



# Working at Height Procedure

## OP-PRO-00225

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### 1 Purpose and scope

The purpose of this Procedure is to ensure the health & safety of employees, contractors and visitors by providing guidance and processes to protect personnel from the hazard of falling from any height or from being affected by falling objects.

This Working at Height Procedure provides the mandatory requirements to support sustained conformance with Roy Hill Holdings HSES Performance Standard PS02 – Working at Height.

This Procedure applies to all persons entering Roy Hill operations, other workplaces or any area which Roy Hill has accountability.

### 2 Planning

#### 2.1 General Requirements

Working at height is where there is the potential for personnel or materials to fall from one level to another.

A Job Hazard Analysis (JHA) shall be conducted for all Working at Height activities, unless an authorised Work Instruction (WIN) is in place for that task.

Only personnel who have been authorised in writing by the relevant Area Manager responsible for the work area are permitted to issue Working at Height permits in the work location associated with the permit.

##### 2.1.1 Fall Prevention

Where possible, work activities at height shall be done via a safe manner that provides personnel with a work platform and edge protection that is fixed or in-situ. This may include and is not limited to:


- eliminating the need to work at height;
- an existing work platform or stair way access;
- an elevating work platform, such as a scissor lift or boom lift;
- fixed scaffold, mobile scaffold or temporary work platform.
- Fixed covers over holes and openings.

##### 2.1.2 Fall Protection

Where fall prevention is not practical, fall protection controls shall be implemented. This may include and is not limited to;

- travel restraint systems,
- fall restraint systems,
- individual fall arrest systems,
- industrial rope access systems

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- catch platforms,
- safety nets
- safety mesh.

### 2.2 Risk Assessment

Prior to mobilisation, the Manager/Supervisor in charge of the workgroup shall ensure that all tasks that present a fall hazard from any height in the workplace are identified and the risks are assessed.

The risk assessment shall consider the hazards from the following points and stipulate any required control measures for:

- The distance from any open edge
- The construction and load capacity of the work surface
- Angle of slope/gradient
- Equipment being used e.g. work platforms or personnel cages
- Other work in progress
- Impacts of falling materials, equipment, tooling or other objects
- Requirements for barricading
- Requirements for fall protection devices
- Emergency response to incidents.

Personnel who are to participate in the work task/s should be involved in the risk assessment, to ensure they have a full understanding of both the risks involved and the control measures developed.

Risk assessments shall be conducted:

- Before the commencement of work at height
- At any time the scope of works changes
- When the risk of a fall or falling object increases
- When there is a change to the personnel involved in the work.

#### 2.2.1 Working at Height Hierarchy of Controls

When working where the potential for a fall hazard exists, the Supervisor responsible for the work shall ensure that the highest possible control to prevent a fall is adopted; one that is applicable to the particular circumstances of the job. Refer to Appendix 1: Prevention of Falls Hierarchy of Control Model.

##### 2.2.1.1 Elimination

Eliminate the need to access the location at height. Examples include:

- relocation of an item or device from a position at height to ground level;
- redesign of an item or device enabling it to be lowered to allow for access, inspection, repair, or similar;
- use of an extension handle to enable a location at height to be reached from ground level.

##### 2.2.1.2 Edge Protection or Cover

The provision of controls or a means of access that provide protection or a barrier that prevents access to an exposed edge or unprotected location at height. Examples include:

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- erection of scaffolding to reach a location at height;
- use of an elevating work platform (EWP) or building maintenance unit (BMU) to access a location at height;
- installation of temporary edge protection or guardrails along a roof edge or unprotected location at height;
- installation of a cover over a roof, grate or floor penetration.

### 2.2.1.3 Administrative Controls

Administrative Controls are soft controls and should be used as temporary control measures while more permanent solutions are developed; or as supplementary controls developed in conjunction with other fall prevention and protection controls.

Examples of Administrative Controls:

- training and providing information;
- Work Instructions;
- warning and instructional signage.

### 2.2.1.4 Fall Protection

Fall protection is the use of personal protective equipment to either prevent or reduce the severity of a fall.

Examples include:

- industrial rope access system;
- travel restraint system;
- fall arrest system;
- shock absorbing lanyard.
- **Note:** Permission for use of fall protection equipment can only be granted by the Manager, Superintendent or Supervisor responsible for the area. This equipment can only be installed and used by qualified and competent persons.

### 2.2.1.5 Barricades and Signage.

Where barricading is in place to control a potential fall hazard of greater than 1.8 metres, solid fixed barricading shall be used, such as scaffolding, fixed hand rails, etc.

The area of work for conducting working at height should be adequately barricaded to prevent interaction with mobile equipment and other personnel who are not engaged in the work at hand.

The barricaded work area should be delineated by the works supervisor and should include:

- The provision of an adequate drop zone;
- Any no-go-zone requirements for mobile equipment, for example, cranes, telehandlers, mobile elevated work platforms (EWP);
- Signage that indicates the type of activity taking place, for example, "Danger - Working at Height - Strictly No Admittance";
- Information tags placed at appropriate points on the barricades around the drop zone which indicate the nature of the overhead hazards;
- Use of a spotter to provide warning.

For further information refer to the Guarding and Barricading Procedure.

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### 2.2.2 Suitability and Maintenance of Risk Controls

The workplace Supervisor shall ensure that all measures implemented to control working at height risk are:

- Fit for purpose;
- Suitable for the nature of the working at height work;
- Suitable for the duration of the work at height;
- Identified controls have been implemented
- Used correctly;
- Maintained in good working order.

### 2.2.3 Review of Risk Controls

Risk control measures shall be reviewed and revised:

- If there is any change in the scope of work or activity being performed;
- Before any alteration is made to the work place or any structure, plant or system that could result in a fall from height;
- After an incident occurs involving a fall from height;
- If a risk control measure does not adequately control the risk of a fall from height.

**Note:** The supervisor responsible for the task/activity using fall protection or administrative controls shall conduct an inspection of the working at height activity at least on an hourly basis during the task to ensure the potential for falls is being adequately controlled.

## 2.3 Dropped Objects

When working where the potential for dropped objects exists, the Supervisor responsible for the work shall ensure that the highest possible control to prevent material from falling is adopted; one that is applicable to the particular circumstances of the job. Refer to Appendix 1: Prevention of Falls Hierarchy of Control Model.

The risks associated with an object falling at the workplace shall be minimised as far as reasonably practicable, by implementing one or more of the following risk control measures:

- Provision of a safe method of raising and lowering plant, materials and debris
- Provision of a secure physical barrier to prevent objects falling freely from one level to another
- Use of personal protective equipment, for example, tool belts with tool restraints, safety helmets
- Development of Administrative controls.

### 2.3.1 Tools and Equipment

Consideration should be given as to what tools and equipment personnel may be required to carry to and from the work place when working at height. Wherever possible, mechanical-lifting aids should be used.

Where potential exists for tools or equipment to fall from the work area, the following protection methods should be considered:

- The use of tool straps attached to the wrist of the worker when using hand tools
- Areas below the activity shall be barricaded to prevent access. This may include spotters to keep people away from hazards being conducted above
- Perimeter screens/mesh used to prevent tools and equipment falling and hitting those below

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- Kickboards shall be used on all scaffold structures to prevent items from being inadvertently kicked off or dropped
- Drop mats can be used to prevent equipment from falling through grid mesh to areas below
- Tools and equipment buckets or containers should be used
- Flooring on scaffolds or temporary structures should be impervious to prevent objects falling through.

### 2.4 Working at Height Permit

Prior to a Working at Height Permit being applied for a risk assessment and/or JHA shall have been completed to determine required actions for undertaking this highrisk work.

A Working at Height Permit shall be applied for where:

- A risk of falling from height is identified during a formal risk assessment of work to be carried out
- The intended work requires the employee to use a fall restraint or fall arrest system. Including and not limited to activities such as;
  - Constructing, altering and dismantling scaffold
  - Operating an elevated work platform (EWP)
  - Using a work box.

A rescue plan shall be in place prior to a Working at Height Permit being authorised

The Working at Height Permit shall be issued by an authorised Permit Issuer only.

The Permit shall be kept at the specific work location while the work is being conducted together with copies of the risk assessment and /or job hazard analysis (JHA) and working at height rescue plan.

Supervisors must consider the requirement for other permits for work e.g. confined space, hot works, isolations, excavation, and their impact on the working at height proposed; for example, maintaining a required drop zone.

All Working at Height Permits will be identified by number. Copies shall be kept on file and archived for a minimum of 12 months following the completion of the activity.

Where the working at height tasks transfer from one shift of personnel to another:

- The risk assessment (JHA) and all controls shall be reviewed by the incoming shift;
- The JHA and the permit are signed on to by all incoming shift personnel taking part in the working at height task;
- The working at height rescue plan is communicated to the oncoming Emergency Services Coordinator.

Once the task/s has been completed, the permit holder can sign off (close) the Working at Height Permit and dismiss the work shift crew. Prior to closing the permit, and reopening the work area to normal operations and access, the permit holder shall ensure that:

- The workplace is left in a safe condition including inspecting for the removal of barriers and signage;
- There is no risk of falling objects in the work area;
- There are no open edges or holes left unprotected.

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### 3 People

#### 3.1 Working at Height - Personnel Requirements

Working at height activities shall not be conducted by an individual working alone.

A working at height spotter shall be in place whenever activities require personnel to use working at height personal protective equipment (PPE). Including and not limited to activities such as;

- Constructing, altering and dismantling scaffold
- Operating an elevated work platform (EWP)
- Using a work box.
- Performing activities using fall restraint and/or fall arrest system.

A Working at Height Permit shall be in place for these activities, refer to Section 2.4 Working at Height Permit, for further details.

#### 3.2 Training and Competency

All persons required to use work at height PPE must have received working at height training and be deemed competent in:

- Knowledge of specific regulations referring to fall prevention:
  - Western Australian legislation;
  - Australian/NZ Standards;
- Codes of Practice.
- Identification and control of work at height hazards;
- Job planning and resources for working at height;
- Access and egress of the work place;
- The correct selection, use and maintenance of fall restraint and fall arrest systems, other personal protective equipment and anchor points.

All working at height training shall be accredited to the Australian Qualifications Framework and all Roy Hill employee's working at heights shall complete a Roy Hill verification of competency before working at heights at Roy Hill.

All persons working at heights at Roy Hill shall complete the online Roy Hill refresher training every two years from the issue date of their national working at height competency or Roy Hill V.O.C.

Information, instruction and training concerning the fall hazards, risks and control measures identified during the risk management process, should be provided to those undertaking the work at height. Primarily, it should help them to understand the following:

- The fall hazards to which they are exposed;
- The risk of injury associated with the task;
- The reasons for control measures and how they are to be used correctly;
- Actions to be taken if there is an incident.

Complex tasks such as pole climbing and rope rescue will require more comprehensive training.

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### 3.3 Site Assessments

Verification of Competency at site level should be conducted on all personnel required to work at height. This comprises both written and demonstrated practical assessments. When assessing competence, consideration should be given to an individual's psychological and physical capacity to perform work at height. Site assessments are valid for a period of two years.

## 4 Equipment

### 4.1 Working at Height Personal Protective Equipment

All personnel must be protected by a system that minimises the possibility to fall as far as is practicable. If fall prevention controls cannot eliminate the risk of a fall 1.8 metres or more, work at height PPE shall be used.

Work at height PPE shall only be used by trained and competent personnel with a supervisor's approval and once a Working at Height Permit has been obtained for the activity. Refer to Section 2.4 Working at Height Permit of this procedure for further details.

When selecting PPE for work at height, consideration shall be given to the level of protection provided before any work at height commences. Refer to Appendix 2: PPE Priority Table and Appendix 4: Working with Height Restraint Definitions.

**Note:** Free fall is not permitted under any circumstances.

Work at height PPE shall consist of a full body harness connected to a suitable fixed anchor or static line by a lanyard or inertia reel.

All work at height PPE and systems must:

- Be designed and rated for fall arrest in compliance with AS1891;
- Have full body harness that has front and rear fall arrest attachment points;
- Attach to appropriate anchor points above the head where possible;
- Use self-locking snap hooks or triple action karabiners;
- Contain a shock absorbing device;
- Adjust to eliminate slack.

Under no circumstances shall personnel unhook whilst working at height. A second lanyard or twin tailed lanyard shall be used, ensuring that the user remains attached at all times. Caution should be taken to prevent the spare lanyard becoming a trip hazard.

Personnel using work at height PPE must be trained by a registered training organisation (RTO) and deemed competent for working at height. Refer to Section 3.2 Training and Competency for further detail.

AS 1891.4.2000 Industrial; Fall-Arrest Systems and Devices (part 4): Selection, Use and Maintenance, provides further guidance on fall arrest systems.

#### 4.1.1 Full Body Harness

Harnesses must be properly adjusted as per the manufacturer's instructions. When a fall occurs, the majority of the holding force is on the leg straps designed to minimise the risk of injury. The waist band and shoulder straps take little load. If the leg straps are loose, there is risk of injury in the groin area when the leg straps snap upwards during a fall stoppage.

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A full body harness shall include an integrated suspension trauma safety strap or harness assist that can allow a person who has fallen, and is suspended to stand upright and transfer their weight directly to the anchor point. This relieves pressure on the harness reducing the potential for suspension trauma.

### 4.1.2 Travel Restraint System

A travel restraint system comprises a restraint line of appropriate length and strength together with a fall arrest rated harness. Its purpose is to limit horizontal movement from an anchor point or a horizontal lifeline so that the user is totally restrained from physically reaching an unprotected edge or a position where either limited free fall or free fall is possible.

A 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.

A fall-arrest system shall be substituted for the restraint system if any of the following apply;

- the user can reach a position where a fall over an edge is possible; or
- the user has a restraint line that can be adjusted in length such that a free fall position can be reached; or
- there is a danger of the user falling through the surface (e.g. roofing material); or
- there are any other reasonably likely misuses of the system which could lead to a free fall.

Typically, this may entail the use of a fall-arrest harness and lanyard assembly in lieu of restraint hardware.

Where a restraint system is to be used, adequate supervision and control measures which minimise the risk of misuse shall be put in place, including the requirement of a Standby Person and for the supervisor responsible for the task/activity to conduct an inspection of the working at height activity at least on an hourly basis to ensure the potential for falls is being adequately controlled.

**Note:** An adjustable lanyard cannot be considered as a restraint system and therefore is a Fall-arrest lanyard assembly.

For further details on restraint definitions refer to Appendix 4: Working with Height Restraint Definitions.

### 4.1.3 Lanyards

A lanyard assembly shall be designed to limit the force on the harness attachment point during a fall arrest to 6kN. To achieve this personal energy absorber (shock absorbing lanyard) shall be in place as part of the lanyard assembly.

Lanyards should preferably be obtained from the same manufacturer as the harness to ensure compatibility between components. A triple action karabiner shall be used to connect the lanyard to the harness. This is to reduce the risk of roll-out of the hook or double action karabiner from the "D" ring on the harness.

Lanyard hooks shall not be connected directly to the static line; a triple action karabiner shall be used. The lanyard, when passed around an anchor point, must not be hooked back on itself; a suitably rated sling and shackle (WLL 1500kg) with a triple action karabiner shall be used.

Where practicable the length of the lanyard when connected to the anchor point and harness, shall be such that the person is in fall restraint and not able to reach an open edge or fall hazard. Lanyards shall never be connected together in order to increase their length

Where this is not practicable, the length of the lanyard when connected to the anchor point and harness, shall be such that the person when in a fall situation is only exposed to Limited Free Fall of a maximum of 600mm.

**Note:** A Free Fall situation is not acceptable at any time. Refer to Appendix 2: PPE priority table and Appendix 4: Working with Height Restraint Definitions.

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### 4.1.3.1 Inertia Reel Fall Arrestors

Inertia Reel Fall Arrestors shall only be used for activities where the use of a fixed length lanyard is not practicable. An inertia reel shall be attached to a suitable anchor point or static line using a triple action karabiner or a shackle rated to withstand a load of 15kn (1500kg).

An inertia reel shall only be used in a vertical position with a maximum of 30 degree variation from the vertical.

To ensure personnel remain within the safe working zone, the anchor point for the inertia reel shall be located at a distance from the open edge that prevents the potential for a free fall situation when the inertia reel cable is fully extended.

Always consider the pendulum effect when using a fall arrestor system in a non-vertical position. If a person using an individual fall-arrest system falls, the system may act as a pendulum, and in some instances the user may swing onto the ground (called swing down) or they may swing back onto a building or structure (called a swing back). Both instances may result in injury.

Prevent this situation by choosing the anchor point carefully and also by using two arrestors from different anchor points.

**Note:** Use of a lanyard containing an energy absorber is not permitted with Inertia Reel type fall arrestors.

**Note:** Inertia reels are not to be used as a fall restraint system.

### 4.1.3.2 Adjustable Lanyards

Adjustable lanyards shall only be used for activities where the use of a fixed length lanyard or an inertia reel fall arrestor is not practicable. The adjustable lanyard assembly shall incorporate a personal energy absorber connected directly to the harness. Triple action karabiners shall be used for all connections.

Where practicable the adjustable lanyard shall be set in such a way that the person is restrained and not able to reach an open edge or fall hazard.

Where this is not practicable, the length of the lanyard shall be adjusted such that the person when in a fall situation is only exposed to Limited Free Fall of a maximum of 600mm.

A spotter shall be in place whenever an adjustable lanyard is in use to ensure the lanyard is always adjusted to prevent the user from being exposed to a free fall hazard.

The spotter shall be in such a location where the adjustable lanyard and the person undertaking the working at height activity are visible at all times. The spotter shall not undertake any other activities while performing this duty.

**Note:** An adjustable lanyard cannot be considered as a restraint system and therefore shall be set up as a Fall-arrest lanyard assembly.

### 4.1.4 Static Line

Static lines are horizontal, near-horizontal or vertical lines (for ladder fall-arrest devices) to which a lanyard may be attached. Each end of the line is connected to a fixed anchorage point. The line may be made of metal tubes, metal rods, steel wire, rope, synthetic webbing or synthetic rope. All such systems shall be installed by a competent person.

AS 1891.2.2001: Industrial Fall Arrest Systems and Devices - part 2: Horizontal Lifeline and Rail Systems provide further information.

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### 4.1.4.1 Permanent static lines

Permanent static lines shall be designed and installed to be used as a component of a fall restraint system. The permanent static line shall be clearly marked 'Suitable for restraint only. Not suitable for fall arrest'.

A system information plate shall be displayed at each regular entry point to any permanently installed horizontal lifeline or rail system. The plate shall provide the following information:

- a) Manufacturer's and installer's name and installation date;
- b) A unique identification number;
- c) An instruction that a personal energy absorber or a fall-arrest device with energy absorbing properties must be used;
- d) Any special instructions for use, including the number of users allowed on the system or on any one span at once;
- e) Servicing requirements and instructions, together with inspection and servicing intervals and the dates on which they are to be carried out;
- f) The month and year by which the system should be taken out of service unless it has been re-certified by a competent person in accordance with manufacturer's instruction as safe for continued use. This date shall be not more than 10 years from the date of original installation or more than 5 years from any subsequent re-certification.

The plate shall be made from tamper resistant material and installed so as to retain the information in legible condition for the expected life of the installation.

### 4.1.4.2 Temporary static lines

Temporary static lines shall only be installed by a suitably trained and competent person for that particular static line. Where practicable, temporary static lines shall be set up to ensure personnel are not put at risk of free fall.

The cable and clamps shall be checked by the user prior to each period of use. The check shall include an examination of all clamps and the physical condition of the cable. Controls shall be in place to ensure that only the appropriate number of people connect to the static line; generally, this is only one or two persons.

The temporary static line shall be clearly marked with the following information:

- a) Manufacturer's name, trade name or, trademark
- b) Serial or batch number in the case of—
  - I. line tensioner;
  - II. line energy absorber;
  - III. mobile attachment device; and
  - IV. line anchorages, end and intermediate.
- c) Where a device is designed for use in certain specific configurations, a statement of this, together with any applicable limitations or warnings of possible inadvertent misuse.

Stored and in service static lines shall be inspected every 12 months by a competent person.

## 4.2 Anchorage Points

Fixed or permanent anchor points shall be designed, rated and inspected as being fit for purpose when used for working at height. Fixed anchor points shall be sign posted and display the date of installation, date of last inspection, maximum safe working load, and name of installer and standard to which it was designed and inspected.

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Periodic Non Destructive Testing (NDT) inspections shall be carried out by a competent person at intervals of no more than twelve months and certificates shall be kept on record for a minimum of 5 years.

Where a temporary roof anchor point is used as an anchorage, it must be installed in accordance with the manufacturer's instructions. The building or structure and anchorage points shall be assessed by an structural/mechanical engineer, or by a competent person that the anchorage system is structurally adequate.

Anchor points must be inspected prior to use and deemed to be capable of withstanding a minimum loading as shown in the following table:

Purpose of Anchorage	Ultimate Strength in Direction of Loading (minimum) in kN
Fall Arrest - one person	15
Fall Arrest - two persons attached to common anchorage point	21
Restrained fall arrest - restraint or static line anchorage	22

Table 1:

Hand rails, cable trays and guard rails shall not be used as work at height anchor points. For further details on suitable temporary anchor points refer to Appendix 3: Anchor point selection guide. If unsure seek specialist engineering advice.

### 4.3 Equipment Inspection and Maintenance

The workplace Manager or their delegate shall ensure that all fall restraint/arrest equipment i.e. fall arrest harnesses, inertia reels, lanyards and rescue equipment, etc. are recorded on a Working at Height Fall Injury Prevention System (FIPS) Register. This Register shall contain as a minimum:

- Identification number
- Maintenance history and details
- Inspection dates and results
- Modifications made since purchase and commissioning
- Purchase and disposal dates
- Corrective actions.

All equipment should be thoroughly inspected prior to use for serviceability by a competent person. This equipment must not be contaminated with paint, chemicals, marker pens, dirt, etc.

Fall protection equipment shall be stored off the ground in a clean, cool, dry location away from direct sunlight, chemicals or corrosive fumes.

If a fall arrest system has been used to arrest a fall or is not working within the manufacturer's specifications, it must be withdrawn from service, tagged out of service and inspected by a competent person. Any equipment not fit for use shall be removed from service immediately, tagged out of service and reported to the Supervisor/Manager.

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Inspections of equipment shall be carried out as per the frequencies tabled below:

ITEM	INSPECTION FREQUENCY	REFERENCE <i>AS 1891.4 - Industrial Fall Arrest Systems - Selection, Use and Maintenance</i>
Personal equipment including harnesses, lanyards, connectors, fall-arrest devices including common use devices	Inspection by a competent operator before and after each use	Clause 9.2
Harnesses, lanyards, and associated personal equipment	3 monthly inspection by a competent person	Clause 9.3.2
Fall-arrest devices (external inspection only)	3 monthly inspection by a competent person	Clause 9.3.4 (a)
Ropes and slings	6 monthly inspection by a competent person	Clause 9.7
Anchorages - drilled-in type or attached to timber frames	12 monthly inspection by a competent person	Clause 9.3.3
Anchorages - other types	Up to 5-yearly inspection, if recommended by the manufacturer. Otherwise, 12 monthly inspection in the absence of such recommendation	Clause 9.3.3
Fall-arrest devices - full service	Up to 5-yearly inspection, if recommended by the manufacturer. Otherwise, 12 monthly inspection in the absence of such recommendation	Clause 9.3.4 (b)
Horizontal or vertical lifelines : steel ropes or rail	Up to 5-yearly inspection, if recommended by the manufacturer. Otherwise, 12 monthly inspection in the absence of such recommendation	Clause 9.3.5
Horizontal or vertical lifelines: fiber rope, webbing	6 monthly inspection by a competent person	Clause 9.3.5 and Clause 9.4
All items of a personal and common use equipment	Inspection by a competent person on entry or re-entry into service	Clause 9.4
All items that have been stressed as a result of a fall	Inspection by a competent person before use	Clause 9.5

Table 2:

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## 5 Change

### 5.1 Working at Height Emergency Response

Where working at height is to be conducted at the workplace, a Rescue Plan shall be completed in consultation with the Emergency Services Coordinator on site. In addition to this, all personnel involved in the working at height shall be fully briefed on the Rescue Plan.

Where an emergency rescue is to be performed on site, only personnel trained in such procedures shall conduct the rescue.

In the event of an emergency at height, a responsible person, e.g. Working at Height Standby Person, Supervisor, or Leading Hand shall take the following steps:

- Identify the location of the person requiring rescue with the potential access and egress points
- Contact Emergency Response Team (ERT) through the ERT Coordinator
- Ascertain if any person is injured and obtain details if possible
- Initiate rescue only if trained to do so
- Facilitate emergency service areas
- Liaise with ERT and deploy resources as required.

It is imperative that the rescue of a person who is suspended in a full body harness should occur promptly. Suspension trauma is a condition whereby a person suspended in a harness in a partially upright position, may experience blood pooling in the legs. This may lead to loss of consciousness, renal failure and possibly death.

#### 5.1.1 Emergency and Rescue Procedures

In addition to the Rescue Plan, standard emergency and rescue procedures shall be developed:

- To address the identified Fall Hazards
- To address the use of control measures for the rescue of any person who is exposed to a fall hazard or dropped object.

The emergency and rescue procedures shall be:

- Tested for efficiency and effectiveness through recorded drills by the Emergency Response Team
- Communicated through training and instruction to all relevant workers (relevant workers include persons exposed to a fall hazard or drop hazard as well as persons involved in emergency and rescue procedures).

Emergency and Rescue Procedures may be incorporated into the Emergency Response Plan.

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### 6 Definitions

Term	Definition
Anchorage	A secure point for attaching a lanyard, lifeline or other component of a travel restraint system or fall-arrest system.
AQF	Australian Qualifications Framework
Competent Person	Means a person who is appointed or designated by the employer to perform specific duties which the person is qualified to perform by knowledge, training and experience
Edge Protection System	Barriers erected around the edge of a building, structure or hole to prevent a person from falling. An edge protection system may consist of guard railing or vertical containment sheeting.
Energy Absorber	A device designed to minimise the jarring effect on the body by absorbing the shock or force of a fall.
Fall injury Prevention System (FIPS)	Equipment, material or a combination thereof that is designed to prevent, or reduce the severity of injury to a person if a fall from one level to another does occur (e.g. safety nets, individual fall arrest systems, catch platforms).
Fall Hazard	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.
Free Fall	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 either vertically or on a slope.
Harness	A one piece set of straps to ensure that a person falling will end up in a head-up and feet-down position.
Industrial Rope Access System (IRAS)	A work positioning system used for gaining access to, and working at, a work face, usually by means of vertically suspended ropes.
Lanyard	Means a line used, usually as part of a lanyard assembly, to connect a harness to an anchorage point or static line.
Lanyard Assembly	An assembly consisting of a lanyard and an energy absorber. The lanyard assembly should be as short as reasonably practicable, with a working length of no more than two metres.
Moused Accessory	A locking device commonly using steel wire to loop through a mechanism (a clevis and shackle) to prevent it becoming loose or opened through vibration or other forces.
Pendulum Effect	If a person using a work positioning system falls, the system may act as a pendulum, and in some situations, the user may swing onto the ground (which is called 'swing down') or swing back onto the building or structure (which is called 'swing back').
Permit Issuer	A person authorised, in writing, by the relevant Area Manager to issue permits.
Permit Holder	The person who accepts the responsibility for the work being carried out under the permit.
Personal Fall Restraint System	A combination of harness, lanyard and anchor point which will physically prevent the person from reaching an unprotected edge.
Personal Fall Arrest System	A combination of equipment and components connected together and designed to stop a person from striking a lower level or an obstruction during a fall. It includes as a minimum, a full body harness, shock absorbing lanyards or inertia reel device and an appropriate helmet with chin strap. Fall arrest devices are classified into three different types: <ol style="list-style-type: none"><li>1. A fall arrest device that travels along an anchorage line and when loaded, locks onto the line via a rope grab or carrier sleeve.</li><li>2. A fall arrest device from which a spring-loaded anchorage line plays out and which locks when loaded. This device must be anchored above the wearer within 30 degrees.</li><li>3. A fall arrest device from which a spring-loaded anchorage line plays out, and which locks when loaded, but may be wound back as a winch after loading</li></ol>

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Term	Definition
	and locking e.g. an inertia reel with a winch handle. This device must be anchored above the wearer within 30 degrees.
Restraint Line	Is the line securing workers to a point of anchorage and is used to prevent a person from reaching a point from which they could fall.
Shall	Use of the term Shall indicate that the requirements are mandatory under current Health and Safety Legislation.
Standby Person	A person who is part of the workgroup who is responsible for initiating the emergency response plan.
Suspension Trauma	Is a condition whereby a person in a harness, in a substantially upright position, may experience blood pooling in the legs.
Travel Restraint System	A system in which a harness or belt is attached to one or more lanyards, each attached in turn to a static line or anchorage point, so as to restrict the travelling range of a person wearing the harness or belt and preventing them from reaching a position from which they could fall.
Working at Height	<p>All work situations where the person can fall from one level to another where:</p> <ul style="list-style-type: none"> <li>• There is potential to fall 1.8 metres or more.</li> <li>• Where a person could potentially gain access to within two metres of an exposed edge where there is potential to fall 1.8 metres or more.</li> <li>• Where a significant incident may occur whilst working at a height of less than 1.8 metres (determined by a risk assessment).</li> <li>• Where, through a risk assessment, it is determined that accessing, egression or descending can result in a significant incident.</li> </ul>
Working at Height Permit	Written document issued by a Permit Issuer allowing working at height to be conducted with the use of fall restraint / arrest equipment.
Working at Height Hierarchy of Control	A tool to help people choose a control that provides the highest level of safety possible in the circumstances.
Working Positioning System	Any equipment, other than a temporary work platform, that enables a person to be positioned and safely supported at a work location for the duration of that work, i.e. travel restraint systems or industrial rope access system.

Table 3:

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## 7 References

Document Number	Title
	Bow Tie PH-05 Dropped Objects During Lifting
	Bow Tie PH-06 Dropped Tools and Equipment
	Bow Tie PH-07 Dropped Product
	Bow Tie PH-08 Fall From Height
	Bow Tie PH-21 Shipping Incidents
	Bow Tie PH-17 Drowning
	Occupational Safety and Health Act WA 1984.
	Occupational Safety and Health Regulations WA 1996.
	Mines Safety and Inspections Act WA 1994.
	Mines Safety and Inspections Regulations WA 1995.
	Code of Practice: Prevention of falls at workplaces WorkSafe WA 2004.
	Dropped Objects Prevention Scheme: Drops Global - Recommended guidelines.
	Managing the Risk of Falls in the Workplace; Safe Work Australia Code Of Practice
AS 1418.10:2004	Cranes, hoists and winches - Elevating work platforms.
AS 1418.17	Cranes, hoists and winches - Design and construction of work boxes.
AS 1576.1	Scaffolding - General requirements.
AS 1657:1992	Fixed platforms, walkways, stairways and ladders - design, construction and installation.
AS 1891 parts1-4	Industrial fall arrest systems and devices.
AS 1891.4.2000	Industrial; fall-arrest systems and devices: selection, use and maintenance.
AS 1892.1.1996	Portable ladders series.
AS 2550.10:2006	Cranes, hoists and winches - Safe use - Mobile elevating work platforms.
AS 3007 part 5	Electrical Installations - Surface mines and associated processing plant - operating requirements.
AS 4389	Safety mesh.
AS 4488	Industrial rope access.
AS 4576	Guidelines for scaffolding.
BCGCM1006A	Work safely at height - General construction training package NTIS.
BSEN 1263	Safety nets.
OP-FRM-00573	Working at Height Permit.
OP-PRO-00993	Guarding, Barricading, Demarcation and Signage Procedure
OP-STD-00195	Roy Hill Operations HSES Performance Standard - 02 Working at Height

Table 4:

## 8 Appendices

### Appendix 1 - Prevention of Falls Hierarchy of Control Model

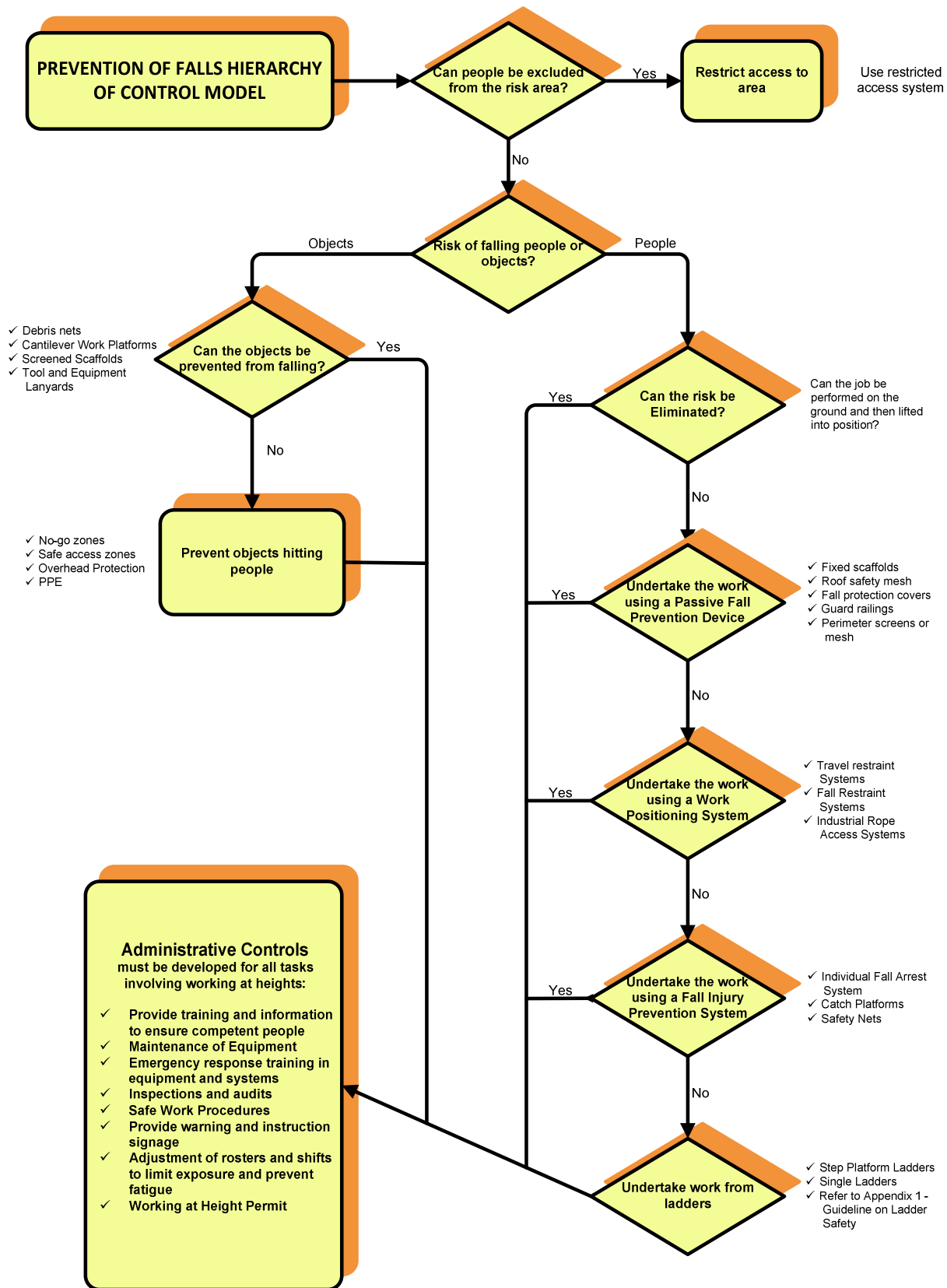
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### Appendix 2 - PPE Priority Table

Priority	Category	Definition	Typical Application	System Description
1	Restraint Technique – A fall is not possible	A control on a person's movement by means of a combination of a belt or harness, a line and a line anchorage which will physically prevent the person from reaching a position at which there is a risk of a free or limited free fall	Any situation where access to the work can be achieved entirely on a working surface with slope not exceeding 15 degrees and without exposure to a fall	A combination of anchorage placement and fixed length lanyard / line which will not physically permit the operator to reach a fall-risk position
2	Industrial Rope Access	A system for providing access to a workplace by suspension from a rope where a person is attached to both a working line and a secondary safety line	Any situation where work can be reached by descending or ascending a rope that is anchored above or can be re-directed above the operator	A minimum team of one level 2 industrial rope access supervisor and one level one industrial rope access operator using ascent and descent devices on one rope whilst attached to a safety line
3	Restrained Fall	Where the person suffering the fall is partially restrained by a restraining device such as a pole strap, adjustable lanyard or is sliding down a slope on which it is normally possible to walk without the assistance of a handrail or hand line	Working on a pole where no free fall is possible, or on a sloping roof of slope greater than 15 degrees but where secure footing can be maintained without lateral support and from which a substantially vertical fall over an edge cannot occur. Erecting scaffold with inertia reel mounted above job area	A combination of anchorage placement and restraint line or pole strap length, which will permit only a restrained fall on a pole or a sliding, fall on a roof. Use of an adjustable (type 1 rope grab device) lanyard incorporating a shock absorbing lanyard used in restraint mode.
4	Limited Free Fall	A fall or the arrest of a fall where the fall distance before the fall-arrest system begins to take any loading, does not exceed 600mm either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line	Any situation where the use of either a short lanyard or a fall-arrest device (or both where applicable) will limit any free fall to 600mm. May also be applicable to rope access systems, see AS/NZS 4488.2	A combination of anchorage placement and lanyard line length, which will permit only a limited free fall (<600mm). Use of Inertia reel.
<b>Not acceptable</b>				
NEVER	Free Fall	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 either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line. Must not exceed a fall of 2.0m		No user will be exposed to free-fall. The equipment and procedures above will limit any job to a limited free fall as the maximum exposure.


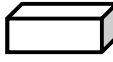
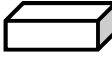



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## Appendix 3 - Anchor Point Selection Guide

Horizontal Span Between Supports	Minimum size of Horizontal Supporting Member (mm)	Minimum size of Vertical Supports (mm)	
Up to 1 m	<ul style="list-style-type: none"> <li>➤ Ø88 Pipe</li> <li>➤ 100 x 50 x 4 RHS (Major axis)</li> <li>➤ 125 x 75 x 3 RHS (Major axis)</li> <li>➤ 150 x 100 x 3 RHS (Minor axis)</li> <li>➤ 75 x 75 x 3 SHS</li> <li>➤ 150 UB (Major axis) (Any weight)</li> <li>➤ 100 UC (Major axis)</li> <li>➤ 150 PFC (Major axis)</li> <li>➤ 200 PFC (Minor Axis)</li> </ul>	<ul style="list-style-type: none"> <li>➤ 150 x 75 UB</li> <li>➤ 100 x 100 UC</li> <li>➤ 100 x 100 x 10 Angle</li> <li>➤ Ø100 Pipe</li> </ul> <div style="display: flex; align-items: center; margin-top: 10px;">  <span>Pipe</span> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <span>Square Hollow Section (SHS)</span> </div>	
1 to 2 m	<ul style="list-style-type: none"> <li>➤ Ø115 Pipe</li> <li>➤ 100 x 50 x 6 RHS (Major axis)</li> <li>➤ 125 x 75 x 3 RHS (Major axis)</li> <li>➤ 150 x 100 x 3 RHS (Minor axis)</li> <li>➤ 89 x 89 x 3.5 SHS</li> <li>➤ 150 UB (Major axis) (Any weight)</li> <li>➤ 100 UC (Major axis)</li> <li>➤ 150 PFC (Major axis)</li> <li>➤ 200 PFC (Minor Axis)</li> </ul>	<div style="display: flex; align-items: center; margin-top: 10px;">  <span>Rectangular Hollow Section (RHS)</span> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <span>Universal Column (UC) [Square dimensions]</span> </div>	
2 to 4 m	<ul style="list-style-type: none"> <li>➤ Ø168 Pipe</li> <li>➤ 150 x 100 x 4 RHS (Major axis)</li> <li>➤ 200 x 150 x 5 RHS (Minor axis)</li> <li>➤ 150 x 150 x 5 SHS</li> <li>➤ 180 UB (Major axis) (Any weight)</li> <li>➤ 150 UC (Major axis)</li> <li>➤ 150 PFC (Major axis)</li> <li>➤ 200 PFC (Minor Axis)</li> </ul>	<div style="display: flex; align-items: center; margin-top: 10px;">  <span>Universal Beam (UB) [Rectangular dimensions]</span> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <span>Parallel Flange Channel (PFC)</span> </div>	
4 to 6 m	<ul style="list-style-type: none"> <li>➤ Ø200 Pipe</li> <li>➤ 200 x 100 x 5 RHS (Major axis)</li> <li>➤ 200 x 200 x 5 RHS (Minor axis)</li> <li>➤ 150 x 150 x 5 SHS</li> <li>➤ 200 UB (Major axis) (Any weight)</li> <li>➤ 150 UC (Major axis)</li> <li>➤ 180 PFC (Major axis)</li> <li>➤ 200 PFC (Minor Axis)</li> </ul>	<ul style="list-style-type: none"> <li>➤ 250 x 125 UB</li> <li>➤ 150 x 150 UC</li> <li>➤ Ø200 Pipe</li> </ul>	
More than 6 m	Seek specialist / Engineering advice		
Ø	Pipe Diameter	UB	Universal Beam
UC	Universal Column	RHS	Rectangular Hollow Section
SHS	Square Hollow Section	PFC	Parallel Flange Channel
Minor Axis	Axis of minimum beam strength	Major Axis	Axis of maximum beam strength

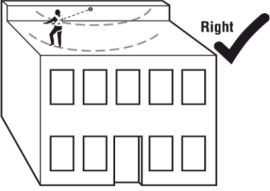



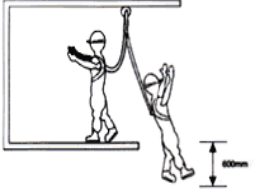
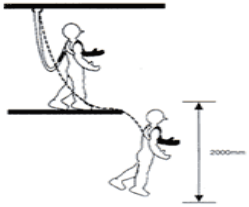
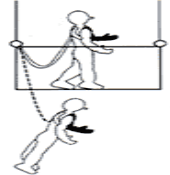
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### Appendix 4 - Working With Height Restraint Definitions

Priority	Category	Definition	Example	System Description
1	Restraint Technique – A fall is not possible	A control on a person's movements by means of a combination of a belt or harness, a line and a line anchorage which will physically prevent the person from reaching a position at which there is a risk of a free or limited free fall.		
2	Restrained Fall	A fall or the arrest of a fall where the person suffering the fall is partially restrained by a restraining device or is sliding down a slope on which it is normally possible to walk without the assistance of a handrail or hand line.		
3	Limited Free Fall	A fall or the arrest of a fall where the fall distance before the fall arrest system begins to take any loading, does not exceed 600mm either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line.		
4	Free Fall <b>(NOT ACCEPTABLE)</b>	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 either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line.		

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