

SAFE WORKING GUIDELINES HEIGHT WORKS

1. Introduction

The objective of this procedure is to prevent the occurrence of injury and reduce the severity of injuries resulting from works at height being performed by employees and subcontractors of Proline Building Commercial Pty Ltd who are suitably qualified and ticketed to do so.

2. Purpose

The purpose of this document is to provide suitable information for the identification, assessment and control of hazards associated with works at heights where there is a risk of falling.

3. Definitions

Height	of a building means the height measured from ground level to its highest part.
Competent Person	A person who has the necessary practical and theoretical skills, acquired through training, qualification, experience or a combination of these, to correctly and safely undertake the tasks.
Walked	means the action of a person standing at the top of a ladder, who by moving his/her body, causes the bottom of the ladder to lift the end of the stiles alternately to cause the ladder to move. This is a very dangerous practice, since the ladder is not under proper control.

4. Roles & Responsibilities

Project Managers/ Supervisors and Site Supervisor are responsible for the following:

- Identification, assessment, control and evaluation of working at heights hazards;
- Ensure that competently trained person/s carry out works at heights only;
- Ensure any plant or equipment used for working at heights, has been checked and tested appropriately prior to use;
- Ensure that records are kept and maintained on the status of electrical testing and tagging of equipment and to provide a monthly report to the OHS Manager.

Other Employees / subcontractors are responsible for the following:

- Ensure they do not carry out works in where uncontrolled height hazards exist;
- Notify the Site Supervisor of any hazards / faults or maintenance requirements of equipment to be used when working at heights;
- Co-operate with Project Managers/Supervisors and Site Supervisor in implementing the working at heights hazards management controls;

5. Procedure

Working at heights involves any activity or task where there is a risk of a person falling or an object falling on a person. Planning the work should be conducted before any work activity takes place. Determining the hazards associated with working at heights before you commence is the first step in preventing and incident when working at heights. During the planning process a risk

assessment should be carried out to determine the most appropriate controls ie hand rails, fall protection systems and safe working procedures. The planning process must give consideration to the legislative requirements when working at heights being:-

1. the work to be performed on a stable and securely fenced work platform (such as scaffolding or another form of portable work platform)
2. where a platform cannot be provided, the work is surrounded by a secure perimeter screen, fence, handrail or other physical barriers that are capable of preventing the fall of a person, or
3. when either of the above requirements can not achieved, the work shall only occur where other forms of physical restraint (ie safety harness) that is capable of arresting the fall of a person from a height of no more than 2 meters can be utilised.

Employees and subcontractors are responsible for developing an understanding of becoming competent in the implementation of risk management principles and practices on site/s.

This is a four phase process:-

1. Risk Identification
2. Risk Assessment
3. Risk Control
4. Risk Evaluation

5.1 Risk Identification

Identification of risks associated with working at heights should be undertaken by the following means:

- Consultation with employees / subcontractors
- Observation of work practices
- Inspections of the task and associated work areas
- Examine workplace injury records to assess what injuries have occurred to what tasks being carried out.

Consideration should also be given to the work area

The identification of particular hazards might include items such as:-

- people falling;
- objects falling;
- work occurring above or below other people;
- the structural adequacy and integrity of supports where work is occurring from or on.

5.2 Risk Assessment

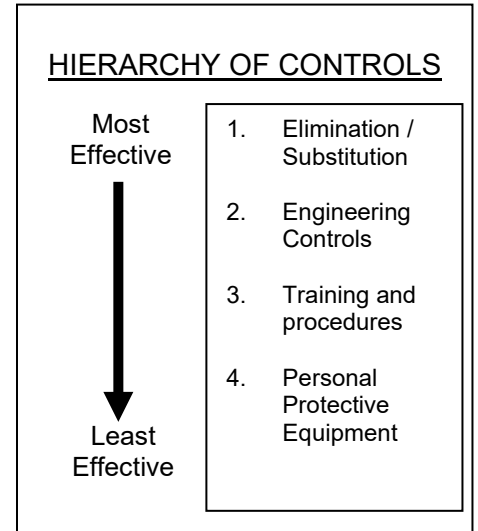
Identified hazards should then be prioritized according to the severity of injury, frequency of task and probability whilst performing the task. When assessing the risk, consideration will be given to:

- The likelihood of the incident occurring and;
- The consequence relating to that type of incident.

5.3 Risk Control

It is the responsibility of all employees and subcontractors involved in the working at heights management process to ensure that they co-operate with control measures are put in place by Proline. Risk Control is the means for minimizing or eliminates the identified risk and is carried out using the following heierarchy of control:

- *Eliminate the risk by ceasing the hazardous component or activity*
- *Substitute a less harmful alternative hazard substance or process*
- *Isolate the hazard at source using engineering means*
- *Introduce administrative controls to minimize exposure*
- *Use of Personal Protective Equipment*



Control options should include the following:

- a work platform which is stable and securely fenced;
 - Scaffolding
 - EWP's / Boom / Scissor Lifts etc

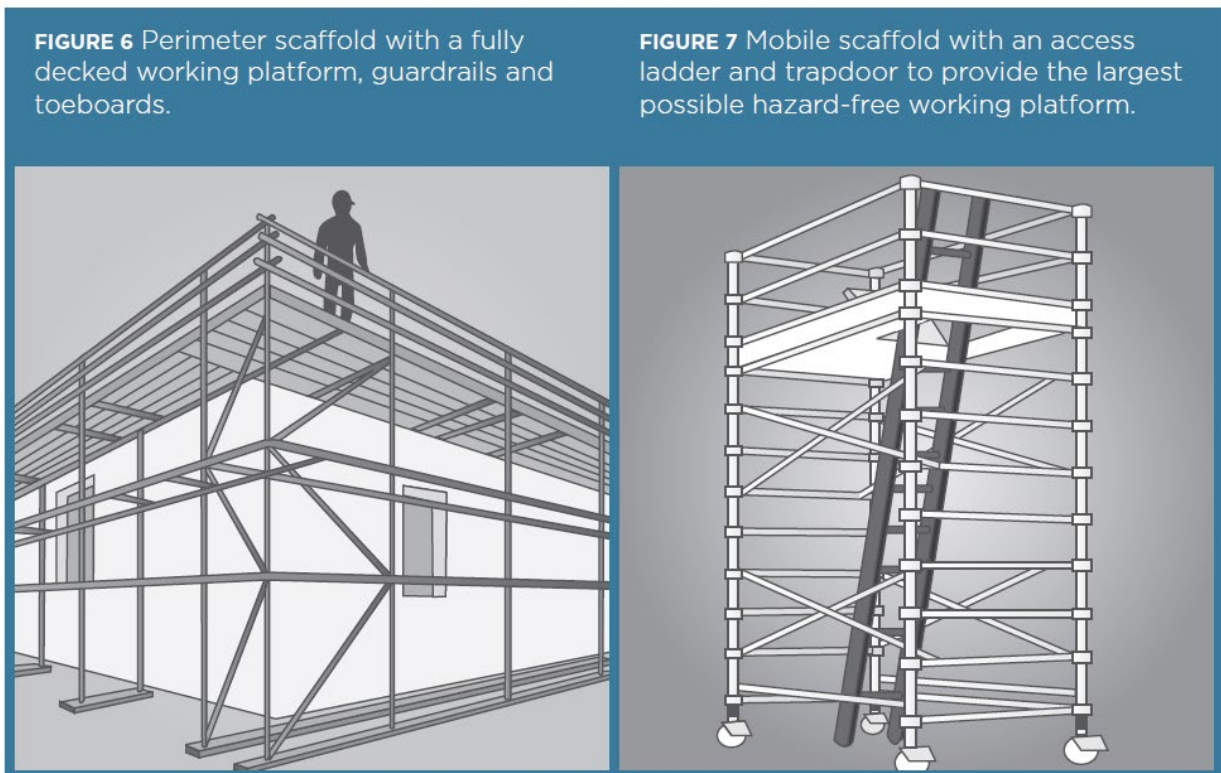


FIGURE 6 Perimeter scaffold with a fully decked working platform, guardrails and toeboards.

FIGURE 7 Mobile scaffold with an access ladder and trapdoor to provide the largest possible hazard-free working platform.

ELEVATING WORK PLATFORMS

Elevating Work Platforms (EWPs) include scissor lifts, cherry pickers, boom lifts and travel towers. There are battery powered and internal combustion engine types. Some are designed for hard flat surfaces only, while others are designed to be operated on rough terrain.

Safety considerations include that:

- workers operating the platform are trained and instructed in safe operating procedures for the particular brand and type of equipment, as well as the safe use of fall-arrest equipment and emergency rescue procedures
- the platforms are only used as working platforms and not as a means of entering and exiting a work area unless the conditions set out in *AS 2550.10 Cranes, hoists and winches – Safe use – Mobile elevating work platforms* are met
- unless designed for rough terrain, the platforms are used only on a solid level surface
- the surface area is checked to make sure that there are no penetrations or obstructions that could cause uncontrolled movement or overturning of the platform
- the manufacturer's or supplier's instructions are consulted for information on safe operation
- persons working in travel towers, boom lifts or cherry pickers wear a properly anchored safety harness
- workers are licensed when operating boom-type elevating work platforms with a boom length of 11 metres or more.

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

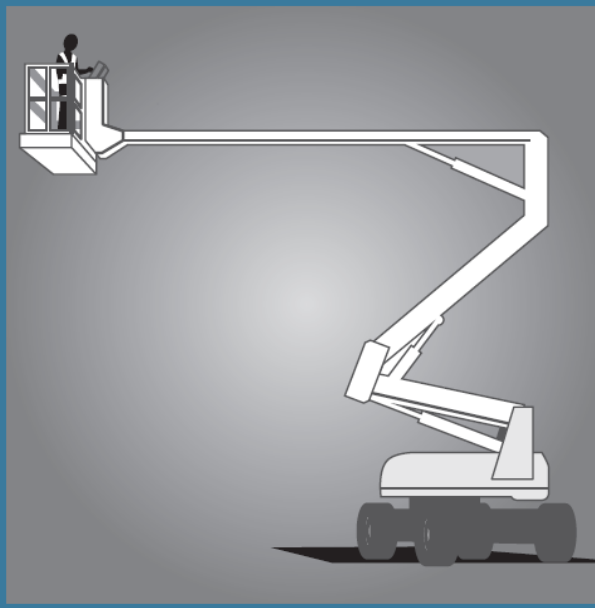


FIGURE 10 An example of a scissor-lift elevating work platform.



- where the above is not possible, a temporary solution/s such as a perimeter screen, fencing, handrails or other types of physical barrier to prevent a person or object falling;

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Guard rails may be used to provide effective fall prevention:

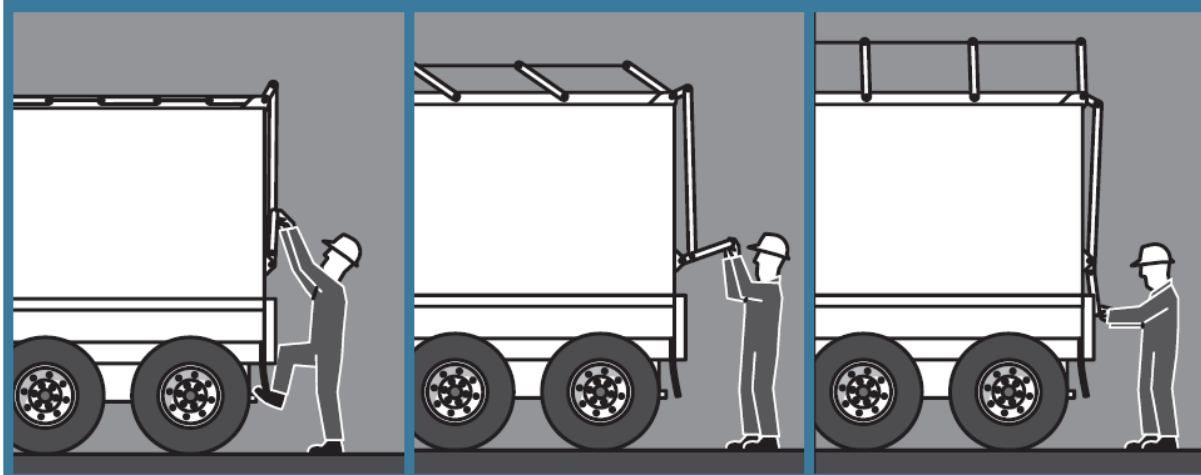
- at the edges of roofs
- at the edges of mezzanine floors, walkways, stairways, ramps and landings
- on top of plant and structures where access is required (see Figure 17)
- around openings in floor and roof structures
- at the edges of shafts, pits and other excavations.

Guard rails should incorporate a top rail 900mm to 1100 mm above the working surface and a mid rail and a toe board.

Before using a guard rail system you should check that it will be adequate for the potential loads. The required load resistance will depend on the momentum of a falling person. For example, the momentum of a person falling from a pitched roof will increase as the pitch (or angle) of the roof increases.

Refer to *AS/NZS 4994—Temporary Edge Protection* series for further guidance.

FIGURE 17 Guard rails installed on top of a tanker to enable safe access to tank hatches.



- or in the case the above two can not be utilised, then forms of physical restraints are required, such as a safety harnesses attached to suitable anchor points, which will arrest the fall of a person from a height of more than 2 meters

5.4 Risk Evaluation

It is important to evaluate the effectiveness of the control measures implemented, to ensure that they are effective and that they do not lead into the introduction of additional hazards within the work environment. An evaluation of control measures must be carried out by the Site Supervisor during the tasks Safe Work Method Statement Reviews.

6. Roof Safety

A working a heights risk assessment will be required to be completed prior to performing any works at heights or on roofs. Use of Doc No: OHS057 Working at Heights Risk Assessment shall identify the hazards associated with each roof and the controls required for access and work activities to occur.

6.1 Weather

No work at height is to be carried out where weather conditions jeopardise the health or safety of persons involved in the work

6.2 Fragile Surfaces

No work at height is to be carried out on, or within 2 m of a fragile surface where an alternative method of carrying out the work safely can be implemented. Where work of this type is required, then platforms, covering, guardrails, warning notices etc must be provided.

7. Working from Portable Ladders

Working from ladders greatly increases the chances of falling compared to other methods of working at height. It is important to realize that there are limits to the safe use of a ladder. Most accidents involving ladders occur because these limits are exceeded. The following should be considered when using setting up and using a ladder:

- Support- all ladders should be adequately supported at the base and securely fixed at the point, refer to the Figure 27 below as noted from the Managing the risk of falls Code of Practice;
- Slope – set the ladder at a slope of approximately 4 in 1;
- Contact – one ladder, one person and it is recommended that the person should always have three limbs on the ladder at all times;
- Height – the person using the ladder should never climb higher than the third rung. Ladders should extend at least one metre above the access level.
- Services – consider where the ladder is located; ensure that it is not positioned near electrical supplies or near other services, or in water.
- Environment – ladders should not be used outdoors when strong winds are blowing. Ladders should be tied off or firmly secured prior to use. Examine the ladder for defects and damage prior to use.
- Type – Use only industrial ladders, not domestic ladders. Ladders are to be fitted with rubber (or similar material) to prevent the feet from slipping. Long and heavy ladders (greater than 20kg) should be handled by at least two people;
- Use – a ladder should not be ‘walked’ by the person using the ladder;
- Signage – Where a roof, or in plant, of a building or structure comprises or includes brittle, fragile roofing material, warning signs must be applied. The sign shall include ‘DANGER – BRITTLE ROOF’;
- PPE – fully enclosed slip resistant footwear should always be worn when using ladders;

- Storage - ladders should be stored undercover, with adequate support to prevent sagging.

FIGURE 27 Some effective ways of securing a ladder

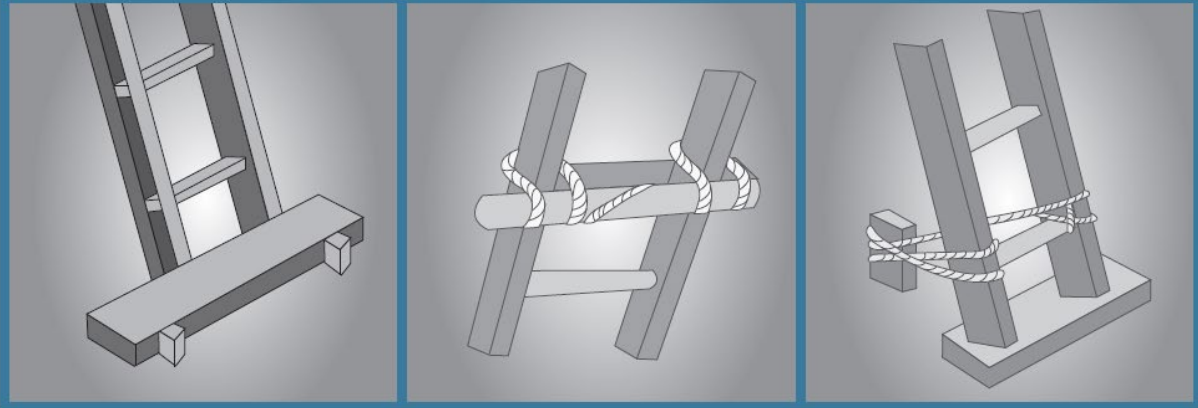


FIGURE 28 Example of acceptable ladder use

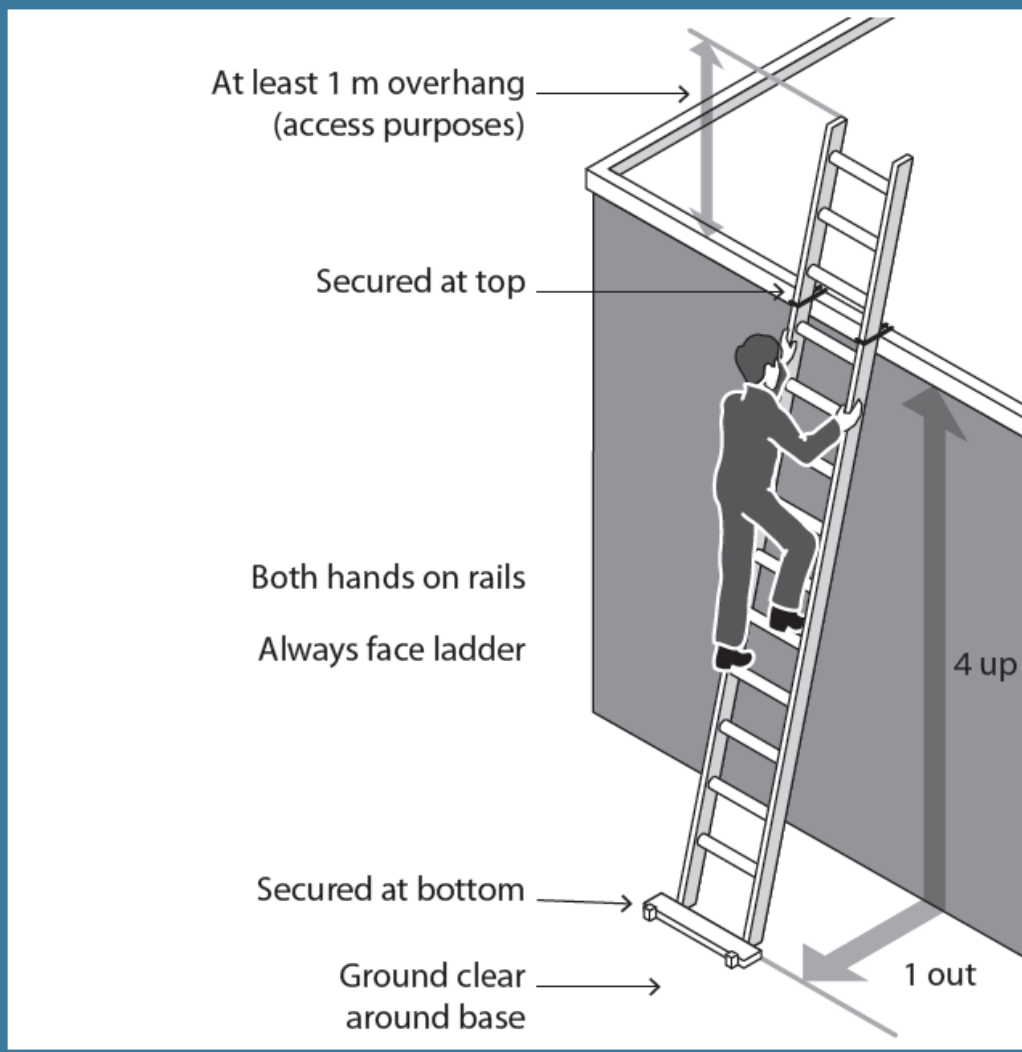
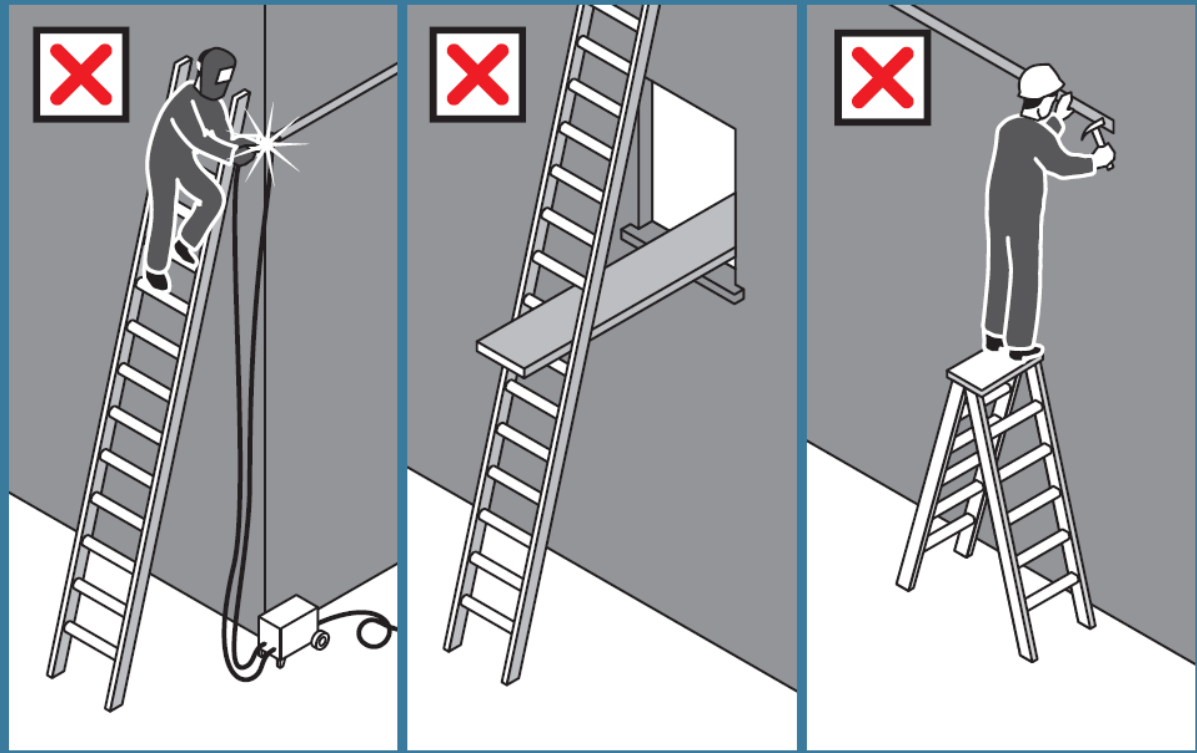


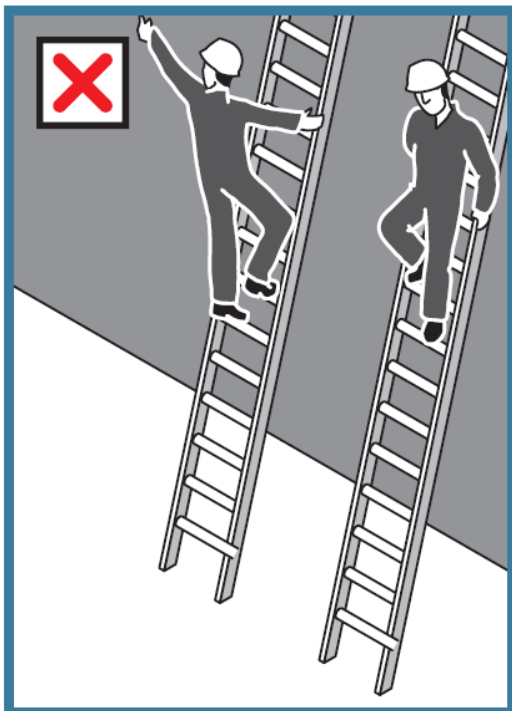
FIGURE 30 Examples of unsafe ladder use



Performing hot work from ladder

Ladder set up incorrectly

Standing on top of stepladder



Facing away from the ladder to descend; over-reaching

7.1 Ladder Maintenance

As per Managing the Risk of Falls – Code of Practice

Ladders should be regularly inspected by a competent person in accordance with the manufacturer's recommendations. Ladders with any of the following faults must be replaced or repaired:

- fibreglass stiles cracked, chipped or severely faded with fibres exposed
- timber stiles warped, splintered, cracked or bruised
- metal stiles twisted, bent, kinked, crushed or with cracked welds or damaged feet
- rungs, steps, treads or top plates that are missing, worn, damaged or loose
- tie rods missing, broken or loose
- ropes, braces, or brackets that are missing, broken or worn
- timber members that are covered with opaque paint or other treatment that could disguise faults in the timber
- missing, loose, bent or worn fasteners, i.e. rivets, bolts and pins
- worn or damaged feet, including non-slip material.

8. Fall Arrest Equipment

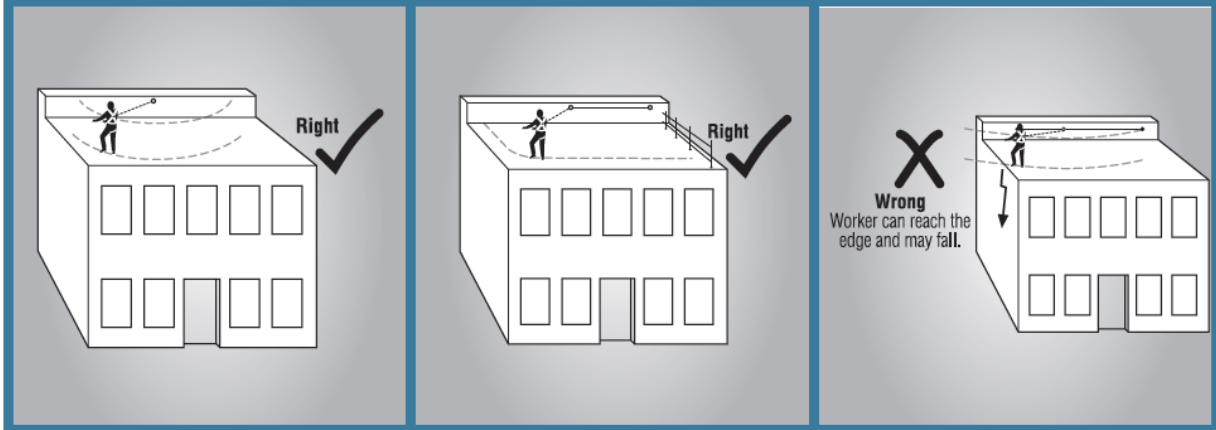
When a fall arrest system is being used, it is a requirement to have all anchorage points for the device inspected before the first use and on a regular basis to ensure they are capable of supporting the loads. This inspection should be carried out by a competent person/s. Where the load bearing capacity of anchor points is impaired, the anchor point is to be required to be taken out, to prevent its use. Only suitable equipment such as a harness, safety line or other components shall be used in a fall arrest system. Care must also be taken in regards to location of anchor points etc, refer to Figure 19 below.

Any person using a fall arrest is required to have training and be competent in its use and care. Checking of the system should occur prior to each use. Any part of the system which shows signs of weakness, strain, tear, rips etc is not to be used. Where a fall arrest system is to be utilised a rescue plan is required in the event of a person falling. Refer to Clause 8.1 Safety Harness Rescue Plan.

As per Managing the Risk of Falls – Code of Practice

A restraint technique controls a person's movement by physically preventing the person reaching a position at which there is a risk of a fall. It consists of a harness that is connected by a lanyard to an anchorage or horizontal life line. It must be set up to prevent the wearer from reaching an unprotected edge (see Figure 19).

FIGURE 19 Restraint technique options.

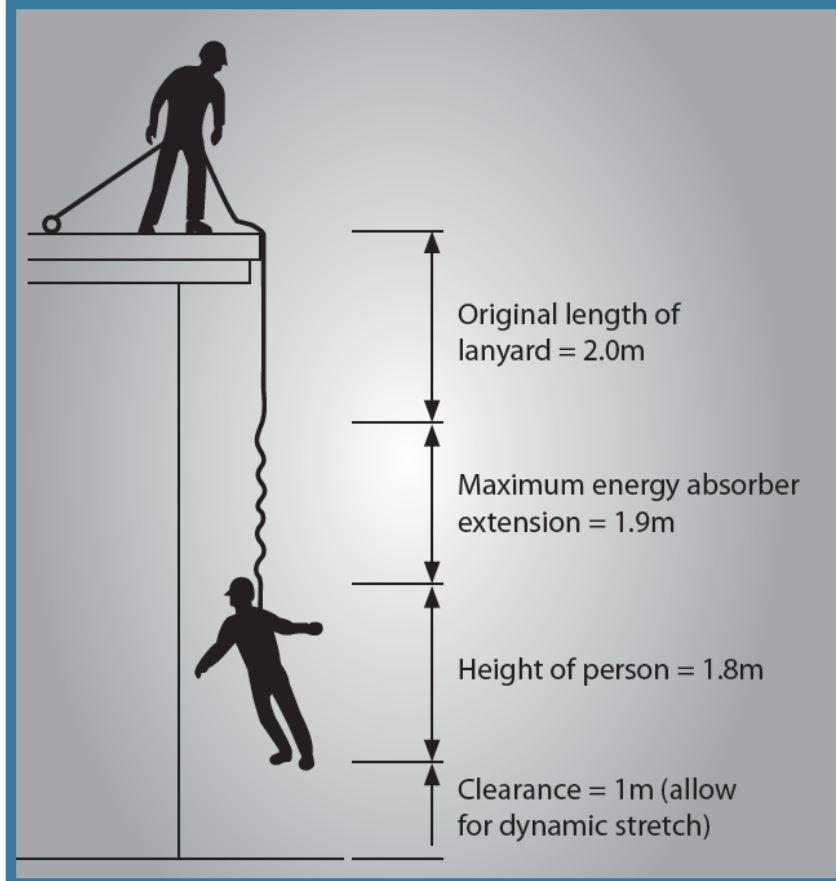


Limit free fall distance

Fall-arrest systems, incorporating a lanyard, should be installed so that the maximum distance a person would free fall before the fall-arrest system takes effect is two metres. There should be sufficient distance between the work surface and any surface below to enable the system, including the action of any shock absorber to fully deploy (see Figure 21). To work out whether there is enough distance available, you should take into account:

- the worker's height
- the height and position of the anchorage point
- the length of the lanyard
- any slack in the horizontal life line
- any stretching of the lanyard or horizontal life line when extended by a fall
- the length of the energy absorber when extended by a fall.

FIGURE 21 Total fall distance before this particular configuration would be effective in arresting a fall is 6.5m.



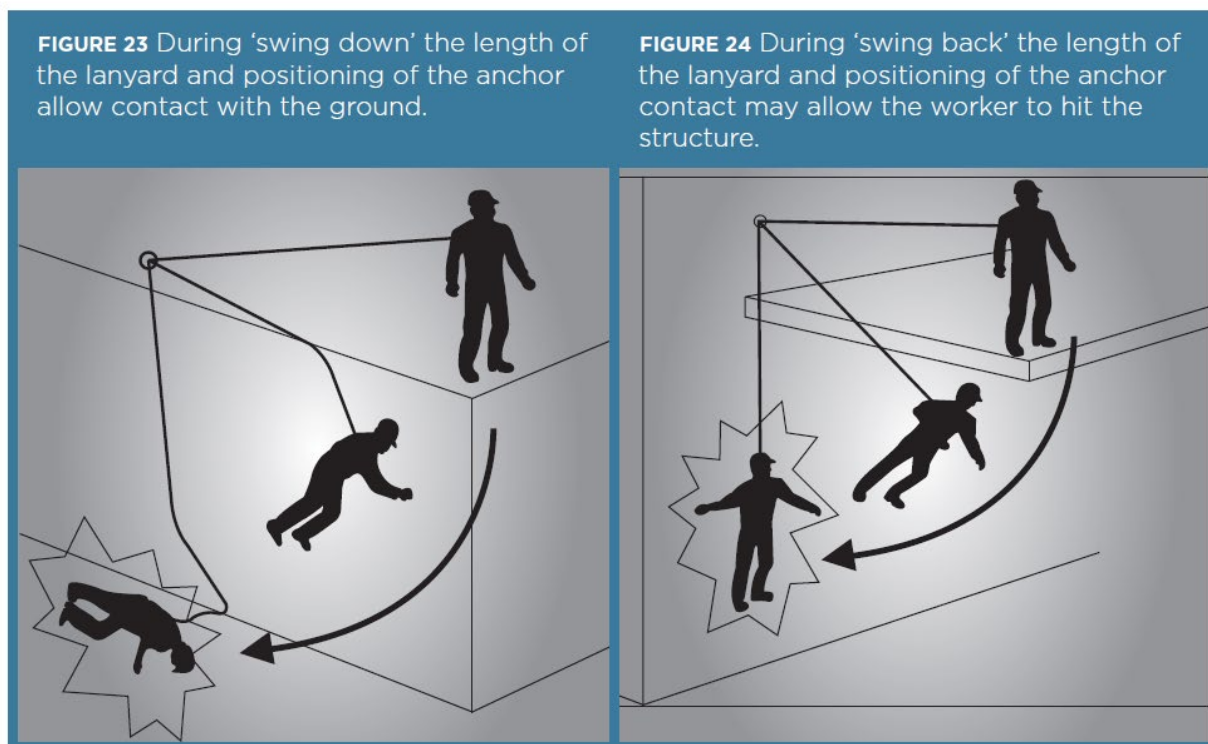
Lanyards should **not** be used in conjunction with inertia reels as this can result in an excessive amount of free fall prior to the fall being arrested.

USE SUITABLE HARNESSES

In most cases, a full body harness should be worn. Harnesses must be correctly fitted. Workers should connect the fall-arrest line to the attachment point on their harness (dorsal attachment point or the chest connection) that will provide the best protection in the situation it is being used. Consideration should be given to the potential fall distance, potential impact with the structure, body position after a fall and the need to interact with equipment such as rope-grabs.

MAINTAIN MINIMUM OF SLACK IN FALL-ARREST LANYARD

There should be a minimum of slack in the fall-arrest lanyard between the user and the attachment. The anchorage point should be as high as the equipment permits. Avoid work above the anchor point, as this will increase the free fall distance in the event of a fall, resulting in higher forces on the body and greater likelihood of the lanyard snagging on obstructions.



8.1 Safety Harness Rescue Plan

Safety Harnesses must be used when working at heights, where other reasonable fall restraint measures can not be implemented.

Workers must never work at height alone so that the plan can be immediately activated; a lone worker cannot initiate a plan for his rescue if he is hurt or unable to reach a means of communication.

Rescue must be initiated by reaching the worker and getting, at the very least, a loop strap to the worker so he can stand and take some of the pressure off his harness and move the muscles in his legs.

Call the Fire Brigade Immediately on 000 and where possible, rescue devices should be implemented so the worker can be moved into a less vertical position; however, it is critical that where a worker is or even may be experiencing the effects of suspension trauma*, he must not be laid horizontal. By laying the worker horizontal, the pooled blood causing the trauma will now rush to the heart and may, in essence, overload it, causing massive damage to the ventricle and potentially resulting in imminent death.

Rescues must be practiced on a regular basis so workers can affect a safe and efficient rescue within a very short time (as little as 5 minutes if unconscious and a maximum of 15 minutes).

** Suspension trauma, also known as harness induced pathology, is well documented and has been an issue of study since the late 1960s. In its simplest form, suspension trauma is where the body is at rest in a vertical state with the lower body motionless, and as such, blood begins to pool in the lower extremities because the muscles in the legs are not contracting on the veins and helping the blood back to the heart (against gravity). Blood is not properly circulated, the individual's blood pressure drops, the brain does not receive adequate blood flow, and unconsciousness follows.*

9. Falling Objects

Objects falling from heights can place those working near or below at risk. Where working at height requires objects such as equipment and materials, the following is required:

- a safe means of lifting and lowering the items;
- a secure physical barrier to prevent objects falling freely from the platforms, buildings ie toeboards
- measures to arrest the fall of objects ie catch scaffold / safety nets
- use of personal protective equipment ie safety harnesses/ hard hats
- a barrier to close off the work area underneath or other means to prevent person/s working or passing by underneath.

10. Falling – Penetrations / Holes

As per Managing the Risk of Falls – Code of Practice

Safety mesh is designed to prevent internal falls through a roof. If securely fixed, safety mesh provides fall protection for roof installers and offers long-term protection against falling for maintenance and repair workers.

Safety mesh does not prevent falls from the edge of a roof or through holes in a roof, so it should always be used in conjunction with appropriate edge protection, guard rails or fall-arrest systems.

Safety mesh should comply with AS/NZS 4389 *Safety mesh*, which specifies the minimum requirements for the design, construction, testing and installation of safety mesh for use in domestic, commercial and industrial building applications.

The mesh should be formed from 2 mm diameter wire of not less than 450 MPa tensile strength, welded into a mesh with the longitudinal wires not more than 150 mm apart and the cross wires not more than 300 mm apart.

Safety mesh should be installed in accordance with the manufacturer's instructions by competent persons, who should be protected against the risk of falling by using appropriate control measures such as scaffolding, elevating work platforms or fall-arrest systems.

Particular care is required to ensure that the mesh is securely connected to the structure and the overlap between adjacent sections of mesh is sufficient to generate the necessary strength to resist the force of a person falling onto it. The safety mesh should be covered by the roof cladding as soon as reasonably practicable after it has been installed.

10.1 Working in Ceiling Space/s

Prior to entering any ceiling space, workers must first report to the Site Manager for approval. The following must be required to be carried out before works in ceiling spaces:

1. Risk Assessment of the works to be carried out
2. Site Specific Safe Work Method Statement – nominating the work methodology, hazards and controls to be implemented including emergency evacuation procedures
3. Sign off from the Site Manager prior to entering.

Hazards within ceiling spaces could include, electrical, falls – falling through ceiling / falling objects / asbestos / manual handling.

11. Training

The Systems Manager will train employees during WHS EMS QA Seminars to ensure that employees can identify risky activities and receive appropriate training.

Training should cover at least the following:

- a. the work method to be used in loading, positioning and fixing roof materials, including access methods.
- b. The method to be adopted to prevent falls
- c. The correct use, care and storage of individual fall arrest equipment and safety nets
- d. The correct use, care and storage of personal protective equipment
- e. The correct use, care and storage of tools and equipment to be used, including electrical safety
- f. The procedure to be adopted in the event of an accident or injury.

Project Manager/Supervisors should ensure Site Supervisor train employees / subcontractors in identifying, assessing and controlling risks during Safe Work Method Statement training for any working at heights related type work activities. Site Supervisor should ensure the person/s being trained understand the reason for performing the task with the least amount of risk, can recognise the risks and decide the most appropriate method to complete the task and can perform the task in the correct way.

12. Review & Evaluation

In order to ensure this procedure remains effective, it will be reviewed by Senior Management on an annual basis or in the event of an injury or near miss resulting from any working at heights activity, changes in legislation or if raised by an employees concern.

13. References / Legislation

- Work Health & Safety Act 2011
- Work Health & Safety Regulation 2017
- Managing the Risks of Falls at Workplaces Code of Practice
- Workcover Safe Working at Heights Guide 2006
- Workcover Safety Guide: Portable Ladders, Feb 1999 Guide 4503
- AS/NZS 1891: Industrial fall arrest systems and devices
- Workcover COP: Safety Line Systems

14. Version Control

Date	Version	Owner	Comments
13.03.09	1	Michelle Noy	For Issue
14.02.11	2	Michelle Murphy	Inclusion of weather and fragile surfaces
11.11.11	3	Michelle Murphy	Following External 3 rd Party Audit
18.04.12	4	Michelle Murphy	Changes in legislation / code of practices
10.06.15	5	Michelle Murphy	Following Management Review
01.09.17	6	Michelle Murphy	General Review
20.12.17	7	Michelle Murphy	Addition – working in ceiling spaces
01.06.18	8	Michelle Murphy	General Review
01.12.23	9	Michelle Murphy	General Review