project	A project that involves construction work where the cost of the construction work is $250,000 or more.
Construction work	Any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure. construction work does not include any of the following: (a) the manufacture of plant, (b) the prefabrication of elements, other than at a place specifically established for the construction work, for use in construction work, (c) the construction or assembly of a structure that once constructed or assembled is intended to be transported to another place, (d) testing, maintenance or repair work of a minor nature carried out in connection with a structure, (e) mining activities or petroleum activities.

Term	Description
Dangerous incident	An incident in relation to a workplace that exposes a worker or any other person to a serious risk to a person's health or safety emanating from an immediate or imminent exposure to — (a) an uncontrolled escape, spillage or leakage of a substance, or (b) an uncontrolled implosion, explosion or fire, or (c) an uncontrolled escape of gas or steam, or (d) an uncontrolled escape of a pressurised substance, or (e) electric shock, or (f) the fall or release from a height of any plant, substance or thing, or (g) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the regulations, or (h) the collapse or partial collapse of a structure, or (i) the collapse or failure of an excavation or of any shoring supporting an excavation, or (j) the inrush of water, mud or gas in workings, in an underground excavation or tunnel, or (k) the interruption of the main system of ventilation in an underground excavation or tunnel, or (l) any other event prescribed by the regulations, but does not include an incident of a prescribed kind.
Duty holder	Any person who owes a work health and safety duty under the WHS Act including a PCBU, a designer, manufacturer, importer, supplier, installer of products or plant used at work (upstream duty holder), officer or a worker.
Fall arrest harness	A device designed to support a user's body during a fall, and which is attached to an anchorage via a lanyard or other connecting system.
Fall arrest system	Plant or material designed to arrest a fall.
Fall restraint	A harness-based system designed to prevent a user reaching a location from which a fall could occur.
Hazard	A situation or thing that has the potential to harm a person. Hazards at work may include: noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace.
Health and safety committee	A consultative body established under the WHS Act. The committee's functions include facilitating cooperation between workers and the PCBU to ensure workers' health and safety at work, and assisting to develop work health and safety standards, rules and procedures for the workplace.
Health and safety representative	A worker who has been elected by their work group under the WHS Act to represent them on health and safety matters.

Term	Description
High risk construction work	Construction work that — (a) involves a risk of a person falling more than 2m, or (b) is carried out on a telecommunication tower, or (c) involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure, or (d) involves, or is likely to involve, the disturbance of asbestos, or (e) involves structural alterations or repairs that require temporary support to prevent collapse, or (f) is carried out in or near a confined space, or (g) is carried out in or near — i. a shaft or trench with an excavated depth greater than 1.5m, or ii. a tunnel, or (h) involves the use of explosives, or (i) is carried out on or near pressurised gas distribution mains or piping, or (j) is carried out on or near chemical, fuel or refrigerant lines, or (k) is carried out on or near energised electrical installations or services, or (l) is carried out in an area that may have a contaminated or flammable atmosphere, or (m) involves tilt-up or precast concrete, or (n) is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor that is in use by traffic other than pedestrians, or (o) is carried out in an area at a workplace in which there is movement of powered mobile plant, or (p) is carried out in an area in which there are artificial extremes of temperature, or (q) is carried out in or near water or other liquid that involves a risk of drowning, or (r) involves diving work.
Horizontal lifeline	Also known as “static line”, a horizontal line in tension between two or more anchorage points, to which a fall arrest, work positioning or travel restraint system may be attached.
Lanyard	A flexible line, rope or strap, usually as part of lanyard assembly, used to connect a fall arrest harness to an anchorage point or static line.
May	‘May’ indicates an optional course of action.
Must	‘Must’ indicates a legal requirement exists that must be complied with.

Term	Description
Officer	An officer under the WHS Act is: — an officer under section 9 of the *Corporations Act 2001* (Cth) — an officer of the Crown within the meaning of section 247 of the WHS Act, and — an officer of a public authority within the meaning of section 252 of the WHS Act An elected member of a local authority while acting in that capacity, is not an 'officer'. A partner in a partnership is also not an officer, as each partner would be considered to be a PCBU.
Person conducting a business or undertaking (PCBU)	A PCBU is an umbrella concept which intends to capture all types of working arrangements or relationships. A PCBU includes a: — company — unincorporated body or association — sole trader or self-employed person. Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU. A volunteer association (defined under the WHS Act) or elected members of a local authority will not be a PCBU. *Note –* A person may be both a PCBU, within the meaning of section 5 of the WHS Act, and a worker within the meaning of section 7 of the WHS Act.
Personal Protective Equipment (PPE)	Anything used or worn by a person to minimise risk to the person's health and safety, including air supplied respiratory equipment.
Psychosocial hazard	A psychosocial hazard is a hazard that — (a) arises from, or relates to — i. the design or management of work, or ii. a work environment, or iii. plant at a workplace, or iv. workplace interactions or behaviours, and (b) may cause psychological harm, whether or not it may also cause physical harm.
Psychosocial risk	A risk to the health or safety of a worker or other person arising from a psychosocial hazard.
Restraint technique	Technique whereby components of a harness-based fall protection system are adjusted to prevent the user reaching a fall hazard.
Risk	The possibility harm (death, injury or illness) might occur when exposed to a hazard.
Roof safety mesh	Steel wire mesh fixed to roof members, to prevent persons falling through the roof during installation or maintenance.
Scaffold	A temporary structure specifically erected to support access or working platforms.

Term	Description
Serious injury or illness	An injury or illness requiring the person to have – (a) immediate treatment as an in-patient in a hospital, or (b) immediate treatment for — i. the amputation of any part of his or her body, or ii. a serious head injury, or iii. a serious eye injury, or iv. a serious burn, or v. the separation of his or her skin from an underlying tissue (such as degloving or scalping), or vi. a spinal injury, or vii. the loss of a bodily function, or viii. serious lacerations, or (c) medical treatment within 48 hours of exposure to a substance, and includes any other injury or illness prescribed by the regulations but does not include an illness or injury of a prescribed kind.
Should	'Should' indicates a recommended course of action.
Solid construction	An area that has: • a surface that is structurally capable of supporting workers, materials and any other loads applied to it, • barriers around its perimeter and any openings from or through which a person could fall, • an even and readily negotiable surface and gradient, and • a safe means of entry and exit.
Total restraint	Harness-based fall protection system that will prevent a user reaching a fall hazard, regardless of user adjustment
Volunteer association	A group of volunteers working together for one or more community purposes where none of the volunteers, whether alone or jointly with any other volunteers, employs any person to carry out work for the volunteer association.
Work group	A group of workers established to facilitate the representation of workers by one or more health and safety representatives. A work group may be all workers at a workplace but it may also be appropriate to split a workplace into multiple work groups where workers share similar work conditions or are exposed to similar risks and hazards. For example all workers on night shift.
Worker	Any person who carries out work for a PCBU, including work as an employee, contractor or subcontractor (or their employee), self-employed person, outworker, apprentice or trainee, work experience student, employee of a labour hire company placed with a 'host employer' or a volunteer. **Note –** A person may be both a worker, within the meaning of section 7 of the WHS Act, and a PCBU within the meaning of section 5 of the WHS Act.

Term	Description
Workplace	Any place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. This may include offices, factories, shops, construction sites, vehicles, ships, aircraft or other mobile structures on land or water.

Disclaimer

This publication may contain information about the regulation and enforcement of work health and safety in NSW. It may include some of your obligations under some of the legislation that SafeWork NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website www.legislation.nsw.gov.au

This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice if you need assistance on the application of the law to your situation.

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