

Corporate Standard

FALLS AND FALLING OBJECTS

PURPOSE: To detail the principles and process for managing fall and falling object hazards and the methods by which safe working at height controls are to be implemented.

SCOPE: This corporate standard applies to any work location where access or working at height activities are required within a SCL operated and/or maintained site.

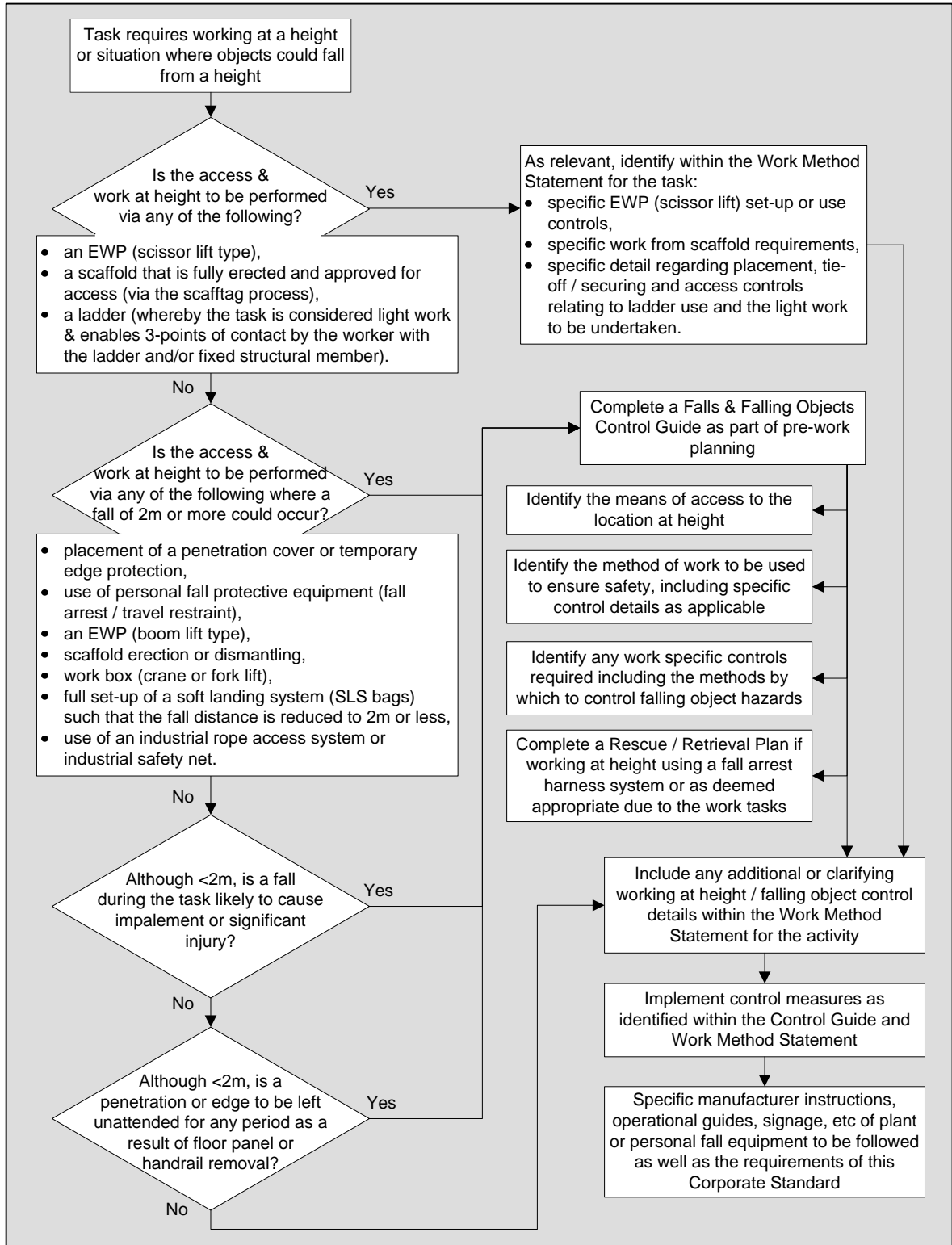
LATEST EDITOR: Luke Konstanciak

REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPROVED
ORIG	09/04	Original	L.Konstanciak	S. Leighton	A.Bills & B Smith
1	01/03/06	Amendment to reflect HEHI feedback and ATW Phase 1 Implementation.	L.Konstanciak & J. Zammit	P. Gordon	A. Varvari & B. Smith
2					
3					
4					
5					
6					

CONTENTS

1. FUNCTIONAL FLOWCHART	3
2. PURPOSE	3
3. SCOPE	4
4. DEFINITIONS.....	4
5. ACCESS AND WORK AT HEIGHT PLANNING	7
6. FALL AND FALLING OBJECT HAZARDS.....	7
7. SPECIFIC CONTROLS TO PREVENT FALLS FROM HEIGHT	8
8. SPECIFIC CONTROLS TO MANAGE FALLING OBJECTS	14
9. TRAINING AND COMPETENCY OF PERSONNEL.....	15
10. CONTRACTOR MANAGEMENT	15
11. ADEQUATE EQUIPMENT	16
12. RESPONSIBILITIES	17
13. REFERENCES	17
14. ATTACHMENTS	17

1. FUNCTIONAL FLOWCHART



2. PURPOSE

To detail the principles and process for managing fall and falling object hazards and the methods by which safe working at height controls are to be implemented.

3. SCOPE

This corporate standard applies to any work location where access or working at height activities are required within a SCL operated and/or maintained site.

4. DEFINITIONS

Anchorage point:

A secure point of attachment on a building or other structure to which a fall-arrest or restraint device, lanyard assembly or other line may be secured.

Note: *Examples include:*

- a stainless steel eyebolt, set in a concrete floor or structural steel member to which a fall arrest lanyard or travel restraint system may be attached,
- a sling around a steel I beam, with padding/bagging under the sling, joined by a shackle or other joining device to which a fall arrest lanyard may be attached, and
- a plate for a travel restraint system fixed by screws to a roof component to which a lanyard may be attached.

Catch platform:

A platform designed to provide overhead protection against falling objects for personnel working or accessing areas below. A catch platform may form part of a scaffold or consist of decking positioned on existing floor panels.

Catch protection:

An industrial safety net or similar that is designed and erected to provide protection for a falling person.

Competent person:

A person who has through a combination of training, education and experience, acquired knowledge and skills enabling that person to perform correctly a specified task.

Note: *In relation to performing an inspection or other task for a control measure, means a person who has acquired, through training, qualifications or experience the knowledge and skills to do the task in a safe way, including knowledge of relevant:*

- (a) Australian Standards, and
- (b) Industry Standards, and
- (c) Codes of Practice and other legislation.

Edge protection:

Means a barrier, to prevent a person falling, erected along the edge of:

- a building or other structure; or
- an opening in a surface or a building or other structure; or
- a raised platform.

Note: *Edge protection that is part of a permanent access is to be in accordance with AS 1657 – Fixed Platforms, Walkways, Stairways and Ladders. Edge protection discussed in this Corporate Standard specially relates to temporary guardrails, scaffolding, etc that may be erected along an edge.*

Exclusion zone:

For the purpose of this standard and implementing fall from height controls, it is a no access zone at least 2m from any unprotected edge on a horizontal surface, or greater distance, as deemed appropriate, for sloped surfaces such as rooftops. This may be a rooftop edge, suspended walkway, area adjacent to an excavation, etc.

Note: *As the pitch of a rooftop increases, including any slope greater than 26°, the entire rooftop may be unsafe for access, and hence be deemed an exclusion zone due to the need to implement a working at height control measure that prevents or arrests a fall.*

Fall-arrest harness:

An assembly of interconnected shoulder and leg straps, with or without a body belt, designed for attachment to a lanyard, pole strap or fall-arrest device and used where there is a possibility of free or restrained fall. Fall-arrest harnesses are to be approved and tested in accordance with Australian Standards requirements.

Fall-arrest harness system:

Means a system that:

- is designed to arrest the fall of a person using it and prevent or minimise the risk of injury to the person as the fall is arrested, and
- consists of a fall-arrest harness attached to:
 - a device to absorb the energy of the falling person attached to a lanyard that is attached to a static line or anchorage point; or
 - a line that:
 - *has a device that automatically locks the line and absorbs the energy of the falling person; and*
 - *is attached to a static line or anchorage point; or*
 - a lanyard that:
 - *has a device that travels along a line or rail, automatically locks onto the line or rail, and absorbs the energy of the falling person; and*
 - *is attached to a static line or anchorage point.*

Fall protection cover:

Means a structure that:

- is placed over an opening in a surface of a building or other structure to prevent a person falling through the opening; and
- consists of solid sheets of sturdy material, for example, timber, plywood, metal or mesh.

Falling objects:

Objects including materials, debris, tools and equipment that may fall or rebound during work at height activities.

Floor panel:

For the purpose of this standard, is any floor/surface covering (including grid mesh, solid floor panels, drain grates, pit covers, etc) that if removed would create a trip or fall from height hazard.

Free fall, free fall-arrest:

Means a fall, or the arrest of a fall, in which the distance a person using the fall-arrest harness system falls vertically before the system starts to take loading is more than 600mm but not more than 2m.

Hoarding:

Means a self-supporting structure fully sheeted with timber, plywood, metal or sturdy synthetic sheets or fully covered by chain wire or sturdy mesh, that is designed:

- to prevent members of the public entering a workplace; and
- to provide protection to members of the public against objects approaching them from the side.

Lanyard:

A line used, usually as part of a lanyard assembly, to connect a fall arrest harness to an anchorage point or static line in situations where there is a risk of a free fall.

Lanyard assembly:

An assembly of a lanyard and a personal energy absorber.

Limited free fall, limited free fall-arrest:

Means a fall, or the arrest of a fall, in which the distance a person using the fall-arrest harness system is likely to fall vertically before the system starts to take loading is not more than 600mm.

Personal energy absorber (shock absorber):

An energy absorber designed to be used in series with a fall-arrest harness and lanyard.

Personal fall protection equipment:

Equipment such as fall arrest harnesses and devices, lanyards, restraint equipment, etc that is worn and/or attached to the user's body to prevent or minimise the effect of a fall.

Platform:

Includes one or more planks each of which is at least 225mm wide, but does not include a rung of a ladder.

Note: *The minimum width of a scaffold platform or platform used to access heights of 2m or more is to be 450mm or two planks.*

Pole strap:

A work positioning strap designed to be placed around a pole or structural member and attached at two points (one on each side of a fall-arrest harness), whilst the wearer is working on the pole or structural member.

Restrained fall, restrained fall-arrest:

Means 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, and without risk of falling over a vertical edge.

Static line system (horizontal):

Means a horizontal or substantially horizontal flexible line, to which a lanyard may be attached and which is designed to arrest a free fall. It is supported by at least 2 anchorage points located so that the angle between the horizontal and an imaginary straight line between any anchorage point and the other or nearest anchorage point is:

- if the manufacturer of the flexible line has specified the size of the angle – not more than the size specified; or
- if the manufacturer has not specified the size of the angle – not more than 5°.

Surface:

Includes a rung of a ladder, timber beam or anything else that may support a person's body.

Suspension trauma:

A condition (ie following a fall), whereby a person suspended in a harness in a substantially upright position may experience blood pooling in the legs. Depending on the susceptibility of the individual, this may lead to loss of consciousness, renal failure and eventually death. The effects of suspension trauma may be experienced by some individuals in just a few minutes.

Toe board (kickboard):

For a platform or other surface means an upright timber or metal board at least 150mm high, securely fixed in place at an edge of the surface.

Tool restraint:

Includes purpose made tool straps and lanyards that can be fixed from the tool to the user or from the tool to an adjacent anchorage that is suitable to support the weight of the tool.

Total fall distance:

The total distance a person is likely to fall during both the free and restrained parts of a fall, inclusive of the maximum dynamic extension of all supporting components.

Travel restraint system:

Means a system that:

- consists of a harness or belt, attached to one or more lanyards, each of which is attached to a static line or anchorage point; and
- is designed to restrict the travelling range of a person wearing the harness or belt so that the person cannot get into a position where the person could fall off an edge of a surface or through a surface (reach a position at which there is a risk of a free or limited free fall).

Note: *A system that ensures the total restraint of a person from reaching an edge at which a fall could occur.*

Unprotected edge:

Include roofs, landings, floor levels, walkways or platforms, excavations, etc which do not have a form of edge protection (handrail, guardrail, parapet, barricade, etc) to prevent people and/or objects from falling a distance of 2m or more.

5. ACCESS AND WORK AT HEIGHT PLANNING

The following provisions are to be considered in the planning stage for the construction of new facilities, purchasing of plant and modification of plant/work areas such that hazards involved with accessing and working at heights may be minimised at the design stage and during initial plant installation.

- 5.1 Where practicable, plant is to be designed such that it may be accessed, inspected, maintained and controlled from ground level.
- 5.2 Where possible, plant or work areas required to be located at height are to be designed such that they may be accessed via fixed platforms, walkways or stairs that incorporate edge protection.
- 5.3 Any contract for the design, refurbishment or construction of a building or major plant item that will require access throughout its life on site is to specify overall compliance with the Australian Standards and the following as applicable:
 - *AS 1657 – Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation*, inclusive of the need to implement a hierarchy of access preferences that includes the following, wherever possible:
 - fixed platform or walkway with edge protection,
 - fixed stairway with edge protection,
 - fixed inclined ladder with handrails,
 - fixed vertical ladder with travel restraint system, and
 - fixed vertical ladder with ladder cage,
 - *AS 1891.2 – Industrial Fall-Arrest Systems and Devices: Horizontal Lifeline and Rail Systems (including all amendments and supplements).*

6. FALL AND FALLING OBJECT HAZARDS

Health and safety literature advises that incidents involving falls and falling objects is one of the major causes of significant work related injury and death. In reviewing such incidents it has also been highlighted that many of these significant injuries and deaths have occurred as a result of falls that have traditionally been considered as 'minor' and/or from heights considered as 'low'. It is a priority of SCL however that there is no such thing as a minor or acceptable fall from height where personnel are required to access locations at height as part of their work activities, nor is it acceptable to allow objects to fall onto others below.

In relation to work activities involving the requirement for personnel to work at heights, a safe system must be implemented to control risks to health and safety arising from hazards such as, but not limited to:

- falls from heights;
- falling objects;
- brittle or fragile rooftops or work surfaces;
- slippery or uneven rooftops or work surfaces;
- unprotected edges created by the removal of handrails;
- uncovered penetrations created by the removal of floor panels; and
- incorrect use of personal fall protective equipment or height access equipment.

7. SPECIFIC CONTROLS TO PREVENT FALLS FROM HEIGHT

7.1 General

7.1.1 Where practicable, working at height hazards are to be controlled in accordance with the order of preferences as listed in the table below.

Table A – Hierarchy of Working at Height Controls

Control Option Preference	Description
1 Eliminate the Height Access	<p><i>Eliminate the need to access the location at height. Examples include:</i></p> <ul style="list-style-type: none"> ▪ <i>relocation of an item or device from a position at height to ground level,</i> ▪ <i>redesign of an item or device enabling it to be lowered to allow for access, inspection, repair, etc, and</i> ▪ <i>use of an extension handle to enable a location at height to be reached from ground level.</i>
2 Edge Protection or Cover	<p><i>The provision of controls or a means of access that provide protection or a barrier that prevents access to an exposed edge or unprotected location at height. Examples include:</i></p> <ul style="list-style-type: none"> ▪ <i>erection of scaffolding to reach a location at height;</i> ▪ <i>use of an elevating work platform to access a location at height;</i> ▪ <i>installation of temporary edge protection or guardrails along a roof edge or unprotected location at height; and</i> ▪ <i>installation of a cover over a roof, grate or floor penetration.</i> <p><i>Note: often, the means by which these controls are established may require a lower order working at height control to be used</i></p>
3 Fall Protection	<p><i>The use of personal protective equipment that either prevents a fall or reduces the severity of a fall. Examples include:</i></p> <ul style="list-style-type: none"> ▪ <i>use of an industrial rope access system,</i> ▪ <i>use of a travel restraint system, and</i> ▪ <i>use of a fall arrest system.</i>
4 Catch Protection	<p><i>The provision of controls that enable a falling person to be caught without hitting the ground or a structure that would cause injury. Examples include:</i></p> <ul style="list-style-type: none"> ▪ <i>use of a catch platform or catch net below the location at height.</i>
5 Temporary Exclusion Warning	<p><i>The provision of a temporary exclusion control to provide a warning to personnel about an exposed edge or fall from height hazard. Examples include:</i></p> <ul style="list-style-type: none"> ▪ <i>use of barrier tape and signage adjacent to an unprotected edge or floor penetration;</i> ▪ <i>use of barrier tape to designate a no access zone on a rooftop, and</i> ▪ <i>use of barrier tape around an excavation,</i> ▪ <i>use of a safety observer / spotter to provide warning of a specific fall hazard.</i>

- 7.1.2 A control method for working at height must be implemented in the following scenarios:
- if a worker could fall 2 metres or greater:
 - to the ground or working surface below as a result of the task, or
 - as a result of lifting a floor panel or removing a handrail,
 - if a worker could fall from a height lower than 2 metres:
 - onto a structure or item that would cause impalement or a significant injury; or
 - into or within an area or substance that would cause a significant injury; or
 - as a result of lifting a floor panel or removing a handrail where the remaining penetration, hole or unprotected edge is to be left unattended for any period (ie where the worker is not immediately adjacent to and within sight of the location).

- 7.1.3 Where a control method for working at height must be implemented, a *Falls and Falling Objects Control Guide* must be completed.

Note: *Refer also to the Flowchart in Section 1 for clarification regarding control requirements.*

- 7.1.4 The Control Guide must be filled out to address all relevant sections:
- a description of the activities where a fall from height could occur;
 - the means of access to and from the location at height;
 - the means of ensuring safety at height during the work activity;
 - the means of protecting others from falling during the work activity or access at heights,
 - the means of controlling falling object hazards;
 - specific details regarding rescue/retrieval provisions associated with fall arrest control methods as applicable; and
 - any additional controls required to enable safe access and working at height activities.

Note: *The Control Guide, in association with the Work Method Statement (WMS) and PTW to allow access/work to commence forms the Falls and Falling Object hazard identification, risk assessment and control allocation process.*

7.2 Access to Locations at Height

- 7.2.1 Wherever possible, access to a location at height is to be via a safe manner that provides personnel with a work platform and edge protection that is fixed or in-situ. This may include:
- an existing work platform or stair access way, or
 - an elevating work platform such as a scissor lift or boom lift, or
 - a fixed scaffold or work platform, or a mobile scaffold.

- 7.2.2 In situations where this is not practicable, fixed ladders and portable ladders such as single ladders, extension ladders or step ladders are to be used. For further details in relation to specific ladder requirements, specifications, placement and usage information, refer to AS 1657 – *Fixed Platforms, Walkways, Stairways and Ladders* and the *Portable Ladders Corporate Standard POL-SCL-H&S-104*.

7.3 Edge Protection or Cover

- 7.3.1 Edge protection and covers are to be used where possible to address fall from height hazards where elimination is not practicable. In particular, work tasks that require the following are specifically suited to the use of edge protection and cover controls:
- lifting of floor panels,
 - removal or modification of handrails; and
 - raised platforms and roof edges to be unprotected for extended periods where personnel access is required as part of the work.

- 7.3.2 Edge protection erected as a means of preventing falls from height is to:
- be erected and used in accordance with manufacturer instructions or the instructions of an engineer or competent person;
 - be designed to withstand the downward or outward force of the impact of a fall against it by a person;
 - have a rail or component that is between 900 and 1100mm in height above the platform or other surface; and
 - have another rail or rails or sturdy mesh, etc between the surface and the top rail/component of the edge protection.

- 7.3.3 If the edge protection consists of rails, it must have:
- another rail or rails fitted so that there is not more than 450mm between any rail and its nearest rail or between the lowest rail and any toe board, and
 - either:
 - a bottom rail fitted no more than 250mm or less than 150mm above the platform or other surface, or
 - a toe board for the platform or other surface, that is at least 150mm high and fitted below all rails of the edge protection.

- 7.3.4 Where movable enclosed sections of edge protection are used these are to comply with the above requirements and be securely attached or positioned to ensure that they cannot be easily dislodged while preventing access to a penetration.

- 7.3.5 If the moveable edge protection is to be used to guard the penetration and permit access to a sub-floor space, it must contain:
- a moveable section that is capable of being secured,
 - hand holds or rails to assist persons entering the sub-floor space, and
 - adequate handles or lifting attachment points to enable it to be easily handled.

- 7.3.6 During maintenance tasks in the area where walkways or platforms may be modified, any penetration with dimensions of more than 200mm x 200mm or a diameter more than 200mm is to have a fall protection cover fitted to it to prevent a potential fall from height. As deemed appropriate, penetrations with dimensions smaller than the above are also to be covered.

Note: *Permanent access is to be in accordance with AS 1657 – Fixed Platforms, Walkways, Stairways and Ladders.*

- 7.3.7 Where a fall protection cover is used to protect persons from falling into a penetration, it must:
- be able to withstand the impact of any person who may stand or fall on it, and
 - be securely fixed in place to prevent it being moved or removed accidentally.

7.4 Personal Fall Protection Equipment

General

- 7.4.1 No person using personal fall protection equipment as part of a fall arrest system is to work in isolation.
- 7.4.2 All personnel who use personal fall protection equipment are to be trained in the safe selection, inspection and use of the equipment and methods of work required. See also *Section 9*, which describes competency training in relation to personal fall protection equipment.
- 7.4.3 Personnel using personal fall protection equipment are to do so in accordance with specific instructions or requirements specified by the equipment or system's manufacturer/supplier.

FALLS AND FALLING OBJECTS

- 7.4.4 Prior to setting up or using a personal fall protection system, competent users are to inspect all equipment and anchorages to ensure that a safe system can be established.
- 7.4.5 As part of inspection tasks, no person is to use any component of any personal protection system, including anchorages if a component shows evidence of wear or weakness to an extent that may affect the system's safety. Where such a fault is identified, it is to be reported to the relevant OIC or work supervisor and marked via a tag which describes the item as being not fit for safe use or service.
- 7.4.6 Where practicable, travel restraint systems are to be used as a preference to fall arrest systems if personal fall protection equipment must be used.
- 7.4.7 Where personal fall protection equipment is to be used, it is to be implemented such that the following fall situations in order of preference are an outcome of the system:
- total restraint (via a travel restraint system) – fall not possible,
 - restrained fall;
 - limited free fall – free fall distance equal to or less than 600mm; and
 - free fall – free fall distance >600mm and up to 2m.

Note: *Refer also to Attachment 1 which provides additional diagrams and explanations in relation to these fall situations.*

Travel Restraint

- 7.4.8 A travel restraint system erected as means of preventing falls from height is to:
- be installed by a competent person;
 - have an anchorage point capable of withstanding reasonably expected loadings from a person who may use it and not less than 6kN (the actual anchor strength may be considerably higher for restraint static line systems where multiple workers may be reliant upon common anchorages);
 - only be used by those who have been trained in the safe and correct use of the system; and
 - be inspected as per the requirements in *Attachment 5* by a competent person with a written record of the inspection maintained for a period that is the lesser of, the life of the system, or a period of 4 years.
- 7.4.9 A travel restraint system's purpose is to generally limit the horizontal movement from an anchorage point or a horizontal life line so that the user is totally restrained from physically reaching a position where either a free or limited free fall is possible. As such, a travel restraint system should be substituted with a fall-arrest system where a fall over an edge is possible, or:
- the user can reach a position where a fall over an edge is possible, including a pendulum effect situation where a person accesses a location not perpendicular to the edge; or
 - the user has a restraint line that can be adjusted in length such that a free fall position can be reached, (apart from proprietary restraint devices that can be purposely handled and securely relocated/adjusted as part of work positioning) or
 - there is danger of the user falling through the surface; or
 - there are any other reasonably likely misuses of the system which could lead to a free fall.

Fall Arrest

- 7.4.10 Anchorage points for fall-arrest harness systems are to:
- be located so that the user can connect their lanyard or device to the system prior to moving into a position where they will be at risk of a fall from height,
 - be designed by an engineer, or be inspected and approved for safe use by a competent person prior to work commencing, and
 - have a capacity of at least 15kN for a one person, single point system or 21kN for a two person, single point system (refer also to *Attachment 4* which provides additional anchorage information).
- 7.4.11 Fall arrest harness system components are to be inspected as per the requirements in *Attachment 5* by a competent person with a written record of the inspection(s) maintained for a period that is the lesser of, the life of the system, or a period of 4 years.
- 7.4.12 The fall arrest system's device/component to absorb the energy of a fall must be able to limit the force applied to the user to not more than 6kN.
- 7.4.13 Users of fall arrest harness systems are to implement controls that ensure components of the system are protected from potential friction, damage and chemical substances and liquids that may have adverse affects, during use and a potential fall situation. This may include the use of padding around rough anchorages, covers over sharp edges and covers on plant or areas that contain contaminants.
- 7.4.14 Fall distance and the potential for pendulum effect are to be assessed to ensure that there is enough distance available for a person who may potentially fall into the system to avoid them from hitting an object, the ground or other protruding item. Lanyard length once extended, position of the user in relation to their anchor point and potential lateral swing that may occur are some of the main factors to consider in relation to fall distance considerations.
- Note:** *Refer also to Attachment 2 which provides additional diagrams and information in relation to fall distance considerations.*
- 7.4.15 A safety belt (restraint belt, line-workers' body belt, work positioning sit harness, ladder belt, etc) is not to be used in a fall arrest system application to arrest a person who may fall more than 600mm. A fall arrest harness is to be used.
- 7.4.16 During the use of a fall arrest harness system the free fall distance is to be reduced as far as possible. That is, a lanyard assembly is to be as short as practicable and the working slack length short enough to ensure that a fall of a user of not more than 2m, when used in conjunction with a fall arrest system, will result.
- 7.4.17 Users of fall arrest harness systems are to ensure that components are compatible. The use of non-compatible components can lead to ineffective equipment use and connection that can result in falls from height.
- Note:** *Refer also to Attachment 3 which provides additional diagrams and information in relation to types of fall arrest system devices, their use and potential hazards.*
- 7.4.18 No work involving the use of a fall arrest harness system is to take place unless suitable planning has been undertaken and provisions been made for the retrieval/rescue of a person from the system immediately after a fall. This must include:
- ensuring that there is a written procedure for the retrieval of a fallen person,
 - ensuring that there is additional retrieval equipment/devices provided as required,
 - ensuring that an adequate number of workers are present to perform a retrieval/rescue, and
 - suitable retrieval/rescue training has been undertaken by those working at heights.

FALLS AND FALLING OBJECTS

7.4.19 Details of specific retrieval/rescue response needs that may be required as part of a work at height task are to be referenced within the *Falls and Falling Objects Control Guide* and then detailed and explained within a *Rescue / Retrieval Plan*.

7.4.20 Although not a specific focus of this standard, horizontal static lines are to be designed, installed and maintained in accordance with *AS 1891.2 – Industrial Fall-Arrest Systems and Devices, Part 2: Horizontal Lifeline and Rails Systems*.

7.5 Catch Protection

7.5.1 Industrial safety/catch nets used as a means of catch protection are to be used as a last resort only, where edge protection and personal fall protection equipment are totally impracticable.

7.5.2 Industrial safety/catch nets used as a means of catching a person who may fall are to:

- be designed by an engineer or competent person;
- be installed and used in accordance with the manufacturer's or supplier's safety instructions;
- be made of material that is of sufficient strength to catch a person and be designed to minimise injury to a person once they have fallen into the net; and
- have energy absorbing qualities that reduce the shock to a person falling into the net.

7.5.3 Industrial safety/catch nets are to be installed so that they have sufficient tension and clearance to prevent a person who falls from contacting or striking any surface or structure below the net.

7.5.4 Industrial safety/catch nets are to be installed so that they are as close as possible below the platform or level at which the person could potentially fall.

7.5.5 Nets are not to be used in locations or environments where they may be damaged due to the presence of chemicals or heat.

7.5.6 Nets are to be inspected after installation, relocation or repair on site and prior to personnel working in a position where they could fall onto the nets.

7.6 Temporary Barricading and Signage

7.6.1 Using temporary barricading and signage to provide warning and exclude access to an area is the least preferred method of protecting personnel from falls and one that should only be used where it is not practicable to implement other fall from height controls.

7.6.2 Where barricade mesh/tape and signs are used to provide a means of exclusion around a penetration or exclusion from an unprotected edge, it is to be located at least 2m from the outside of the edge at which a fall can occur and be erected at a suitable and visible height (eg. 700 – 1000mm).

7.6.3 Where temporary barricading and signs are used in areas where lighting levels may restrict personnel from being able to easily identify the barricades/signs, additional temporary lighting is to be positioned in the work area.

7.6.4 During work activities or regular inspection of the work, measures are to be taken to ensure that barricades do not become unattached and left lying on the floor or work platform.

7.6.5 For further information in relation to temporary barricading and signage, placement, colouring, signage, etc, refer to the *Barricading and Exclusion Corporate Standard POL-SCL-H&S-1765* and site specific requirements where relevant.

8. SPECIFIC CONTROLS TO MANAGE FALLING OBJECTS

8.1 Where possible, falling object hazards are to be controlled in accordance with the order of preferences as listed in the table below.

Table B – Hierarchy of Falling Object Controls

Control Option Preference	Description
1 Eliminate the Falling Object	<i>Prevention of objects from falling. Examples:</i> <ul style="list-style-type: none"> ▪ tool/equipment restraints; ▪ erecting toe boards or kick boards on work platforms and scaffolds; ▪ fitting containment sheeting on work platforms and scaffolds; ▪ using lift boxes to crane materials throughout a work area, etc
2 Separate Exposed Persons from Falling Objects	<i>Exclusion of an area or the provision of a falling object catch control. Examples:</i> <ul style="list-style-type: none"> ▪ catch/overhead platform; ▪ establishing an exclusion zone; ▪ using signage or other warning methods; ▪ erecting gantries and other overhead protective structures for on-site construction or demolition activities, etc
3 Personal Protective Equipment (PPE)	<i>Provision of PPE to personnel who may be exposed to falling objects. Examples:</i> <ul style="list-style-type: none"> ▪ safety helmets; ▪ safety boots; ▪ safety glasses, etc

8.2 Tool/equipment restraints are to be used by personnel where possible when they are working at heights above others, adjacent to edges and in situations where a falling tool/equipment item could cause damage if it were to fall.

8.3 Catch platforms/decks established as part of scaffolding to protect personnel below are to be fully decked/sheeted and capable of supporting the force loadings of the objects that may potentially fall during the work tasks.

8.4 During installation, extension or removal of catch platforms/decks, scaffolding or screening, measures such as excluding access to the area below are to be taken to ensure that a falling component cannot injure a worker or other person if it were to fall.

8.5 Ply, decking, mats, etc are to be positioned to prevent small falling objects, sparks and slag during hot work tasks and other maintenance activities, particularly when undertaken on or adjacent to grid mesh. Attention to throw distances of hot particles, slag, etc during hot works must also be considered and monitored during such work.

8.6 Temporary barricading/signage controls are to be used to create exclusion zones where other forms of falling object protection cannot be erected for work performed above others.

8.7 During the set up of temporary exclusion zones and deciding upon size and limits, specific consideration is to be given to the potential for objects to bounce or rebound whilst falling.

8.8 For further information in relation to temporary barricading and signage, placement, colouring, signage, etc, refer to the *Barricading and Exclusion Corporate Standard POL-SCL-H&S-1765* and site specific requirements where relevant.

8.9 During crane and lifting activities on site, loads are not to be suspended or slewed directly over the heads of personnel.

8.10 Where major construction or demolition activities are undertaken where major lifting tasks and falling object hazards exist, the need for hoardings and gantries are also to be implemented as deemed necessary.

Note: *Specific hoarding and gantry information and specifications may be referred to within the various statutory regulations and advisory legislative documentation.*

9. TRAINING AND COMPETENCY OF PERSONNEL

- 9.1 All personnel involved with planning and coordinating work at height tasks, including OICs are to be deemed as competent persons. This may include the requirement to verify the work experience of personnel and their knowledge with respect to legislative requirements, this Corporate Standard and the *Falls and Falling Objects Control Guide*.
- 9.2 Users of personal fall protection equipment or others who may be expected to participate in a retrieval/rescue function are to undertake training to ensure they are competent. This should include training that enables personnel to:
- demonstrate knowledge to interpret legislative requirements in relation to carrying out work at heights;
 - demonstrate knowledge and skills to select, inspect, use and maintain personal fall protection equipment and rescue/retrieval equipment;
 - identify and describe typical hazards associated with work at heights and retrieval/rescue and to demonstrate corrective measures to manage such hazards;
 - explain and demonstrate safe working at height and retrieval/rescue practices and procedures;
 - describe basic first aid procedures to be administered to injured persons at height;
 - demonstrate confidence to work at heights in elevated locations, be it structures, rooftops or specific plant items.
- 9.3 Personnel who use personal fall protection equipment are to be instructed/trained in relation to suspension trauma. This is to include:
- provision of information describing what suspension trauma is, how it occurs and the timeframes involved with the onset of the condition;
 - promotion of the need to assume a horizontal posture and maintain leg movement; and
 - promotion of the need to counteract the onset of suspension trauma as a priority during potential retrieval/rescue responses.
- 9.4 Personnel who undertake work at heights training that encompasses those items listed in *Section 9.2 & 9.3* above are to undertake regular refresher training to ensure that knowledge and specific skills are maintained. This training is to be recorded or registered at a site specific level.

10. CONTRACTOR MANAGEMENT

- 10.1 Where contractors that may be unfamiliar with SCL's work processes are procured to undertake specific work at heights tasks, SCL OICs are to provide relevant site specific information such as the following during a pre-work meeting or the site induction process:
- details regarding site specific rules and access restrictions,
 - details about the specific work at height task(s) to be performed and any site specific hazards, and
 - the work information and associated SCL supervision under which the contractors are to perform work.
- 10.2 Prior to contractors being procured and confirmed to undertake work on site, information such as the following is to be verified and reviewed by SCL OICs, procurement or other supervisory personnel, or at a minimum made available by the contractor as requested:
- work experience and training and competency evidence to verify that contractors are capable of performing the work and are conversant with industry hazards,
 - work procedures or work method statements that identify key high-risk tasks, hazards, and controls to be implemented,
 - specific work at height retrieval/rescue procedures and methods as necessary, and

- details listing the equipment to be brought onto site with respect to Australian Standard compliance, inspection and maintenance details (ie inspection records, logs, etc).

10.3 The SCL OIC is to monitor the contractor's methods of work and the implementation of the proposed controls to ensure that SCL standards for managing work at heights activities are achieved.

11. ADEQUATE EQUIPMENT

11.1 As determined by AS/NZS 1891 requirements and as the equipment item permits, labels and signs on personal fall arrest equipment are to be permanently marked or labelled to indicate their purpose, correct use, limitations and any other relevant information to ensure safe use. These permanent markings or labels are to be legible throughout the life of the equipment. Where the equipment is too small or information is likely to be worn away, copies of this information are to be maintained and readily accessible for review.

11.2 Signs are to be installed for each anchorage point, which may be in place for a period longer than a month, that shows the following information:

- name of installer and installation date, or if an existing structure has been verified, the name of the certifier and the certification date;
- the heights purpose category for which the anchorage is suitable, refer also to the table in *Attachment 4*;
- the ultimate strength rating if less than 15kN, (in this case, words to the effect that the anchorage is not to be used for fall-arrest are to be added to the sign);
- the maximum number of people (not more than two), who are permitted to be connected to the anchorage at any one time.

Note: *At permanent installations, the information may either be shown on signs at each anchorage point or alternatively, on a plan prominently displayed at the entry to the area.*

11.3 If, during any work at height activity, a worker or OIC identifies a faulty or unsafe means of access, personal fall protection equipment, or the environment becomes unsafe, personnel that are placed at risk due to such an issue are to cease work activities immediately until the equipment or situation is altered and deemed safe to re-start work.

11.4 All edge protection, barricade tape, penetration covers, signage, etc required to be used as per Control Guides are to be inspected, deemed fit for safe use and deemed to be safely in place by the OIC and/or personnel involved in the work at height tasks, prior to and during all work at height activities.

11.5 As a general guide, only personal fall protection equipment that is in compliance with AS/NZS 1891 is to be purchased, used and maintained throughout SCL sites.

Note: *This is a must for fall arrest harnesses whereas some other equipment items and devices from overseas locations are acceptable. Refer to the content at the bottom of Attachment 3.*

11.6 To ensure equipment is adequately inspected, personal and common use equipment is to be inspected in accordance with the table in *Attachment 5*. This attachment also includes a guidance table that highlights various fall protection components and the conditions or faults that need to be checked as part of inspections.

11.7 Recording the maintenance that is undertaken on personal fall protection equipment is to be done in accordance with the table in *Attachment 6*.

12. RESPONSIBILITIES

Position/Title	Description
OH&S Systems Manager	To maintain the currency and accuracy of the Falls and Falling Objects Corporate Standard reflective of legislative and corporate change
Station / Site Manager	To monitor the implementation of the Falls and Falling Objects Corporate Standard and allocate responsibilities and resources to ensure site-specific practices/procedures are developed to satisfy the Corporate Standard
OIC	To ensure safe assessment, control implementation, contractor management and overall safe working at height practices in accordance with this Corporate Standard and any site-specific procedures
Workers	To comply at all times with the requirements specified within this Corporate Standard and any site-specific procedures, inclusive of specific requirements of using personal fall protection equipment where relevant

13. REFERENCES

- QLD Workplace Health & Safety Regulation 1997, Part 17
- VIC Occupational Health and Safety (Plant) Regulation 1995, Sections 713 & 902
- VIC Code of Practice: Safe Work On Roofs (Excluding Villa Constructions) (No. 10, 1989)
- VIC Code of Practice: Safe Work On Roofs (Excluding Villa Constructions) (Amdt. 1 1998)
- VIC Code of Practice: Demolition 1991
- VIC Code of Practice: Prevention of Falls in General Construction 2002
- WA Occupational Health & Safety Regulations 1996, Part 3, Division 5
- WA Code of Practice: Prevention of Falls at Workplaces
- SA Occupational Health, Safety & Welfare Regulations 1995, Divisions 2.12 & 2.13
- NSW Occupational Health & Safety Regulations 2001, Part 4, Divisions 2 & 6
- NSW Code of Practice: Safe Work on Roofs: Part 1 – Commercial and Industrial Buildings
- NSW Code of Practice: Safety Line Systems
- TAS Code of Practice: Working at Heights in Commercial Construction
- NT Work Health (Occupational Health & Safety) Regulations 1992, Section 47A, 137 & 138
- NT Code of Practice: Prevention of Falls at Workplaces
- ACT Code of Practice: Safe Work on Roofs
- ACT Building and Construction Industry Safety Handbook: Part 2 – Height Safety and Welding
- AS 1657 Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation
- AS 1891.1 Industrial Fall Arrest Systems and Devices – Safety Belts and Harnesses
- AS 1891.2 Industrial Fall Arrest Systems and Devices – Horizontal Lifeline and Rails Systems
- AS 1891.3 Industrial Fall Arrest Systems and Devices – Fall-arrest Devices
- AS 1891.4 Industrial Fall Arrest Systems and Devices – Selection, Use and Maintenance
- AS 4488.2 Industrial Rope Access System
- PRO-SCL-PTW-104 – Portable Ladders Corporate Standard
- PRO-SCL-PTW-1765 – Barricading and Exclusion Corporate Standard
- SCL Form Falls & Falling Objects Control Guide
- SCL Form Rescue and Retrieval Plan

14. ATTACHMENTS

- Attachment 1 Working at Height Fall Situations
- Attachment 2 Fall Arrest Fall Clearance Considerations
- Attachment 3 Fall Arrest System Devices
- Attachment 4 Strength Requirements for Anchorages
- Attachment 5 Equipment Inspection Details
- Attachment 6 Equipment Maintenance Recording
- Attachment 7 Audit Checklist

ATTACHMENT 1 – WORKING AT HEIGHT FALL SITUATIONS

Characteristics of Various Restraint/Fall Situations (Based on AS 1891.4 – Table 2.1)

See also, the explanatory diagrams in the pages following.

Restraint / Fall Situation	System Description	Equipment & Anchorage Requirements (minimum) ^{Note 1}	Typical Application
Total restraint – a fall is not possible	A combination of anchorage placement and lanyard/line length which will not physically permit the operator to reach a fall-risk position ^{Note 2}	Restraint belt. Fixed length restraint line. 6 kN ultimate strength anchorage.	Any situation where access to the work can be achieved entirely on a working surface with slope not exceeding 15 degrees and without exposure to a fall.
Restrained fall only	A combination of anchorage placement and restraint line or pole-strap length which will permit only a restrained fall on a pole or a sliding fall on a roof ^{Note 2}	Lineworker's body belt or work positioning harness. Fixed length restraint line or pole strap. 6 kN ultimate strength anchorage for restraint line.	Working on a pole where no free fall is possible, or on a sloping roof of slope greater than 15 degrees but where secure footing can be maintained without lateral support and from which a substantially vertical fall over an edge cannot occur.
Limited free fall	A combination of anchorage placement and lanyard length which will permit only a limited free fall (<600mm).	Work positioning harness. Fixed length lanyard. 12 kN ultimate strength anchorage or equivalent horizontal lifeline or rail.	Any situation where the use of either a short lanyard or a fall-arrest device (or both where applicable) will limit any free fall to 600mm. May also be applicable to rope access systems, see AS/NZS 4488.2
Free fall	Any suitable fall-arrest system.	Fall-arrest harness. Lanyard assembly or fall-arrest device which will limit free fall to 2m maximum. ^{Note 3} 15 kN ultimate strength anchorage or equivalent horizontal lifeline or rail.	Any situation in which a free fall greater than 600mm is possible.

Note 1: Fall protection work practices not in accordance with this Standard, in particular, the use of non-complying personal equipment (e.g. lanyards without energy absorbers), may create fall-arrest forces which will exceed the anchorage strengths specified in this Table.

Note 2: Assumes that misuse of the system will not occur, e.g. it is not possible for an operator on a roof to fall through the roof or for a longer restraint line than intended to be used

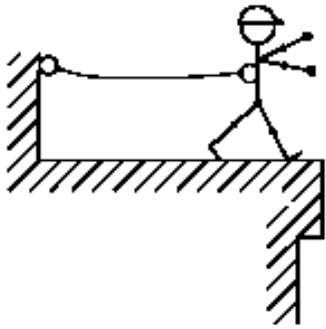
Note 3: See also, Attachment 2.

Use of Belts, Harnesses and Associated Devices in Fall-Arrest Systems (From 1891.4 – Table 4.1)

Device*	Principal Uses	Whether Permitted for Fall-Arrest		
		Free fall	Limited free fall	Restrained fall
Restraint belt	Total restraint	No	No	No
Restraint line	Part of horizontal restraint system	No	No	Yes
Lineworker's body belt	Work positioning with pole strap	No	No	Yes
Pole strap	Part of work positioning system on a pole	No	No	Yes
Work positioning (sit) harness	Work positioning Total restraint Rope suspension	No	Yes	Yes
Ladder belt	In a ladder fall-arrest system in conjunction with a Type 1 fall-arrest device (see AS/NZS 1891.3)	No	Yes	Yes
Fall-arrest harness	Any situation with risk of free fall	Yes	Yes	Yes
Confined space fall-arrest harness	Risk of free fall in a confined space where provision for rescue is also required	Yes	Yes	Yes
Lanyard assembly	Part of fall-arrest system	Yes	Yes	Yes

* Refer to AS 1891.4 Section 4 for additional information regarding these items.

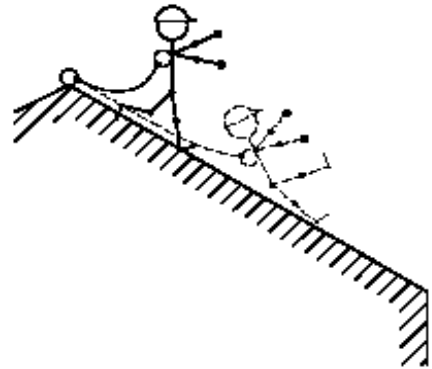
Typical Restraint/Fall Situations



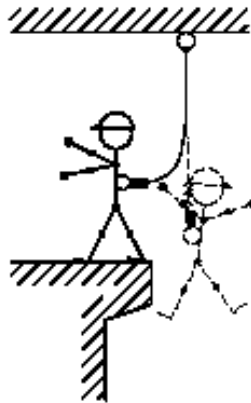
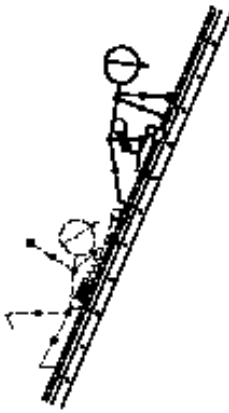
Total Restraint – Fall Not Possible



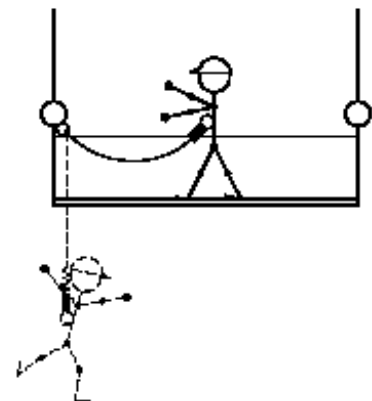
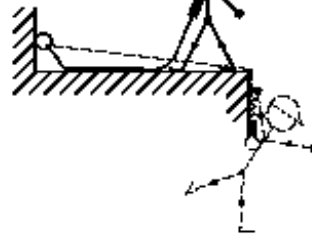
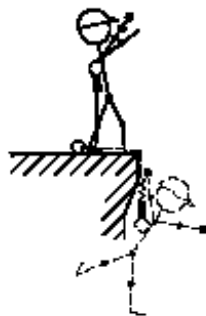
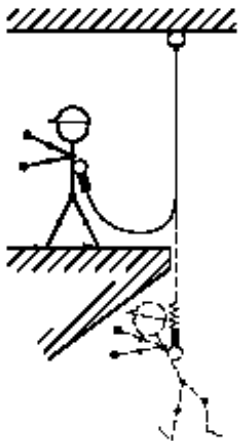
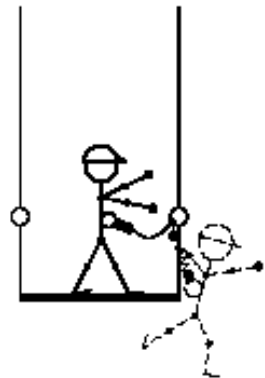
Restrained Fall – On Pole



Restrained Fall – On Roof Slope

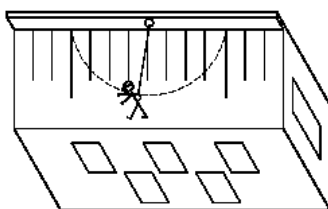


Limited Free Fall – Free-fall Distance 600mm or less

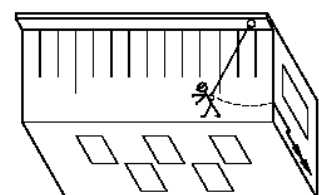
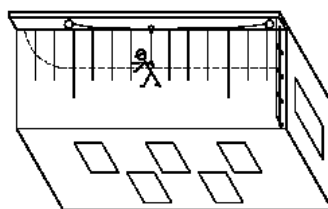


Free Fall – Free-fall Distance >600mm and less than 2m

Use of Restraint Systems

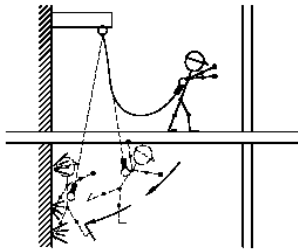


Acceptable – User Cannot Reach Edge

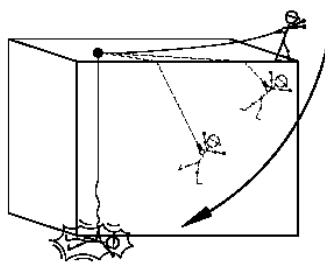


Unacceptable – User Can Reach Edge

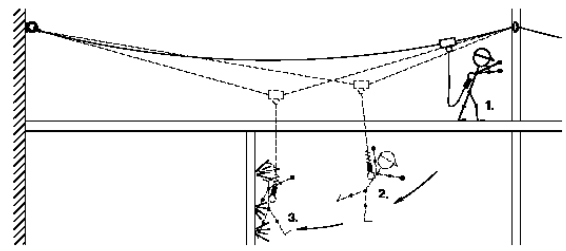
Pendulum Effect Situations



Anchorage Not Directly Above User

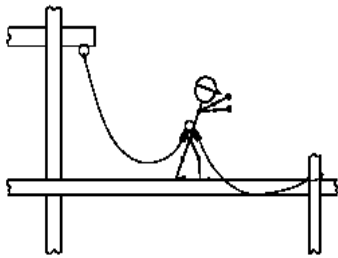


Anchorage not Perpendicular from Edge Location of the User

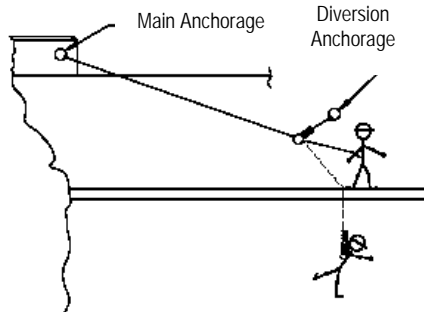


Fall From a Horizontal Lifeline

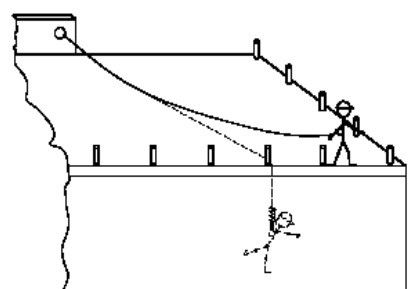
Pendulum Effect Controls



Use of Dual Anchorages

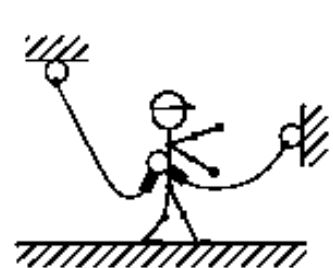
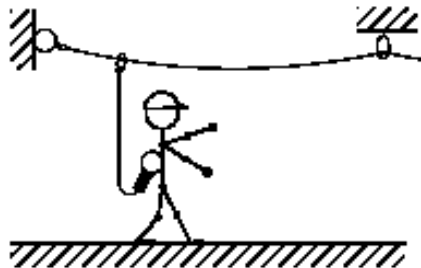


Use of a Diversion Anchorage



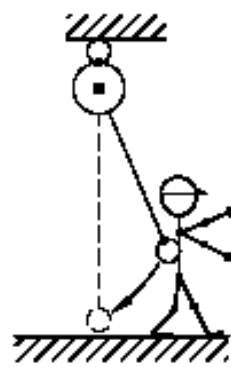
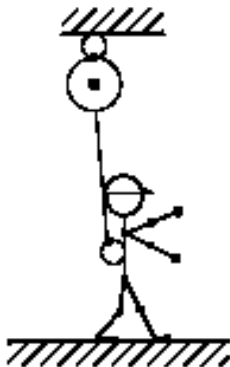
Use of End Stops

Typical Lanyard Configurations – Ideal Range



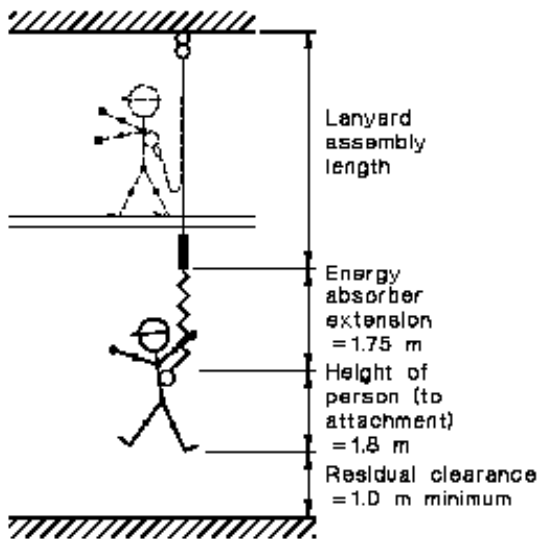
The above pictures include connection to arrest points on the fall arrest harness with suitable shock absorbers fitted

Configurations Using Type 2 or 3 Fall-Arrest Devices

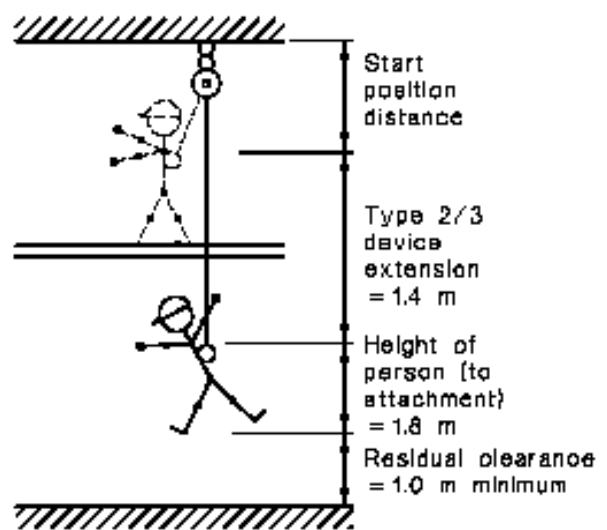


Calculation and Estimation of Fall Clearance Factors	
Fall Distance Factor	Description / Considerations
Anchorage deflection	<p><i>Fixed single anchorage:</i> 0 (unless the structure being used as an anchor is likely to deflect under loading)</p> <p><i>Horizontal or vertical rail:</i> 0 (as above)</p> <p><i>Horizontal life line:</i></p> <ul style="list-style-type: none"> ▪ pre-determined performance system: as advised by the manufacturer ▪ prescribed configuration system: <ul style="list-style-type: none"> ▪ overall line length <10m: 0.7m ▪ overall line length 10 – 30m: 1.1m ▪ overall line length 30 – 100m: 1.3m ▪ overall line length >100m: 1.5m
Static length of lanyard	If a lanyard forms part of the fall-arrest system, its overall static length including personal energy absorber in unextended state needs to be considered.
Start position of fall-arrest device	Where a Type 1, 2 or 3 fall-arrest device is used, the vertical distance of the worst case start position of the device below the anchorage point, life line or rail is to be included. The start position is to be: <ul style="list-style-type: none"> ▪ the lowest point on the anchorage line a Type 1 device is likely to reach during normal work, or ▪ the lowest point the attachment point of the anchorage line of a Type 2 or 3 device on the operator's harness is likely to reach during normal work.
Extension or travel of fall-arrest equipment	Extension or travel of other items of fall-arrest equipment, where used, is to be taken into account as follows: <ul style="list-style-type: none"> ▪ <i>personal energy absorber:</i> 1.75m or otherwise as specified by the manufacturer, ▪ <i>type 1 fall-arrest device:</i> 1.0m or otherwise as specified by the manufacturer, ▪ <i>type 2 or 3 fall-arrest device:</i> 1.4m or otherwise as specified by the manufacturer, ▪ <i>flexible lanyard:</i> if the lanyard comprises a long synthetic rope, webbing strap, or is made of dynamic rope, etc that it is liable to appreciable extension under loading – the extension obtained either by calculation or test loading under a load of 6kN. ▪ <i>long anchorage line:</i> if the anchorage line of a type 1 fall-arrest device is so long or the anchorage line of a type 2 or 3 fall-arrest device has been extended prior to a fall so much that either are liable to appreciable extension under loading – the extension obtained either by calculation or test loading under a load of 6kN.
Height of user	The height of the attachment point on the operator's harness above his/her foot level when standing upright is to be taken into account. An allowance of 1.8m which will also allow for some movement in the harness will usually be a sufficient estimate. Additional allowance is to be made for extension straps or elasticised harnesses where appropriate.
Lateral offset of anchorage point	Where the anchorage point is laterally offset from the user's position prior to a fall, additional distance is to be allowed for as a result of the user swinging downward and toward a position directly below the anchorage point, (see also, the diagrams below).
Residual clearance	A minimum allowance of 1.0m is to be made for residual clearance.

Determination of Minimum Required Fall Clearance

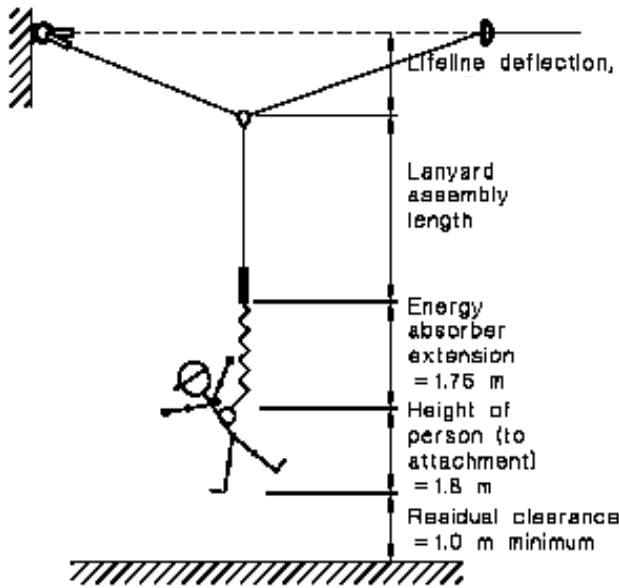


Single Anchor Point – Lanyard Assembly with Energy Absorber

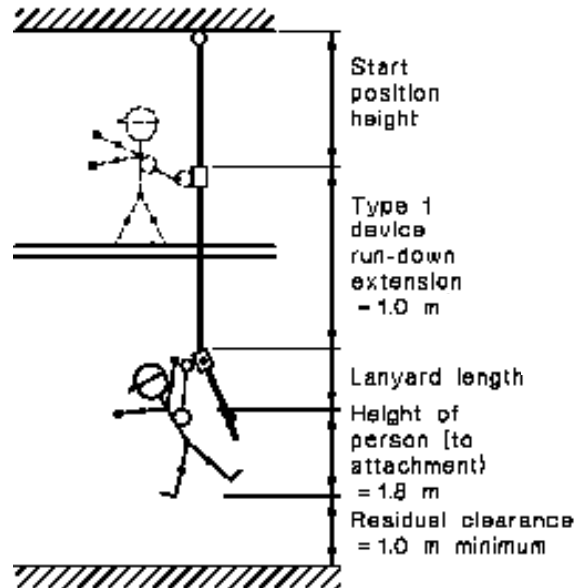


Type 2 or 3 Fall-Arrest Device

Determination of Minimum Required Fall Clearance (continued)

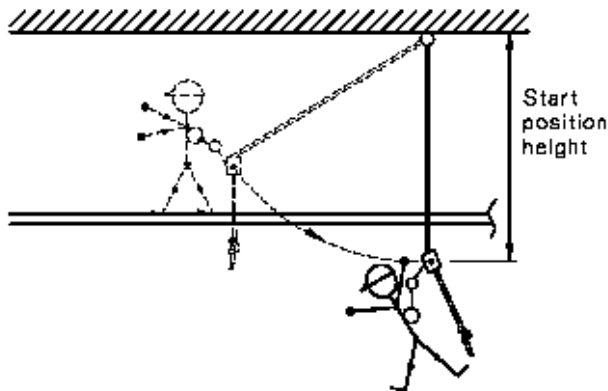


Horizontal Life Line – Lanyard Assembly with Energy Absorber

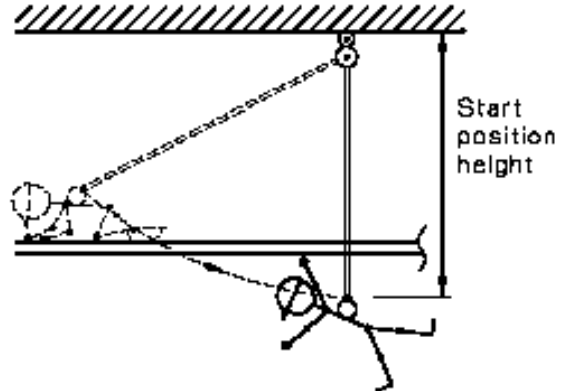


Type 1 Fall-Arrest Device on Flexible Line

Effect of Lateral Offset When Using a Fall-Arrest Device



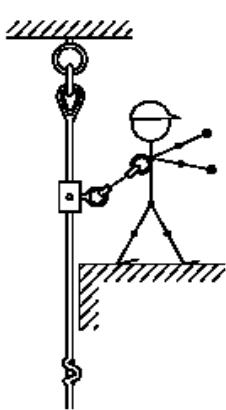
Type 1 Fall-Arrest Device



Type 2 or 3 Fall-Arrest Device

Fall Arrest Devices	
Type 1 Device:	<p>A fall-arrest device which travels along an anchorage line, locks to the line when loaded and can only be loaded in the direction of the line.</p> <p>Such a device may be fixed to a vertical or substantially vertical rail or a fixed vertical flexible line and can move up and down the rail or line at a predetermined maximum rate to follow the movement of the user. The user is typically connected via a short lanyard (ie less than 300mm) to the activating lever which locks the device in the event of a fall. A typical use of a Type 1 device is as a ladder fall-arrest system, using a rigid rail or a flexible line attached to the ladder.</p> <p>They include fall-arrest rope grabs and rail grabs.</p>
Type 2 Device:	<p>A fall-arrest device from which a spring-loaded anchorage line pays out, and which locks when loaded and releases when the load is removed.</p> <p>Such a device incorporates a line that is controlled by a spring loaded reel which adjusts the line length as the wearer moves up and down in the course of the work. Under fall-arrest conditions the reel locks by means of the inertia-reel or similar mechanical principle.</p> <p>They include fall-arresters, inertia reels and self-retracting lifelines.</p>
Type 3 Device:	<p>A fall-arrest device from which a spring-loaded anchorage line pays out, which locks when loaded, but may be wound back as a winch after loading and locking.</p> <p>Such a device is similar to the Type 2 device with the addition of a winching mechanism which permits retrieval of a wearer who has suffered a fall or is otherwise in distress.</p>

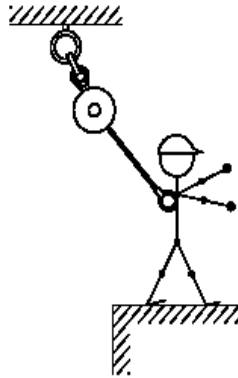
Typical Fall Arrest Devices



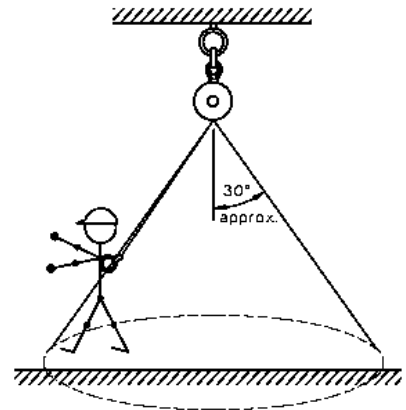
Type 1 Fall-Arrest Device on a Flexible Line



Type 1 Fall-Arrest Device on a Rigid Rail



Type 2 Fall-Arrest Device



Limit of Operation of a Type 2 or 3 Fall-Arrest Device (unless otherwise specified by the manufacturer) Type 2 shown

Marking of Fall-Arrest Devices	<p>Fall-arrest devices are to be clearly and permanently marked/labelled with the following:</p> <ul style="list-style-type: none"> ▪ name, trademark or other means of identification of the manufacturer, ▪ manufacturer's serial number, ▪ year of manufacture, ▪ which anchorage lines are intended for use with the device and warning that it is unsafe to use others, ▪ if appropriate, an indication of the required orientation in use, ▪ if appropriate, an indication that the device meets AS 1891.3 (clause 2.2.5) with regard to its use in potentially flammable or explosive atmospheres, ▪ for devices which require an external energy absorber in order to meet the maximum peak fall-arrest force requirement, a marking as follows – "THIS DEVICE IS NOT FITTED WITH AN INTERNAL ENERGY ABSORBING DEVICE"; and ▪ for devices which do not require an external energy absorber in order to meet the maximum peak fall-arrest force requirement, a marking as follows – "THIS DEVICE IS FITTED WITH AN INTERNAL ENERGY ABSORBING DEVICE".
Acceptance of Overseas Devices:	<p>Fall-arrest devices complying with EN 353-1, EN 353-2 or EN 360 are acceptable for use in Australia.</p>

ATTACHMENT 4 – STRENGTH REQUIREMENTS FOR ANCHORAGES
Strength Requirements for Anchorages (From 1891.4 – Table 3.1)

Purpose of Anchorage	Ultimate Strength in Direction of Loading (minimum kN) ^{Note 1}
Single point anchorage	
Free fall-arrest – one person	15
Free fall-arrest – two persons attached to same anchor	21
Limited free fall-arrest (including rope access anchorages)	12
Restrained fall-arrest – restraint line anchorage	6
Total restraint only – no risk of a fall	6
Horizontal lifelines ^{Note 2}	
End anchorages	Considerably > 15 ^{Note 3}
Intermediate anchorages (diversion < 15°)	12
Intermediate anchorages (diversion 15° or more)	12 + ^{Note 4}
<i>Note 1: As far as practicable all single point one-person anchorages should meet the 15kN requirement regardless of primary purpose.</i>	
<i>Note 2: Refers to fall arrest only. Lifelines used for total restraint only are not addressed here. Advice should be sought from manufacturers.</i>	
<i>Note 3: Particular care required to ensure adequate strength anchorages are used. Anchorage strength shall be set out either in manufacturer's instructions or in prescribed configuration tables. It will usually be considerably greater than the 15kN required for single point anchorages.</i>	
<i>Note 4: Horizontal component of forces induced during a fall-arrest (multiplied by a safety factor of 2.0) is to be added.</i>	

ATTACHMENT 5 – EQUIPMENT INSPECTION DETAILS
Summary of Inspection Requirements (From AS 1891.4 – Table 9.1)

Activity	Application
Inspection by operator before and after each use	Personal equipment including harnesses, lanyard assemblies, connectors, fall-arrest devices and common use devices such as ropes, slings, fall-arrest devices, mobile attachment devices, etc
3-monthly inspection by competent person	Fall-arrest devices – external check only
6-monthly inspection by competent person*	Belts, harnesses, lanyard assemblies and associated personal equipment
12-monthly inspection/service by competent person*	Permanently installed anchorages Fall-arrest devices – full service including dismantling where indicated Horizontal lifelines and rails, including integral components and permanently installed mobile attachment devices
In accordance with other Standards	Ropes and slings
Inspection on entry or re-entry into service	All items of personal and common use equipment
Inspection after a fall-arrest (and before further use)	All items which have been stressed as a result of a fall (Should also be removed from service and inspected by the manufacturer prior to re-use or discarded if clearly damaged).
* Or more frequently if recommended by the manufacturer or supplier.	

Inspection of Belts and Harnesses - Checklist (From AS 1891.4 – Appendix C)

Component	Conditions of Fault to be Checked
Webbing	Cuts or tears Abrasion damage especially where there is contact with hardware Excessive stretching Damage due to contact with heat, corrosives, or solvents Deteriorations due to rotting, mildew, or ultraviolet exposure
Snap hooks and karabiners	Distortion of hook or latch Cracks or forging folds Ear at swivels and latch pivot pin Open rollers Free movement of the latch over its full travel Broken, weak or misplaced latch springs (compare if possible with a new snap hook) Free from dirt or other obstructions
D-rings	Excessive ‘vertical’ movement of the straight portion of the D-ring at its attachment point on to the belt, so that the corners between the straight and curved sections of the D become completely exposed. NOTE: Excessive vertical movement of the ring in its mounting can allow the nose of larger snap hooks to become lodged behind the straight portion of the D, in which position the snap hook can often accidentally ‘roll out’ of the D under load. Cracks, especially at the intersection of the straight and curved portions Distortion or other physical damage of the D-ring Excessive loss of cross-section due to wear
Buckles and adjusters	Distortion or other physical damage Cracks and forging laps where applicable Bent tongues Open rollers
Sewing	Broken, cut or worn threads Damage or weakening of threads due to contact with heat, corrosives, solvents, dirt or mildew
Ropes	Cuts Abrasion of fraying Stretching Damage due to contact with heat, corrosives, solvent, etc. Deterioration due to ultraviolet light or mildew
Chains	Physical damage Security of attachments to snap hooks, rings, and similar components

ATTACHMENT 5 – EQUIPMENT INSPECTION DETAILS
Inspection of Fall-Arrest Devices - Checklist (From AS 1891.4 – Appendix D)

Component	Conditions of Fault to be Checked								
Rope or webbing including anchorage lines for Type 2/3 devices	Cuts Abrasion or fraying Stretching Damage due to contact with heat, corrosive, or solvents Excessive dirt or grease impregnation Anchorage of the anchorage line to the anchorage point (Type 1 devices) Anchorage of the rope end to the drum when the rope is fully extended (Type 2/3 devices)								
Fall-arrest device body	<table border="0"> <tr> <td>Mounting ring</td> <td>Physical damage or wear, especially at any pivot points Cracks, especially in corners Mounting security</td> </tr> <tr> <td>Body</td> <td>Physical damage such as significant dents, distortion or corrosion Presence of foreign bodies such as small stones within body (to be checked without dismantling) Loose or missing screws, nuts or similar objects (external check only) Position of the clutch compression indicator button (fitted only to rewind drums with steel rope)</td> </tr> <tr> <td>Fall-arrest indicator (if fitted)</td> <td>Signs of activation</td> </tr> <tr> <td>Correct-use labels and service label or tag</td> <td>Presence and legibility</td> </tr> </table>	Mounting ring	Physical damage or wear, especially at any pivot points Cracks, especially in corners Mounting security	Body	Physical damage such as significant dents, distortion or corrosion Presence of foreign bodies such as small stones within body (to be checked without dismantling) Loose or missing screws, nuts or similar objects (external check only) Position of the clutch compression indicator button (fitted only to rewind drums with steel rope)	Fall-arrest indicator (if fitted)	Signs of activation	Correct-use labels and service label or tag	Presence and legibility
Mounting ring	Physical damage or wear, especially at any pivot points Cracks, especially in corners Mounting security								
Body	Physical damage such as significant dents, distortion or corrosion Presence of foreign bodies such as small stones within body (to be checked without dismantling) Loose or missing screws, nuts or similar objects (external check only) Position of the clutch compression indicator button (fitted only to rewind drums with steel rope)								
Fall-arrest indicator (if fitted)	Signs of activation								
Correct-use labels and service label or tag	Presence and legibility								
Locking mechanism and rope guides	Excessive wear or ridging on externally visible rope guides Secure locking and holding of rope-locking mechanism when the rope is given a sharp tug Free running of rope through the anchorage with no tendency to stick or bind, and on rewind drum anchorages, complete rewinding of the rope without loss of tension								
Hardware	Condition and locking action of any associated snap-hooks or links								

ATTACHMENT 6 – EQUIPMENT MAINTENANCE RECORDING
Equipment Record Requirements (From AS 1891.4 – Table 9.2)

Item to be Recorded	Harnesses, line workers body belts and assemblies	Lanyard assemblies and pole straps	Type 1 fall-arrest devices including anchorage line	Type 2/3 fall-arrest devices	Mobile attachment devices	Fixed anchorages, horizontal life lines and life rails
Manufacturer's, supplier's or installer's name and address	Yes	Yes	Yes	Yes	Yes	Yes
Manufacturer's batch number	Yes	Yes				
Serial or identifying number			Yes	Yes	Yes	Yes
Year of manufacture	Yes	Yes	Yes	Yes	Yes	
Details of recommended connections to belts or harnesses		Yes	Yes	Yes		
Type of anchorage line to be used			Yes			
Suitability, load ratings and limitations on various usages	Yes	Yes	Yes	Yes	Yes	Yes
Date of purchase	Yes	Yes	Yes	Yes	Yes	
Date first put into service	Yes	Yes	Yes	Yes	Yes	Yes
Dates and details of inspections and services	Yes	Yes	Yes	Yes	Yes	Yes
Date to be removed from service	Yes	Yes	Yes	Yes		

ATTACHMENT 7 – AUDIT CHECKLIST

Item	Status			Action Required	Responsible Person	Completed (Insert Date & Initials)
Access & Height Planning						
Contracts for the design, refurbishment or construction of buildings/major plant specify compliance requirements for AS 1657 and AS/NZS 1891.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
General Falls from Height Controls						
Falls & Falling Object Control Guides have been completed for appropriate tasks as defined in <i>Sections 1, 7.1.2 & 7.1.3</i> of this Corporate Standard.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Rescue / Retrieval Plans have been developed for work at height tasks involving fall arrest harness system controls.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Specific Falls from Height Controls						
Written records of fixed travel restraint system inspections by a competent person are available for the lesser period of the following: life of the system or the last four years.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Written records of fixed fall arrest system inspections by a competent person are available for the lesser period of the following: life of the system or the last four years.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Training and Competency of Personnel						
Training content for personnel required to use personal fall protection equipment is inclusive of content defined in <i>Sections 9.2-9.4</i> of this Corporate Standard.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
High energy, high impact (HEHI) – Falls & Falling Objects Training delivered to relevant workers and recorded.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Training details maintained as per corporate training and record keeping requirements.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Contractor Management						
Contractor documentation contains sufficient information regarding personnel competency, work methods, fall protection equipment adequacy and retrieval planning.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Adequate Equipment						
Personal fall arrest equipment is adequately labelled and marked as per AS/NZS 1891.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Fixed anchorage points (>1month in position) are clearly signed with adequate explanatory information.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Adequate inspection / maintenance records of all height related equipment are to be current and easily accessible.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			

Other / Further Details: _____

Signature of Person Conducting Inspection: _____

Copies Provided to: _____
(Print First & Last Names)