

Working at heights is a high risk activity that must be managed through effective job planning and risk assessment processes. Fall hazards are found in many workplaces where work is carried out at height, for example working on a roof, unloading a large truck or stacking shelves in a warehouse. Falls can also occur at ground level into holes, for example trenches or service pits.

This guideline provides general information about managing **fall hazards**. A fall hazard is:

- A situation where a person is exposed to a risk of a **fall from one level to another** that is reasonably likely to cause an injury. Even falls from a low height have the potential to cause serious injury and must be managed.
- **A falling object.** A person can receive serious head injuries if an unsecured object is dropped from a height. It is essential to ensure that objects do not fall onto people who may be under or next to the area where the work is being carried out.

More detailed information about work at heights can be sought from applicable Standards and/ or Codes of Practice.

Identification of Hazards

The first step to managing work at heights is to identify the hazards involved through process such as risk assessments, site inspections and pre-start meetings. For construction works, where a person can fall 2m or more, it is a legal requirement that a SWMS be prepared for the works. Programmed's SWMS/JSEA template that can be found on the Contractor Essentials Portal can be used for this process.

Key things to consider when identifying work areas/tasks that could result in falls include:

- Surfaces:
 - the stability
 - the fragility or brittleness (i.e. cement sheeting roofs, skylights etc.)
 - the potential to slip (i.e. surfaces are wet, polished or glazed)
 - the safe movement of workers where surfaces change
 - the strength or capability to support loads
 - the slope/pitch of work surfaces where it's difficult for people to maintain their balance
- Levels - where levels change and workers may be exposed to a fall from one level to another. Also consider equipment being used at elevated levels (i.e. scaffolds, elevating work platforms or portable ladders)
- Structures - the stability of temporary or permanent structures.
- The ground - the evenness and stability of the ground for safe support of scaffolding or a work platform
- Edges - protection for open edges of floors, working platforms, walkways, stairs, walls or roofs
- Holes, openings, shafts or excavations - which will require guarding (i.e. trenches, services pits, confined space entry points).
- The work area - whether it is crowded or cluttered
- Safe means of access and egress from the work area
- Places where handgrip may be lost

Assessing Risk

Once fall hazards have been identified, they need to be assessed to determine the level of risk they pose. This will help determine suitable control measures and safe systems of work.

As a minimum the following should be considered when assessing risk:

- The potential for people to fall
- Fall distance
- Movement of people in the work area
- Proximity to unsafe areas
- Access and egress to the work area
- Inspection and maintenance of plant and equipment
- Lighting for clear vision
- Ground stability
- Weather conditions
- Complexity and duration of the task
- Competencies of the workers
- Emergency and rescue processes
- The risk of falling objects
- The potential collapse of a structure
- Overhead structures/electrical wires
- The risk of penetration while falling
- Objects below/implement hazards
- Underground hazards such as voids, pits
- PPE requirements for the job

Controlling Risk

Work Health and Safety Regulations outline specific requirements with regards to implementing controls to manage fall hazards. The hierarchy of controls must be applied when determining how works will be carried out and what equipment will be used.

The hierarchy begins with the level 1 control elimination - the most effective hazard control strategy. A lower order control (e.g. level 4 or 5) can only be used when it is not reasonably practicable to use a higher one.

1. Work on the ground (elimination)

If you don't have to work at heights, don't. Working from the ground is always the safest option. When planning the works consider whether there are alternatives to working at heights such as using extendable tools from the ground.

2. Work on a solid construction

If the need to work at heights cannot be eliminated, work should be carried out from a solid construction where possible such as a concrete flat roof with existing edge protection, or a guarded mezzanine floor.

3. Use a fall prevention device

If you can't work from a solid construction, a fall prevention device should be used such as temporary work platforms, guardrails and scaffolding.

4. Use a work position system

When it's not possible to use a fall-prevention device, a work-positioning system is the next best option. A work-positioning system enables a person to work supported in a harness in tension, physically preventing the person reaching a position at which there is a risk of a fall e.g. industrial rope access.

5. Use a fall arrest system

A fall arrest system is the last choice in the hierarchy. A fall-arrest system stops a person who has fallen and reduces the impact of the fall e.g. industrial safety nets or fall arrest harnesses used with lifelines or individual anchors. All equipment used for fall arrest should be designed, manufactured, selected and used in compliance with the AS/NZS 1891 series of standards. All components of a fall-arrest system should be compatible. Under no circumstances is fall arrest equipment to be anchored to scaffolding, handrails or other structures not designed and approved to withstand 15 KN of force.

Where a work position system or fall arrest system is used, emergency and rescue procedures must be in place.

Inspection of Height Safety Equipment

An inspection and maintenance program must be implemented to ensure equipment remains fit for use. The requirements for inspections of equipment are outlined in AS/NZS1891.4 (i.e. Harnesses, lanyards and associated personal equipment inspected 6 monthly by a height safety equipment inspector and anchorages every 12 months or more frequent as defined by regional legislation). All inspected equipment should be tagged with the due date for the next inspection and records of inspections kept and available on request.

All height safety equipment shall also be inspected by the wearer before each use to ensure it is in correct working order and suitable for the task.

Inspections should include as a minimum:

Harnesses:

- Buckles – look for cracks, bent buckles & smooth operation
- Webbing – look for frayed, cracked, burnt, contaminated or otherwise damaged webbing (loose stitching for example)
- D-rings – look for cracks, bent D-rings

Lanyards:

- Snap hooks – look for cracks, bent buckles, double action
- Rope or Webbing – look for frayed, burnt, or otherwise damaged rope / webbing or evidence of partial deployment.

Inertia reels:

- Snap hooks – look for cracks, bent buckles, double action
- Fully extract the webbing or wire and check for damage
- Check for anchorage of the webbing or wire to the drum when it is fully extended
- Secure locking and holding of locking mechanism when the rope is given a sharp tug
- Free running through the anchorage with no tendency to stick or bind

Any defective harnesses, lanyards or other fall prevention equipment is to be tagged out to prevent it being used until it is either repaired or destroyed.

Training and Competency

Workers must be trained and have the appropriate skills to carry out work at heights safely. Training shall be refreshed every 2 years.

Training must be provided by a competent person and cover the following as a minimum;

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| ■ Hazards and risks with working at height | ■ Inspection of equipment |
| ■ Selection of controls | ■ Safe work procedures |
| ■ Selection, use and fitting of equipment | ■ Emergency and rescue procedures |

Workers performing harness-based work are required to have completed a nationally accredited height safety course. Evidence of accreditation must be available on request and refreshed every two years.

Permit to Work

Some sites/works may require a permit to work to be issued. Your Programmed representative will be able to advise if a permit to work is required.

Elevating Work Platforms (EWP)

Before using a mobile EWP the following activities must be undertaken:

- Inspection of the path of travel to and from the work area
- Review of log book to ensure maintenance and servicing is up to date
- Complete pre-start inspection of plant and update log book
- Set up on firm ground made stable with outriggers if necessary
- Identify physical hazards of the work environment (i.e. overhead crush hazards/powerlines and pinch points must be assessed. Insulated plant and “no go zones” may need to be considered where electrical hazards exist)
- Fall arrest/ restraint systems are required for all boom type EWPs, all others are risk assessed.
- Ensure that the safe working capacity of the plant is not exceeded
- A system of communication shall be established between people working on the platform and nominated support personnel
- Rescue procedures in place
- Ground (spotter) personnel are to be trained in the use of emergency retrieval systems and have the same training and qualification as the EWP operator.

Temporary Work Platforms

Temporary work platforms, for example scaffolding, need to be assembled or installed according to the manufacturer's instructions and in line with industry guidelines. Given that the safety of this work equipment depends on how it has been installed or assembled, it is important that it is not used until it has been inspected by a competent person. Inspections shall also take place following any damage, repair, alteration or modification and at least every 30 days or more frequently if prescribed by local legislation. You are required to keep a record of any inspections carried out and have them available if requested.

Work on Roofs

The hazards associated with work on roofs must be considered prior to access. It is a Programmed requirement that fall protection is used for work on roofs above 2 metre and 2 metres from an unprotected edge.

The roof material must also be considered. Certain roofs will be constructed of fragile material which must be assessed and controlled. Roofs are likely to be fragile if they are constructed of the following materials:

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| ■ asbestos roofing sheets | ■ metal sheets and fasteners where corroded |
| ■ polycarbonate or plastic (i.e. skylights) | ■ glass, including wired glass |
| ■ fibre cement sheets | ■ chipboard or similar material where rotted |
| ■ liner panels on built-up sheeted roofs | ■ wood slabs, slates and tiles. |

Control measures to prevent injury from work on fragile roofs are similar to methods used for roof work more generally, including using:

- an elevating work platform so workers can avoid standing on the roof itself
- barriers such as guard rails or covers that are secured and labelled with a warning
- guard rails fitted to all work and access staging or platforms
- walkways or crawl boards of a suitable size and strength
- staging on the roof surface to spread the loads

- safety mesh secured under fragile roofing or skylights. If safety mesh is used, ensure it conforms to AS/NZS 4389:2015 Roof safety mesh
- a harness system with adequate anchorage points, along with appropriate training and supervision

Planning and Managing Work at Heights

When planning and managing work at heights ensure that;

- all information needed to do the job safely has been obtained
- a risk assessment has been carried out identifying the hazards associated with the works and suitable control measures.
- the hierarchy of controls is followed when determining systems of work
- for construction works where a person can fall 2m or more, a SWMS documenting relevant fall prevention controls has been prepared
- a permit to work has been obtained where required
- hazards and control measures are monitored and reviewed to ensure continued effectiveness
- work methods/plans include consultation with and information for workers
- employees have received adequate training and instruction regarding controls and safe systems of work
- there is adequate supervision to ensure instructions, systems of work, and SWMSs are being followed