HRP02: Working at Heights

Section 1 - Purpose and Scope

(1) This Procedure aims to ensure Southern Cross University (SCU) management, employees, students, and others know the risks associated with the working at heights in the workplace and relevant management strategies for the risk mitigation process.

(2) This Procedure applies to all University employees. It also informs students, visitors, and other stakeholders of the University's expectations in relation to working at Heights.

(3) This Procedure applies across all Southern Cross University work units, campuses, and controlled entities, including on-site, remote, and online work environments.

Section 2 - Definitions

Anchor point.	A secure point for attaching a lanyard, lifeline or other component of a fall restraint system or fall arrest system. Anchorages require specific load and impact capacities for their intended use.
Barricade.	A physical barrier erected to prevent employees being exposed to hazards.
Competent Person.	Means a person who has acquired, through training, qualification or experience, the knowledge and skills to carry out the task.
Double or triple action device.	A self-closing hook or karabiner with a keeper latch that will automatically close and remain closed until manually opened. These units have a minimum of at least two distinct and deliberate consecutive actions to manually open them.
Edge protection.	A structural system, which may comprise of posts, rails infill panels. mesh, toe boards and/or a combination thereof that is designed to prevent people and/or objects from falling over an exposed edge.
Elevated Work Platform (EWP).	A telescoping, scissors or other device used to position employees, equipment and materials at positions above (and below) the base support level. It may be self-propelled, truck mounted or trailer mounted and provide an independent means of access to work areas.
Energy absorber.	A device that reduces the deceleration force imposed when a fall is suddenly arrested and correspondingly reduces the loadings on the anchorage and the person's body. The energy absorber may either be a separate item or manufactured as part of the lanyard A device, which by design reduces the deceleration force composed by a suddenly arrested fall in compliance with AS/NZS 1891 Industrial fall-arrest systems and devices.
Fall.	Means a fall by a person from one level to another.
Fall arrest device.	A self-locking device whose function is to arrest a fall.
Fall arrest harness (full boy harness).	An assembly of interconnected shoulder and leg straps, with or without a body belt, designed for attachment to a lanyard, pole strap or fall-arrest device for fall-arrest or work positioning purposes
Fall arrest system.	An assembly of interconnected components comprising a harness connected to an anchorage point or anchorage system either directly or by means of a lanyard or pole strap, and whose purpose is to arrest a fall in accordance with the principles and requirements of emergency AS/NZS 1891 Industrial fall-arrest systems and devices

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Fall prevention.	Any means used to prevent the user from reaching an area where free-fall could occur (e.g. guardrails, scaffolding, catch platforms, grates, elevated work platforms).
Fall prevention device.	Includes a secure fence, edge protection, working platforms and covers.
Fall protection.	Any means used to prevent a fall from occurring or to reduce the distance of the fall in order to minimise the potential for a compounding injury (e.g. Fall restraint/fall arrest systems).
Free fall/arrest.	A fall or the arrest of a fall where the fall distance before the fall-arrest system begins to take any loading is in excess of 600mm (but does not exceed 2m) either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line.
Guardrails/handrails.	A guardrail, handrail system is an edge protection system that complies with the Code of Practice, Managing the risk of falls at workplaces.
Karabiner (locking).	A connector having a spring-loaded gate with locking mechanisms (double or triple) designed to connect to other connectors or attachment points. Note: triple locking mechanisms shall be used.
Lanyard.	An assembly of a line and components that will enable a connection between a harness and an anchorage and which will absorb energy in the event of a fall.
Limited free fall or fall arrest.	A fall or the arrest of a fall where the fall distance before the fall-arrest system begins to take any loading is not in excess of 600mm either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line.
Lower body harness.	An assembly of a body belt and leg loops.
Mesh.	A fabric or metal guarding material used to prevent objects from passing through.
Permit to work.	A documented system that provides a systematic disciplined approach to assessing the risks of a job and specifying the control measures to be adhered to when performing the work.
Rescue Equipment.	The provision of suitable rescue equipment will depend on the nature of the work and the control measures used, for example, an emergency rapid response kit with man-made fibre rope, according to AS/NZS 4142.3-1993: Fibre ropes—Man-made fibre rope for static life rescue lines.
Rescue Plan.	A plan which identifies the responses to an emergency situation when working at heights.
Restraint Line.	The line securing workers to a point of anchorage which is used to prevent a person from reaching a point from which he or she could fall.
Restricted area.	An area from which employees are excluded for reasons of security or safety unless specially authorised.
Risk of a fall.	Means a 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. This includes circumstances in which the worker or other person is: 1. In or on plant or a structure that is at an elevated level. 2. In or on plant that is being used to gain access to an elevated level. 3. In the vicinity of an opening through which a person could fall. 4. In the vicinity of an edge over which a person could fall. 5. On or in the vicinity of a surface through which a person could fall. 6. On or near the vicinity of a slippery, sloping or unstable surface.
Risk Assessment.	A process used to identify hazards associated with a job to task or scope of work, evaluate the risk associated with each hazard, and determine appropriate hazard/ risk control strategies.
Scaffold.	A temporary structure, stage or platform specifically erected to support access or working platforms, persons, plant or other material but does not include a gantry.
Scope of work.	A description of intended task (relative to permit to work).

Snap hook.	A connector attached to a line or lanyard comprising a hook shaped body with a self-closing, self-locking gate designed to receive a compatible attachment point.
Spotter / standby person.	A person with a designated task to observe activities of a high risk nature, who has a responsibility to alert employees as to a potential hazard, ensure pedestrians and other employees do not approach the work area, give direction to employees at the location (e.g. Plant operators manoeuvring around services) and raise an emergency alarm where required. Spotters are not permitted to perform tasks other than those required of a spotter whilst on the job.
Toe board/kickboard.	A purpose designed component fixed on the edge of a floor, platform or walkway to prevent objects from falling.
Work at heights.	Where there is potential for a person to fall from one level to another and where there is a potential for a person or object to fall from, through or into a place or thing.
Work platform.	A platform on a scaffold positioned at a work location for supporting employees, equipment and materials and used to provide a working area.

Section 3 - General Principles

(4) SCU will follow the risk management process outlined in WHSMP02: Hazard Identification, Risk and Opportunity Management Procedure, this process includes:

a. Hazard identification.
b. Risk assessment.
c. Risk control.
d. Review o control measures.

Consultation

(5) Consultation is critical for effective working at heights risk management and is outlined in WHSMP07: Consultation, Communication and Participation.

(6) This Procedure identifies the requirements for working at height including:

a. Identify and assess potential risks and hazards to eliminate or reduce the risk of a fall from one level to another by people or equipment.
b. Select appropriate tools and equipment to control risks when working at heights.
c. Selection and safe use and maintenance of industrial fall arrest systems and devices.
d. Working at heights permits.
e. Emergency rescue plans.

Part A - Hazard Identification

How to identify fall hazards

(7) You must identify all locations and tasks that could cause injury due to a fall. This includes access to the areas where work is to be carried out. Tasks that need particular attention are those carried out:

a. On any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, repaired or cleaned.
b. On a fragile surface.
c. On a potentially unstable surface (for example, areas where there is potential for ground collapse).

d. Using equipment to work at the elevated level (for example, when using elevating work platforms or portable ladders).
e. On a sloping or slippery surface where it is difficult for people to maintain their balance.
f. Near an unprotected open edge.
g. Near a hole, shaft or pit into which a worker could fall (for example, trenches or service pits).

Part B - Risk Assessment

(8) All potential hazards and risks relating to falling from one level to another shall be identified and the risk of harm to person resulting from such a hazard assessed.

(9) The assessment shall be undertaken at the earliest possible time during the planning of the work to either eliminate the hazard or reduce the risk to as low as reasonably practicable and an assessment shall be undertaken at the earliest possible time.

How to assess the risk

(10) When assessing the risks arising from each fall hazard, the following matters should be considered:

a. The design and layout of elevated work areas, including the distance of a potential fall.
b. 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.
c. The adequacy of inspection and maintenance of plant and equipment (for example, scaffolding).
d. The suitability and condition of ladders, including where and how they are being used.
e. The adequacy of lighting for clear vision.
f. Weather conditions—the presence of rain, wind, extreme heat or cold can cause slippery or unstable conditions.
g. The suitability of footwear and clothing for the conditions.
h. 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).

Part C - Risk Control

How to control the risk

(11) SCU employees are required to visually inspect working at heights equipment (fall arrest/restraint equipment) prior to each use. Once the hazards have been identified, control measures must be implemented to ensure fall protection or fall prevention is used when working at height.

(12) In managing the risks of falls, the WHS Regulation requires the following specific control measures to be implemented where it is reasonably practicable to do so:

a. Can the need to work at height be avoided to eliminate the risk of a fall?
b. Carry out any work that involves the risk of a fall on the ground. Eliminating the need to work at height is the most effective way of protecting workers from the risk of falls.
c. Can the fall be prevented by working on solid construction?
d. A building or structure that is used as an existing place of work and includes safe access and egress from which there is no risk of a fall from one level to another, for example, properly constructed stairs with fixed handrails, flat roofs with parapet or permanently installed guard rails around the edges.
e. Can the risk of a fall be minimised by providing and maintaining a safe system of work, including:

i. Providing a fall prevention device (for example, installing guard rails) if it is reasonably practicable to do so.
ii. Providing a work positioning system (for example, an industrial rope access system) if it is not reasonably practicable to provide a fall prevention device.
iii. Providing a fall-arrest system, so far as is reasonably practicable, if it is not reasonably practicable to provide a fall prevention device or a work positioning system.

(13) In some cases, a combination of control measures may be necessary, for example, using a safety harness while working from an elevating work platform.

(14) The hierarchy of controls shall be applied in order of effectiveness:

a. Fall prevention.
b. Fall restraint (work positioning systems).
c. Fall arrest.

(15) Working under fall arrest shall only be considered when all other safe work methods have been exhausted. When fall prevention systems are removed, no one is to stand within two metres of the exposed edge without wearing approved fall arrest/restraint equipment.

Rescue Plans and Emergency Response

(16) Where a Working at Heights Permit is required under this Procedure, a site-specific rescue plan must be prepared and documented before the work commences. The plan must identify how any person using a fall arrest or restraint system will be rescued in the event of a fall or loss of mobility.

(17) The rescue plan must be proportionate to the complexity and risk of the work. It must consider:

a. the nature and location of the work;
b. the fall protection equipment being used;
c. access and egress limitations;
d. communication methods to raise the alarm;
e. the availability and suitability of rescue equipment;
f. the number and capability of available personnel to initiate a rescue.

(18) The rescue plan must be developed in consultation with the workers undertaking the task and approved by the Permit Issuer. It must be communicated clearly to all persons involved in the task and accessible at the work site.

(19) For work not requiring a Working at Heights Permit, a documented rescue plan is not mandatory. However, supervisors must still ensure that emergency response arrangements are appropriate for the task and that reliance on external emergency services alone is not assumed unless confirmed as adequate and timely.

(20) Where reasonably practicable, two persons should be present for tasks requiring a permit. The second person must be capable of raising the alarm and assisting with rescue. Single-person work may proceed where the risk is low and the emergency plan includes alternate arrangements approved by the relevant supervisor.

(21) Any rescue attempt must only be undertaken by trained and competent personnel using appropriate equipment. Rescue must not proceed if it would place the rescuer at risk.

(22) Rescue equipment must be maintained in good condition, regularly inspected, and fit for the type of fall protection being used. Suspension trauma must be considered in rescue planning where fall arrest systems are used.

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(23) A copy of the rescue plan must be attached to the permit documentation and retained in accordance with WHS record-keeping requirements.

(24) As a minimum, the rescue and recovery plan shall include:

a. Method to be employed for rescue from height
b. Emergency response resources and competent persons
c. The identification of access/egress points to be used in the event of an emergency
d. Communication methods (tested and proven to work)
e. Emergency contact details (g. security, emergency services)
f. Immediate response after a fall has occurred (by the Standby Person)
g. Restrictions involved with rescue (e. Location, structures etc.)
h. The equipment required to initiate the emergency response and carry out a rescue
i. The time required to respond to and carry out a rescue
j. Availability of emergency response trained employees
k. The effects of and response to trauma

(25) The rescue plan must be suitable for reducing the potential for suspension trauma of a person.

Working at Heights Controls

(26) The following minimum mandatory controls shall be implemented when working at heights:

a. Drop zones/exclusion zones shall be in place where there is a risk of being struck by falling objects. As far as practicable, all non-essential employees, contractors and equipment (e.g. mobile plant, vehicles) must be kept clear of any work area where there is a risk of falling from height or being struck by a falling object.
b. Barricading and warning signs shall be installed beneath work at heights activities.
c. Where there is a risk of falling through brittle material (e.g. roof) the material shall be assessed for stability and soundness prior to the task being conducted.
d. No person undertaking to work at heights activities shall work alone.
e. Single person anchor points shall be capable of withstanding 15kN.
f. Three points of contact shall be maintained when ascending/descending stairs and ladders and other “at height” work locations.
g. When re-attaching / de-attaching at height, dual lanyard systems shall be used to ensure at least one connection point is always maintained.
h. Wherever possible, working at heights activities shall be undertaken within the confines of handrails/guardrails.
i. Fall protection shall be worn where there are missing guardrails, open edges, or open holes.
j. Tools shall be secured from falling at all times.
k. All related documents shall be kept at the work location during the task.
l. When fall prevention systems are removed, no one is to stand within two metres of the exposed edge without wearing approved fall arrest/restraint equipment.

Working at Heights Permits

(27) Working at heights permits must be completed by employees or contractors scheduled to undertake works at or above 2 metres on university property. All permits must be in line with WHS legislative requirements and approved by an authorised SCU Permit Issuer.

(28) The work at height permit (WHSMP09 – FOR – 03 – Working at Heights Permit) shall be developed by the Permit

Holder and authorised by the Permit Issuer as per WHSMP09: Permit to work - Hazardous Work.

(29) The work at height permit shall clearly document:

a. The scope of work to be performed.
b. Location of work to be performed.
c. Start and finish date and times.
d. Key hazards and risks associated with the work.
e. Controls that will be used to control identified hazards and risks.
f. Tools, equipment, and PPE that will be used for the work.
g. Name of all trained and competent employees and contractors undertaking the task.

(30) A SWMS or SWI, rescue plan, drawings, maps, plans and other documents associated with the work shall be attached to the Permit for review as part of the Permit approval process.

(31) The permit completion, approval, validity, suspension and cancellation process are outlined in detail in the WHSMP09: Permit to Work Procedure.

Work positioning system

(32) A positioning system that consists of equipment that enables a person to be positioned safely and supported at a work location for the duration of the task while working at height. It enables a person to work supported in a harness in tension in such a way that a fall is prevented. The use of positioning systems requires a higher level of operator competency and supervisor vigilance and therefore the systems should only be used where the use of higher order controls is not practicable and determined by risk assessment as appropriate. Users, including supervisors, should undertake a competency-based course of training

(33) When working a rope access there shall be a minimum of two attachments, each having an independent anchorage point. Each of the work ropes shall have a fail-safe descent mechanism.

(34) All secondary tools and equipment shall be attached by lanyards to work harnesses to avoid danger to people below.

(35) The area below shall be barricaded, signed and cleared of all employees not involved with the work to be performed.

(36) A minimum of two competent employees are required for any job, each with the ability to rescue the other if needed.

Fall Restraint System

(37) Fall restraint systems are not designed for impact loads and therefore where there is any possibility of a person wearing a fall restraint device being able to approach an edge where a fall is possible then fall restraints shall not be used.

(38) A fall restraint system is suitable for use where the user can maintain secure footing without having to tension the restraint line and without the aid of any other hand hold or lateral support. When deciding whether secure footing can be maintained, the following shall be considered:

a. The slope of the surface.
b. The supporting material type.
c. The surface texture of the workplace and whether it is likely to be wet or otherwise slippery.

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Restraint technique

(39) 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 lifeline. It must be set up to prevent the wearer from reaching an unprotected edge.

Fall Arrest System

(40) A fall-arrest system is intended to safely stop a worker falling an uncontrolled distance and reduce the impact of the fall. This system must only be used if it is not reasonably practicable to use higher level controls or if higher level controls might not be fully effective in preventing a fall on their own.

(41) All equipment used for fall-arrest should be designed, manufactured, selected and used in compliance with AS/NZS 1891 Industrial fall-arrest systems and devices series.

(42) Key safety considerations in using fall arrest systems are:

a. The correct selection, installation and use of the equipment.
b. That the equipment and anchorages are designed, manufactured and installed to be capable of withstanding the force applied to them as a result of a person's fall.
c. That the system is designed and installed so that the person travels the shortest possible distance before having the fall stopped.
d. Those workers using a fall-arrest system wear adequate head protection to protect them in the event of a fall.
e. That if the equipment has been used to arrest a fall, it is not used again until it has been inspected and certified by a competent person as safe to use.

(43) Fall Arrest can only be considered where there is a clear fall zone below the work activity and that there is enough distance available for a person using the system to fall to prevent the person hitting an object, the ground, or another surface, other than a vertical surface.

(44) Any work that relies solely on Fall Arrest equipment as the means of hazard control shall be identified in the SWMS/SWI and approved by the Work Unit Manager prior to implementation.

(45) A fall arrest system should be used instead of a restraint system if any of the following situations apply:

a. The user can reach a position where a fall is possible.
b. The user has a restraint line that can be adjusted in length so that a freefall position can be reached.
c. There is danger of the user falling through a surface (e.g. roofing material).
d. Slope is over 15 degrees.
e. If any of the safety devices incorporated in the Fall Arrest system have been damaged, removed or altered, the system shall be deemed to be out of service until such time as the areas of concern have been replaced, reinstated or alterations have been reversed by an authorised competent person.

Harnesses and Lanyards

(46) Harnesses, lanyards, pole straps and related fittings shall be compliant with AS/NZS 1891.1 Industrial Fall Arrest Systems – Harnesses and Ancillary Equipment. Selection and use shall be in accordance with AS/NZS 1891.4 Industrial Fall Arrest Devices – Selection, Safe Use and Maintenance.

(47) Principal uses of harnesses, lanyards and pole straps are defined below.

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Device.	Principal uses.	Whether permitted for fall arrest.		
		Free fall.	Limited free fall.	Restrained fall.
Full body harness.	Any situation with a risk of any fall, including restraint technique.	Yes.	Yes.	Yes.
Harness with confined space retrieval attachments.	Risk of free fall in a confined space where provision for rescue is also required.	Yes.	Yes.	N/A.
Lanyard – Single fixed / single adjustable.	Connection of a harness to an anchorage or lifeline.	Yes.	Yes.	N/A.
Shock absorber.	Use for all except with a pole strap.	Yes.	Yes.	No.
Lanyard – twin tail.	As above with facility for transferring amount anchorages.	Yes.	Yes.	N/A.
Pole strap.	Connection to a harness for work positioning on a pole.	No.	No.	Yes.

(48) The minimum requirements for harnesses and lanyards are:

a. Only full body harnesses shall be used for a fall arrest harness. Lower body harnesses are not permitted to be used on SCU workplaces.
b. A fall arrest device shall not be used as a work positioning device.
c. Where pole straps or lanyards may be subjected to flame, heat or abrasives from cutting or abrading tools, a steel rope or chain lanyard should be considered.
d. A pole strap shall not be used where there is a possibility of a free fall and shall be attached over a secure part of the structure so that it cannot slip off.
e. Single attachments at the waist of a harness are not permitted, as there is potential for equipment failure and severe injury.
f. Snap hooks and Karabiners shall be triple action to prevent rollout. Single action snap hooks shall not be used.
g. Care should be taken not to subject attachment hardware to bending stresses and gate loading.
h. Anchorage lines, shall not, as far as is practicable, be left extended when not in use as this may expose the line to dirt and corrosion.

Static Lines

(49) Static lines or anchorages used in a Fall Arrest system shall be manufactured and installed in accordance with AS1891.2 Industrial Fall Arrest Systems and Devices- Horizontal Lifeline and Rail Systems and AS1891.4 Industrial Fall Arrest Systems and Devices – Inspection, Care, Use and Maintenance.

(50) The maximum span between anchor points for a temporary lifeline should be no greater than 4 meters unless specifically designed and endorsed in writing by an Engineer to be a longer length. This is due to the dynamic sag factor of the temporary lifeline and should be considered when calculating the maximum ground clearance requirement for a fall-arrest system.

(51) All static lines must be installed, and their ongoing quarterly inspections performed by a competent person.

(52) Static lines shall be erected in such a manner to ensure that the static lines or associated equipment are not at any time subjected to damage as a result of being exposed to sharp edges, hot work, equipment falling on or against them or chemicals, paints or alkalis.

(53) Each competent person using a static line shall, prior to each use, inspect all anchorage points to ensure the anchorage has not been subjected to any damage or alteration. Proofloading should be applied if any doubt exists.

(54) An information tag shall be provided at each static line anchorage point. Information on the tag will incorporate the name and qualification of the person erecting the static line, the date of erection, and the next scheduled inspection date.

Anchorage Points

(55) All anchorage points should comply with the requirements in AS/NZS 1891 Industrial fall-arrest systems and devices – Part 4: Selection, use and maintenance.

(56) Insert-type anchors, that is anchors installed in partial depth holes in concrete or other masonry, including friction, chemical and screw type anchors, should not be used for fall arrest anchors where the potential loading is a direct pull-out load.

(57) All fixed or permanent structural anchorage points shall be certified by an Engineer and shall be non-destructive proof tested after installation if that person so requires. Installation and testing documentation, including the Engineer’s certificate, shall be maintained for the duration of the anchor point.

(58) Friction and grouted anchorages shall be certified by an Engineer and proofloaded to 50% of the design ultimate strength in accordance with manufacturer’s instructions after installation and prior to its initial use.

(59) Where anchorage points are in place for longer than 1 month, a sign/tag shall be affixed to identify:

a. The name of the installer, installation date, or if an existing structure has been certified, name of the certifier and that date.
b. If it is a single point anchorage or horizontal lifeline anchorage.
c. Its maximum strength (in Kilo Newtons) - if less than 15kN, the sign must state that it is not to be used for fall arrest.
d. The maximum number of people that can connect to it at any one time (this must not be more than two).

(60) Permanent anchorage points shall have the sign displayed with the anchorage point or at a prominent position at the entry to the area.

(61) Temporary anchorages shall be installed in accordance with the manufacturer's or designers' instructions and shall be inspected by an approved competent person prior to use.

(62) Anchorages used for less than a month shall be removed as soon as they are no longer required.

(63) The position of the anchor must be as close as practicable to vertically above the place of work so that in the event of a fall, the employee cannot swing and strike any structure, plant, or equipment (i.e. pendulum effect).

(64) Single point anchorages shall have an ultimate strength of 15 kN. For two persons, this anchor point must be able to withstand a force of 21kN.

(65) Anchorage slings shall be installed by a competent person with a minimum qualification of an advanced rigger. All shackles used must be rated and moused.

(66) There must be adequate fall clearance below the anchor point to ensure that the employee cannot strike any structure, plant or equipment or the ground in the event of a fall.

(67) Slings shall be installed with all slack removed. If installed with a basket hitch the angle between the legs of the

sling shall be 120º degrees maximum. If installed with a choked hitch, the tail shall be kept as short as possible.

(68) Adequate and secure protection shall be provided at all locations where slings would otherwise be subject to hot surfaces, abrasion or cutting which may lead to failure of the rope, e.g. at sharp corners and edges.

Inertia Reels

(69) When considering the use of inertia reels, bear in mind that they might not be effective in certain situations. For example, if a worker falls down the inclined surface of a steeply pitched roof, the inertia reel line may keep extending from the reel—it may not lock.

(70) Inertia reels should not be used as working supports by locking the system and allowing it to support the user during normal work. They are not designed for continuous support.

(71) Vertical and self-retracting anchorage lines can be used as a risk control measure in connection with work performed from boatswains' chairs and ladders. Where such lines are used, only one person may be attached to any one line.

(72) Inertia Reels shall:

a. Be attached to a secure anchor point, or where required, to a static line using a locked gate carabineer or moused shackle or roller.
b. Be connected directly to the dorsal "D" ring on the harness. (not to a lanyard)
c. Not be permitted to exceed 35º when used as a fall arrest device.
d. Be set up to ensure that the potential of the "pendulum effect" when using an active fall protection system in a non-vertical position and every effort made to eliminate or reduce this risk is avoided.

Protection from Hot Works

(73) If welding or other hot work activity is being carried out at a workplace where a fall prevention system is in operation, then it shall be ensured that:

a. Persons using the fall prevention system and equipment are protected from hot particles or sparks resulting from welding or hot work activity.
b. The fall prevention system is protected from hot particles or sparks.

Work Controls

Fixed Platforms, Walkways, Stairs and Ladders

(74) Installation of fixed platforms, walkways, stairs, and ladders shall be in accordance with AS 1657:2018 Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction, and Installation.

(75) All fixed platforms, walkways, stairs and ladders shall be inspected at regular intervals.

Perimeter guardrails

(76) Where a person is at risk of falling, edge protection shall be provided by means of guardrails.

(77) Guardrails may be used to provide effective fall prevention:

a. At the edges of roofs.
b. At the edges of mezzanine floors, walkways, stairways, ramps and landings.

c. On top of plant and structures where access is required - around openings in floor and roof structures.
d. At the edges of shafts, pits and other excavations.

(78) Guardrails shall:

a. Have a top rail between 900mm and 1100mm above the working surface.
b. Have mid rails and a toe board.
c. Have access points for equipment that is protected adequately with self-closing gates to prevent a person falling.
d. Protect every open edge of a stair, landing, platform or shaft opening to prevent people falling.

(79) The guardrail system, method of attachment and the supporting structure should be capable of withstanding the loads that will be applied. 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, that is, the angle, of the roof increases.

Protection for holes and openings

(80) Any hole or opening (other than a lift well, stairwell or vehicle inspection pit) shall be protected by a physical hard barricade.

(81) Any hole or opening that has not been hard barricaded shall be fully covered to prevent employees or objects from falling to lower levels with a material that is:

a. Strong enough to prevent people or objects falling through the hole, penetration or opening and should be securely fixed to prevent dislodgement or accidental removal.
b. Is designed to safely withstand a point load of at least 2 kilonewtons—that is, 200 kilograms.
c. Plywood covers are not to be used on their own.
d. Capable of supporting at least twice the weight of any person, equipment or material that might be in place over the cover.
e. Securely fixed to the floor at all times.
f. Fitted with a danger sign that states “Danger – Hole beneath”.

Overhead work – Falling/Dropped objects

(82) Where there is a risk of an object falling from above, the following controls shall be implemented:

a. An exclusion zone with a hard barricade and signage erected below work to restrict access.
b. Use of tool lanyards or rope to secure tools and equipment to the user’s wrist or a fixed part of the plant (particularly for heavier items that may strain the wrist if dropped).
c. Erection of physical barriers.
d. The use of tool bags for the carrying of small tools while accessing areas of height.
e. Use of buckets to store and secure smaller items such as bolts and hand tools.
f. Items of equipment, tools, material consumables or waste are not to be dropped or thrown.

(83) Where employees are required to walk through or work in areas where overhead work is taking place, and there is a risk of dropped objects, then overhead protection shall be provided in a capacity to prevent injury.

Raising and lowering tools and equipment

(84) Tools and equipment and materials used at heights shall be secured and stored correctly to prevent the risk of objects falling from above. This includes the use of items such as wrist restraints, tool lanyards, and or tool belts.

(85) Where tools, equipment and/or materials are raised or lowered from or to a working area by hand, this shall be performed using a rope with the tools and equipment securely tied. Larger items shall be done so by crane with appropriate measures. The drop zone during the raising and/or lowering of tools and equipment shall be barricaded with signposts to prevent access.

Scaffolding

(86) Only personnel who are trained, competent and authorised are to erect and inspect scaffolding.

(87) No person is to use a scaffold over 4m high unless the scaffold has:

a. Been correctly designed for the required use and environmental conditions.
b. A handover certificate stating clearly that the scaffold is suitable for use.
c. A 'Scafftag' or similar is attached at the access point to clearly indicate the scaffolding is completed and ready for use.
d. Been inspected by a competent person before handover and at least every 30 days, unless there has been a change in conditions or damage occurred to the scaffold.

(88) No person is to interfere or alter a scaffold unless trained, competent and authorised to do so. Any alterations are to be recertified as fit for use.

(89) Any incomplete scaffolding must be labelled to indicate it is not complete and must have a hard barrier fitted to the access point/s.

(90) All Scaffolding shall conform to AS/NZS 4576:1995 and only be erected, modified and dismantled in accordance with AS/NZS 1576.

(91) All scaffolds more than 1.5m high shall be erected, modified or disassembled by a certificated Scaffolder who holds a high-risk work licence (either a Basic, Intermediate or Advanced Scaffolding certificate).

(92) Persons erecting scaffold platforms shall wear fall restraint or arrest systems where there is a risk of falling more than 1.8m or where it is not possible to maintain three points of contact with the scaffold (e.g. Using two hands to perform the work).

(93) Persons working from scaffold platforms shall not leave the confines of the platform edge protection without a fall restraint or arrest system.

(94) Mobile scaffolds may be used where it is not practicable to use fixed scaffolding and where there is a requirement for regular movement of the working platform. Supporting surfaces shall be hard and level and wheels/casters shall be locked.

Portable Ladders

(95) If ladders are used, they must be selected to suit the task to be undertaken. In doing this, you should consider the duration of the task, the physical surroundings of where the task is to be undertaken and the prevailing weather conditions

(96) Ladders selected must be:

a. Manufactured for industrial use.

b. Appropriate for the task; for example, non-conductive ladders for electrical work.
c. Used for the purpose it was designed for.
d. Clearly labelled with the manufacturer's specification label attached.
e. Used within its specified capacity limits and have a load rating of at least 120kg.
f. Single stile ladders (access ladders) - used for ascending or descending from one level to another – cannot be used for work.
g. 'A' frame or Double stile ladders (step ladders) – work shall only be light in nature (e.g. changing a light bulb) and shall ensure three points of contact are maintained with tools able to be used with one hand.
h. Platform ladders (with drop bar/chain and fully enclosed railings) – used where work requires two hands.

(97) The following safe work practices shall be observed when employees are working with ladders.

Positioning and setting up ladders

(98) Before setting up a ladder, it should be inspected for visible damage or faults, for example, broken rungs, stiles and footings. Faulty or damaged ladders must be tagged out and removed from service.

(99) When setting up a ladder you should check that:

a. The ladder is the correct height for the work to avoid over-reaching or stretching - locking devices on the ladder are secure.
b. The ladder is not placed so that the weight of the ladder and any person using the ladder is supported by the rungs. Ladders used at a workplace should be set up on a solid and stable surface, and to prevent the ladder from slipping. Single and extension ladders can be prevented from slipping.
c. Ensuring the ladder has non-slip feet.
d. Placing ladders at a slope of 4:1 (the distance between the ladder base and the supporting structure should be about 1 metre for every 4 metres of working ladder height).
e. Securing ladders at the top or bottom, or if necessary, at both ends.

Step Ladders

(100) Risk assessments for the use of step ladders must be undertaken prior to their use.

(101) Except where additional fall protection equipment is used in conjunction with the ladder, it is not safe to:

a. Use a stepladder near the edge of an open floor, penetration or beside a railing.
b. Stand higher than the second tread below the top plate of a stepladder, with the exception of three-rung stepladders, unless working through an overhead opening of the building or structure that provides appropriate additional support above the ladder.

Straight or extension ladders

(102) Extension or single ladders should only be used as a means of access to or exit from a work area or for short duration light work that can be carried out safely from the ladder.

(103) The ladder must be angled on an approximate 4 to 1 ratio, i.e. the base of the ladder should be one metre out for every four metres in height.

(104) All ladders shall be secured at the top whilst a person is working on the ladder. Another person shall stabilize the ladder while it is being secured. If the ladder cannot be secured, then a person shall hold the ladder for the entire period that someone is working on it.

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(105) All ladders:

a. Shall have a firm, even base to work on, and all ladders shall be fitted with slip-resistant safety feet.
b. When used for access purposes shall extend a minimum of 1 metre above the landing.
c. Shall be braced at a maximum of three (3) metre intervals to prevent undue movement.

(106) Landings shall be provided at every four (4) metres level in case of any vertical or section of vertical ladders that are to be used for any purpose other than riggers access. Vertical ladders shall only be used where it is impossible to erect ladders at the correct slope.

(107) Ladders used for access or egress from excavations, pits, tanks, etc., shall be fitted to landing platforms with guard rails designed to an acceptable standard.

Safe Use of Ladders

(108) When using a ladder:

a. Ensure only light-duty work is carried out while on a ladder, where tools can be operated safely with one hand.
b. Where practicable, ladders should be set up at right angles to the working position to minimize the potential to overbalance.
c. Ladders shall not be placed in front of doors opening towards the ladder unless the door is blocked, locked, or guarded.
d. Three points of contact must always be maintained as follows:
    i. When going up or down a ladder, always have two feet and one hand, or one foot and two hands, on the ladder.
    ii. When working from a ladder, have two feet and one other point of contact with the ladder, such as a hand or thighs leaning against the ladder.
e. Tools or materials must not be carried while climbing/descending the ladder. Tools must be carried in a tool belt or side pouch and equipment is to be passed up by an assistant.
f. The ladder is to be faced at all times, and the person's belt buckle must remain within the ladder styles at all times, i.e. no leaning out from the sides.
g. No person is permitted to "rock" or "walk" a ladder to reposition it.
h. No person shall stand on a ladder any higher than the third rung from the top of the ladder.
i. Only one person is allowed on the ladder at the same time.
j. Wear slip-resistant footwear.
k. Metal or metal-bound ladders are never to be used for electrical work or close to energised electrical power lines.
l. Ladders are not to be used on scaffolds, in elevated work platforms or placed on boxes, barrels, or other unstable bases to gain extra height.
m. Ladders must not be set up next to traffic areas unless the working area is barricaded.
n. Ladders are not to be set up in places such as doorways, where a person could hit them without barricades or locking doors shut.
o. Persons working on platform ladders are not permitted to "pull" cables, leads or other equipment that may, in the case of "snagging" or obstruction, cause the persons to overbalance and fall from the ladder.

Elevated Work Platforms (EWPs)

(109) EWPs include boom-type EWPs and scissor lifts. The main hazards related to the use of EWPs are contact with electric lines, overturning the machine, falling from the work platform, and potential crushing hazards when elevating

the platform or moving laterally.

(110) An EWP is only to be used as a working platform and not as a means of entering or exiting a work area unless the conditions set out in AS 2550.10–2006: Cranes, hoists and winches – Safe use – Mobile elevating work platforms are met.

(111) An EWP is only to be used on solid, level surfaces unless it is designed for use on rough terrain.

(112) Check the surface area to make sure there are no penetrations or obstructions that could cause uncontrolled movement or overturning of the EWP.

(113) Only employees or contractors who are trained, competent and authorised are to operate EWPs. Operating a boom-type EWP with a boom length of 11 metres or more requires a high-risk work licence.

(114) Every person in the 'basket' must be always secured with suitable Fall restraint equipment. There must also be systems in place to prevent tools and equipment from falling from the basket. This shall also apply when moving any EWP (inclusive of loading and unloading of an EWP from a transport vehicle) whether elevated or not.

(115) An observer/spotter shall be always available for employees working on EWPs to provide additional guidance during moving operations and ensure that persons can readily respond in an emergency.

(116) Fall protection using a harness and lanyard shall be deemed mandatory when working in an elevated work platform (EWP), including booms and scissor lifts.

Workboxes and Work Platforms

(117) Workboxes are designed to be supported from above by a crane, hoist, or other mechanical device, whereas work platforms are designed to be supported from underneath or the side by forklifts or other mechanical devices.

(118) Ensure the workbox or work platform:

a. Is designed for the task and securely attached to the crane, hoist, forklift truck or other mechanical device.
b. Is not suspended over people.
c. There is an effective means of communication between any person in the workbox or work platform and the operator.
d. The operator remains at the controls of the crane, hoist, forklift truck or other mechanical device at all times.
e. Lifting attachments and records are checked by a competent person before use.

Lift Boxes

(119) A lift box is a personnel carrying device designed to be suspended by a crane. Ensure that the crane and the workbox are suitable for the task that is to be performed.

(120) Personnel shall only access or egress the lift box from the ground or a solid construction.

(121) Personnel are to wear industrial fall arrest or restraint systems and devices anchored to the crane hook at all times while elevated in the lift box. Users of fall-arrest/restraint equipment shall be trained, competent and authorised to work at height.

(122) The crane's 'free fall facility' shall not be operational while the crane is supporting a lift box carrying personnel.

(123) It is prohibited for personnel to ride in a lift box when the crane is travelling.

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Work Cages

(124) A work cage is a personnel lifting device designed to be attached to a forklift or other front-end loader-type mobile plant and is only to be used on plants designed for their use.

(125) Only workers who are trained, competent and authorised are to operate the forklift or other mobile plant.

(126) Work cages are to have the following features as a minimum:

a. A floor.
b. Guardrails along both sides and the front with a back to guard against the mast.
c. Visible duplicate independent locks to secure the work cage in the correct position.
d. Safety chains fitted.
e. Clearly marked SWL limits and safety information.
f. A lockable gate that opens inwards.

(127) An inspection is to be carried out on the work cage prior to use to ensure it is free from defects and the safety chains and locks are working.

(128) The forklift tines are to be located within the pockets of the work cage and the work cage is to be fully back against the forklift mast.

(129) The forklift operator is to remain in the forklift at all times while there are personnel in the work cage.

(130) The mast is to remain vertical at all times, and the forklift is not to be driven while personnel are in the work cage. The forklift is to be in neutral, and the handbrake engaged when personnel are in the work cage. Persons shall keep body parts inside the cage on the mast side of the cage.

(131) Barricading is to be set out around the area.

(132) The forklift operator is to check the raising and lowering of the secured work cage before personnel enter the work cage to begin work.

(133) Communications are to be decided prior to beginning work in the work cage.

(134) Full safety harness shall be worn by all personnel in the work cage. Harnesses must be attached to fall-arrest anchorage points in the safety cage. Energy absorbers must be used on the lanyards. Users of fall-arrest/restraint equipment shall be trained, competent and authorised to work at height.

(135) Note: It is prohibited for personnel to ride in a safety cage or workbox when travelling.

Excavations and Trenching

(136) Where trenching works present a risk of a person falling into the trench, any such risk should be controlled by the provision of:

a. Guardrails, including guardrails fitted to the top edges of trench shields.
b. A barrier approximately 1.5 metres back from the excavation, to prevent persons approaching the trench.

(137) Refer to HRP21: Excavation and Trenching.

Training and Competency

(138) All employees who are required to work at height using prevention of falls systems shall:

a. Hold a certificate of competency from a nationally accredited Registered Training Organisation (RTO).
b. Be deemed competent via an assessment of competency.

(139) Only trained and competent persons shall be permitted to work at height under prevention of falls systems.

(140) Refer to WHSMP06: Training and Competency for further guidance.

Part D - Review of control measures (monitoring, inspection & assurance)

(141) Work at Height control measures must be maintained so they remain fit for purpose, suitable for the nature and duration of the work and installed, set up and used correctly. They should be reviewed as per WHSMP15: WHS Audit and Assurance.

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

a. Fibreglass stiles cracked, chipped or severely faded with fibres exposed.
b. Timber stiles warped, splintered, cracked or bruised.
c. Metal stiles twisted, bent, kinked, crushed or with cracked welds.
d. Rungs, steps, treads or top plates that are missing, worn, damaged or loose.
e. Tie rods missing, broken or loose.
f. Ropes, braces or brackets that are missing, broken or worn.
g. Timber members that are covered with opaque paint or other treatment that could disguise faults in the timber.
h. Missing, loose, bent or worn fasteners, that is rivets, bolts and pins.
i. Worn or damaged feet, including non-slip material.

(143) Ladders shall always be maintained in good condition. The joint between the steps and side rails shall be tight, all hardware and fittings securely attached, and the movable parts shall operate freely without binding or undue play. Metal bearings or locks, wheels, pulleys, etc., shall be frequently lubricated. Rungs shall be kept free of grease and oil.

(144) Safety equipment and devices other than industrial fall arrest systems and devices shall be inspected at intervals prescribed by the manufacturer or where specified within Codes of Practice, Australian Standards, Procedures, or other documents.

(145) All industrial fall arrest systems and devices shall be placed on a register, tagged, and inspected prior to use, after use and in the event of a fall arrest.

(146) Scheduled inspections shall be conducted quarterly by a suitably trained and competent person in accordance with AS/NZS 1891.4. The last date on which it was fully serviced shall be recorded.

(147) Damaged or defective equipment shall be withdrawn from service and either destroyed or an 'Out of Service' tag affix pending repair by a Competent Person. Equipment that has been subject to the arrest of a fall shall be immediately tagged Out of Service. Such equipment shall be kept available only for the purposes of completing an incident investigation and when all investigations are complete and signed off the harness shall be destroyed.

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(148) As a minimum, this shall include the following:

Items	What to check	Frequency	Who By
All equipment before being used for work at height.	General condition and function. Fit for purpose. Tagged and in date.	Before & after each use.	Operator.
Personal fall arrest systems and devices and common use equipment.	General condition and function. Fit for purpose. Tagged and in date.	Before & after each use. Quarterly. 6 months documented.	Operator. Operator. Operator / competent person.
Anchor Points.	General condition and function. Fit for purpose.	Before & after each use. 12 monthly.	Heights safety equipment inspector.
Fall arrest devices.	N/A.	Full service 12 months.	Heights safety equipment inspector.
Horizontal and vertical lifelines – steel rope or rail.	General condition and function. Fit for purpose. Tagged and in date.	Quarterly. 12 monthly.	Operator. Heights safety equipment inspector.
Horizontal and vertical lifelines – fibre rope/webbing.	General condition and function. Fit for purpose.	Quarterly. 12 monthly.	Operator. Heights safety equipment inspector.
Note: Where equipment has affected a fall arrest, equipment shall be tagged out of service until fully inspected by a height safety equipment inspector.			

(149) Where equipment is found to be expired, equipment shall be removed from service.

(150) Assurance activities shall be carried out to ensure safe work practises and compliance to the requirements of this procedure.

(151) Documented inspection records should be scanned and saved in RiskWare.

Section 4 - Roles and Responsibilities

(152) Refer to WHSMP13: Responsibility and Accountability Statement.

Section 5 - Records of Documentation

(153) All relevant documentation will be recorded and kept in accordance with WHS Legislation and other legislative obligations including:

a. Working at heights training records.
b. Working at heights permits.
c. Working at heights inspection and maintenance records and registers.
d. Working at Heights Monitoring records.

Section 6 - Revision and Approval History

(154) This Procedure will be reviewed as per nominated review dates or because of other events, such as:

a. Internal and external audit outcomes.
b. Legislative changes.
c. Outcomes from management reviews.
d. Incidents.

Section 7 - Section 7 - References

Work Health and Safety Act (in the applicable jurisdiction that SCU operates)

Work Health and Safety Regulation (in the applicable jurisdiction that SCU operates)

Code of Practice – Managing the Risk of Falls at Workplaces (NSW)

Managing the Risk of Falls at Workplaces Code of Practice 2021 (Qld)

Section 8 - Related Documents

WHSMP02 - FOR - 01 - Hazard Identification, Risk Assessment and Control Tool

WHSMP02 - FOR - 10 - Safe Work Instruction Template

WHSMP09 - FOR – 03 – Working at Heights Permit

WHSMP08: Document Control and Records Management

WHSMP09: Permit to Work – Hazardous Work

WHSMP15: Audit and Assurance

WHSMP13: Responsibility and Accountability Statement

HRP02 – FOR – 01 – Working at Heights Inspection Template

HRP02 – FOR – 02 – Working at Heights – Ladders – Inspection Template

HRP02 – FOR – 03 – Working at Heights – EWPs – Inspection Template

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Head of Work Unit	Brendan Pearce Director, Workplace Relations
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