PRO-LIFT
Training & Assessment Services

RIIWHS204E

Work safely at heights

Student Guide

Contents

Introduction

Welcome to **RIIWHS204E Work safely at heights**.

The information provided may help to ensure your safety.

This unit describes the skills and knowledge required to work safely at heights in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of work outcomes.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

This unit

Elements covered in this unit are:

1. Identify work requirements
2. Identify work procedures and instructions
3. Access and install equipment
4. Perform work at heights
5. Clean up work area

WHS Law

Legislation is law passed by Parliament.

It governs many areas, including health and safety at work. It can be national, or relevant to individual states and territories.

You need to know the WHS legislation that covers your job and workplace.

You are required by law to comply with them.

You need to understand how WHS Acts, regulations, codes, and standards affect your work, job, and workplace.

Acts & Regulations

Acts - Are law. They describe how to provide health and safety in the workplace

The *Work Health and Safety Act*

- *The Work Health and Safety Act 2011 (QLD) (NSW) (ACT)*
- *The Work Health and Safety Act 2012 (SA) (TAS)*
- *The Work Health and Safety Act 2020 (WA)*
- *The Occupational Health and Safety Act 2004 (OHS Act) (VIC)*
- *The Work Health and Safety (National Uniform Legislation) Act 2011 (NT)*

Regulations - are made under the Act. They set out the practical steps to follow to comply with the Act

Codes of practice

Codes of practice are the practical guides that help workplaces comply with their legal duties under the model WHS Act and regulations.

These guides help workplaces to comply with their legal duties under the model WHS Act and regulations.

Australian Standards

Australian Standards – Standards are voluntary documents that set out specifications, procedures and guidelines that aim to ensure products, services, and systems are safe, consistent, and reliable.

On their own, standards are voluntary. There is no requirement for the public to comply with standards.

However, State and Commonwealth governments often refer to Australian Standards® (AS) or joint Australian/New Zealand Standards (AS/NZS) in their legislation.

When this happens, these standards can become mandatory.

The safest way to carry out the work activity is to read,

understand and follow your

- Safe work method statements
- Codes of practice

Work instructions

You can obtain or confirm your work instructions by attending a ***pre-start*** meeting or clarifying instructions with your ***supervisor***

Documentation

Types of documentation that could need to be reviewed, or applied before working at heights could include;

- Permit to work
- Safe Work Method Statement (SWMS)
- Work at heights rescue plan
- Safe work instructions (SWI)

Safe Work Method Statement

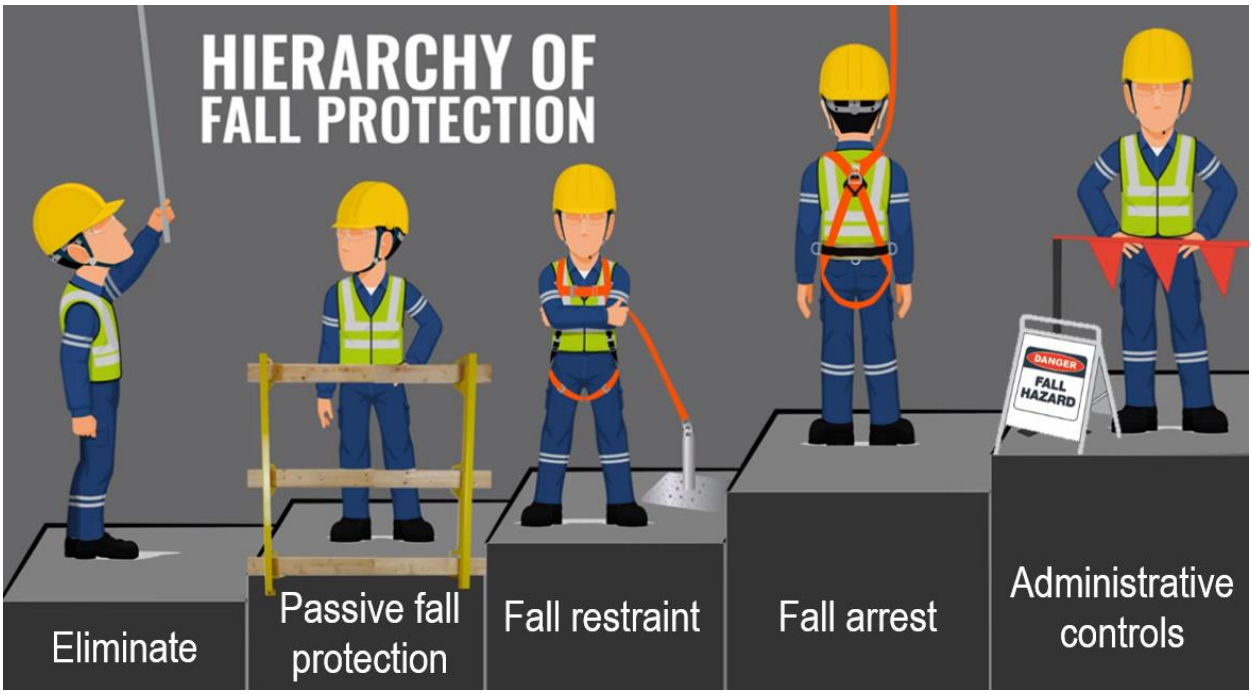
A ***Safe Work Method Statement*** (SWMS) will identify high-risk construction work, this document will specify hazards relating to the work, and describe the control measures required

Identify hazards & environmental issues

Always conduct a ***walk-around site inspection*** to identify hazards, environmental issues, and the associated risk before work starts

Hierarchy of fall protection

The safest way to address risk is to eliminate the need to work at heights by conducting work from the ground, or from a solid construction, if this is not possible, then fall prevention should be considered followed by fall restraint and then fall arrest. Administrative controls will minimise risk, although provide no physical protection from falls. Administrative controls may be used to support other control measures and may include installing appropriate safety signs, adequate training, safe work instructions, permit systems, or the sequencing of work and safe work procedures.



Inspect the worksite

Always inspect the worksite layout including the physical condition of any surface, or structure that you intend to work on, or from

- To determine suitable safe access and egress
- To determine the structural integrity (whether the structure is safe to work on or from)
- To check the stability or bearing capability of the surface or structure

Comply with legislation

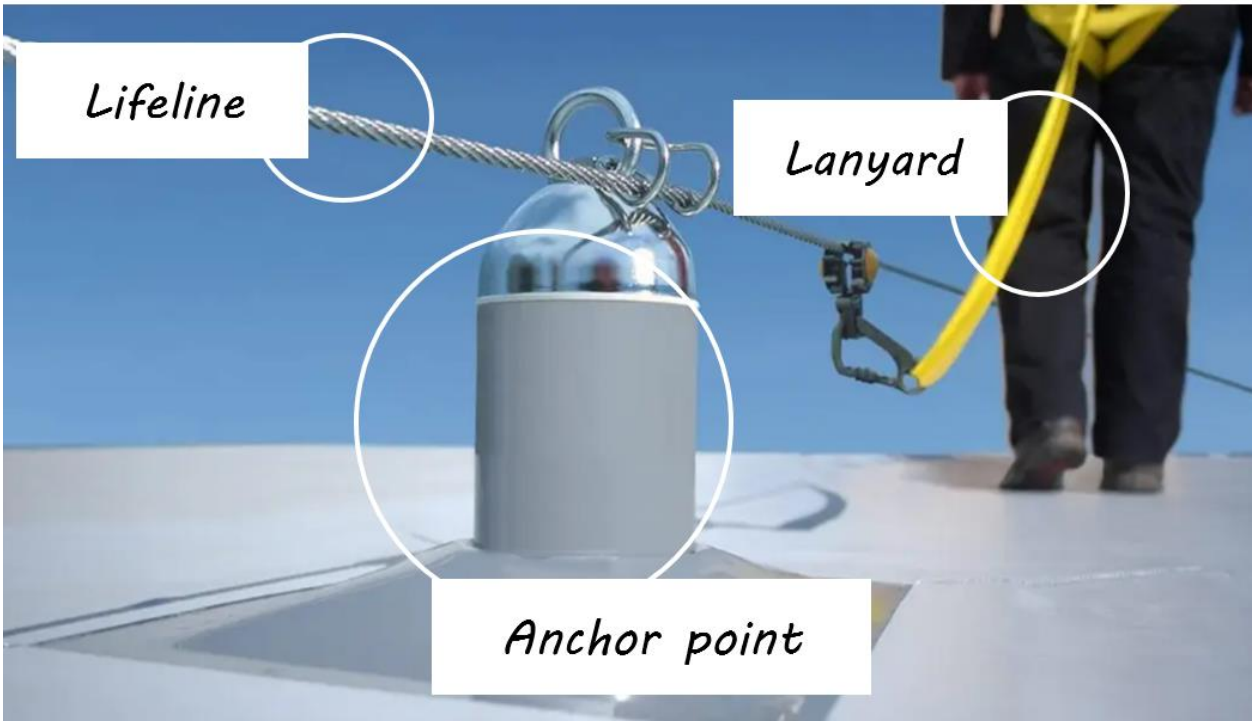
Documents that provide guidance on how to comply with legal duties under the WHS Act for work performed at heights could include

- The model WHS regulations, this includes specific requirements and ways to manage the risks of falls
- Code of practice - Managing risks of falls at workplaces working at heights

Safe Work Method Statement

According to the WHS legislation, a Safe Work Method Statement is required for construction work where there is a risk of falling more than 2m

Height safety system



Safety harness

Personal fall arrest

Types of equipment that form part of a personal fall arrest system could include

- Safety harness
- Lanyards
- Anchor points
- Inertia reels
- Shock absorber / Energy absorber
- Lifeline

Other systems *additional information*

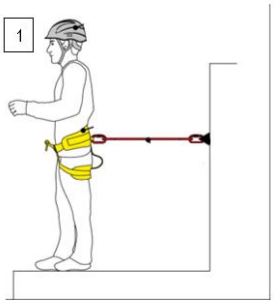
General fall arrest systems could include

- Catch platforms
- Safety nets

Fall restraint equipment could include

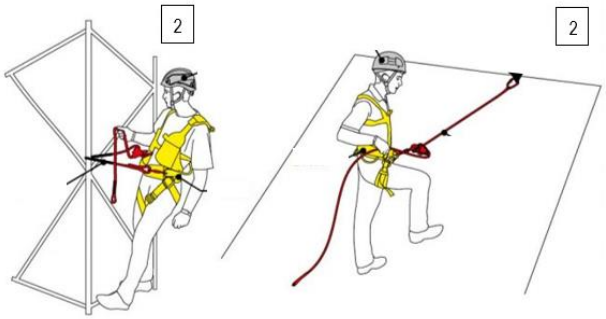
- Static lines
- Guardrails
- Walkway structures

Height safety system techniques



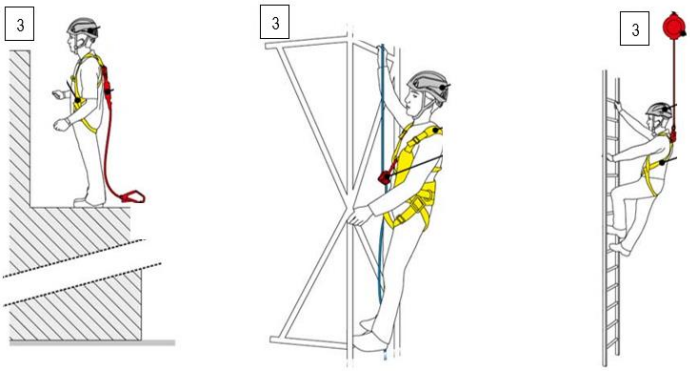
Restraint: this is a technique used to prevent a worker from entering a fall-risk area by means of the limitation of the length of the connection between the anchor point and the user's harness.

Positioning: this is a technique used to position a worker securely in a fall-risk area without creating a risk of falling. Usually, the connection is adjustable in length. It is essential to give special consideration to the need of an additional fall-arrest system as a backup connection.

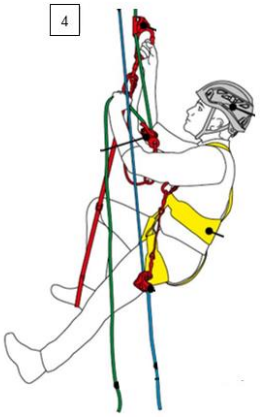


Fall Arrest

Fall Arrest: this is a technique used to catch and reduce the force of a fall from heights. The system must include a full-body harness and a connection that features an energy absorption function.



Rope access: this is a fall protection system that enables the user to get to and from the workplace in tension or suspension in such a way that a free fall is preventable or arrestable. Rope access systems always include a working line for movement by means of ascenders and descenders, combined with a safety line equipped with a fall-arrest device that can intervene in case of failure of the working line.



Inertia reel

An inertia reel, fall-arrest block, or self-retracting lanyard is considered a type 2 or 3 fall-arrest device which is designed to arrest a fall by locking the line. An inertia reel allows for freedom of movement.

Inertia reel NOT to be used

- While working on a sloped surface
- Locked as constant support for a worker during normal work
- In conjunction with a lanyard

Correct use of inertia reels

You need to consider that an inertia reel may not be effective in some situations, this could include a fall down an inclined surface or pitched roof, under these conditions an inertia reel line could continue to extend from the reel and may not lock.

An inertia reel should not be used as a constant working support through locking the system to support a worker undertaking usual work. An inertia reel is not designed to support continuous weight.

Inertia reels should not be used in conjunction with lanyards, this could result in an excessive free fall before a fall is arrested.

Energy absorber

When an energy absorber or 'shock pack ‘deploys, it slows you down and reduces the force on your body

Anchorage rating

A single person. **15KN**

2 people. **21KN**

Check fall-arrest systems and devices

You must check fall-arrest systems and devices for any defects ***before and after each use***

Defects

Defects that would stop you from using a harness, or a lanyard could include;

- Webbing is split, frayed, or has damage to the stitching
- The label/tag is missing or unreadable, or it is more than 10 years old
- Bent or damaged hooks, carabiner, rings, or buckles
- UV (sun), heat, or damage from solvents or acids

Defective fall-arrest equipment

Action must be taken if you find defective fall arrest equipment prior to working.

- **Remove** from service and **report** faults

Harness fit

Consider the fit and comfort of the harness you are selecting to wear, *the harness must be worn at all times when working under fall protection,* it is important that the harness fits well and is comfortable

Fitting harness correctly - *additional information*

- Put harness over your shoulders and adjust shoulder straps to remove slack
- Insert legs and adjust straps allowing for your hand to only just slip between the thigh and strap
- Connect the chest strap and adjust the strap to remove slack

Clean

As per the manufacturer's requirements usually brushed off or washed with mild soapy water

Emergency and rescue procedures

The PCBU, or undertaking is required to establish emergency and rescue procedures for work to be performed at heights where the PCBU or undertaking has implemented a fall-arrest system as a measure to control risk

Understand the emergency and rescue procedures

Ensure that you understand the emergency and rescue procedures for work to be performed at heights

- Familiarise yourself with the work at heights rescue plan
- Workers must be provided with suitable and adequate information, instruction, and training in relation to the emergency procedures

Consultation

You should consult with other personnel before selecting materials, tools, and equipment for a given work activity

- To ensure suitability and safety
- Involving other persons means you are more likely to identify all hazards and develop effective control measures
- The WHS Act requires that you consult, co-operate, and co-ordinate with all persons who have and or share a work health and safety duty for the same work activity

Checks before working on a platform

You should check the perimeter of a temporary working platform, or scaffold that has recently been installed

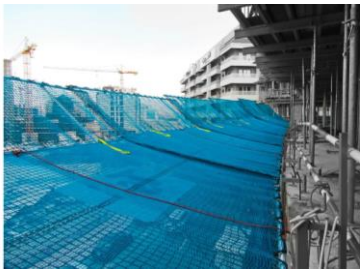
- Edge protection (guard rails) is installed at every open edge of the platform.
- The top of a guard rail should be between 900 mm and 1100 mm above the working surface. If a guard rail system is used, it should also have mid-rails and toe boards or wire mesh infill panels.

Catch platform

A catch platform should be installed to the underside of the work area at a distance where a person could fall no more than one metre before landing on the catch platform.

Perimeter safety nets

Perimeter safety nets should extend at least **2.5** metres beyond the leading edge of the working area where no other edge protection exists.



Moving tools and equipment

Use appropriate methods to safely move tools and or equipment into work areas

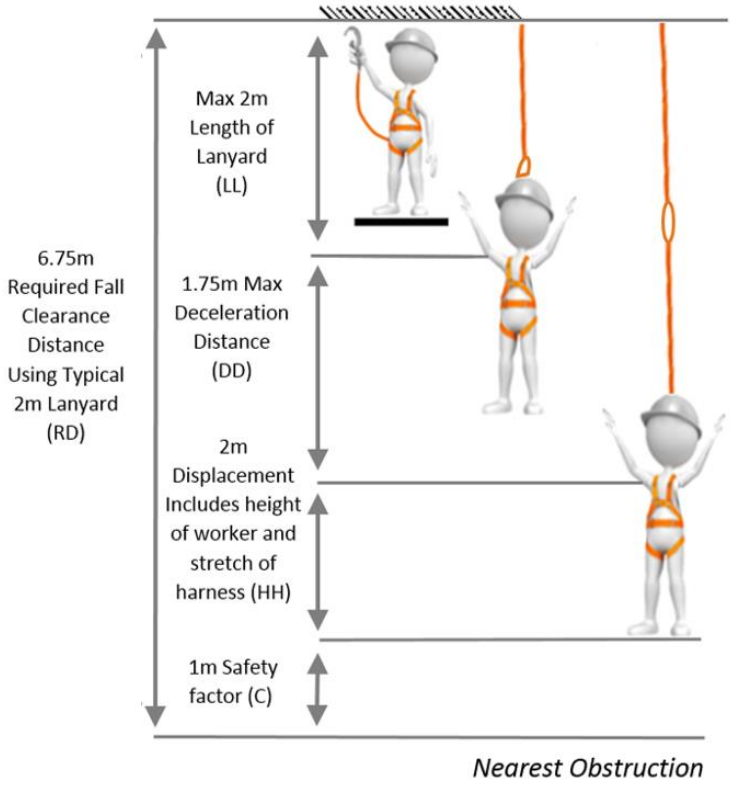
- Carry tools in a tool belt or tool bag with load rated D-ring tether anchors
- Make sure that catch platforms and safety nets are in place before moving tools, and equipment to the work area
- Use mobile plant equipment e.g., elevated work platform
- Use a gin wheel or an electric hoist

Fall-arrest system

A fall-arrest system incorporating a lanyard should be installed to limit free fall distance

- The maximum distance a person may free fall before the system takes effect is two metres
- There must 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
- A minimum amount of slack should be kept in the fall-arrest lanyard between the user and the attachment
- The anchorage point should be as high as the equipment permits

Calculate fall arrest



LL=Lanyard Length (max 2m)

DD=Shock Absorber Deployment Length (1.75max)

HH=Worker Displacement and Harness Extension = 2m

C=Safety Factor and Clearance under worker=1m

RD=Distance below anchor point to Nearest Obstruction=LL+DD+HH+C

Note: if the risk factor 2 (i.e. the worker is anchored at foot level) with a max 2m length lanyard, then the clearance required RD is 6.75m (LL=2m, DD=1.75m HH=2m, C=1m

Administrative controls

Administrative controls will minimise risk, although provide no physical protection from falls.

Example

- Installing appropriate safety signs
- Adequate training, or safe work instructions
- Permit system, or safe work procedures

Preventing falls through isolation

Isolation controls should be installed to prevent falls, this could include barriers or guardrails

Have an anchor point checked

It could be necessary to consult a competent and trained person to check an anchor point, or the surface it is mounted on.

- ***The bolt may have failed below the surface***
- ***A visual inspection may not reveal the true strength of the anchor point***
- The anchor point, or the mounting surface could be impacted by natural elements, the strength of the anchor point may have been reduced and no longer effective to arrest a fall. A complete failure could occur.
- Equipment must be capable of handling the sudden and high-pressure strain of a fall arrest incident.
- anchorages must be tested and approved by a competent person before use

Inspected by a competent person

Each component of a fall-arrest system and its attachment to an anchorage must be inspected by a competent person

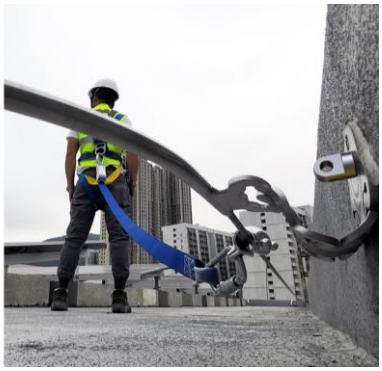
- After it is installed but before it is used
- At regular intervals
- Immediately after it has been used to arrest a fall

Installing equipment

Ensure that all equipment is installed correctly and according to workplace procedures.

- Comply with the equipment manufacturer's instructions and specifications
- Comply with any site requirements and or workplace procedures
- Ensure that equipment installation complies with relevant codes of practice and Australian Standards

Anchorage point position



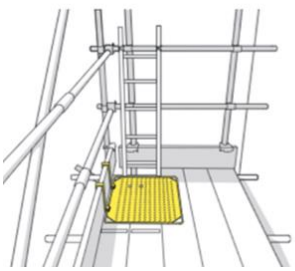
The anchorage point of a fall-arrest system should be located in a position *where you can attach your lanyard before moving into a position where you could fall*

Safety net

A safety net <u>should not</u> be used as a working platform, or method of entering, or exiting a work area

Hoist, or a ladder opening

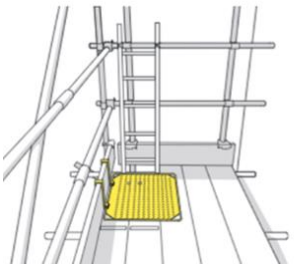
Edge protection in the form of a ***trapdoor***, or ***gate*** should be installed to prevent persons from unintentionally accessing and falling into a hoist, or a ladder opening on a temporary work platform, or scaffold.



Ladder access

Considerations should be made before using an extension ladder to access a roof or working platform.

- Appropriate methods to secure the ladder at the top and bottom
- Sufficient grade and WLL of the ladder
- Ground conditions at the base of the ladder e.g., flat, stable surface
- If sufficient room is available for a 4:1 ratio
- Methods to prevent persons from falling into a ladder opening



Stop tools and equipment from falling

Minimise the risk of tools / equipment falling from height

- Perimeter screens and or toe guards
- Use tool lanyards and a tool belt or tool bag with tether anchors
- Ensure catch platforms and or safety net fans are in place or locate materials away from unprotected edges




Check controls are applied

Always check the access from the ground to the work area before starting work

- To ensure suitable controls (barricades) have been applied to isolate the area underneath the work activity
- To ensure appropriate warning signs have been applied
- To restrict access to unauthorised persons

Lanyard length

Ensure your lanyard is an appropriate length, ***as short as possible but not longer than two metres***

Move materials and or equipment

Consider safe methods before moving materials and or equipment into the working area, moving materials could impact your safety, or the safety of people around you.

Moving materials at height could cause you unbalanced, you could fall, or you could drop an object from height, suitable methods to move materials and controls need to be considered.

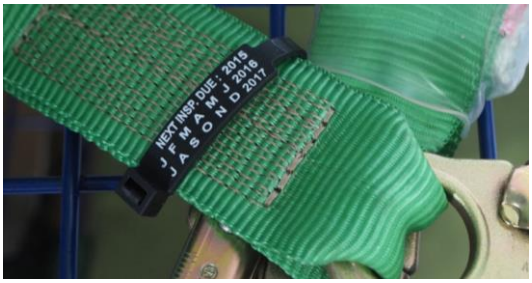
Hoisting materials and equipment

Considerations should be made before hoisting materials and equipment into a location

- Create an exclusion zone under the lifting area
- Secure the load to ensure the stability of the load and the lifting equipment
- Distribution of the load according to the rated capacity of the landing areas

Periodic inspections

Documented periodic inspections of fall-arrest devices are required every 6 to twelve 12 months according to the Australian standards and legislation and depending of the type of fall-arrest equipment.



Periodic inspections *additional information*

- All equipment MUST have a documented inspection every six months by a trained and competent person.
- Additionally, Type 2 and 3 fall-arrest devices require a full factory inspection every 12 months.
- The Australian Standard AS/NZS 1891.4 Industrial fall-arrest systems and devices – Selection, use and maintenance clearly outlines the inspection criteria for all fall arrest equipment.
- Height safety equipment inspections are an important risk control measure and ensure your equipment is in safe condition

Your safety is subject to your height safety equipment being in good condition. A small cut, or fray could jeopardise the integrity of the equipment, the forces generated in a fall could cause the equipment to fail under these conditions. Regular inspections equipment are essential to maintain equipment in a safe and usable condition. Regular checks could save you or your co-workers life.

Australian standards *additional information*

- AS 1657:2018 -> Fixed platforms. Walkways. Stairs. Ladders
- AS/NZS 1891.1 Part 1: Safety Belts and Harnesses
- AS/NZS 1891.2 Part 2: Horizontal Lifeline and Rail Systems
- AS/NZS 1891:3 Part 3: Fall Arrest Devices
- AS/NZS 1891.4 : 2009 -> Fall-arrest systems. Selection, Use and Maintenance of Industrial Fall Arrest Systems and Devices
- AS/NZS 4488 -> Rope access systems

Monitor your risk control measures

You need to monitor your risk control measures during a work activity.

- To ensure that the site conditions have not changed and that the controls are still effective
- To ensure that they are still in place and that no one has moved or interfered with them

Attach your lanyard *additional information*

You must attach your lanyard to a ***specific reinforced anchor point*** after accessing the basket of an elevated work platform.

Reassess risk control measures

Reassess your risk control measures if the site and or weather conditions change during a work activity.

A change in the weather could require that you adjust operating methods and techniques where appropriate. You may need to stop work altogether if necessary.

Inspect an anchorage line, or rail

Consult a competent person to remove and inspect an anchorage line, or rail after a fall. The system should be removed from service and inspected by a competent person before it is used again.

Clearing the work area

The purpose of clearing the work area and disposing of materials is to;

- Maintain a safe workplace free of obstructions or hazards
- Prevent slips, trips, or falls
- Ensure equipment can be easily located
- Prevent damage to plant and or equipment
- Prevent contamination of the work area

Clean and maintain equipment

Cleaning and maintaining plant and equipment makes it easier to identify faults or defects and any required maintenance tasks.

- Check for defects or faults after use and report and record faulty equipment
- Store equipment according to manufacturer's instructions

Process records

Process any written maintenance records according to ***workplace procedures***

Student to read below hazard prompts, discuss in group, read scenario, and complete TAKE 5 form

1. Can I be injured by being caught in, on or between anything?
Pinch points, rotating machinery, conveyors, caught between vehicle or machinery, roof and rib conditions
2. Can I strain or overexert myself?
Does the task require repetitive movement, pushing, pulling, lifting, awkward postures, sustained postures
3. Can I fall onto, into or from anything?
Working above 1.8m, fall onto sharp objects, fall from machinery
4. Can I slip or trip on anything?
Wet, uneven, slippery surfaces, trip on tools/equipment, poor housekeeping, slip on mobile plant equipment steps
5. Can I be struck by a moving object?
Moving vehicle, moving machinery/equipment, falling objects dropped from heights
6. Can I encounter or be exposed to something that may harm me – electricity, heat, gas, hazardous substances, or stored energy?
Electricity, oil spill, grease, acids
7. Does anything need to be isolated and tested for dead?
Electrical, water, hydraulic
8. Can something fall on me or can I cause something to fall onto someone else?
Falling tools/equipment, can I drop tools, equipment, people working above/below me
9. Can I be injured by nearby activities or can my activities injure others nearby?
People working above, below me, dust, fumes, noise, sparks, and projectiles
10. Could there be any uncontrolled movement, like ground movement, machine movement?
Ground failure, high wall, low wall failure, roof, rib failure, runaway vehicle
11. Can I spill or pollute something?
Oil spill, release into waterways, pit water release
12. Can weather conditions, work environment or poor lighting affect job safety
Extreme temperatures, inadequate lighting, fog, storm, fire, flood
13. Do I need a permit?
Hot work, confined space, working at heights, digging, excavation, land disturbance, working near/under powerlines, culture
14. Will I be working below, or near a highwall or crest?
Within 5 m of the crest, 10 m of the toes, a 60 m continuous highwall slope, or 15 m

TAKE 5 – CHECKLIST

Example

Name: ____Joe Blogs_____ Date: ___13.11.2023_____ Time: _10.00_____am / pm_____

Job Location: ____Long yard_____ Job #: ____12345_____

Job description: ____Inspecting roofs_____

	Tick If applicable			***Can I manage the Hazard?***	
	Yes	***No***		***Yes***	***No***
1	✓	❑	*Can I be injured by being caught in, on or between anything?*	✓	❑
2	✓	❑	*Can I strain or overexert myself?*	✓	❑
3	✓	❑	*Can I fall onto, into or from anything?*	✓	❑
4	✓	❑	*Can I slip or trip on anything?*	✓	❑
5	✓	❑	*Can I be struck by a moving object?*	✓	❑
6	✓	❑	*Can I encounter or be exposed to something that may harm me? (Electricity, heat, gas, hazardous substances, or stored energy)*	✓	❑
7	❑	✓	*Does anything need to be isolated and tested for dead?*	✓	❑
8	✓	❑	*Can something fall on me or can I cause something to fall onto someone else?*	✓	❑
9	✓	❑	*Can I be injured by nearby activities or can my activities injure others nearby?*	✓	❑
10	❑	✓	*Could there be any uncontrolled movement like ground movement, machine movement?*	✓	❑
11	✓	❑	*Can I spill or pollute something?*	✓	❑
12	✓	❑	*Can weather condition, work environment or poor lighting affect job safety?*	✓	❑
13	✓	❑	*Do I need a permit?*	✓	❑
14	❑	✓	*Will I be working below, on or near a high wall or crest? (If yes refer to site Geotechnical guidelines)*	✓	❑
15	✓	❑	*Are there any other hazards present?*	✓	❑

Is the task a change to a current process, procedure, or design? ❑ ✓
(If yes, complete Change Management Form 1.)

Where hazards are managed write the controls below – If YOU ticked NO to managing a Hazard, or YES to question 13 or 14 contact your Trainer/Assessor or Supervisor as a JSA will be required.

CONTROLS PUT IN PLACE TO MANAGE HAZARD	Will controls effectively manage the hazard? **YES**	**NO**
#1-4 appropriate PPE – Non slip boots, safety harness, gotcha kit, manual handling	✓	❑
#5,9 – signage, barricades and exclusion zones, spotter	✓	❑
#6 – fatigue awareness – regular breaks, drink lots of water	✓	❑
#8 – tool lanyard	✓	❑
#11-12 – spill kit, weather conditions	✓	❑
#13 – work at heights permit	✓	❑
If you ticked NO to any of the above a JSA will be required		

THE END.