Preventing Falls and Falling Objects

HSEQ Operational Procedure

What this procedure describes

How to prevent falls and the risk of falling objects.

Why it is required

- To manage the risk of falls and falling objects in places such as elevated work platforms, ladders, trenches and offices.
- TasNetworks is required to managed the risks associated with falls in accordance with the *Work Health and Safety Act 2012*, its Regulations and the Code of Practice: Managing the Risks of Falls at Workplaces.
- The procedure supports the TasNetworks goal of Zero Harm.

Who it applies to and when

This procedure applies to everyone working for or on behalf of TasNetworks.

Authorisation	
Issue date	01/12/2016
Authorised by	GM Works and Service Delivery
Review Cycle	3 years

Revision History

NOTE: Revisions to this procedure are to be provided to the Communications Team for uploading to the Contractor Resources web page

Date	Revision Details
21/06/13	Original Issue
1/12/2016	Reformat to TasNetworks and review
12/07/17	Added a sentence to cover 54 and 55 of the WHS Regulations and the SWA Falling Objects Fact Sheet.
14/02/18	Added link to the new the Implement Safety Drop Zone work practice.

Contents

1. How can falls and falling objects happen at TasNetworks?

The possibility of falls and falling objects can occur in a variety of ways. For example:

- working on overhead electrical infrastructure;
- working near holes, pits or shafts;
- using scaffolds and ladders;
- working on a sloping or slippery surfaces (for instance, embankments or muddy ground);
- where trip hazards exist;
- during construction work or when installing, dismantling, inspecting, testing, repairing or cleaning plant or structures;
- accessing high objects such as shelving; and
- accessing mezzanine areas or confined spaces.

Even from a relatively low height, a fall can cause very serious injuries, including fractures, spinal cord injury, concussions and brain damage.

2. Managing the risk of falls in office-based or field-based workplaces

Managing the risk of falls involves identifying where a fall could occur and assessing the outcomes of a fall occurring. Any risk of falls at TasNetworks needs to be controlled using the hierarchy of controls. The hierarchy of risk control involves selecting the highest level of protection and reliability to the lowest. For example, it is safer to work at ground level (elimination of a risk) instead of working at heights using a step ladder or an elevated work platform (engineering controls).

Regulation 79: If the chance of a fall can't be eliminated, so far as is reasonably practicable, the risk must be minimised by:

- providing a fall prevention device (for example, installing guard rails, fencing or edge protection) if it is reasonably practicable to do so, or
- providing a work positioning system (for example, an industrial rope access system to access confined spaces) if it is not reasonably practicable to provide a fall prevention device, or
- providing a fall-arrest system, so far as is reasonably practicable, if it is not reasonably practicable to provide a fall prevention device or a work positioning system.

TasNetworks often uses a combination of control measures, for example using a safety harness while working from an elevated work platform. General guidance on how to manage the risk of falls is available in Appendix A.

3. Specific control measures for working at heights

3.1 Drop Zones and Exclusion Zones

Zones are to be identified during the risk assessment process and take into account:

- the height at which people are working;
- the potential for objects to be deflected off the surrounding equipment or work environment;
- whether any physical barriers are in place;
- any energy sources being used on the objects that would increase the distance travelled; and
- uneven surfaces or multi-level works.

Exclusion zones are to be established around drop zones with barriers (for example, tape, rope, retractable line) or objects such as traffic cones. The barrier or objects should surround the drop zone, blocking entry.

People working within or near an exclusion zone need to clearly communicate before entering or leaving the zone. Before a worker enters an exclusion zone, overhead work needs to stop and all tools and equipment needs to be secured.

For further information on drop zones and exclusion zones refer to the Implement Safety Drop Zone work practice.

3.2 Working with Elevating Work Platforms (EWPs)

Workers operating EWPs are required to hold a licence for operating an EWP with a boom length of 11 metres or more. Operators must be competent and familiar with the operation and emergency functions of the brand and model that they are operating, including competence on using the Controlled Descent Device.

When working from an EWP, persons in the bucket are required to wear a properly fitted harness (approved for use by TasNetworks) that is in good working order (see Appendix B for further information) that is attached to the designated anchor point within the bucket.

Before an EWP is used, a grounds person who is accredited to operate an EWP and who is trained in EWP rescue must be prepared for a rescue, in the event rescue is needed. They must monitor workers in the bucket to ensure safe approach distances are not being breached and identify any hazards.

EWPs must be operated and maintained in accordance with the manufacturer's or supplier's instructions. For instance, conducting visual inspections, checking control mechanisms before use, considering weather conditions such as wind speed, not overloading the EWP and only standing on the floor of the bucket.

Further information is available in the TasNetworks Work Practices:

- Using Mobile Elevating Work Platforms
- Operating Non-Boon Type Elevated Work Platforms (EWPs)
- Perform Elevating Work Platform and Controlled Descent Device Rescues

To ensure mobile plant is fit for use, it must be inspected and maintained in accordance with the Managing Plant Procedure.

3.3 Working with workboxes (man cages)

A workbox (or man cage) is designed to be supported by a crane, hoist, forklift or other mechanical device to provide an elevated work area for persons working from the box. Other working platforms (such as an elevating working platform) should be considered before using a workbox.

People who are working in workboxes that are fitted to forklifts need to refer to the TasNetworks work practice Operating Fork Lift Trucks and Use of Lifting Attachments (IMS-WPP-02-18).

3.4 Fall arrest harness systems

Fall arrest harness systems are designed to prevent a person from hitting the ground in the event of a fall and thereby minimising the risk of injury to the person. They do not prevent the fall itself. Workers at TasNetworks must use properly secured harnesses for all overhead electrical work.

Further information about harness inspection, use and maintenance is provided in Appendix B.

3.5 Working with industrial rope access systems

Industrial rope access systems are used for gaining access to and working at a workface, usually by means of vertically suspended ropes. TasNetworks uses these access systems when performing confined space rescue. Where possible other methods of accessing a workface should be considered (for example, EWPs or building maintenance units) before rope access systems, as a high level of skill is needed for their safe use.

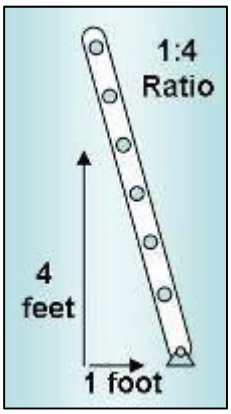
Before industrial rope access systems are used, the following work procedures must be adhered to:

- IMS-WPI-13-14 Work at Heights on Towers

- WP-5-FI-3 Working at Heights with Unprotected Edges

3.6 Working with ladders

The use of ladders is a significant risk at TasNetworks and should be avoided where work can be performed using an EWP, extension pole or in some cases, scaffolding.



Ladders need to be regularly inspected by a Compliance Inspector or competent person in accordance with the manufacturer's recommendations.

Fixed ladders should be installed in accordance with AS 1657 Fixed Platforms, Walkways, Stairways and Ladders—Design, Construction and Installation.

Further information about working on ladders is available in the Work Practice: Work at Height on Ladders (IMS-WPI-13-13).

3.7 Working with scaffolding, anchorage lines or rails

TasNetworks will sometimes use scaffolding, anchorage lines or rails, for example, when maintaining sub-stations. There are several requirements that need to be met when performing work using this equipment, including particular training requirements. Contact a Health, Safety and Environment Advisor to discuss how the risks associated with this equipment need to be managed before commencing work.

3.8 Working with portable pole platforms (pole chairs)

The use of pole chairs needs to be avoided where work can be performed using an EWP. If the work can't be performed using an EWP, consider whether the work can be performed safely using a ladder of adequate length.

Further information about working on portable pole platforms is available in the Work Practice: Care and Use of Pole Chairs and Platforms (IMS-GL-13-06).

3.9 Rescue procedures

Anyone who works on the TasNetworks electrical infrastructure must have completed rescue training by a nationally recognised training organisation before commencing work,

All training must be coordinated through the TasNetworks training centre. For information about the TasNetworks training programs and prerequisites contact the Training Centre, phone 6271 6111 or training@tasnetworks.com.au.

4. Managing the risk of falling objects

Objects can harm others if they fall from a structure (for example, removing conductors from a pole) or an object or material is ejected while using machinery or hand tools (for example, falling screws). The following control measures need to be used to manage the risk of falling objects:

1. Elimination controls: working from ground level where possible; procurement decisions.
   If the risk can't be eliminated, provide a system to prevent an object from falling freely, or if that is not reasonable, provide a system to arrest a falling obect:

2. Substitute existing controls for stronger more reliable ones. For instance, purchasing mobile plant that offers overhead protection.
3. Isolation controls: establishing exclusion zones below (by using highly visible and well secured barriers and signs and safety observers) where the work is being carried out. This also requires clear communication between colleagues to coordinate when people need to leave exclusion zones and when it is safe to enter;
4. Engineering controls: using tool belts or toe boards or infill panels as a secure barrier on scaffolds or platforms;
5. Administration controls: keeping the work area tidy by ensuring materials, debris, tools and equipment that are not being used are out of the way to prevent them falling from a height. Training and supervision. Keeping as much equipment as possible at ground level. Tethering or securing tools and materials. Using safety observers to keep drop zones clear and identify the risk of falling objects; and
6. Personal protective equipment controls: using equipment as per the Non-Negotiables

Do you have a good idea about how to control a risk? Let your team leader know so the can forward the idea to the Safety Advisor. Team leaders should forward ideas, that have been implemented successfully and that may help other areas of TasNetworks.

Contact a Health, Safety and Environment Advisor if they can help assess complex ideas or consider any changes that could help manage the risk of falls or falling objects. Further information is also available in the TasNetworks Change Management Procedure.

5. Responsibilities

5.1 TasNetworks

- Must ensure, as far as reasonably practicable, that workers and other people are not exposed to health and safety risks arising from the business. This includes managing the risk of falls from one level to another, including:
    - ensuring, so far as is reasonably practicable, that any work involving the risk of a fall is carried out on the ground or on a solid construction;
    - providing safe means of access to and exit from the workplace; and
    - minimising the risk by providing a fall prevention device, work positioning system or a fall arrest system.
- Must manage, in accordance with the hierarchy of controls, risks to health and safety associated with an object falling on a person if the falling object is reasonably likely to injure the person.
- Must establish emergency and rescue procedures for fall-arrest systems, test them and provide workers with suitable and adequate information, instructions and training on the procedures. The procedures need to take into account relevant matters including location, communications and the abilities of workers.

5.2 Designers, manufacturers, suppliers, importers and installers of plant or structures

- Must ensure, so far as is reasonably practicable, that any plant or structures (for instance, solid constructions, barriers, guard rails, covers for openings, surfaces, entries and exits) aren't a risk to health and safety. Designers have a particularly important role in eliminating or minimising the risks of falls in the design stage.

5.3 The Board

- 'Officers' under the *WHS Act* include directors and secretaries. Officers must exercise due diligence to ensure that TasNetworks manages risks associated with falls. This involves ensuring TasNetworks has and uses appropriate resources and processes to eliminate or minimise risks of falls from one level to another that are likely to cause injury.

5.4 Managers, team leaders and supervisors

- Need to consult workers and their health and safety representatives when identifying, assessing, controlling and reviewing the risk of falls in accordance with the TasNetworks Responsibilities Procedure.

- Need to regularly check that control measures being used by their team are suitable, at the highest level of control possible and are implemented correctly. This includes:
    - checking work procedures are being followed;
    - workers are trained and competent to work at heights; and
    - tools and equipment are fit for work. See Appendix A for further information.
- Consult a Safety and Health or Environment Advisor:
    - When you are unsure of how to control a risk associated with falls and falling objects, and
    - If any control measures need to be improved or revised, including these procedures.

5.5 Health Safety Environment and Technical Competency team members

- Support team leaders, supervisors, workers and managers with advice, training and resources to manage the risks associated with falls and falling objects.
- Develop or assist with developing any necessary safe work procedures and safe work method statements for work where there is a risk of a person falling more than 2 metres.
- Can assist with reviewing, and revising (as necessary), control measures and training arrangements when:
    - introducing a change to work processes, plant or equipment;
    - introducing new control measures; or
    - if there is a change in relevant legislation or other issues that may impact on the way tasks are performed.

5.6 Workers (including staff at all levels)

- All TasNetworks workers need to use TasNetworks training, work practices and tools to manage the risks associated with falls and falling objects.
- Help TasNetworks to identify and assess the risks associated with falls as well as implement control measures.
- Must take all reasonable care for their own health and safety and must not adversely affect the health and safety of other persons. For example, soak up spilt liquids from the floor and don't use chairs or tables to install Christmas decorations.
- Must comply with any reasonable instruction and cooperate with the TasNetworks policies and procedures relating to health and safety at the workplace. This includes compliance with any training requirements and only using fall prevention equipment that has been provided to you by TasNetworks or, for contractors and subcontractors, using equipment that complies with the TasNetworks standards. It also includes inspecting equipment, such as safety harnesses, prior to use.
- Before commencing work, workers must notify their Team Leader or Supervisor if they are required to work with fall prevention equipment and have not been trained to do so.

- The duty of a worker also applies to officers, managers, team leaders and supervisors.

How everyone contributes to managing health safety and environmental matters in general is provided in the TasNetworks Responsibilities Procedure.

6. Reference Documents

The following documents were reviewed as part of developing this procedure:

Legislation
• *Work Health and Safety (WHS) Act 2012* and Regulations
Codes of Practice, Industry Codes, etc
• WorkSafe Safe Tasmania's How to Manage Work Health and Safety Risks, Code of Practice • WorkSafe Safe Tasmania's Managing the Risk of Falls at Workplaces, Code of Practice
TasNetworks Documents
• Responsibilities Procedure • Change Management Procedure • Care and Use of Pole Chairs and Platforms, Work Practice • Services Procedure, Bosun's Chair • Work at Height on Poles, Work Practice • Work at Height on Towers, Work Practice • Work at Height with Unprotected Edges, Work Practice • Work at Height on Wind Turbines, Work Practice
Forms
•
Other Documents/Resources
• Safe Work Australia's Interpretive Guideline – Model Work Health and Safety Act: The Meaning of 'Reasonably Practicable' • Safe Work Australia's Falling Objects, Fact Sheet

7. Records Arising from this Procedure

Record	Storage Location
None	

8. Glossary

Competent person – means a person who has acquired the knowledge and skills to carry out the task through training, qualification or experience. Contact the HSEQ Team to for assistance deciding who is a competent person at TasNetworks.

Fall – means a fall by a person from one level to another.

Hierarchy of control – a method of controlling risks from the highest level of protection and reliability to the lowest. The WHS Regulations require TasNetworks to work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances. From the highest level of protection, the hierarchy is:

- elimination,
- substitution,
- isolation,
- engineering controls,
- administration controls and
- personal protective equipment.

HSE – Health Safety and Environment.

HSEQ – Health Safety Environment and Quality.

HSR – A person elected in accordance with the *WHS Act 2012* to represent workers in a workgroup on work health and safety matters. This person will also represent workers on environmental and sustainability matters.

Officer – A senior executive who makes, or participates in making, decisions that affect the whole, or a substantial part, of the business or undertaking. It can include a director or secretary of the corporation, an officer of the Crown or an officer of a public authority.

JRA – Job Risk Analysis.

Reasonably practicable – a term used to help people understand the extent of how to meet their duties under the WHS laws. It involves considering how reasonable the costs involved with controlling the risk are after assessing the extent of the risk and the ways of controlling it. Next, work through each of the levels of the hierarchy of control to manage risk, so far as is reasonably practicable, before considering the next step. Sometimes a combination of controls will be needed to control a risk.

RMSS – TasNetworks incident management application.

Worker – A worker is someone who carries out work for TasNetworks. It includes employees, apprentices, trainees, students gaining work experience, volunteers, contractors or subcontractors and their employees.

Appendix A – Managing the risk of falls

Identification: consider:

- ✓ Stability, strength and slipperiness of surfaces
- ✓ Changes in ground level, the stability of structures and environment space
- ✓ The evenness and stability of the ground
- ✓ Protection of edges working platforms, walkways, etc.
- ✓ Holes, openings or excavations
- ✓ Places where hand grip may be lost
- ✓ Previous injuries and 'near miss' incidents related to falls

Assess: consider:

- ✓ What could happen if a fall occurred (i.e. who could be injured or affected) and how likely it is it to happen?
- ✓ How servere a risk is? (i.e. how would people be affected and to what extent?) For example, what height could a person fall from?
- ✓ Whether any existing control measures are effective?
- ✓ What action is needed to control the risk?
- ✓ How urgently the action needs to be taken?

Take into account the design and layout, and arrangement of people in the environment. Also consider any other factors such as maintenance of plant and equipment, weather conditions, suitability of footwear, clothing and ladders and the level of knowledge and training.

Control: consider:

- ✓ Can the need to work at height be avoided thereby eliminating the risk of a fall? (i.e. work at ground level where possible).
- ✓ How can the risk of a falling object be eliminated, or if not reasonably practicable, prevent objects from falling freely (i.e. raising and lowering objects safely on a tool belt), or if this is not reasonably practicable, a system to arrest the fall of a falling object (i.e. using a secure barrier or exclusion zone)?
- ✓ Can the risk of a fall be minimised by providing and maintaining a safe system of work, including using a fall prevention device, work positioning system and/or fall-arrest system?

Review: control measures must be reviewed:

- ✓ Before a change at the workplace that is likely to create a new or different health and safety risk that may not be effectively controlled (e.g. before purchasing new fall equipment or before changing the material or design of infrastructure).
- ✓ If a new hazard or risk is identified.
- ✓ If the result of consultation indicates that a review is necessary.
- ✓ If a health and safety representative requests a review.

Appendix B – Harness inspection, use and maintenance

Harnesses must be inspected, used, maintained and stored according to the manufacturer's instructions. This appendix provides an overview on how the TasNetwork DBI-SALA Full Body Harnesses should be inspected, used, maintained, serviced and stored. Contractors and subcontractors harnesses needed to comply with AS/NZS 1891.1-2007 and to manage the risk of suspension trauma, harnesses should be selected in accordance with AS/NZS 1891.4:2009.

INSPECT

Examine your harness before every use. A damaged harness may not protect you in the event of a fall. The following checklist will help you check harnesses are fit for use.

Item	Criteria
Inspect harness hardware (buckles, D- rings, back pad, loop keepers)	Must not be damaged, broken, distorted, and must be free of sharp edges, burrs, cracks, worn parts, or corrosion.
PVC coated hardware	Must be free of cuts, rips, tears, holes, etc. in the coating to ensure non-conductivity.
Ensure buckles work smoothly	If present, inspect the quick connect buckles by ensuring that the release tabs work freely and that a click is heard when the buckle engages.
Inspect parachute buckle spring	Check for damage.
Inspect webbing	Material must be free of frayed, cut, or broken fibres. Check for tears, abrasions, mould, burns or discoloration.
Inspect stitching	Check for pulled or cut stitches. Broken stitches may be an indication that the harness has been impact loaded and must be removed from service.
Inspect labels	All labels should be present and fully legible.

If the harness is defective, remove the unit from service immediately and organise for destruction.

Never use a defective harness

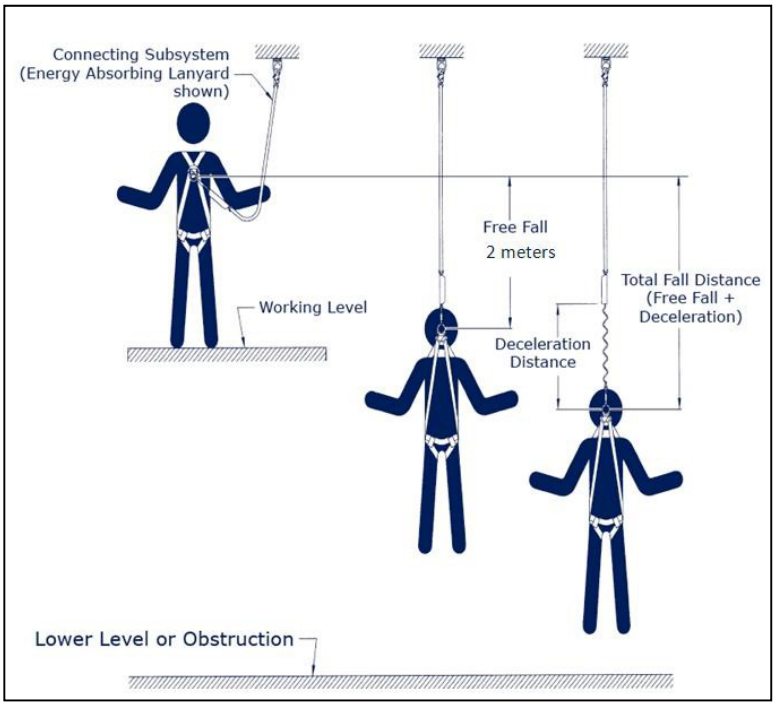
USE

Before use, consider all factors that will affect your safety during use of this equipment. The following list gives important points to consider when planning your system:

A. ANCHORAGE AND CLEARANCE: Select an anchor point with consideration to the weight being held by the harness, the weight that can be held by the anchor point, rigging the restraint system to allow for free fall, allow for fall clearance (including any swing from falling from an anchor point not directly above you) and any hazards in the environment.

Fall-arrest systems, incorporating a lanyard, should be installed so that the maximum distance a person would free fall before the fall-arrest system takes effect is two metres.

Anchor points must be able to withstand 1.5 km of force in accordance with AS/NZS 1891:4 Industrial fall-arrest systems and devices selection, use and maintenance. Each component of the system and its attachment to an anchor point must be inspected by a competent person:



- after it is installed but before it is used;
- at regular intervals; and
- immediately after it has been used to arrest a fall.

B. FIT: make sure you wear your harness correctly. If you are unsure, refer to the manufacturer's instructions or contact your team leader or supervisor before commencing work. Lanyards selected for the fall-arrest harness system should be as short as practical in order to minimise the fall distance, and therefore minimising the potential for injury in the event of a fall.

C. SHARP EDGES: Avoid working where system components may be in contact with, or abrade against, unprotected sharp edges.

D. **RESCUE:** Prepare harnesses for rescue or emergency situations according to training procedures. Further information is available in IMS-WPI-00-55 Performing Pole Top Rescue.

E. **AFTER A FALL:** Components which have been subjected to the forces of arresting a fall must be removed from service and destroyed.

AVOIDING SUSPENSION TRAUMA AND SUSPENSION INTOLERANCE

Suspension Trauma (or Harness Hang Syndrome or Orthostatic Shock) can be caused when workers are suspended motionless from a harness at height (for example, sitting/resting in a harness) for a prolonged amount of time. The risk of suspension trauma occurs when blood has the opportunity during this time to pool in the legs and causing the person to faint.

Suspension Intolerance can occur with a fall-arrest system when a person has had a fall and is suspended in an upright, vertical position with the harness straps causing pressure on the leg veins. The lower legs' capacity to store large amounts of blood reduces the return of blood to the heart, slowing the heart rate, which can cause the person to faint. Suspension Intolerance can be fatal.

Ways to avoid suspension trauma and suspension intolerance:

- Complete the TasNetworks mandatory rescue training before commencing work;
- Never work alone when a harness is required;
- Ensure harnesses are fitted properly (and are not too tight);
- Regular communication between colleagues is needed to make sure the person wearing the harness is always conscious. Be aware of the symptoms, these include: faintness, nausea, sweating, dizziness, paleness and hot flushes;
- Take regular breaks when needed, every five minutes is ideal;
- To avoid suspension trauma, use any suitable foot supports that are available, this can help limit blood pooling in the legs;
- Where possible, move legs while suspended in a harness;
- Rescue suspended persons as quickly as possible, where possible. Sometimes rescue may not be possible if the person cannot be reached. Workers should not put themselves at risk during a rescue;
- Provide first aid and where the person is unconscious and/or has sustained an injury, call for an ambulance;
- Stay with the patient until the ambulance arrives; and
- Report the incident or near hit through RMSS.

STORAGE

Keep harnesses in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapours may exist or where damage could occur from vibration or abrasive objects. Thoroughly inspect the harness after extended storage.