

# WORK AT HEIGHT, DROPPED OBJECTS AND TEMPORARY WORK PLATFORMS

## SAFELY CONTROLLING WORK CRITICAL RISK CONTROL DOCUMENT



We come to work free from impairment, alcohol and drugs



We ensure plant and equipment is safe to use



We work safely at height



We always observe walkways, safe zones and exclusion zones











We always make sure loads are secure and within safe working load limits before moving them



We always follow the Permit process when a Permit is required



Our temporary works are appropriately designed, engineered and installed

DOCUMENT CONTROL			
Document Name	Work at Height, Dropped Objects and Temporary Work Platforms		
Issue Date	01-June-2022		
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DOCUMENT REVIEW			
Date	Revision	Description of Change	Author
1-Dec-2021	1	First document	AE, MJ, OG
1-Jun-2022	2	<ul style="list-style-type: none"><li>• Combined the 3 documents (Working at Height, Dropped Objects and TWP) into 1 document</li><li>• Included page numbers</li><li>• Recommend operators who work at height and use a harness to have suspension trauma leg straps</li><li>• Included harness inspection timeframe (6 monthly)</li><li>• Reworded the first minimum control for dropped object so it reads better</li><li>• Included a recommendation to install timber edge protection 1.0m from the edge if possible</li><li>• Use of stilts safely on site</li></ul>	AE, MJ, OG, AVR, JB

## Work at Height, Dropped Objects and Temporary Work Platforms

Work at height means working in a place where a person could be injured if they fell from one level to another. This can be above or below ground level and at any height level. Work at height does not include slipping, tripping or falling on the same level. Dropped objects hazards are any objects overhead that could fall and cause harm which may include tools or building materials. Dropped objects are often the result of poor housekeeping, openings and unprotected edges. Temporary Work Platforms (TWP) provide a place to work when working at height. They are most often used for work under 5 m. Temporary work platforms include straight ladders, platform ladders, safety steps and other types of work platforms if authorized.

Some activities on our construction sites that involve work at height, dropped objects and TWP include:

- Working on ladders/TWP (e.g. podium /folding platform, safety step, etc.)
- Working on and erecting/dismantling scaffold and mobile scaffold
- Use of an elevated work platform
- Working on a roof/façade or near a trench, opening or live edge
- Man Cage, swing stage, rope access, abseiling
- Lift/window installation/lift shaft
- Temp structure
- Working on flat deck trailer
- Unloading precast elements
- Concrete pours
- Maintenance works
- Lifting operations or tower crane erection, service and dismantling
- Rib and infill installation
- Material storage at height
- Object/Tool ejected
- Demolition work
- Adverse weather conditions

Related safely controlling work documents:

- [Excavations](#)
- [Cranes, Hoists and Other Lifting Activities](#)
- [Underground and Overhead Services](#)
- [Scaffold and Mobile Scaffold](#)
- [Demolition](#)
- [Elevated Work Platform \(EWPs\)](#)

### Risks - What could go wrong?

- Fall from height or TWP causing a fatality or a potentially major injury such as dislocation, crushing, strains/sprains, bruising/lacerations, fractures or serious head injuries including suspension trauma from fall in when using a fall arrest harness system resulting in losing consciousness, brain injury or death
- Tools/materials/other objects falling onto one or more worker's causing fatality or serious injury such as fractures, head injury, crushing or bruising/lacerations
- Unsecured materials falling from height or being blown by the wind causing serious injury such as fractures, head injury, crushing or bruising/lacerations
- For risk associated with scaffold, mobile scaffold, elevated work platforms or excavations refer to the relevant safely controlling work documents

- Temporary work platform collapse, overload or overturn causing multiple fatalities or multiple potentially major injuries such as dislocation, strains/sprains, bruising, lacerations, fractures or serious head injuries

Falls from height is one of the biggest causes for work-related fatalities and serious injuries in New Zealand. Investigations into construction falls from height show that more than 50% of falls are from less than 3 m and approximately 70% of falls are from ladders and roofs. A tool weighing only 3kg falling from a height of 20 metres has an impact force of 600N, which is a force of approximately 60kg. This could cause a potentially fatal injury.

### Controls – How do I keep safe?


The identification of working-at-heights or dropped objects risks, and appropriate control measures are to be fully detailed in a Safe Work Method Statement (SWMS) or similar risk-assessment document prior to commencing any work. There is no minimum working height to implement controls


The SWMS must be reviewed by an appropriate Ryman representative prior to any work commencing and following any changes to the task or environment.

#### Can I eliminate the risk?

Wherever work can be completed without working at height or use of TWP, this should be the first consideration in eliminating risk. Could structures be built at ground level? Could long-handed tools be used from ground level? Could materials not be taken at height?

**Work at height, dropped objects and TWP controls include but are not limited to:**

	Control Type	Control Measure	Control Level
Minimization	<b>Elimination</b>	Remove risk by not working at height (e.g. work at ground level), not using TWP or not having objects at height	Most Effective Control  Least Effective Control
	<b>Substitution</b>	Substitute or replace a hazard or hazardous work practice with a less hazardous one (e.g. provide alternative means of access such as a safe walkway, or use of a lighter object at a lower height)	
	<b>Isolation</b>	Isolate or separate the hazard (e.g. barricade the fall risk area with edge protection, covering open penetrations, barricade area underneath). Barricade may include temporary barriers, using scrim and kickboards around scaffold, flags, bunting etc..	
	↑ WORK ABOVE THE LINE WHERE POSSIBLE TO CONTROL RISK ↑		
	<b>Engineering</b>	This includes use of a fall injury prevention system (e.g. fall prevention designed for precast panels with parapet walls or safety nets). This also include using engineering controls to stabilize a TWP (e.g. using	

Control Type	Control Measure	Control Level
	panel ladders to derig concrete panels). Other engineering control include use of dropped object prevention (e.g. use tool tether, tool bag or carrier)	Most Effective Control  Least Effective Control
<b>Administrative</b>	Introduce work practices that reduce risk e.g. place warning signs for exposure of fall/dropped objects Monitor weather conditions if impact work Scheduling work to limit the amount of time a person is exposed to a hazard Regular inspection of propriety systems as per the manufacturers guidance	
<b>PPE</b>	Use of full body harnesses that complies with AS/NZS 1891.1:2007, lanyards with integral shock absorbers complying with AS/NZS 1891.4:2009. Use of hard hat that complies with AS/NZS 1801:1997, to potentially reduce head impact caused by dropped object. Use of chin strap to minimize the likelihood of a hard hat falling	

**NOTE:** Where the risk cannot be eliminated, a combination of control measures may be appropriate.

### Height Permit

A height permit is required where potential for a fall exists due to a non-routine job activity. Such non-routine job activities include, but are not limited to:

- Working on a swing stage, man cage or suspended scaffold
- Erecting or dismantling a tower crane
- Using a harness for tasks that are not performed regularly or performed for first time
- Using a harness for a maintenance job (scheduled/unscheduled e.g. piling rig maintenance, servicing tower crane)
- Accessing or working on a roof where there is no physical edge protection and 2.0m from the edge or less. If a roof has a pitch of 25 degrees or greater, a height permit must be obtained (regardless of whether there is edge protection or not)
- Installing edge protection where a potential to fall is 2.0m or more e.g. roof/excavation
- Working at height activities using precast concrete panel ladders

See the Work at Height Permit for further information.

### Use of harness systems

#### Recommendation

- Alternative fall control measures should always be considered such as edge protection, scaffold or work platform
- Fall prevention/restraint systems should be given preference over fall arrest systems as they prevent a worker falling rather than suspend them from a fall to the ground

### Minimum Control Requirements

- Use of an anchor point or equivalent that is capable of withstanding the force of a fall
- An emergency rescue plan must be in place, considering scenarios such as a fall in a fall arrest system or a medical event at height. Suspension trauma (also known as harness hand syndrome) can be life threatening when a worker sustains a fall and is suspended in a harness
- If fall arrest is the only option, then the harness lanyard to be equipped with a 1-2m shock absorber (ensure fall distance is greater than impact distance – see point below). It is recommended to have suspension trauma leg straps just in case a person falls from height with a harness. The harness must be inspected every 6 months and have a current inspection tag. The harness must be inspected by the user for damage prior to each use
- The fall distance calculation (distance from working anchor point to ground) must be greater than the impact distance calculation (distance from anchor point to ground + height of person using harness + harness /lanyard length + shock absorber length)
- Calculate the swing distances and ensure the anchor points are positioned appropriately to minimize swing back/pendulum effect

### Edge protection

Edge protection must be installed where there is an exposed edge with a fall potential.

### Minimum Control Requirements

- Mid and top guard rails to be installed in all areas. Top rails 1000mm from platform and mid rails 500mm from platform
- Kickboards installed where there is a risk of dropped objects
- A harness is to be used where there is a risk of a fall from height (see 'Use of Harness Systems' and Training and Competency' section of this document)
- The guard rails must withstand 600N force and 350N force per lineal meter
- Where there is a potential to fall from the access, access points to have gates, chains or other means to minimize risk

### Considerations

- Consider scaffold edge protection (steel/scaffold) instead of timber/other alternatives. Where it is not practical to use scaffold edge protection (e.g. due to floor/ground that cannot be bolted into), the edge protection must be engineered as suitable to protect from falls and installed 1.0m or more from the edge if possible

### Use of safety nets (fall arrest systems)

Key requirements for the safe installation, use and maintenance of safety nets include ([as per and in addition to \(Safe use of safety nets – Good Practice Guidelines\)](#)):

### Minimum Control Requirements

- Any nets supplied must meet the appropriate standards for New Zealand, and are inspected to be in good working order
- Net installers are trained and competent
- Safety nets are attached with tie ropes or karabiners to the supporting structure or to specifically designed anchor points on the structure. Correct use of

anchorage/ties/foundations that are suitable for the application (designed to a standard/engineered specification – that they will withstand the amount of force if a person falls)

- Deflection and catching widths in case of a fall to be calculated by installer
- Enough clear space maintained below the net so that as the net deflects, the person who has fallen does not strike an obstacle or the ground
- Nets to be inspected daily for wear/damage/alterations. Any fallen debris to be removed and damaged/alterations remedied
- A current test label must be displayed on all safety nets older than 12 months: showing the net has been tested in the past 12 months and meets the manufacturer’s minimum test energy absorption capacity

Once the nets have been installed, the installer should give handover documentation to the site. The documents should verify the safety net system is fit for purpose, as well as giving written instructions on:

- rescue procedures (A rescue plan must be in place before work on the nets begins)
- inspection procedures
- removing debris from the nets

**Use of stilts**

Key requirements for the safe use of stilts include ([NZ Best practice guideline for working at height in New Zealand](#)):

**Minimum Control Requirements**

- Stilts can only be used for light duty tasks and preferably for short time duration (less than 2 hours at a time and less than 6 hours per day)
- Use a platform ladder or safety step (see below) for mounting and removing stilts
- Use stilts on level/even/flat ground
- Ensure work area has good housekeeping prior to using the stilts
- Avoid using stilts around penetrations. If not possible, ensure penetrations are closed or barricaded
- Stilts must be maintained, stored, serviced and checked as per the manufacturer’s requirements
- Workers must be competent (e.g. complete in-house training from their company) in the use of stilts
- Workers must avoid leaning forward, overreach or kneel down when using the stilts
- Workers must not carry heavy items while using the stilts. Workers can carry small hand-held tools and tools without leads

**Selecting the right TWP for the job**

TWP should only be used for temporary access. Considerations when selecting equipment include the below. TWP’s should only be used for short duration, low complexity tasks.

What is the duration of the work?	Work that is longer in duration should be completed from a structure such as a mobile scaffold or scaffold that offers improved edge protection.
How complex is the work?	Do you need to use both hands frequently and/or move around on the platform? If so, a mobile scaffold may be a safer option as it offers edge protection and a greater



	working area. Make sure during prestart there are no conflicting activities that may affect the complexity of using a TWP.
What are the ground conditions?	Is the ground flat and firm? If not, consider using a different means of access that poses less risk, or a TWP with a wider base. Make sure there is sufficient space and a clear working area for the equipment base to sit level.

**Recommendation**

- Time on the access platform should be limited wherever possible e.g. do as much of the preparation work as possible on the ground
- Platform ladders are the most preferable temporary work platform as they offer some edge protection and a working platform. Stepladders, trestles and a-frame provide no edge protection and are the most undesirable form of temporary work platform

**Minimum Control Requirements**

Platform ladder/stairs	<ul style="list-style-type: none"> <li>• Commercially rated and comply with AS/NZS 1892 standard</li> <li>• Rated at least 150kg</li> <li>• Inspected prior to use for signs of wear and damage including rungs, feet, stiles</li> <li>• Ladder/stair placement planned so that platform edge protection is correctly utilized</li> </ul>
Safety steps	<ul style="list-style-type: none"> <li>• Commercially rated and comply with AS/NZS 1892 standard</li> <li>• Rated at least 150kg</li> <li>• Only to be used without the need to overreach to do the task</li> </ul>
Straight ladders	<ul style="list-style-type: none"> <li>• <b>This TWP is not the most preferred TWP. A risk assessment must be in place including reason for selection of this TWP and controls to minimize the risk posed</b></li> <li>• Authorized use required and approved by the Ryman Site Management Team</li> <li>• Only used in circumstances where a mobile scaffold/platform ladder are not suitable.</li> <li>• Commercially rated and comply with AS/NZS 1892 standard</li> <li>• Rated at least 150kg</li> <li>• Secured at the top e.g. with hooks</li> <li>• Inspected prior to use for signs of wear and damage including rungs, feet, stiles</li> <li>• Set up 1m out at the base for every 4m at height</li> </ul>
Trestles	<ul style="list-style-type: none"> <li>• <b>This TWP is not the most preferred TWP. A risk assessment must be in place including reason for selection of this TWP and controls to minimize the risk posed</b></li> <li>• Authorized use required and approved by the Ryman Site Management Team</li> <li>• Only used in circumstances where a mobile scaffold, platform or A-frame ladder are not suitable e.g. due to available access space</li> <li>• Commercially rated and comply with AS/NZS 1892 standard</li> <li>• Rated at least 150kg</li> <li>• Inspected prior to use for signs of wear and damage</li> </ul>

Most preferable platform

A-frame ladders	<ul style="list-style-type: none"> <li>• <b>This TWP is not the most preferred TWP. A risk assessment must be in place including reason for selection of this TWP and controls to minimize the risk posed</b></li> <li>• Authorized use required and approved by the Ryman Site Management Team</li> <li>• Only used in circumstances where a mobile scaffold or platform ladder are not suitable e.g. due to limited access space</li> <li>• Commercially rated and comply with AS/NZS 1892 standard.</li> <li>• Rated at least 150kg</li> <li>• Minimize leaning out and over-reaching</li> <li>• Inspected prior to use for signs of wear and damage</li> </ul>
Others	<ul style="list-style-type: none"> <li>• <b>A risk assessment must be in place including reason for selection of this TWP and controls to minimize the risk posed</b></li> <li>• Authorized use required and approved by the Ryman Site Management Team</li> </ul>

**Dropped Objects**

**Recommendation**

Exclusion zones should be established to isolate any area of risk of dropped objects. The location and size of the exclusion zone should take into account the distance in which objects could land as identified in a risk assessment. If exclusion zones are not possible, other controls (e.g. drop nets) should be deployed to catch any dropped objects

**Minimum Control Requirements for Dropped Objects**

- When working from safety nets there must be a risk assessment to identify controls to protect workers below
- Works must be coordinated and communicated between workers to make sure no conflicting activities pose additional risk to workers of dropped objects

**Training and Competency**

For any work at height activity relevant, all workers must be trained and competent. Competencies include:

Activity	Training and Competency
Use of fall arrest system, prevention/restraint harness	Unit Standard 23229 – Use a safety harness for personal fall prevention when working at height
Installation and disestablishment of an anchor point or lifeline	Unit Standard 15757 – Use, install and disestablish proprietary fall arrest systems (such as lifelines, anchor points) when working at height
Installation and maintenance of safety nets	A person who has acquired through a combination of training and qualifications or experience, the knowledge and skills to correctly perform the required task.
Developing an emergency rescue plan	Recommended: Unit Standard 23232 – Develop a rescue plan for recovery of a suspended individual after a fall
Using an EWP	See the Elevated Work Platform (EWP) document for further information.
Erecting/dismantling/altering /inspecting mobile scaffold	See the Mobile Scaffold Section in the document for further information.

Erecting/dismantling/altering /inspecting scaffold	See the Scaffold Section in the document for further information.
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### Supervision

Persons training, or supervising inexperienced workers, must be deemed appropriately trained and competent by their company to train or supervise others within that field.

When assessing the level of supervision required by a trainee, the supervisor or trainer must assess several factors, including but not limited to;

- The worker's experience and competency
- The nature of the work
- The nature of the risks associated with the work including the worksite
- The control measures in place while the worker being supervised is carrying out the work

Inexperienced workers require 'close supervision', this means there must be direct and constant one-on-one management in place.

Approval must be sought from the Project Manager or delegated authority prior to any inexperienced workers working at height.

### Notifiable Work at Height:

Where height work is 5 metres or higher notify WorkSafe if there is a risk of falling.

Notifications can be made via the [WorkSafe website](#). Notifications must be made by Ryman and the contractor. Exclusions include:

- Work in connection with a residential building up to and including 2 full storeys;
- Work on overhead telecommunication or electric lines;
- Work carried out from a ladder only; or
- Maintenance and repair work of a minor or routine nature

Ryman is not required to make a new notification for each stage of the project, if an all-encompassing hazardous work notification is in place for the project for Notifiable Work at Height.

### References and Resources:

[NZ Best practice guideline for working at height in New Zealand](#)

[NZ Best Practice guidelines for working on roofs](#)

[ACC Risk Card – Work at Height](#)

[Safe use of safety nets Best Practice Guidelines](#)

[Safe working with ladders and stepladders fact sheet](#)

[Temporary Work Platforms](#)

[WorkSafe Fact sheet 1: Planning a safe approach to working at height](#)

[Fact sheet 2: Selecting the right equipment for working safely at height](#)

[Fact sheet 3: Short duration work at height](#)

[Fact sheet 4: Edge protection](#)

[Fact sheet 5: Temporary work platforms](#)

[Fact sheet 6: Total restraint system](#)

[Fact Sheet 7: Be safe working on roofs](#)