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1.0 PURPOSE

This Procedure outlines systems that need to be implemented, so that work where there is a potential for fall is managed consistently and to a recognised and accepted standard across Arrium Mining sites, including those managed by contractors.

As outlined in the Arrium Codes of Practice, the intent is to eliminate or minimise the risk of fatalities and serious injuries arising from working at heights. The aim is to prevent harm to persons resulting from:

- Falling from heights, including top of truck;
- Being struck by a falling object;
- Suspension trauma; and
- Unstable work platforms or mobile elevated work equipment.

This Procedure aims to align to the minimum standards on Prevention of Falls (Working At Heights) outlined in the Arrium Codes of Practice whilst also ensuring compliance to the SA Work Health Safety (WHS) Act (2012), SA WHS Regulations (2012) and SA WHS Managing Risk Of Falls In The Workplace Code Of Practice (2011).

2.0 SCOPE

This Quality Procedure applies to all businesses that report to the Arrium Mining Chief Executive. It applies to both employees and contractors working on Arrium Mining sites. Contractors may be approved to operate under their own safety management systems, but must ensure they meet the minimum standards of Arrium procedures.

3.0 REFERENCES

3.1 ARI-OHS-SYS-COP-200 Arrium Codes of Practice
3.2 OST-OHS-FAL-COP-001 Prevention Of Falls Code of Practice
3.3 OST-OHS-POS-COP-001 Excavation/Puncture of Surface CoP
3.4 OST-OHS-ELEC-PRO-001 Electrical Safety Manual
3.5 QP29.11 Plant Safety Management and Inspection
3.6 QP29.13 Safety Risk Management
3.7 QP29.28 Health and Safety Training
3.8 QP29.18 Confined Spaces
3.9 WI75.WHS.RSK.001 Risk Management Tools (Arrium Mining)
3.10 SafeWork SA Managing The Risk of Falls in the Workplace Code of Practice (2011)
3.12 AS/NZS 1576 Scaffolding series
3.13 AS/NZS 1657 Fixed platforms, walkways, stairways and ladders—Design, construction and installation
3.14 AS/NZS 1891 Industrial fall-arrest systems and devices series
3.15 AS/NZS 1892.5 Portable ladders – Selection, safe use and care.
3.16 AS/NZS 2550.10 Cranes, Hoists and Winches—Safe Use—General Requirements.
3.17 AS/NZS 2550.10 Cranes, hoists and winches – Safe use – Mobile elevating work platforms
3.18 AS 1418.17 Cranes (including hoists and winches) - Design and construction of workboxes
3.19 AS/NZS 4389 Safety mesh
3.20 AS/NZS 4576 Guidelines for scaffolding
3.21 AS/NZS 4994 Temporary Edge Protection

4.0 FALL PREVENTION CODE OF PRACTICE – CRITICAL ELEMENTS

The Critical Elements must be conveyed and understood at each Arrium site.
1. Follow the safe system of work where there is a potential fall, especially when greater than 1.8m.
2. Apply fall prevention hierarchy of control. Note: fall arrest systems are the last resort.
3. Where fall arresters are used there shall be a recovery/rescue plan in place with the aim of recovery within 5 minutes.
4. Do not go within 2 m of an unprotected edge, where there is a potential fall of greater than 1.8m, without fall prevention.
5. Position warning barricades a distance of at least 1.5m from an opening or unprotected edge of an opening.
6. Check exclusion zones are in place below to protect people from falling objects.
7. Verify scaffolding meets required standards including handrail standards (e.g. valid Scafftag, two railings and kick plate).

5.0 DEFINITIONS

5.1 Anchorage
A secure point for attaching a lanyard, lifeline or other component of a travel restraint system or fall-arrest system. Anchorages require specific load and impact capacities for their intended use.

5.2 Authorising Person
The person authorised by the site/plant Responsible Manager. Authorising Persons are responsible for issuing and approving the Prevention of Falls Permit (FORM75.WHS.FAL.001) after discussing with work team task requirements and a safe system of work is in place to be followed.

5.3 Boom-Type MEWP
A telescoping device, hinged device, or articulated device or any combination of these used to support a platform on which personnel, equipment and materials may be elevated to perform work.

5.4 Competent Person
A person who has the combination of knowledge, skills, attitudes and practical experience necessary to be able to perform a particular task or duty in a safe and correct manner.

5.5 Double or triple action device
Is a self-closing hook or karabiner with a keeper latch which 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.

5.6 Fall
Means a fall from one level to another.
5.7 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, lanyard assembly or pole strap, and whose purpose is to arrest a fall. All fall arrest systems must include an energy absorbing device.

5.8 Fall Clearance
The adequate distance under a person or persons who are using a fall arrest system so that in the event of a fall the user of the system will not strike the ground, floor or any other obstacle, item or thing beneath the system. This comprises of the Length of lanyard + tear-out distance + height of user + safety margin.

5.9 Restraint technique
Control on a person’s movement by use of a fall-arrest system, which entails connection to an anchorage using an adjustable lanyard or other adjustable component that can be adjusted for length as necessary to physically prevent the person from reaching a position at which there is a risk of a free or limited free fall.

5.10 Free Fall
Is any fall or part of a fall where the person falling is under the unrestrained influence of gravity over any fall distance, either vertically or on a slope on which it is not possible to walk without the assistance of a handrail or hand line.

5.11 Height
An elevation above the surrounding recognised safe floor, platform, grade or excavation level.

5.12 Inertia Reel
Also known as a self-retracting lanyard or fall-arrest block is a type 2 or 3 fall-arrest device that arrests a fall by locking onto a line and at the same time allows freedom of movement.

5.13 Karabiners
These are metal types of connectors that can be attached to anchorage points. They come in a variety of sizes, shapes and locking mechanisms to suit various applications. They should be self-closing and self- or manual-locking and capable of being opened only by at least two consecutive deliberate manual actions.

5.14 Lanyard
An assembly consisting of a line and components which will enable connection between a harness and an anchorage point and will absorb energy in the event of a fall.

5.15 Limited Free Fall, Limited Free Fall Arrest
A fall or the arrest of a fall occurring under the conditions described in Free Fall, Free Fall Arrest except that under reasonably foreseeable circumstances the fall distance will not exceed 600mm.

5.16 Luff
To raise or lower the outer end of the boom of a crane or derrick so as to move its load horizontally.

5.17 Mast
A vertical member of the extending structure that telescopes or slews.
5.18 **Mobile Elevating Work Platform (MEWP)**
A mobile machine (device) that is intended to move persons, tools and material to working positions and consists of at least a work platform with controls, an extending structure and a chassis, but does not include mast climbing work platforms. Includes self-propelled boom lift, scissor lift, vehicle mounted and insulated vehicle mounted.

5.19 **Pendulum Effect**
If the life line is not anchored vertically over the working place, the worker will swing laterally if a fall occurs. This could result in the person striking the ground or other obstructions during the fall arrest process. The "pendulum effect" requires consideration prior to deciding the location of anchorage points.

5.20 **Personal Energy Absorber (or deceleration device)**
A device which 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.

5.21 **Responsible Manager**
The Departmental representative (eg. Operations Manager) accredited by the Department Manager (eg. Manager – Hematite Stream) as responsible for the effective implementation and compliance for a Code of Practice.

5.22 **Restrainted Fall, Restrained Fall Arrest**
A fall or the arrest of a fall where the person suffering the fall is partially restrained by a restraining device such as a pole strap, or is sliding down a slope on which it is normally possible to walk without the assistance of a handrail or hand line.

5.23 **Restricted Access System**
A system designed to prevent immediate access to an area. Restricted access system would typically entail ropes, wire and chains supported on stanchions.

5.24 **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 he or she could fall.

5.25 **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:
- in or on plant or a structure that is at an elevated level
- in or on plant that is being used to gain access to an elevated level
- in the vicinity of an opening through which a person could fall
- in the vicinity of an edge over which a person could fall
- on or in the vicinity of a surface through which a person could fall
- on or near the vicinity of a slippery, sloping or unstable surface.

5.26 **Risk Control**
Means taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible, minimising the risks so far as is reasonably practicable. Eliminating a hazard will also eliminate any risks associated with that hazard.

5.27 **Rope Access System**
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 system.
5.28 Scaffolding
Refers to all structures and platforms, irrespective of height, which are assembled in whole or part from scaffold components. Includes modular scaffolding, tube & coupler scaffolding, suspended scaffolding, swinging stages, and planks placed across structures not engineered to accept planks. Painters trestles, fabricated working platforms, work boxes and motorised platforms are excluded from this definition.

5.29 Scafftag
An identifiable tag placed on scaffolding to communicate status, warnings and other conditions.

5.30 Static Line
A horizontal or substantially horizontal line in tension attached to two or more anchorage points to which a lanyard may be attached and which is designed to arrest a free fall.

5.31 Standby Person
Responsibilities include to:
- observe and monitor work where fall arrest systems are used
- initiate emergency response and rescue procedures if required.

5.32 Three points of contact
Contact with either two feet and one hand or one foot and two hands. For example, two feet and one hand or two hands and one foot must be in contact with the ladder at all times.

5.33 Total Fall Distance
Is the total distance a person is likely to fall during both the free and restrained parts of a fall and includes the maximum dynamic extension of all supporting components.

5.34 Workbox
A personnel-carrying device, designed to be suspended from a crane, to provide a working area for persons conveyed by and working from the box.

5.35 Work Platform
Movable component of an MEWP, other than the chassis, intended for carrying personnel with or without materials (e.g. cages, buckets, baskets).

5.36 Variation
A documented deviation from the principles outlined in a Code of Practice.

6.0 PROCEDURE
A systematic procedure must be followed in order to manage the risks of persons falling from one level to another and involves:
- Identifying hazards that may cause injury
- Assessing the risks associated with these hazards
- Implementing risk control measures
- Reviewing risk control measures to ensure they are effective

6.1 Identify Fall Hazards
Each site 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. QP29.13 Safety Risk Management and WI75.WHS.RSK.001 – Risk Management Tools processes shall be applied to identify hazards associated with Area/Plant and tasks.
Consulting with the work groups, reviewing of previous injuries and ‘near miss’ incident related to falls and keeping up-to-date with industry knowledge can also assist to identify fall hazards at sites.

6.1.1 Identify Plant/Area fall hazards

The Plant/Area risk assessment process shall be applied to identify fall hazards in Plant/Area as per QP29.13 Safety Risk Management Process.

As per QP29.11 - Plant Safety Management and Inspection and in line with legislative requirements, each operational site should set up a schedule of regular plant safety and hazard inspections on at least a 3-monthly basis or monthly for major operating areas. Through formal or informal workplace inspections, key things to look for in regards to identify fall hazards include:

- **Surfaces:**
  - the stability, fragility or brittleness
  - the potential to slip, for example where surfaces are wet, muddy etc
  - the safe movement of workers where surfaces change
  - the strength or capability to support loads
  - the slope of work surfaces, for example, where they exceed 7 degrees.

- **Levels** - where levels change and workers may be exposed to a fall from one level to another

- **Structures** - the stability of temporary or permanent structures

- **The ground** - the evenness and stability of the ground for safe support of scaffolding or a work platform

- **The working area** - whether it is crowded or cluttered

- **Entry and exit from the working area**

- **Edges** - protection for open edges of floors, working platforms, walkways, walls or roofs holes, openings or excavations - which will require guarding

- **Hand grip** - places where hand grip may be lost.

In some situations, advice may be needed from Arrium Mining Engineering Department or other technical specialists, such as structural engineers, to check the stability of structures or load bearing capacity.

6.1.2 Identify task fall hazards

Prior to commencing each task workers apply the Process for Task Risk Identification as per QP29.13 Safety Risk Management and WI75.WHS.RSK.001 – Risk Management Tool processes to identify fall hazards specific to the task. Tasks that need particular attention are those carried out:

- on any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, repaired or cleaned on a fragile surface
  - consideration of the potential risk of falls early when designing plant or structures can result in the elimination of such risks. Where elimination is not possible, one way to minimise risks at the design stage is to integrate fall prevention systems into the design.
  - refer to WHS Code of Practice – Managing The Risk Of Falls At Workplaces 2011 for further requirements when designing plant or structures in relation to fall prevention.

- on a potentially unstable surface (for example, areas where there is potential for ground collapse)

- using equipment to work at the elevated level (for example, when using elevating work platforms or portable ladders)

- on a sloping or slippery surface where it is difficult for people to maintain their balance

- near an unprotected open edge

- near a hole, shaft or pit into which a worker could fall
6.2 Risk Assessing Identified Fall Hazards

A Risk Assessment must be conducted before the commencement of work at heights in order to determine the risks arising from fall hazards. Risk assessments shall be carried out in line with QP29.13 Safety Risk Management Process.

Fall hazard risk assessments should include:
- People or things that could fall;
- The proximity of workers to unsafe areas where loads are placed on elevated working areas and where work is to be carried out above people and there is a risk of falling objects;
- The adequacy of inspection and maintenance of plant and equipment (for example, scaffolding);
- Hazardous features of the work site (e.g. live crane rails, chemicals, flammable substances, gas);
- Environmental conditions (e.g. lighting, rain, wind, lightning, dust, heat);
- Selection of appropriate control measures using the hierarchy of controls;
- Selection of appropriate equipment (including suitability of footwear, clothing, condition of ladders etc);
- Selection of anchor and tie off points;
- Condition of supporting structures, such as roofs, pipes and beams;
- Selection of appropriate barricading or demarcation;
- Competency and fitness for work of personnel;
- Access and egress; and
- Emergency response and rescue plan.

6.3 Risk Control Measures

Once a Working At Heights Risk Assessment has been completed, appropriate risk control measures must be put in place to eliminate risks so far as is reasonably practicable, and if it is not reasonably practicable to do so, then to minimise those risks so far as is reasonably practicable.

In managing the risks of falls, the WHS Regulations (2012) require the following specific control measures to be implemented, where it is reasonably practicable to do so:

1. *Can the need to work at height be avoided to eliminate the risk of a fall?*
   Carry out any work that involves the risk of a fall on the ground

2. *Can the fall be prevented by working on solid construction?*
   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, or permanently installed guard rails around the edges.

3. *Can the risk of a fall be minimised by providing and maintaining a safe system of work, including:*
   - providing a fall prevention device (for example, installing guard rails) if it is reasonably practicable to do so, or
   - providing a work positioning system (for example, an industrial rope access system) if it is not reasonably practicable to provide a fall prevention device, or
   - 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.

In some cases a combination of control measures may be necessary, for example using a safety harness while working from an elevating work platform.
Control measures are needed where there is a risk of injury irrespective of fall height. For low falls, you should assess the risk and provide reasonably practicable measures that reflect the risk. Work of long duration and higher frequency will usually require control measures higher up the hierarchy to provide adequate protection, for example using a mobile scaffold instead of a ladder. You should also ensure that the control measures you select do not create new hazards.

A Prevention of Falls Permit (FORM75.WHS.FAL.001) is to be completed prior to any working at heights is undertaken. This also requires a task specific work instruction & STAR Card, SSoW, or JSA to be completed (as per QP29.13 and WI75.WHS.RSK.001).

### 6.3.1 Hierarchy of Controls

The fall prevention hierarchy of controls must be applied to each risk scenario in order to choose the control(s) that most effectively eliminates or minimises the risk in the circumstances. This may involve a single control measure or a combination of two or more different controls.

The control measures are listed in order of decreasing effectiveness. This means that measures closest to the top should be adopted wherever practicable.

Note: In most cases a combination of control measures from the Hierarchy of Controls will provide the most effective solution.

<table>
<thead>
<tr>
<th>HIERARCHY OF CONTROLS</th>
<th>Possible Controls for Prevention of Injury Due to Fall of Person</th>
<th>Possible Controls Prevention of Injury Due To Fall of Object</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elimination</strong></td>
<td>− Eliminate the need to work at heights</td>
<td>− Remove loose objects or objects that may fall from heights.</td>
</tr>
<tr>
<td></td>
<td>− Move work to an area where fall is not possible (on ground or solid construction) e.g. pre-fabrication of structures on the ground in preference to the erection and assembly of components at heights</td>
<td></td>
</tr>
<tr>
<td><strong>Substitute</strong></td>
<td>− N/A</td>
<td>− Use hard-wired tools that can’t be easily moved as opposed to portable tools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Isolation</strong></td>
<td>Separating employees and others in the general work area from the hazard of falling</td>
<td>Separating employees and others in the general work area from the hazard of being struck by a falling object.</td>
</tr>
<tr>
<td></td>
<td>− Use physical barriers to contain or enclose an area.</td>
<td>− Conduct specific work operations (e.g. overhead lifts) only at times when non-related personnel are barricaded and excluded from site</td>
</tr>
<tr>
<td></td>
<td>− Guard railing</td>
<td>− Separate work areas</td>
</tr>
<tr>
<td></td>
<td>− Perimeter screens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Separate work areas</td>
<td></td>
</tr>
<tr>
<td>Method</td>
<td>Controls</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td><strong>Engineering</strong></td>
<td>Reduce risks through engineering controls</td>
<td></td>
</tr>
<tr>
<td>- Scaffolds</td>
<td>- Perimeter screens</td>
<td></td>
</tr>
<tr>
<td>- Elevating work platforms</td>
<td>- Guard rails with toe boards and wire mesh</td>
<td></td>
</tr>
<tr>
<td>- Forklift platforms</td>
<td>- Debris nets</td>
<td></td>
</tr>
<tr>
<td>- Ladders</td>
<td>- Cantilever work platforms</td>
<td></td>
</tr>
<tr>
<td>- Rope access systems</td>
<td>- Screened scaffolding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Use of lanyards to secure tools and equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Securing loose equipment against the effect of adverse weather conditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Mesh under roofing</td>
<td></td>
</tr>
<tr>
<td><strong>Administrative</strong></td>
<td>Reduce exposure to the hazard using administrative actions</td>
<td></td>
</tr>
<tr>
<td>- Implementation of work practices that reduce the exposure of a person to fall hazards.</td>
<td>- Provision of exclusion zones</td>
<td></td>
</tr>
<tr>
<td>- The proper and safe use of the other elements of the hierarchy require administrative controls including to monitor that personnel are competent, equipment is fit for duty, and control measures are implemented and maintained.</td>
<td>- Safe access to and from the site</td>
<td></td>
</tr>
<tr>
<td>- Provision of exclusion zones.</td>
<td>- Crane hoist zones</td>
<td></td>
</tr>
<tr>
<td>- Safe access to and from the site.</td>
<td>- Protection of adjoining areas and access</td>
<td></td>
</tr>
<tr>
<td>- Establish crane hoist zones.</td>
<td>- Location of site facilities</td>
<td></td>
</tr>
<tr>
<td>- Protection of adjoining areas and access.</td>
<td>- Equipment fit for duty</td>
<td></td>
</tr>
<tr>
<td>- Position warning/danger signs.</td>
<td>- Signage</td>
<td></td>
</tr>
<tr>
<td>- Restrict access to certain areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Restricted access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Equipment fit for duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal Protective Equipment (PPE)</strong></td>
<td>Should be considered only when higher order control measures are not practicable, or to increase the degree of protection provided by other controls.</td>
<td></td>
</tr>
<tr>
<td>- Industrial rope access systems.</td>
<td>- Chin straps on helmets (to prevent them from falling)</td>
<td></td>
</tr>
<tr>
<td>- Fall restraint systems</td>
<td>- Tool belts and tool lanyards</td>
<td></td>
</tr>
<tr>
<td>- Fall arrest systems (note: use as last resort)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.3.2 Prevention of People Falling

- Prevent people from working at heights where possible.
  - Where practical, eliminate the need to work at heights, thus removing the risk of either people or objects falling.

- Minimise the amount of work carried out at heights.
  - Maximise the amount of assembly, erection and subsequent maintenance work that can be carried out on a surface where prevention of falls is not necessary.

- Implement controls to prevent people from falling.
  - Where people must work at heights or where there is the potential for people to fall, have controls in place to prevent such an incident, following the Hierarchy of Controls.
  - This includes to restrict access to work areas and use fall restraint systems. Fall arrest systems are only to be used as a last resort.
  - Assessment is also to be given to roof openings, including having mesh under roofs, in particular fragile/brittle/non-load bearing areas.

- Position warning barricades to warn of openings and unprotected edges.
  - Barricades are to be placed a distance of at least 1.5 m from the unprotected opening or unprotected edge of an opening.
  - Additional controls may include danger/warning signs placed at entry points to roof and heightened areas.

6.3.3 Prevention of Objects Falling

- Implement controls to prevent tools and other objects from falling.
  - Objects should be prevented from falling rather than implementing secondary measures to protect persons from being struck by falling items.

- Implement controls to prevent people from being struck by falling objects if the prevention of objects falling is impractical or if the system fails.
  - Where overhead work is being conducted, barricades and signage shall be erected around the work area to protect others below from falling objects or suitable overhead protection barriers provided.

- Where work is performed inside a vessel or other structure that has installed suspended refractory material, controls shall be in place to prevent material falling.
6.4 Implementing Risk Control Measures

6.4.1 Guard Railing

- Use guard railing that meets relevant standards.
  - Requirements include:
    - 900-1100 mm in height above the work surface
    - If guard rail system used, it should have mid-rails and toe boards or wire mesh infill panels (refer to AS/NZS 4389 Safety mesh for standards on safety mesh)
    - If access is required to equipment (e.g. a hoist) it should be protected with gates, safety chains or other means to prevent a person falling
    - able to withstand forces as defined in the relevant standards, Codes of Practice or engineering definitions.
    - Refer to AS/NZS 4994 – Temporary Edge Protection series for further guidance
  - As a minimum, handrails must to be able to withstand:
    - a force of 550 N action in any direction
    - a force of 330 N per linear metre acting outwards or downwards on the top rail or edge.

6.4.2 Scaffolds

- Have scaffolding erected and dismantled without exposure to risk of falling by competent people according to relevant guidelines.
  - Comply with guidelines in relevant Australian Standards (AS/NZS 4576 Guidelines for scaffolding and the AS/NZS 1576 Scaffolding series) or in accordance with procedures that provide the same level of safety to people on, in the vicinity of, or using the scaffold structure.
  - Scaffolding is to include complete floors, two railings, a kick plate and a valid Scafftag.
  - A safe access and egress shall be provided.
  - OHS statutory authority certificate of competency in scaffolding is required to erect scaffolding where a person or object could fall 4 m or more.
  - For less than 4 m, scaffolding can be erected by a competent person.
  - The scaffold and its supporting structure must be inspected by a competent person before use, after any incident that could affect its stability (such as a severe storm), after any repairs, and at least every 30 days
  - Unauthorised access is prevented on scaffolding that is incomplete and left unattended (for example, by attaching danger tags and warning signs at appropriate locations).
  - Prefabricated scaffold are of the same type and not mixed components, unless the mixing of components have been approved by the manufacturer
− Attach safety harnesses to an anchored lanyard whilst erecting, dismantling or working from a scaffold when required.
   − Requirements include when working:
     − over a void
     − on an unguarded scaffold deck
     − near an unguarded edge.

− Display relevant information at each entry point of the scaffold.
  − Relevant information to be displayed includes:
    − whether the scaffold is complete and safe to use
    − the load capacity of the work platforms
    − the record of regular inspection completed by a competent person
  − Scaffold information can be displayed on a safety access system, such as a Scafftag.
  − Regular inspection of the scaffold is required to assure its continued structural integrity.

− Where scaffolding is used to perform work:
  − persons should not make any unauthorised alterations to the scaffold (such as removing guard rails, plants, ties, toe boards and braces)
  − working platforms need to be kept clear of debris and obstructions along their length
  − incomplete or defective scaffolds must never be used
  − have systems in place to control access to the work area.
    − this includes to exclude people not involved in the work from the area below the scaffold.

− Where mobile scaffolding is used to perform work, workers should be trained to ensure the scaffold:
  − remains level and plumb at all times
  − is kept well clear of power lines, open floor edges and penetrations
  − is not accessed until the castors are locked to prevent movement
  − is never moved while anyone is on it
  − is only accessed using internal ladders

(WHS Code of Practice – Managing The Risk Of Falls At Workplaces 2011)
6.4.3 Elevating Work Platforms

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

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

6.4.4 Mobile Elevating Work Platforms

− Mobile Elevated Work Platforms (MEWP) must only be operated by competent people.

− Provide adequately for the anchoring of fall arrest equipment to the platform.
  − A worker should not use a fall-arrest system unless there is at least one other person on the site who can rescue them if they fall, eg. a person acting a Standby Person.

− Maintain a minimum clearance of 6.4 m from live electric power lines. Refer to OST-OHS-ELEC-PRO-001 Electrical Safety Manual for further information on electrical safety

− Enter or exit a bucket/platform when in an un-elevated position.
  − Do not enter or exit the bucket/platform when it is elevated. Where this is impracticable, a Variation is required which includes:
    − the use of a dual lanyard system
    − safe work practice
    − suitable risk assessment and controls including MEWP stability.

− Personnel shall wear fall arrest equipment with an appropriately anchored lanyard when using a boom type Mobile Elevated Work Platform.
  − Hand rails must not be used as designated anchor points
  − Scissor lifts do not necessarily require safety harnesses to be worn

− Have systems in place to control access to the work area.
  − This includes to excluding people not involved in the work from the area below the MEWP.
6.4.5 **Forklift Platforms**

- Use forklift platforms only when other methods are not reasonably practicable.

- Use appropriate forklift platforms.
  - Use platforms that are:
    - designed for the purpose
    - securely attached to the forklift mast
    - fitted with a solid floor and guardrails on the sides
    - designed so they can only be secured in the correct manner
    - safety gate is self-locking and kept shut when in the elevated position

- Provide protection so that people cannot come into contact with moving parts on the mast.

- Maintain a clearly marked and permanent notice of safe working procedures on the platform.
  - Notice to include the safe working load of the platform and details of how to attach platform to forklift.

- Have forklift platforms operated by competent people.

- Wear safety harness with appropriately anchored lanyard when using forklift platforms.

- Operator to stabilise the forklift and maintain stability when platform is in use.

- Operator to stabilise the forklift and maintain stability when platform is in use.

- Have a rescue plan in the event of a forklift failure.

- People must not be raised or lowered on the tynes of a forklift or pallet

- No other device (e.g., Ladders or pallets) is to be used to gain additional height

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**FiguRe 12** An example of an engineer-designed workbox with safety harness and lanyard assembly, correctly positioned on the forklift tynes.

**FiguRe 13** Using a forklift as a working platform or to gain extra height by standing on the tynes or a pallet is an unacceptable practice.

**FiguRe 14** Unacceptable practice with ladder on forklift.

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6.4.6 Crane Workbox (Man Cage)

- A Workbox may only be used only where it is not reasonably practicable to use a preferred working platform such as an EWP or scaffold.

- Must be designed to AS 1418.17 Cranes (including hoists and winches) – Design and construction of workboxes.

- Workbox must not be used:
  - unless:
    - the supplier has confirmed that the design of the workbox has been registered with the relevant work health and safety regulator;
    - they are fitted with a compliance plate stating capacities and masses;
    - the access gate self-closing and locking mechanisms are functioning correctly;
    - fitted with suitable anchorage capable of withstanding the fall forces specified in AS/NZS 1891.4 Industrial fall-arrest systems and devices – Selection, use and maintenance.
    - if the wind exceeds 7 m/s (approximately 25 kph / 13 knots);
    - during electrical storms, snow, ice, sleet or other adverse weather conditions which could affect the safety of personnel.

- Radios with dedicated channels must be used where there is limited or no 'line of sight' between the dogger and the crane operator.

- Personnel working in workboxes must use a fully compliant fall arrest harness system unless the workbox is fully enclosed.

- Workboxes must not be suspended over people.

- The workbox, lifting attachments and records must be checked by a competent person before use to ensure the work box is fit for purpose and securely attached to the crane.

- Workers are prohibited from entering or leaving the workbox when it is suspended (except in an emergency).

- The crane suspending a workbox must:
  - be fitted with the means to safely lower it in an emergency or a power supply failure
  - have and use 'drive up' and 'drive down' controls on both the hoisting and luffing motions;
  - NOT be de-clutched; allowing free fall
  - be fitted with a safety hook or moused accessory

- The operator must remain at the controls of a crane suspending a workbox.

- Suitable barricades must be erected below work at height areas where personnel are working.

- Suitable and a sufficient number of information and warning signage must be displayed on faces of barricading and at access points in accordance with AS 1319 - Safety signs for the occupational environment. Signage and barricading must be maintained.
6.4.7 Ladders

- Use ladders primarily for access and egress; or short duration work under acceptable conditions.
  - Acceptable conditions for short duration work on a ladder include:
    - the ladder is secured at the top or bottom, or if necessary, both ends
    - three points of contact are maintained, ie. tools operated safely with one hand
    - the work does not involve restricted vision or hot work
    - the person is safely secured within the stiles or a purpose designed fall protection system is used.
    - Short duration work means that the task will not exceed 15 minutes
  - Acceptable conditions for use of a portable ladder include:
    - ensure the ladder is in good condition
    - inspect the ladder for faults, such as broken rungs, stiles and footing before it is used and remove (tag out) damaged ladders from service
    - the ladder is the correct height for the task to avoid reaching or stretching
    - the ladder is set up on a solid and stable surface
    - portable ladders are prevented from slipping by placing them at a slope of 4:1
    - portable ladders shall comply with relevant standards and rated to 150kg
    - use ladders that comply with Australian Standards. Refer to AS 1892.5 Portable ladders – Selection, safe use and care.
    - all locking devices on the ladder are secure
    - slip resistant base, rungs or steps are provided
    - slip resistant shoes are worn
    - materials or tools are not carried when climbing the ladder – use a tool belt or side pouch
    - access to and availability of portable ladders shall be controlled
    - access/egress - there is a firm, stable, work platform, free from obstructions, to step onto from the ladder
    - the ladder extends at least one metre above the stepping-off point on the platform
    - fall protection is provided at the stepping-off point where people access the working platform.
    - ladders are not used without additional precautions:
      - in access areas or doorways – if necessary, erect a barrier or lock the door shut
      - on scaffolding or an elevating work platform to get extra height
      - next to power lines unless the worker is trained and authorised and the appropriate ladder is being used
      - in very wet or windy conditions
      - next to traffic areas, unless the working area is barricaded.
  - Acceptable conditions for short duration work on a step-ladder include:
    - prevent slipping by setting up stepladders in the fully opened position
    - three points of contact are maintained
    - the height that the person is working at is limited to accessing the ceiling or underside of part of a building above the stepladder, or to 1.8m elsewhere
    - person using the stepladder does not stand higher than the tread or rung indicated as the highest standing level
**FIGURE 27** Some effective ways of securing a ladder

**FIGURE 28** Example of acceptable ladder use

- At least 1 insecure step
- Secured at top
- Both handles on rails
- Always face ladder
- Ground clear

**FIGURE 30** Examples of unsafe ladder use

- Performing hot work from ladder
- Ladder set up incorrectly
- Standing on top of stepladder
- Facing away from the ladder to descend; over-reaching
Acceptable conditions for short duration work on a **fixed ladder** include:
- fixed ladders shall incorporate a protective cage if greater than 6 metres high and be built to relevant standards
- fixed ladders should be installed in accordance with **AS 1657 Fixed Platforms, Walkways, Stairways and Ladders—Design, Construction and Installation.**
- ladder cages in fixed ladders do not stop a fall but simply funnel a fall and, in some cases, more injuries can occur from striking the protective back guards on the way down. The cages may also hinder rescues. Therefore, fixed ladders with angles exceeding 75 degrees to the horizontal should be fitted with a permanent or temporary fall-arrest system (anchorage lines or rails).
- the angle of slope should not be less than 70 degrees to the horizontal and not greater than 75 degrees to the horizontal. In no case should the ladder overhang the person climbing the ladder. If the angle is more than 75 degrees, a safe system of work to prevent falls should be provided such as a permanent fall-arrest system or a full body harness with double arm lanyard.
- a specifically designed rescue procedure should be developed for use in ladder cage situations. Training in rescue procedures should occur before using the fixed ladder

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- **When using ladders, it is not safe and you must not:**
  - use metal or metal reinforced ladders when working on live electrical installations
  - Refer to **OST-OHS-ELEC-PRO-001 Electrical Safety Manual** for further information on electrical safety
  - carry out work such as arc welding or oxy cutting
  - work over other people
  - allow anyone else to be on the ladder at the same time.
− Except where additional and appropriate fall protection equipment is used in conjunction with the ladder, it is not safe to and you must not:
  − use a stepladder near the edge of an open floor, penetration or beside any railing
  − over-reach (the centre of the torso should be within the ladder stiles throughout the work)
  − use any power or hand tool requiring two hands to operate, such as concrete cutting saws and circular saws
  − use tools that require a high degree of leverage force which, if released, may cause the user to over-balance or fall from the ladder, such as pinch bars
  − face away from the ladder when going up or down, or when working from it
  − stand on a rung closer than 900 mm to the top of a single or extension ladder
  − stand higher than the second tread below the top plate of any stepladder (with the exception of three-rung step ladders).

− Painted timber ladders are not to be used, as they do not allow for effective inspection of the timber

− Trestle ladders and platforms shall not be used.

− Inspect ladders for damage prior to use.

− Access to and availability of portable ladders shall be controlled.

− Ladders should be regularly inspected be a competent person in accordance with the manufacturer’s recommendations. Formal inspections at least yearly. Ladders with any of the following faults must be replaced or repaired:
  − fibreglass stiles cracked, chipped or severely faded with fibres exposed
  − timber stiles warped, splintered, cracked or bruised
  − metal stiles twisted, bent, kinked, crushed or with cracked welds or damaged feet
  − rungs, steps, treads or top plates that are missing, worn, damaged or loose
  − tie rods missing, broken or loose
  − ropes, braces, or brackets that are missing, broken or worn
  − timber members that are covered with opaque paint or other treatment that could disguise faults in the timber
  − missing, loose, bent or worn fasteners, i.e. rivets, bolts and pins
  − worn or damaged feet, including non-slip material.

− Refer to FORM75.WHS.FAL.002 – Audit Checklist – Portable Ladders and Platforms and FORM75.WHS.FAL.003 – Ladder Register.

6.4.8 Working on Trucks or Train Wagons

− Use approved methods to climb on and off the back of trucks or train wagons.
  − For example, access ladders or platforms, maintaining three points of contact.
  − Wear hard hats with chin straps while working on the back of trucks or train wagons.
6.4.8.1 Plan the task before the truck arrives on site

- Let persons transporting goods to site know that Arrium want to eliminate the need to access the back of the truck.

- Ask that they take all possible steps to prevent the need to access by implementing controls before it gets to site such as:
  - Sling/tie down loads so that they can be removed from the truck without persons having to access the back of the truck.
  - Pre-chain mobile equipment before loading
  - Leave lifting slings / chains attached from loading for use to unload

- Ask that where access is required that they put measures in place to make it safe
  - Gates are considered adequate fall restraint for accessing the back of trucks as long as the person does not come within 2m of the exposed edge

- For large mobile equipment on floats attach a retractable lanyard to the top of the mobile equipment before loading, attach this to a harness to safely exit the mobile equipment when on the float. Leave the lanyard extended during transport to allow it to be used to attach to a harness and safety access the cabin for unloading.

6.4.8.2 Making accessing the loads safe

- Let persons transporting goods to site know that Arrium want to eliminate the need to access the back of the truck.

- Construct a platform (scaffold) to access the back of the truck safely and prevent falls

- Use an EWP

- Use Arrium supplied truck platforms

Refer also to TOOL75.WHS.FAL.003 – “Truckies Guidelines”

6.4.9 Restricted Access Systems

- Where personnel are required to work within 2 metres of an unprotected edge, with the potential to fall more than 1.8 metres, they shall use a personal fall restraint system, such as a fixed lanyard and safety harness as a minimum, which will prevent them from falling over the edge

- Where it is not practical to use fall restraint and there is a potential to fall more than 1.8 metres, personnel shall wear appropriate personal fall arrest equipment. The use of a full body harness, including shock absorbing lanyard is mandatory

- Prevent people from working within 2m of an unprotected edge by using restricted access systems.
  - Restricted access systems may typically entail barriers; or ropes, wire or chains supported by stanchions.
  - Restricted access systems are to be placed no closer than 2m from the edge.
  - Where ropes, wire or chains are used, they are to be:
    - constructed at waist height
    - flagged every 2 m with high visibility material.
6.4.10 Restraint Technique

- Restraint technique controls a person’s movement by physically preventing the person reaching a position at which there is a risk of a fall. It consists of a harness that is connected by a lanyard to an anchorage or horizontal life line. It must be set up to prevent the wearer from reaching an unprotected edge.

- Have fall restraint systems set up and used by people who are competent in their application and operation.

- Only use where a fully extended lanyard prevents a person from reaching an unprotected edge.
  - If the person is able to reach an unprotected point by fully extending their lanyard, the restraint system is to be redesigned to prevent this.
  - Where this is not practicable, have the entire system comply with the standard for fall arrest systems.

- Restraint technique 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, consider:
    - the slope of the surface the supporting material type
    - the surface texture of the surface and whether it is likely to be wet, oily or otherwise slippery
    - the horizontal life lines are fitted with an industrial shock absorber when required
    - the restraint system conforms with AS/NZS 1891 Industrial fall-arrest systems and devices series.

- Restraint techniques should only be used if it is not reasonably practicable to prevent falls by providing a physical barrier (for example, a guard rail). This is because restraint techniques require a high level of user skill to operate safely and also greater supervision.

- A restraint system should be installed by a competent person in accordance with the manufacturer’s instructions. Restraint anchorage should be designed for fall-arrest loading.

- An individual fall-arrest system should be used instead of restraint techniques if any of the following situations apply:
  - the user can reach a position where a fall is possible
  - the user has a restraint line that can be adjusted in length so that a free fall position can be reached
  - there is a danger the user may fall through the surface, for example fragile roofing material
  - the slope is over 15 degrees
6.4.11 Fall Arrest Systems

− A fall-arrest system is intended to safely stop a worker falling an uncontrolled distance and reduce the impact of the fall.

− Only use fall arrest systems when higher control measures in the Hierarchy of Controls are not practical such as fall restraint.
  - In the event of a fall when using fall arrest systems, there is a risk of suspension trauma particularly if not rescued within 5 minutes. Suspension trauma can be fatal. As such, other control measures should be used in preference to fall arrest systems.

− Fall arrest systems must be set up and used only by people competent in their application and operation.

− Only use approved equipment and combinations of equipment. All equipment used for fall-arrest should be designed, manufactured, selected and used in compliance with the AS1891 Industrial fall-arrest systems and devices series of standards.

− Fall-arrest equipment require that they be permanently marked or labelled to indicate their purpose, correct use, limitations and other relevant information aimed at reducing misuse of the equipment.

− Design and install the system so that the person travels the shortest possible distance before having the fall stopped

− Limit free fall distance
  - Fall-arrest systems, incorporating a lanyard, must be installed so that the maximum distance a person would free fall before the fall-arrest system takes effect is less than 2 metres.
  - There should be sufficient distance between the work surface and any surface below to enable the system, including the action of any shock absorber to fully deploy
  - There should be a minimum of slack in the fall-arrest lanyard between the user and the attachment.
  - The anchorage point should be as high as the equipment permits.
− Avoid work above the anchor point, as this will increase the free fall distance in the event of a fall, resulting in higher forces on the body and greater likelihood of the lanyard snagging on obstructions.
− Lanyards should not be used in conjunction with inertia reels as this can result in an excessive amount of free fall prior to the fall being arrested
− To work out whether there is enough distance available, you should take into account:
  − the worker’s height
  − the height and position of the anchorage point
  − the length of the lanyard
  − any slack in the horizontal life line
  − any stretching of the lanyard or horizontal life line when extended by a fall
  − the length of the energy absorber when extended by a fall.

− Have a total calculated length of the fall arrest system (including greater than 1 metre safety margin) such that it is clear of obstructions;

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− Fall Arrests to be designed and installed to avoid the pendulum effect.
  − If a person using an individual fall-arrest system falls, the system may act as a pendulum, and in some situations the user may hit the ground (called ‘swing down’) or swing back onto the building or structure (which is called ‘swing back’).

− Have harness meet minimum standards.
  − Minimum harness standards include:
    − a full body harness - parachute style
    − a single lifeline connection at the top dorsal position
    − harness is fitted with a lanyard and energy absorber.
  − Relief Step Straps must be used to minimise the risk of suspension trauma.
− Have connections that are double acting snap hooks or better.
  − Snap hooks should be of the double action type, requiring at least two consecutive deliberate actions to open.
  − Snap hooks should not be connected to each other as this could prevent the safe operation of the snap hook (for example, roll-out may occur).
  − Further guidance is provided in AS/NZS 1891 Industrial fall-arrest systems and devices.

− Have a firm hand and foot available when changing attachment points and maintain three points of contact.
  − Where this is not possible, use a dual lanyard system
  − Note: Duel/double lanyards are easy to misuse – there should be no back hooking, they should not be wrapped around the body or passed between the legs, the chest connection should never be higher than the highest attachment point, they are not suitable for frequent use (because of possible misuse or muscle injury) and the ladder or structure points must be capable of arresting forces generated by a fall with the double lanyard. Adequate training should be provided in their use.

− Workers using a fall-arrest system wear adequate head protection to protect them in the event of a fall.

− Have a Standby Person when personnel are using fall arrest systems. Employees shall not work alone.

− Develop recovery / rescue plan that allows for the rescue of fallen people within 5 minutes.
  − The recovery / rescue plan to be included in the Prevention of Falls Permit.

− Standby Person – Observe the work.

− Standby Person - Initiate emergency response where required.

− If the equipment has been used to arrest a fall it must not be used again until it has been inspected and certified by a competent person as safe to use.

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6.4.12 Rescue of People Following Arrested Fall

- A worker should not use a fall-arrest system unless there is at least one other person on the site who can rescue them if they fall.

- Complete rescues within 5 minutes.
  - Suspended people cannot usually rescue themselves and may be injured.
  - Rescues should occur within 5 minutes to reduce the risk of suspension trauma, which can be fatal.

- Standby person to initiate emergency response plan.

- There shall be a system in place for preparing and testing emergency response procedures.

6.4.13 Inertia Reel Systems

- Use appropriate inertia reel systems.
  - Only use inertia reel systems that are designed to prevent:
    - the pendulum effect
    - the webbing or other suspension component passing over a sharp edge
    - free fall exceeding 600 mm
    - the person striking an obstruction before their fall is arrested.

6.4.14 Static Lines and Anchor Points

- Each anchorage point should comply with the requirements in AS/NZS 1891:4 Industrial fall-arrest systems and devices – selection, use and maintenance.

- All anchorages should be tested and approved by a competent person before use—a visual inspection may not reveal the structural integrity of the anchor point (i.e. the bolt may have failed below the concrete surface).

- Each anchorage point should be located so that a lanyard of the system can be attached to it before the person using the system moves into a position where the person could fall.

- Each component of the system and its attachment to an anchorage must be inspected by a competent person:
  - after it is installed but before it is used
  - at regular intervals
  - immediately after it has been used to arrest a fall

- Inspection of all components should be conducted in accordance with the manufacturer’s specifications and the relevant standards. If any signs of wear or weakness are found during the inspection, the components or means of attachment should be withdrawn from use until they are replaced with properly functioning components.

- Single person anchor points shall be capable of withstanding 15kN. Where it is not practicable to install dedicated anchor points, anchor points capable of withstanding 15kN shall be identified through a Risk Assessment process and shall be approved by a Competent Person prior to commencement of work.
− Verify static lines and anchor points are capable of withstanding forces as defined by AS 1891.4.
  − Refer to AS 1891.4 Industrial Fall Arrest Systems and Devices.

− Use static line systems designed to withstand the maximum number of people who can be on the line simultaneously.

− Have static lines installed by competent people.

6.4.15 Fall Arrest Alternatives
− Have documented procedures for the use of fall arrest alternatives.
  − Procedures to include the installation and use of the equipment, and its interaction with other fall protection systems which may be present.
  − Refer to relevant standards or other guidance documents.

− Have fall arrest alternatives set up and used by competent personnel.
  − Personnel to be competent in the application and operation of the particular equipment.
  − Examples of fall arrest alternatives include:
    − safety mesh installed under the roofing material
    − safety nets installed under the work area
    − catch platforms installed immediately under the work area (scaffolding is an effective means of achieving this).

Refer to AS 1891 Industrial Fall Arrest Systems and Devices.

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

− Rope access systems must be set up and used by people who are competent in their application and operation.

− Limit use of rope access systems.
  − These are to be used primarily for rescue, or for limited tasks where they do not expose the operator to additional hazards.
  − Other methods of accessing a workplace should be considered (eg. EWPs) before rope access systems, as a high level of skill is needed for their safe use.
  − Additional hazards may include:
    − wind
    − hazardous work (e.g. hot work or abrasive cut off tools)
    − the pendulum effect.

Note: a Variation is required for non-rescue applications.
6.4.17 Excavations

- Provide adequate and safe entry and exit to excavations.

- Install shoring appropriate to the soil type and any superimposed loads to maintain the integrity of the excavation.

- Install barriers to prevent people from falling into an excavation.
  - Consider the stability of the excavation/shoring system to determine how close the barriers are placed to the excavation.

- Consider additional safety requirements.
  - Additional safety requirements are to be considered in combination with those that relate to prevention of falls.
  - Requirements may also be defined in:
    - entry control procedures
    - hazard work clearances
    - confined space permits
    - shoring management
    - Excavation/Puncture of Surface CoP

Refer to QP29.18 Confined Spaces and OST-OHS-POS-COP-001 Excavation/Puncture of Surface CoP for further information if relevant.

6.4.18 Service Holes

- Install locating devices and protect service holes, penetrations and openings.
  - This applies for floors, ceilings and finished grade surfaces; and to temporary and permanent conditions to prevent people from falling into service holes.

- Install appropriate signage on service holes and openings.

- Cover service holes with fixed protection, and inspect regularly.
  - The protection is to be:
    - engineered to carry the expected load, strong enough to protect persons or objects falling through
    - safeguarded from movement, accidental removal or slippage, particularly under a load.

  - Inspection regimes are to be defined.
6.4.19 Surface and Gradient

- Surfaces of solid construction should be non-slip, free from trip hazards and should generally not exceed 7 degrees (1 in 8 gradient). Cleated surfaces, which provide greater slip-resistance, should not be steeper than 20 degrees (1 in 3 gradient).

- If grid mesh or checker plate flooring is used for walkways and working platforms, ensure that:
  - flooring panels are securely fixed and assembled in accordance with manufacturer’s specifications
  - where possible, they are fitted to the structure prior to it being lifted into permanent position
  - each panel is fixed securely before the next panel is placed in position
  - during installation, this type of flooring is secured by tack welding, panel grips or other means to prevent movement before being fixed permanently
  - if panels of grid mesh or checker plate flooring are removed, edge protection is provided and the gaps left due to removed panels are protected.

6.4.20 Entry and Exit

- The solid construction must have a safe means for people to get to, from and move around the work area, for example permanently installed platforms, ramps, stairways and fixed ladders.

- Further guidance is available in AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation.

- Safety considerations include:
  - exposure of access systems to the weather (for example, rain can make surfaces slippery and strong winds can cause loss of hand grip)
  - the provision of adequate natural or artificial lighting to all access ways
  - the clearance of obstructions so that persons are able to move easily to and from the workplace.

- Portable ladders should only be used where the use of safer systems is not reasonably practicable.

6.4.21 Equipment Fit for Duty

- Working at heights equipment shall comply and be used in accordance with relevant approved design standards and manufacturers’ specifications.

- Working at heights equipment, including harnesses, ladders, work boxes, elevated work platforms shall be fit for purpose and undergo pre-use checks and routine and documented inspections by a competent authorised person.

- An equipment register and tagging system shall be in place to indicate compliance with this inspection. Testing shall be completed in accordance with recognised standards.

- Carry out condition checks immediately before use and after each use of equipment.

- Remove (tag out) fall protection equipment from service when they are found to be
damaged.

6.4.22 Emergency Procedures For Falls

- Whenever there are risks from working at height, appropriate emergency procedures and facilities, including first aid, must be established and provided. Typical injuries from falls can include unconsciousness and occluded airway, impalement, serious head or abdominal injuries and fractures.

- A person using a fall-arrest system could suffer suspension intolerance as a result of a fall.

- Each site is required to ensure they have adequate first aid arrangements and emergency response procedures in place.

- Recovery / rescue plan should be considered for all working at heights jobs, and must be in place that allows for the rescue of fallen people within 5 minutes using a fall arrest system.
  - The recovery / rescue plan to be included in the Prevention of Falls Permit.

- When establishing emergency procedures, you should take into account the following:

<table>
<thead>
<tr>
<th>Relevant considerations</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of the work area</td>
<td>Is the work at height being undertaken in a remote or isolated place? How accessible is it in an emergency and how far away is it from appropriate medical facilities?</td>
</tr>
<tr>
<td></td>
<td>Can the rescue of a person after an arrested fall be provided immediately, without the need to rely on emergency services?</td>
</tr>
<tr>
<td>Communications</td>
<td>How can workers working at height communicate in an emergency?</td>
</tr>
<tr>
<td>Rescue equipment</td>
<td>What kinds of emergencies may arise? 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 Fibre ropes—Man-made fibre rope for static life rescue lines.</td>
</tr>
<tr>
<td></td>
<td>Selected rescue equipment should be kept in close proximity to the work area so that it can be used immediately.</td>
</tr>
<tr>
<td>Capabilities of rescuers</td>
<td>Are rescuers properly trained, sufficiently fit to carry out their task and capable of using any equipment provided for rescue (e.g. breathing apparatus, lifelines and fire-fighting equipment)?</td>
</tr>
<tr>
<td></td>
<td>Have emergency procedures been tested to demonstrate that they are effective?</td>
</tr>
<tr>
<td>First aid</td>
<td>Is appropriate first aid available for injuries associated with falls?</td>
</tr>
<tr>
<td></td>
<td>Are trained first aiders available to make proper use of any necessary first aid equipment?</td>
</tr>
<tr>
<td>Local emergency services—</td>
<td>How will the local emergency services (e.g. ambulance) be notified of an incident? What is the likely response time?</td>
</tr>
<tr>
<td>if they are to be relied on for</td>
<td>rescue</td>
</tr>
<tr>
<td>rescue</td>
<td></td>
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</tbody>
</table>
6.4.22.1 Suspension Intolerance

− Suspension intolerance can occur with a fall-arrest system when a person has an arrested fall and is suspended in an upright, vertical position with the harness straps causing pressure on the leg veins. The lower legs’ capacity to store large amounts of blood reduces the return of blood to the heart, slowing the heart rate, which can cause the person to faint. This may lead to renal failure and eventually death, depending on a person’s susceptibility. This condition may be worsened by heat and dehydration.

− The quick rescue of a person suspended in a full body harness, as soon as is possible, is vital. For this reason, workers should be capable of conducting a rescue of a fallen worker and be familiar with onsite rescue equipment and procedures.

− Workers and emergency response workers must be trained in the rescue procedures and be able to recognise the risks of suspension intolerance and act quickly in the rescue of a person.

− Prevention Suspension Intolerance

To prevent suspension intolerance occurring as a result of an arrested fall, you should ensure that:

− workers never work alone when using a harness as fall protection
− workers use a harness, which allows legs to be kept horizontal
− the time a worker spends in suspension after a fall is limited to less than five minutes. When a suspension is longer than five minutes, foothold straps or a way of placing weight on the legs should be provided
− workers are trained to do the following when they are hanging in their harness after a fall:
  − move their legs in the harness and push against any footholds, where these movements are possible. In some instances, the harness design and/or any injuries received may prevent this movement
  − move their legs as high as possible and the head as horizontal as possible, where these movements are possible.

6.4.22.2 Training For Rescues

The training for rescuing workers who have fallen should address the following factors:

− the rescue process should start immediately
− training frequency should take into account the worker’s competence and their ability to retain competence through regular exposure to the equipment and skills needed to perform a rescue
− workers should not put themselves at risk during a rescue.

6.5 Reviewing Risk Control Measures

Prevention of Falls Permit – must be completed and signed by an Authorising Person prior to working at heights is undertaken

The control measures that are put in place to prevent falls must be reviewed, and if necessary revised, to make sure they work as planned and to maintain an environment that is without risks to health and safety.
7.0 TRAINING AND COMPETENCE

The training provided to individuals is to be determined by training needs analysis outlined in QP29.28 – Health and Safety Training which includes Arrium Codes of Practice Critical Elements online awareness training.

7.1 Fitness For Work - Working At Heights

Employees shall advise their supervisor/project controller if they are not fit to perform work at height for any reason including consideration of medical conditions, such as vertigo, as well as the weight of the person using the harness. Note: many harness systems have a maximum weight limit of 136kg. This shall be captured on the Prevention of Falls Permit.

7.2 Awareness Training

Employees and contractors shall receive appropriate awareness training on the nature of the working at heights hazards on the site, work environment, and activities being undertaken during the induction process, including:

- Hazards when working at heights; and
- The need for specialised training and equipment and fall prevention systems to perform work where a person could fall more than 1.8m.

7.3 Competent Person Training

Employees and contractors required to perform work which could result in a person or object falling shall have training in:

- Safe procedures for work at heights;
- The correct wearing and use of personal fall arrest and fall restraint equipment where this equipment is to be used;
- The correct wearing of hard hats with chin straps for all personnel working at height;
- Recognising hazards associated with using non-compatible or non-compliant equipment;
- The process to check working at heights equipment prior to use;
- Standby Persons are to be included when fall arrest systems are to be used; and
- The emergency response procedures including the need to rescue an arrested fall within 5 minutes to prevent suspension trauma

- Mobile Elevated Work Platforms shall be operated by competent personnel.

- OHS statutory authority certificate of competency in scaffolding is required to erect scaffolding where a person or object could fall 4 m or more.

- Review the competence of employees and contractors in relation to prevention of falls competencies.
  - Check
  - Verify competence on a periodic basis and at intervals not exceeding three years.

- Have personnel involved in the design, planning and control of working at heights conversant with the safety management systems available.
  - This includes the Hierarchy of Controls.
8.0 RESPONSIBILITIES

Responsibilities that apply to all CoP for General Managers, Plant/Department/Location Managers, and Responsible Managers are described in the CoP Guidelines.

The following have responsibilities specific to this CoP.

8.1 Authorising Person

Responsibilities to include:

- issuing and approving the Working At Heights permit after discussing with work team task requirements and a safe system of work is in place to be followed.

8.2 Competent Persons

- A person who has the combination of knowledge, skills, attitudes and practical experience necessary to be able to perform a particular task or duty in a safe and correct manner.

8.3 Responsible Manager

Responsibilities include to:

- have in place a safe system for controlling risks associated with Prevention of Falls within their area of responsibility,
- have in place a system to maintain and administer Prevention of Falls records including training records of Competent and Standby Persons;

8.4 Standby Persons

Responsibilities include to:

- observe and monitor work where fall arrest systems are used
- initiate emergency response and rescue procedures if required.

9.0 DOCUMENTATION

9.1 TOOLS

<table>
<thead>
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<th>TOOL</th>
<th>Description</th>
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<tbody>
<tr>
<td>TOOL75.WHS.FAL.001</td>
<td>SALA Harness and Lanyards Instruction Manual</td>
</tr>
<tr>
<td>TOOL75.WHS.FAL.002</td>
<td>Miller Harness Instruction Manual</td>
</tr>
<tr>
<td>TOOL75.WHS.FAL.003</td>
<td>“Truckies Guidelines”</td>
</tr>
<tr>
<td>TOOL75.WHS.FAL.004</td>
<td>Transport Safety – “Truckies Guidelines” Presentation</td>
</tr>
<tr>
<td>TOOL75.WHS.FAL.005</td>
<td>Prevention of Falls Permit Presentation</td>
</tr>
<tr>
<td>TOOL75.WHS.FAL.006</td>
<td>FAQs - Prevention of Falls (POF) Permit</td>
</tr>
</tbody>
</table>

9.2 FORMS

<table>
<thead>
<tr>
<th>FORM</th>
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</tr>
</thead>
<tbody>
<tr>
<td>FORM75.WHS.FAL.001</td>
<td>Prevention of Falls Permit</td>
</tr>
<tr>
<td>FORM75.WHS.FAL.002</td>
<td>Audit Checklist – Portable Ladders and Platforms</td>
</tr>
<tr>
<td>FORM75.WHS.FAL.003</td>
<td>Ladder Register</td>
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</tbody>
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