



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

UOW SAFE@WORK

MANAGING THE RISK OF FALLS

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1 Introduction

This guideline details the necessary measures that should be taken to ensure the safety of any person who is required to work with a risk of falling. Falls are a major cause of death and serious injury. Fall hazards can be found at various locations across the University where work is carried out at height, for example using ladders or working on a roof, and also from ground level for example accessing service pits below.

2 Scope

This guideline applies to any person who is exposed to a risk of falling as a result of the hazards associated with the work they are undertaking. It also applies to those who supervise workers who are exposed to falls.

A risk of a fall is defined as any circumstance that exposes a worker while at work, or other person while at or in the vicinity of a workplace, to a risk of a fall that is reasonably likely to cause injury to the worker or other person.

3 Definitions

<i>Anchorage</i>	A secure attachment on a structure or plant to which a fall arrest device, or lanyard assembly or restraint line or lifeline can be attached.
<i>Competent person</i>	Means a person who has acquired through training, qualification or experience, or a combination of them, the training and knowledge and skills to carry out that task.
<i>Fall</i>	A fall by a person from one level to another
<i>Rescue device</i>	Any apparatus or combination of apparatus specifically designed for the purpose of rescue from pole, structure, height or enclosed space. This apparatus must not be used for any other purpose than that it is supplied and designed for.
<i>Restraint systems</i>	A system to prevent falling from height. This can include approved rails, guarding, static lines, anchor points, fixed length lines and harnesses. All systems should meet the requirements of relevant Australian Standards.
<i>Worker</i>	Any person who carries out work for the University of Wollongong
<i>Working at heights</i>	Involves any activity or task conducted where there is a risk of a person or object falling.

4 Responsibilities

4.1 Deans and Directors

Deans and directors are responsible for ensuring that resources are available within their area to assist with the implementation of this guideline.

4.2 Heads of Department, Managers and Supervisors

Heads, managers and supervisors are responsible for ensuring this guideline is implemented in their local area. Ensure that all ladders in their area of responsibility are regularly inspected at least once every 12 months, and records of inspections and a register of ladder maintenance maintained in the same location that the ladder is stored.

4.3 Maintenance Supervisor

The Facilities Management Division (FMD) Maintenance Supervisor is responsible for:

- ensuring that a roof risk assessment has been completed for all university buildings (in conjunction with WHS Unit)
- organising for roof risk assessments are reviewed on an annual basis
- ensuring that all University buildings have their horizontal life lines and anchor points checked annually
- authorising access to roofs by approving [Roof Access Permits](#).

4.4 Workers

All workers are required to cooperate with WHS procedures in relation to the work they undertake. This includes contributing to the process of identification of hazards, assessment and control of the risk involved, and consultation and training.

Workers are required to follow the requirements of this guideline when working at heights and using height safety equipment as instructed and only within the design parameters. All workers that use ladders have the responsibility to inspect them before each use and ensure that the ladder that they are using is suitable for the job, and to assess the work area and task that they are about to perform, in order to ensure that any risks are recognised and mitigated.

5 Training

Training is recommended for workers where there is a high risk of falls prior to controls being implemented. Training must be appropriate for the activity or task being completed and may also include high risk work license's.

Any person working on a task involving the use of harness, anchor points/lifelines, etc must have attended nationally recognised training in Height Safety Awareness (at a minimum). This training does not have an expiry date. However, regular refresher training is recommended to ensure competence is maintained.

It is highly recommended that supervisors of workers who work at heights also complete relevant training.

Other training requirements may be identified via risk assessment, safe work procedure, roof access permit, etc.

6 Planning

Planning the work is the first step in ensuring the safety of a person at height. The risk assessment process outlined in Section 6 Risk Management must be conducted before any activity or task commences where the risk of falling is present and consideration given to controls such as work platform, barriers, fall restraint or fall arrest systems.

During the planning process consideration must be given to the following legislative requirements when working at heights:

- where possible, the work is carried out on the ground or on a solid construction
- a safe means of access to and exit from the workplace must be provided, and
- the risk of falls has been minimised so far as is reasonably practicable by providing a fall prevention device, work positioning system or a fall arrest system.

Consideration should also be given when the area of work is:

- on a fragile or potential unstable surface
- on a sloping or slippery surface
- in close proximity to an edge, and
- in proximity of a hole, shaft or pit which is of sufficient dimensions for a person to fall in.

Whilst exemptions are provided for the following, a risk assessment is to be undertaken to identify ways to minimise risks involved with the following activities:

- sporting or athletic activities, e.g. rock climbing or abseiling
- stunt work
- acrobatics
- theatrical performances.

7 Risk Management

Individual job factors determine the level of risk associated with falls and are to be managed accordingly to prevent an injury. A risk management approach incorporating the process of identification, risk assessment and controls is required to be undertaken to ensure that hazards do not adversely affect the health and safety of University staff, contractors and third parties.

As with any other workplace hazard, consultation with employees must occur to ensure that the process is as effective as possible. The following details a risk management approach with regard to heights safety.

7.1 Identifying Hazards

Before any risks with working at height can be controlled they must first be identified. It is expected that all reasonably foreseeable hazards that could give rise to the risk of falls will be identified. Locations and tasks that need particular attention include:

- any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, repaired or cleaned
- a fragile or potentially unstable surface
- using equipment to work at the elevated level
- near an unprotected open edge or near a hole, shaft or pit into which a worker could fall.

7.2 Assessment of risks

When assessing the risks arising from each fall hazards, the following matters should be considered:

- the design and layout of elevated work areas, including the distance of a potential fall
- the number and movement of all people at the workplace
- the proximity of workers to unsafe areas where loads are placed on elevated working areas (for example, loading docks) and where work is to be carried out above people and there is a risk of falling objects
- the adequacy of inspection and maintenance of plant and equipment (for example, scaffolding)
- the adequacy of lighting for clear vision
- weather conditions—the presence of rain, wind, extreme heat or cold can cause slippery or unstable conditions
- the suitability of footwear and clothing for the conditions
- the suitability and condition of ladders, including where and how they are being used
- the adequacy of current knowledge and training to perform the task safely (for example, young, new or inexperienced workers may be unfamiliar with a task)
- the adequacy of procedures for all potential emergency situations.

Further information can be found in the [Risk Management Guidelines](#).

7.3 Applying Controls

The hierarchy of controls need to be applied when managing risks associated with falls. The following should be considered when developing control options:

- Can the need to work at height be avoided to eliminate the risk of a fall?
- Can the fall be prevented by working on solid constructions?
- Can the risk of a fall be minimised by providing and maintaining a safe system of work?

It is important to consider if the following will help to implement and maintain control measures:

- Developing procedures on how to correctly install, use and maintain the control measure
- Consulting with the manufacturer and/or supplier of the equipment for any product specific requirements
- Provision of information, training and instruction to workers, including procedures for emergency and rescue
- Provision of supervision.

7.4 Monitoring and Review

Controls that have been implemented should be regularly reviewed to ensure:

- they remain appropriate for the type of risk
- that they remain effective in minimising the risk.

8 Fall Prevention

8.1 Work on the Ground or on a Solid Construction

Working on the ground effectively eliminates the risk of falls. Consideration of the viability of performing the work from the ground needs to be made. For example can a roof be prefabricated at ground level, can a mechanical tarp spreaders be used to cover loads on trucks from the ground and can shelving height be reduced so workers can access from ground level.

Working on a solid construction can work to provide an environment where the likelihood of a fall can be eliminated. Examples include structural strength, barriers, protection of openings and holes, surface and gradient, and entry and exit.

8.2 Fall Prevention Devices

Fall prevention devices can help to prevent a fall for temporary work at heights. A temporary work platform is a working platform used to provide a working area for the duration of a job. Temporary work platforms include scaffolds, elevating work platforms, mast climbers, workboxes, building maintenance units, portable or mobile fabricated platforms or any other platform that provides a working area and is designed to prevent a fall.

8.3 Work Positioning Systems

Work positioning systems involve the use of equipment that enables a person to work supported in a harness in tension to prevent a fall from occurring. This type of system required the user and the supervisor to be highly competent based on a course of training. Examples of work positioning systems include industrial rope access systems and restraint techniques.

8.3.1 Industrial Rope Access Systems

Industrial rope access systems are used for gaining access to and working at a workplace, usually by means of vertically suspended ropes. Although fall-arrest components are used in the industrial rope access system, the main purpose of the system is to gain access to a work area rather than to provide backup fall protection

Other methods of accessing a workplace should be considered (for example, EWPs or building maintenance units) before rope access systems, as a high level of skill is needed for their safe use.

8.3.2 Restraint Technique

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. This is the University's preferred method to keep workers safe at heights.

8.4 Fall-Arrest Systems

This system is intended to safely stop a worker falling an uncontrolled distance and reduce the impact of the fall. This system should only be used if it is not reasonably practicable to use higher level controls, or in conjunction with higher level controls. Examples of fall-arrest systems include catch platforms, industrial safety nets, individual fall-arrest systems, anchorage lines or rails.

Where a fall arrest device is being used this equipment is required to have all anchorage points for the device to be inspected before first use and on a regular basis so they are capable of supporting the loads. This inspection may only be conducted by a competent person.

Where the load-bearing capacity of anchor points is impaired, the anchor point is required to be taken out of service to prevent its use.

Only suitable equipment such as harness, safety line and other components shall be used in fall arrest systems. Where any part of the system shows signs of weakness and inability to perform the function as designed, it is not to be used.

Any person using fall arrest equipment is required to have training and be competent in its use and care.

Where a fall arrest system is in use, an appropriate [Working at Heights Rescue Plan](#) is required in the event of a person falling. All equipment used for fall-arrest should be selected, used and maintained in compliance with the AS1891 series of standards.

Further information can be found in the [Managing the Risk of Plant Guidelines](#).

9 Working on Roofs

The minimum requirements for accessing UOW roofs is documented within the [Roof Access Procedure](#). Each building within UOW has its own UOW Roof Safety Survey and associated roof risk assessment. Any person who is required to access a UOW roof is to follow the process outlined in the risk assessment (see [Building 1 Roof Safety Assessment](#) as an example).

Element	Requirements
1. Roofing	<ul style="list-style-type: none"> ▪ Brittle or fragile roofs can be dangerous for those having to work on top. For this reason a number of controls must be put into place.
2. Walkways	<ul style="list-style-type: none"> ▪ A permanent walkway is required to be created and maintained over roofs. Alternatively, where this cannot be arranged, secured temporary walkways or other means to prevent persons falling who are on the roof.
3. Signage	<ul style="list-style-type: none"> ▪ Where a roof or part of a building or structure comprises or includes brittle or fragile roofing material warning signs must be applied. The signs are required to be affixed to each slope, curve or section of the roof and to each access point to the roof. ▪ The sign shall include ‘DANGER-BRITTLE ROOF’.
4. Windows	<ul style="list-style-type: none"> ▪ If windows are required to be cleaned from the outside, a safe means of cleaning the window must be implemented.

10 Working from Ladders

Working from ladders greatly increases the chances of falling compared to other methods of working at heights, such as a work platform. It is important to realise that there are limits to the safe use of a ladder. Most accidents involving ladders occur because these limits are exceeded. As such, working on ladders should be minimised and where appropriate alternate methods such as scaffolding or elevating work platforms introduced.

There are limits to the safe use of ladders and they should not be used for working at heights of 6 metres or more. Work done with ladders should be restricted to light duty work that’s performed for short periods of time. For heights above six metres, ladders should only be used for access purposes, and even this should be avoided where possible.

Always use regularly inspected and maintained industrial ladders that are designed to comply with Australian Standards. They must have a clearly displayed load rating of at least 120kg. Do not use domestic ladders.

Ladders are available in a variety of types including portable and fixed, and materials from which they can be made. To ensure that any risks associated with performing the intended task involving the ladder are minimised, it is important that the appropriate ladder is used for each job.

Before climbing the ladder, test it by jumping on the bottom rung.

The following should be considered when working with ladders:

Element	Requirements
1. Support	<ul style="list-style-type: none"> ▪ It is important to ensure that the ladder is adequately supported at the base. The base should be of solid construction and where this not possible and the surface is too soft to support the ladder, (such as on unstable ground, soil, grass) planks should be placed under the ladder feet to prevent the ladder from subsiding.
2. Slope	<ul style="list-style-type: none"> ▪ The slope of a ladder is important to ensuring the ladder won't fall backwards. Position the ladder using 4 in 1, e.g. for every 4m in height, the ladder should extend out from the vertical surface 1m.
3. Contact	<ul style="list-style-type: none"> ▪ When working on a ladder the person is required to maintain three points of contact at all times ie having two hands and one foot or one hand and two feet on the ladder. This includes when ascending, descending so consider using a tool belt to hold tools while using the ladder. ▪ Ensure you are using the ladder as it is designed, for example the weight limit may restrict ladder use to no more than one person at a time.
4. Height	<ul style="list-style-type: none"> ▪ When the ladder is in position, it should be at least 1m beyond the height of the task. In the case where the ladder is providing access to a higher level and you are required to get off or on the ladder, it should extend 1m above the level being accessed. A person on a ladder should not climb higher than the third rung from the top of the ladder. ▪ Ensure the top of the ladder is secured to prevent falling.
5. Location	<ul style="list-style-type: none"> ▪ When selecting a position to place a ladder it must not be placed over a doorway. If there is no other alternative, appropriate warning and prevention mechanisms must be introduced to prevent someone coming through the door while the ladder is in position. ▪ Do not work directly over other people. Barricade the area below if required.
6. Weather Conditions	<ul style="list-style-type: none"> ▪ Consideration should be given to the weather conditions impacting on the safe use of a ladder. For example wet, windy or storms occurring will increase the risk when working on a ladder.
7. Footing	<ul style="list-style-type: none"> ▪ Metal ladders must be fitted with rubber feet, or a similar non-slip material. Do not erect a ladder on a slippery surface as stability depends on friction at the base.
8. Services	<ul style="list-style-type: none"> ▪ Consider where the ladder is located, ensure that it is not position near electrical supplies or other forms of services.
9. Electricity	<ul style="list-style-type: none"> ▪ Ladders used near powerlines should be non-conducting types, such as timber (without wire reinforcement or with the wire reinforcement recessed and insulated) or reinforced plastic (includes fibreglass), but not metal. Keep metal or wire-reinforced ladders at least three metres clear of powerlines (or any electrical conductors). Beware of overhead powerlines when putting a ladder into position.

While on the ladder:

- Work within easy arm's reach of the ladder. Don't lean over the side of the ladder. Your centre of gravity should always remain within the stiles.
- Wear fully-enclosed, slip-resistant footwear.
- Get off before moving the ladder.
- Face the ladder when climbing or working on it.
- Use only lightweight hand tools on a ladder and ensure that:
 - Use is light-duty work for short durations
 - They can be used in their normal operating position
 - Guarding and other safety features on the tools are operational
 - They can be carried in a tool belt or tool bag, and are not supported from the ladder - on't attach tools to a ladder unless the ladder is designed for that purpose
- For straight and extension ladders:
 - When working from ladders, they must be long enough to provide at least one metre of solid support beyond the height of the task. Where this is not possible alternative methods of access must be used such as a mobile scaffold or elevating work platform.
 - When using ladders for access, they should extend at least one metre above the level being accessed, unless the structure provides adequate handholds.
- For extension ladders, such as the rope-and-pulley type, ensure:
 - They are placed into position, unextended. Extend a few rungs at a time using the rope.
 - Latching hooks are engaged after each extension. Good manual handling practices are applied. Two people may be required to raise and lower, depending on the type of ladder, the location and weather conditions.
 - To apply adequate weight at the base when lowering to prevent it becoming uncontrollable.
- For stepladders:
 - Position with the treads facing the work activity with spreader braces fully opened and locked.
- For stepladders with working platforms:
 - Some stepladders have a working platform on which to stand and these should only be used when the height of the work is compatible with the height of the platform. These platform ladders should have guardrails around the working platform, which should be inspected for damage prior to use, as they can be susceptible to damage in transport and storage.
- For multi-purpose ladders:
 - These are portable ladders that have one or more pairs of articulation joints enabling the ladder to be configured for use relating to a variety of activities. Follow the manufacturers' instruction when they are configured.
 - When these are being used as portable ladders they should be used in accordance with the advice above that corresponds to the configuration in which they are being used – i.e. either as straight or stepladders.

10.1 Ladder Inspections and Maintenance

Any local areas using ladders needs to ensure that they are regularly inspected and maintained by a competent person. To verify ladders are still maintained within the specifications set out by the manufacturer all ladders should be inspected:

- When originally purchased, received and put into service

- Before each use
- After any mishaps, drops and impacts
- Periodically, at least annually.

Refer to the [Portable Ladder Safety Inspection Checklist](#).

All ladders should be stored on racks out of the elements when not in use. They should be effectively supported and free of any hanging material to avoid sagging.

Any ladders that are identified as having a defect must be taken out of service immediately and an "Out of Service" tag affixed. This tag must not be taken off the ladder until the ladder has been repaired or destroyed by cutting the ladder into sections approximately 1m, or no more than two rungs, in length. Any repairs should not reduce the ladder's structural integrity when compared to the original design.

Each local area is to maintain a register of ladders that they own and ensure inspection occurs.

All testing, inspection and maintenance exercises undertaken should be outlined in a ladder register. A record for each ladder should include information such as a brief description of the ladder, the date of purchase, the date of introduction to service and general details of service. For this purpose use the [Portable Ladder Safety Inspection and Maintenance Register](#).

11 Falling Objects

Objects falling from heights can place those working near or below at risk. Consideration must be made for plant, equipment or other objects require for use at heights.

Where working at height requires objects such as equipment the following shall be required:

- safe means of raising and lowering plant, materials and debris in the place of work
- a secure physical barrier to prevent objects falling freely from buildings or structures in or in the vicinity of the place of work
- or measures to arrest the fall of objects
- provision of appropriate personal protective equipment
- barrier to close off the work area underneath or other means to prevent persons working or passing by underneath
- supervision of the area beneath.

12 Program Review

In order to ensure that these guidelines continue to be effective and applicable to the University, the program will be reviewed regularly by the WHS Unit and relevant stakeholders. Conditions which might warrant a review of the guidelines on a more frequent basis would include:

- an injury or near miss resulting from working at heights
- incidents related to working at heights
- changes to standards and codes of practice
- employee concern.

Following completion of any review, the program will be revised and, if necessary, updated in order to correct any deficiencies. Any changes to the program will be consulted through the WHS Committee.

13 Related Documents

- [Development of Safe Work Procedures Guidelines](#)
- [Managing the Risk of Plant Guidelines](#)
- [Portable Ladder Safety Inspection Checklist](#)
- [Portable Ladder Safety Inspection and Maintenance Register](#)
- [Risk Management Guidelines](#)
- [Roof Access Permits](#)
- [Roof Access Procedure](#)
- [WHS Records Handling Guidelines](#)
- [WHS Training Guidelines](#)
- [Working at Heights Rescue Plan](#)

14 Referenced Documents

- [Work Health and Safety Act 2011](#)
- [Work Health and Safety Regulation 2017](#)
- [Managing the Risk of Falls at Workplaces - Code of Practice SafeWork NSW](#)
- [Managing the Risk of Falls at Workplaces – Model Code of Practice SafeWork Australia](#)
- [Falling Objects Fact Sheet](#)
- AS/NZS 1576 Scaffolding series
- AS/NZS 1891 Industrial fall-arrest systems and devices
- AS/NZS 1892 Portable ladders series
- AS/NZS 4576 Guidelines for scaffolding

15 Version Control Table

Version Control	Date Released	Approved By	Amendment
1	August 2008	Manager WHS	Document created
2	August 2010	Manager WHS	Document updated to incorporate the Personnel name change to Human Resources Division.
3	September 2011	Manager WHS	Updated to include further information on requirements of contracted organisations who require access to a roof.
4	March 2012	Manager WHS	Re-brand.
5	September 2012	Manager WHS	Updated to bring document in line with WHS legislative requirements and Code of Practice.
6	August 2012	Manager WHS	Minor Update
7	November 2013	Manager WHS	Update Ladder content
8	December 2016	WHS Manager	Removed Appendix 1 & 2 and added hyperlinked references. Expanded training requirements. Expanded on Work Positioning Systems.
9	May 2022	WHS Manager	Updated broken links, minor edits.