



**GUIDELINES 2018**

# **ACCESS AND FALL PROTECTION IN RESIDENTIAL CONSTRUCTION**



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# SECTION 1

## INTRODUCTION

IN THIS SECTION:

SCOPE

USING THIS GUIDE

# 1 INTRODUCTION

## 1.1 SCOPE

This guideline is to assist people involved with the construction, alteration and maintenance of residential buildings in NZ to meet the requirements of the Health and Safety at Work Act 2015 (HSWA) and all relevant regulations, including the Health and Safety in Employment Regulations 1995 (HSE Regulations) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (GRWM Regulations).

People installing scaffolding, edge protection, safety nets or soft landing systems should refer to the relevant Best Practice or Good Practice Guidelines and standards for detailed information.

## 1.2 USING THIS GUIDE

This document was developed by stakeholders in the residential construction industry to describe acceptable forms of access (Scaffolding) and fall protection systems in the sector. It also explains the relevant legal requirements of HSWA and the HSE Regulations.

*Guidelines may sometimes be cited as an expected standard of practice if poor practice is being alleged.*

Some requirements and recommendations in the guideline are based on New Zealand and/or International Standards. Refer to the list of standards found in Appendix D.

Some industries have guidelines that deal with specific problems, such as the electricity sector and roofing industry. When deciding how to do a job safely, make sure to check any industry-specific guidance.

A list of guidelines relating to access and fall prevention in residential construction can be found in Appendix D.

# SECTION 2

## ROLES & RESPONSIBILITIES

### IN THIS SECTION:

PCBU

WORKERS

OFFICERS

OTHER PEOPLE AT THE WORKPLACE

OTHER REGULATIONS



## 2 ROLES AND RESPONSIBILITIES

Everyone involved with the workplace has a duty to ensure the safety and health of themselves and others. In some cases, the client on a residential project is responsible for ensuring the safety and health of everyone on the site but are not legally liable.

More information can be found on the WorkSafe NZ website: <http://www.worksafe.govt.nz/worksafe/hswa>

### 2.1 PERSONS CONDUCTING A BUSINESS OR UNDERTAKING (PCBU)

A PCBU may be an individual or an organisation, in most cases the PCBU will be a company.

All PCBUs have a primary duty of care to ensure the health and safety of workers and other people are not put at risk from the work of the business. The PCBU has a primary duty of care to provide and maintain:

- a safe and healthy site
- safe plant and structures
- safe systems of work

#### 2.1.1 PCBUS WITH OVERLAPPING DUTIES

Overlapping duties occur when more than one PCBU has a duty in relation to the same matter, such as:

- on a building site, where more than one PCBU and its workers control and influence the work on site
- in contracting chain, where contractors and sub-contractors provide services to a principal contractor and client.

PCBUs with no contractual relationship may still share overlapping duties, such as when they work on the same site.

PCBUs must co-operate, co-ordinate and consult with others in the workplace. For example:

- two individual sub-contractors collaborate on the scaffold design so that it meets the needs of their specific trades.

#### 2.1.2 UPSTREAM PCBUS

Upstream PCBUs design, manufacture, import, supply or install plant or structures.

Upstream PCBUs must consider potential health and safety risks of their products that could reasonably be expected to be used at a workplace. Examples of upstream PCBUs in residential construction areas:

- Architects and designers.
- Importers and manufacturers of scaffolding, edge protection and safety nets.
- Companies who hire or install scaffolding, edge protection and safety nets.

#### 2.1.3 WORKER ENGAGEMENT, PARTICIPATION AND REPRESENTATION

PCBUs can ensure a safe workplace more effectively when everyone involved in the work communicates with each other to identify hazards and risks, talks about any health and safety and work together to find solutions.

PCBUs must engage with workers on health and safety matters and help workers to participate in the ongoing improvement of health and safety.

More information can be found in the [Good Practice Guidelines to Worker Engagement, Participation, and Representation](#).

## 2.2 WORKERS

A worker is an individual who carries out work for a PCBU and includes employees, contractors, sub-contractors, apprentices, trainees, and volunteer workers.

Workers' must:

- take reasonable care to not cause harm to themselves or any other person
- co-operate with reasonable health and safety policies or procedures of the PCBU
- comply with any reasonable instruction given by the PCBU, so the PCBU can comply with the law
- use PPE in accordance with the information, training or reasonable instruction given by the PCBU
- not intentionally misuse or damage the PPE and inform the PCBU when PPE is damaged or defective, or when it needs to be cleaned or decontaminated.

## 2.3 OFFICERS

An officer is a person in a company with significant influence over the management of the business. Companies can have more than one officer, for example, a building company may have an owner and a manager.

Officers must ensure the company complies with its' duties under the HSWA.

## 2.4 OTHER PEOPLE AT THE WORKPLACE

Other people at a workplace must ensure that they do not adversely affect health and safety of themselves or other people. This may include a property owner visiting the site (This may occur during or outside of working hours.).

## 2.5 OTHER REGULATIONS

The Health and Safety in Employment (HSE) Regulations 1995 (see Appendix B) and the General Risk and Workplace Management (GRWM) Regulations address key issues such as:

- notification of hazardous work
- notifiable incidents
- when scaffolding should be used and that it is fit for purpose
- the requirements and certification of scaffolders and certificates of competence.
- facilities
- first aid
- personal protective equipment (PPE)
- emergency plans
- hazardous substances
- risks associated with working under raised objects and risks associated falling objects.

GRWM regulations 24 and 25 define PCBU duties to manage risks associated with falling objects and working under raised objects.

# SECTION 3

## TRAINING & CERTIFICATION

### IN THIS SECTION:

COMPETENT PERSON

COMPETENCY REQUIREMENTS FOR  
SCAFFOLDING

CERTIFICATES OF COMPETENCE (COCS)

COMPETENCY REQUIREMENTS FOR EDGE  
PROTECTION

## 3 TRAINING AND CERTIFICATION

HSWA states workers and others must be provided with information, training, instruction or supervision needed to protect them from safety and health risks arising from their work.

A competent person is someone who has the knowledge and skills to carry out a particular task. Skills and knowledge may be acquired through training, qualification, or experience, or a combination of these. NZQA registered unit standards may assist in confirming training.

An operator must hold a Certificate of Competence to erect, alter or dismantle scaffolding with components over 5m high.

### 3.1 COMPETENT PERSON

A competent person must be able to demonstrate all the following:

- knowledge of the basic rules of physics and mathematics as they apply to the work, or the ability to readily access the information
- thorough knowledge of the equipment or product being used
- competency to visually inspect the equipment for faults
- knowledge of the assembly methods and design requirements associated with the equipment
- ability to read and understand suppliers' information, general site plans, design drawings and specifications for the work
- ability to erect and dismantle systems in the correct sequence
- ability to identify the common hazards of the work and take effective precautions to control the risks resulting from the hazards
- the physical skills needed for the work
- knowledge of the use, care and maintenance of the required PPE
- competency in manual lifting techniques
- ability to work safely and confidently at heights
- ability to use appropriate tools and equipment correctly
- knowledge on the prevention of falling objects.

A person can demonstrate competence through an appropriate combination of training, experience and qualification.

#### 3.1.1 WORKERS WHO ARE NOT FULLY COMPETENT

A worker who is not competent to work without supervision can be involved in work if they are under the direct supervision of a person who is competent to carry out the work (an operator).

#### 3.1.2 DIRECT SUPERVISION

Direct supervision means within reach or in visual contact. The operator is responsible for monitoring the work and ensuring compliance with regulations and recommended practice. They must be able to take immediate charge in an emergency.

The appropriate ratio of operators to others who are not competent depends on the level of experience and competence of each worker, the complexity of the work being undertaken, and the risks associated with any mistakes that may be made by workers.

See WorkSafe’s fact sheet [Providing information, training, instruction or supervision for workers](#) for aspects to consider when deciding what information, training, instruction and/or supervision to provide.

## 3.2 COMPETENCY REQUIREMENTS FOR SCAFFOLDING

Operators must meet the requirements set out in 3.1 and:

Table 1: Competency requirements based on height of scaffold

HEIGHT OF SCAFFOLD (MEASURED FROM THE HIGHEST COMPONENT)	PERSON PERMITTED TO ERECT THE SCAFFOLD
Up to 5 metres	Competent person
5 metres and above	Scaffolder who holds a certificate of competence

Design of some types of scaffolding must be undertaken or verified by a chartered professional engineer (CPEng). Refer to the Scaffolding GPG.

### 3.2.1 UNIT STANDARDS

Some unit standards may assist in demonstrating competence to erect scaffolds less than 5m high and to work at height using fall arrest equipment.

Table 2: NZQA registered unit standards

UNIT STANDARD	TITLE
9184	Erect and dismantle non-notifiable prefabricated frame scaffolding up to five metres in height.
13016	Demonstrate knowledge of the erection and dismantling of scaffolding up to five metres in height.
13053	Erect and dismantle scaffolding up to five metres in height.
23229	Use safety harness system when working at height.
15757	Use, install and disestablish temporary proprietary height safety systems when working at height.

## 3.3 CERTIFICATES OF COMPETENCE (COCS)

When determining whether a certificate of competence is required, the 5-metre measurement is taken from ground to the highest component of the scaffold.

COCs are issued by SARNZ (Scaffolding, Access and Rigging New Zealand Inc.) under the delegated authority of WorkSafe and are valid for 4 years.

COCs are issued in the classes of elementary, intermediate, advanced and suspended.

Most scaffolding for residential construction work can be erected, altered and dismantled by an elementary scaffolder.

## **3.4 COMPETENCY REQUIREMENTS FOR EDGE PROTECTION**

Operators must meet the requirements set out in 3.1 and:

### **3.4.1 PROPRIETARY EDGE PROTECTION SYSTEMS (INCLUDING ROOF EDGE PROTECTION SYSTEMS)**

May be erected, altered or dismantled according to the AS/NZS4994 and manufacturers supplied information and instructions by a competent person following a safe method of work.

### **3.4.2 EDGE PROTECTION USING SCAFFOLDING EQUIPMENT AND LESS THAN 5M TO THE HIGHEST COMPONENT**

May be erected in accordance with the Good Practice Guidelines for Scaffolding by a competent person.

### **3.4.3 EDGE PROTECTION USING SCAFFOLDING AND 5M OR MORE TO THE HIGHEST COMPONENT**

Must be erected in accordance with the Good Practice Guidelines for Scaffolding by a scaffolder with a Certificate of Competence.

### **3.4.4 COMPETENCY REQUIREMENTS FOR SAFETY NETS AND SOFT LANDING SYSTEMS**

Operators must meet the requirements set out in 3.1 and:

Safety nets and soft landing systems may be installed, altered and dismantled following manufacturers supplied information and instructions and in accordance with the Best Practice Guidelines for Safe Use of Safety Nets or Best Practice Guidelines for Use of Soft Landing Systems by a competent person.

# SECTION 4

## SITE MANAGEMENT AND PLANNING

### IN THIS SECTION:

SAFE SYSTEM OF WORK

PLANNING

SITE ASSESSMENT BEFORE WORK STARTS

UTILITY AND OTHER SERVICES

EQUIPMENT INSPECTION

SECURING THE WORK AREA

MANAGING TRAFFIC

MOBILE PLANT AND MACHINERY

SUPPORTING STRUCTURE

EMERGENCY PLANNING

WORKING ALONE

PERSONAL PROTECTIVE EQUIPMENT (PPE)

FITNESS FOR WORK

## 4 SITE MANAGEMENT AND PLANNING

Site management includes everything from ensuring there are adequate facilities, PPE, and equipment to do the work, to site-specific issues like managing mobile plant or notifying work where a person can fall more than 5 metres. All risks associated with the construction work, including any connected work such as scaffolding, must be controlled so they do not cause harm to anyone.

### 4.1 SAFE SYSTEM OF WORK

Develop a safe system of work before a project starts and at each stage to make sure the work happens in the right location with the right plant and equipment on site and with the right workers with relevant competencies.

Engage with workers carrying out the work and their representatives, and if you are working with other trades, co-operate, co-ordinate and consult with them so far as is reasonably practicable.

A safe system of work should include:

- engaging with other trades and workers
- identifying any health and safety hazards and risks
- carrying out a risk assessment
- describing how any identified risks will be controlled, for example, scaffolding, edge protection, safety nets
- describing how controls will be implemented, monitored and reviewed
- consulting a competent person regarding temporary works design if required
- a safe work method statement
- assigning responsibilities
- communication systems
- accident investigation and reporting methods
- emergency procedures.



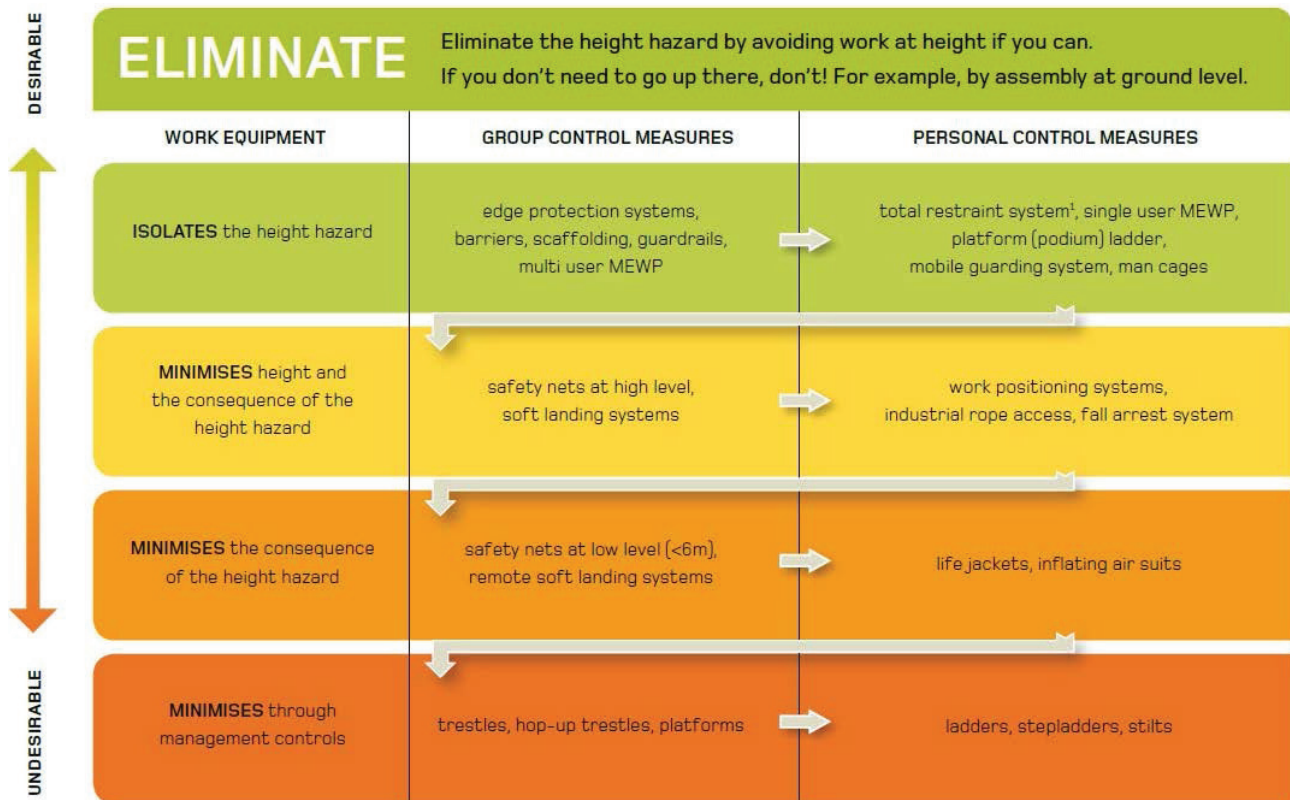


Figure 1: Hierarchy of controls

## 4.2 PLANNING

Risks associated with working at height and controls should be considered before any construction work begins on site. Controls will depend on many factors including:

- the size and duration of the project
- ground conditions such as slope, stability and available space
- building characteristics
  - Single or multiple units
  - Construction programme
  - Single, double or multiple storey
  - Cladding type
  - Roof pitch
  - Roof overhang
  - Window and door sizes
  - Decks and balconies.

The person in control of the project must engage with others involved to ensure that the appropriate controls will be used and that responsibility for the supply of the controls is allocated.

The controls will be included in the Safe Method of Work and should be included in the construction programme to minimise risk, reduce delays and maximise productivity.

Planning will assist in maximising efficiencies as well as minimising risk, for example:

- all roof penetrations being completed before roof edge protection is removed
- using the correct scaffold configuration for laying bricks will speed up work and reduce injuries from over-reaching.

**Refer to APPENDIX F: Sample Task Planner (Worked example)**

**Refer to APPENDIX G: As an example of planning the use of appropriate systems.**

## 4.3 SITE ASSESSMENT BEFORE WORK STARTS

Before installing measures to control risks (Scaffolding, edge protection, soft landing systems) the operator should consider the purpose of the control and any conditions that may affect its use:

CONSIDERATION	CHECK ✓
What is the purpose of the scaffold, edge protection, safety net or soft landing system and who will be using it?	<input type="checkbox"/>
What is the nature of the ground, surface or structure on which the equipment is to be supported? Does it need to be verified for load-bearing capacity?	<input type="checkbox"/>
How will the equipment be stabilised? If it will be tied to a structure, how will this be done?	<input type="checkbox"/>
Will the equipment be subject to environmental loads such as funnelling wind, vehicle impact, or snow?	<input type="checkbox"/>
How will workers and vehicles access the site and the area for storage of material and equipment?	<input type="checkbox"/>
Does the scaffolding, edge protection, safety nets or soft landing system create risk for workers on or around it?	<input type="checkbox"/>
Are there electrical conductors or cables near the equipment? Could the equipment or workers come into contact with them at any stage of the process? (i.e. delivering equipment to the site, erection, associated use and work activity, and eventual dismantling/removal from site.)	<input type="checkbox"/>
Is there sufficient space to erect the scaffold, edge protection, safety nets or soft landing system and store materials?	<input type="checkbox"/>
Is the scaffold or edge protection to be erected on a public roadway or footpath, and what are the local authority requirements?	<input type="checkbox"/>
How will the site be protected from unauthorised access?	<input type="checkbox"/>
Is pedestrian access through the site required? How will this be managed?	<input type="checkbox"/>
Is a specific traffic management plan required?	<input type="checkbox"/>
Are there any other potential hazards specific to the site?	<input type="checkbox"/>
Does the work need to be notified to WorkSafe? (see Appendix C for information on notifications) Should anyone else be notified?	<input type="checkbox"/>

## 4.4 UTILITY AND OTHER SERVICES

Services include gas, water, stormwater, sewerage, telecommunications and electricity supply in pipes or lines. Identify and manage hazards and risks associated with underground and overhead services in the planning and design stages. In the first instance, contact the service owner for advice before developing your safe work method.

#### 4.4.1 MINIMUM APPROACH DISTANCES (MADS) NEAR POWER LINES OR ELECTRICAL CONDUCTORS

Power lines and electrical conductors can cause harm to anyone handling, erecting or dismantling or handling equipment or when working on or near a power line. MADS must be adhered to. They apply to the person and to anything held by them or anything they handle while on the scaffold or building. This will apply to handling equipment such as scaffold tubes, roof rails, roofing sheets and spouting.

Stay at least (Including any tools or equipment):

- **4 metres** from overhead power lines or electrical conductors, unless you have written consent from the local electricity network company or power line owner
- **6 metres** for 110 kV and above, under any circumstances.

See [www.med.govt.nz/energysafety](http://www.med.govt.nz/energysafety) or Appendix D.

### 4.5 ARRIVAL OF MATERIALS ON SITE

- Delivery vehicles must be loaded and secured adequately and in such a way as they can be unloaded safely on site.
- Delivery vehicles must be unloaded safely without risking a fall or material falling on to workers.
- Stack equipment in an appropriate and secure location on site, particularly when work is near to a public thoroughfare.

Equipment inspection

Used equipment should be inspected before use to identify items that are unsuitable or that fail to comply with relevant standards or supplier's or manufacturer's guidelines.

Unauthorised repairs or alterations of equipment may lead to catastrophic failure.

### 4.6 SECURING THE WORK AREA

Site security should consider all risks to workers and others. Establish the work activity's boundary before securing the work area. Each work activity may be smaller than the whole workplace, so as each work activity moves its boundary moves with it. As the work boundary moves, so far as is reasonably practicable minimise risk to workers and others outside the work activity.

Other people near the work have a responsibility to take reasonable care that their actions (or lack of action) do not put themselves or others at risk. They must also comply with any reasonable instruction.

When organising site security and site access, consider:

- warning or hazard signs
- supervising authorised visitors
- the risk of unauthorised access occurring (consider schools, parks, shops or other public places, or amenities and events nearby)
- members of the public
- other workers and mobile plant on site
- vehicle traffic control within and near the site
- delivery points, including vehicle access and egress
- safe and secure storage of materials (e.g. stacked equipment)

- control of energy sources (e.g. temporary mains service boxes)
- suitably designed and constructed physical barriers (e.g. safety fences, lockable gates, or covers).

## 4.7 MANAGING TRAFFIC

Management of traffic and pedestrians needs to be considered when delivering equipment, working on or adjacent to a road or footpath or when delivery vehicles are parked on a road and equipment is stacked or carried across the footpath.

If pedestrians must be diverted into traffic flows, a traffic management plan must be drawn up by a site traffic management supervisor. All steps must be taken to protect them along the entire alternative route. Consider that an alternative route may be used by people with prams, or by people in wheelchairs or with walking aids. It may require the erection of:

- temporary hoardings
- warning signs
- barricades
- ramps over obstacle areas etc.

For more information refer to NZTA's *Code of Practice for Temporary Traffic Management* available on NZTA's website - [www.nzta.govt.nz](http://www.nzta.govt.nz)

See Appendix D.

## 4.8 MOBILE PLANT AND MACHINERY

Mobile plant and machinery including vehicles are a serious hazard with risk of serious injury or death.

Work involving mobile plant and machinery including delivery vehicles should be separated from other work being carried out on site and the public. Where possible, plan the work so vehicles and pedestrians are not in the same area at the same time.

Care must be taken to prevent damage to scaffolding and edge protection from mobile plant such as excavators, cranes and delivery vehicles. Excavations must be kept a safe distance from the foundation of scaffolds.

## 4.9 SUPPORTING STRUCTURE

- Confirm that foundations, ground conditions or supporting structure are adequate to support the required loads.
- Examine the building or structure. If there are concerns about positions of anchor points, etc., obtain advice before continuing.

Refer to Scaffolding GPG.

## 4.10 EMERGENCY PLANNING

Workers must be trained and familiar with emergency plan and procedures covering any likely type of emergency. It needs to be maintained, regularly tested and improved to remain effective.

Emergency plans should be developed with workers. Workers should be trained in the emergency plan. The plan should be available and accessible to the people who need it. To ensure a co-ordinated response to an emergency, the emergency plan should be incorporated into any broader construction project emergency plan and be communicated to all workers.

Planning must determine all the potential emergency conditions. A suitable response must be developed for each credible emergency.

It should include:

- competent personnel available to carry out a rescue
- first aid and medical provisions and who is trained to administer first aid
- where the nearest emergency centre is
- location of alarms, fire extinguishers and escape routes.

## 4.11 WORKING ALONE

Where a worker is alone, a system must be used to monitor their safety (e.g. a man down signalling device).

Lone workers should not be working in fall arrest.

GRWM Regulation 14 requires that the PCBU prepare, maintain, and implement an emergency plan.

## 4.12 PERSONAL PROTECTIVE EQUIPMENT (PPE)

As well as the regulations around providing, using, and maintaining PPE, there are standards that the PPE should meet, and expectations about when and where to use it.

PPE	USE
Helmets	<ul style="list-style-type: none"> <li>• Wear at all times.</li> <li>• Rated for multiple impact and have a chin strap or other means of ensuring it stays on when working at height.</li> <li>• Do not wear over other headgear unless approved merino skins or helmet liners.</li> </ul>
Safety footwear	<ul style="list-style-type: none"> <li>• Wear at all times on a construction site.</li> <li>• Appropriate to use, for example, soft gripping soles for roof work, ankle support and puncture resistant soles for general construction work.</li> </ul>
Hi-Viz	<ul style="list-style-type: none"> <li>• Wear at all times.</li> </ul>
Hearing protection	<ul style="list-style-type: none"> <li>• Clearly label with its rating.</li> <li>• Wear when needed.</li> </ul>
Eye protection	<ul style="list-style-type: none"> <li>• Wear when needed.</li> </ul>
Gloves	<ul style="list-style-type: none"> <li>• Wear to protect the hands and prevent components slipping.</li> <li>• Wear when needed.</li> </ul>
Harness systems	<ul style="list-style-type: none"> <li>• Use if exposed to a fall. Section 6 provides advice on fall-prevention while installing scaffolding, edge protection and safety nets.</li> </ul>
Respiratory protection	<ul style="list-style-type: none"> <li>• When there is a risk of exposure to airborne contaminants.</li> </ul>

See Appendix D.

## 4.13 FITNESS FOR WORK

Many things can impact on a worker's competence. Fatigue can lead to serious injury. Workers must be able to take regular, quality rest breaks.

Work should be well planned and scheduled to allow enough time for work flow changes (e.g. adverse weather) and completion so as not to put undue pressure on workers.

For more information, see the Fatigue in construction factsheet at: [www.business.govt.nz/worksafe/construction](http://www.business.govt.nz/worksafe/construction). [There should be a fatigue policy covering hours of work, roster patterns, days of work/time off between shifts.](#)

A policy should be in place to constructively manage alcohol and other drug-related hazards.

## 4.14 OTHER CONSIDERATIONS

Planning considerations should include discussions on:

- permits/consents/notifications
- site-specific documentation which could include:
  - health and safety policy
  - summary worksite safety plan
  - worksite emergency procedures
  - worksite safety induction card
  - visitor and worksite induction register
  - accident/incident register
  - injury/ill-health/incident reporting
  - hazard identification
  - site-specific risk assessment
  - safe or standard operating procedures
- quality plan
- overhead services and underground service plans
- construction plans
- weather conditions (e.g. time of year, expected conditions etc)
- interaction with other trades
- provision of adequate facilities

# SECTION 5

## FALL PROTECTION FOR OPERATORS

### IN THIS SECTION:

PERSONAL FALL PROTECTION

USING FALL ARREST SYSTEMS

ANCHOR POINTS

COMMON RISKS

HOW TO PREVENT THE PENDULUM EFFECT

INSPECTION AND MAINTENANCE OF FALL ARREST  
EQUIPMENT

RESCUING A PERSON FROM A FALL



## 5 FALL PROTECTION FOR OPERATORS (INSTALLERS OF SAFETY SYSTEMS)

Operators installing scaffolding and fall protection systems must use safe work methods which eliminate or minimise the risk of falling and other risks as far as is reasonably practical. Safe operating procedures should be developed and followed by all operators and workers.

Fall protection systems must be appropriate for the intended task and workers must be trained in how to use them safely. All equipment must be inspected regularly.

Where possible the risk of a fall should be isolated by using safe work methods such as advanced guardrails or sequential erection system for scaffolding, using mobile towers or sequential erection procedures to erect edge protection.

A fall arrest harness with appropriate attachment equipment and anchorage for the task should be worn if there is any risk of a fall or required for rescue readiness.

Workers should be hooked on in all situations where there is a risk of a fall.

### 5.1 PERSONAL FALL PROTECTION SYSTEMS

Personal fall protection systems allow an operator to be protected by using a harness system while working at height. The system must be appropriate for the intended task.

These systems require a high level of user competency and supervision. Operators installing scaffolding, edge protection and safety nets must be trained in the use of fall arrest systems and safety harnesses. Ongoing competency should be assessed and demonstrated.

#### 5.1.1 FALL RESTRAINT

A restraint system prevents a person from coming close to an unprotected edge, so they are not able to fall. If the system can be adjusted so a person can reach a position where they can fall, the system is known as restraint technique and must be rated as a fall arrest system.

#### 5.1.2 WORK POSITIONING SYSTEMS

A work positioning system is a system that enables a person to work supported in a harness in tension in such a way that a fall is prevented. Work positioning systems should be designed and set up to allow a person to work safely and in reasonable comfort. The system should be rated as a fall arrest system.

#### 5.1.3 FALL ARREST SYSTEMS

Fall arrest systems are designed to catch and hold a person if they fall. They consist of a harness connected to an anchorage point. They do not prevent the fall from occurring.

The arresting force on the person must be less than 6 kN (610 kg). This can be achieved with a lanyard assembly that is no more than 2 metres long and with an appropriate fall arrest device. The lanyard assembly must include an appropriate shock-absorbing device.

The lanyard must be attached to the harness at the top dorsal (back) attachment or to the front chest attachment on the harness. The anchor point should be within easy reach but as high as practicable. When working in fall arrest the worker must maintain 100% hook on at all times.

If working with fall arrest equipment, consider:

- the rescue method when someone is suspended in a harness.

- the equipment necessary for a rescue
- information on suspension trauma

Lone workers should not work in fall arrest situations.

## 5.2 USING FALL ARREST SYSTEMS

### 5.2.1 HARNESSES

It is essential that the correct safety harness is chosen. When correctly fitted, a harness should fit comfortably and firmly with enough room to slide a hand between the webbing and the body.

### 5.2.2 LANYARDS

Lanyards connect the harness to an anchor point, a horizontal life line, a rail, or some other form of anchorage. Double or twin-tailed lanyards have an additional safety factor that allows the user to be connected to an anchor point by one or other of the tails at all times. An appropriate lanyard and anchorage must be used to suit the task and situation.

The lanyard should be as short as possible to minimise the distance of a potential fall.

## 5.3 ANCHOR POINTS

Anchor points must have a minimum ultimate strength of 15 kN (1500 kg) for use by one person. It is unlikely a suitable anchor can be achieved for more than one person on a residential structure.

Safety harness systems should be attached to anchor points above shoulder height and behind the worker if possible.

### 5.3.1 WHEN TO HOOK ON TO AN ANCHOR POINT

Where there is a risk of a fall that could cause harm, workers must hook onto the first available anchor point.

## 5.4 COMMON RISKS

Fall arrest systems have limitations and dangers. It is essential for a worker who has fallen to be rescued as quickly as possible. Procedures must be detailed in an emergency plan before any work takes place.

### 5.4.1 RISKS ASSOCIATED WITH USING FALL ARREST EQUIPMENT

- Lanyards that are too long can result in the user swinging down and striking the ground or other objects (pendulum effect).
- The user can be too heavy or too light for the shock absorber.
- A fall arrest system can fail if inappropriate anchor points (not strong or high enough or too close to an edge) are used.
- A worker who has fallen and is suspended in a harness can develop a condition in which blood pooling in the legs can lead to loss of consciousness and death
- People rescuing someone who has fallen face risks to their own safety.
- A worker disconnects from the anchor points because their movement is restricted, exposing them to the risk of a fall.
- A person is not correctly connected to the attachment and the connection fails under the load.

## 5.5 HOW TO PREVENT THE PENDULUM EFFECT

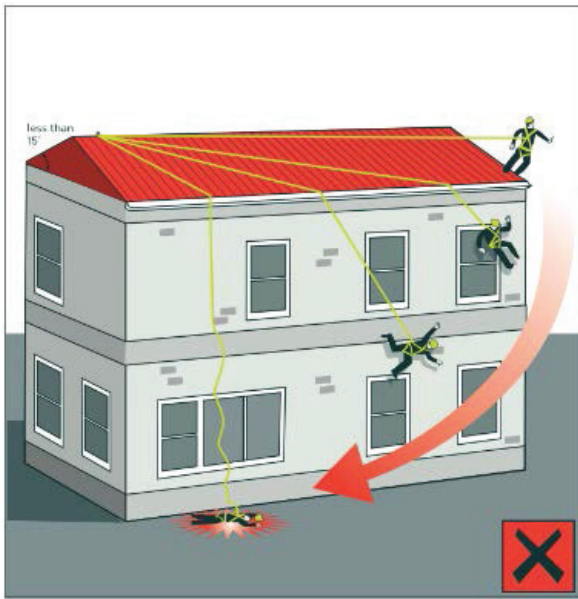


Figure 2: Pendulum effect caused by anchor line too long (left) and anchor point swing back (right)

Select an anchorage point at a right angle to the position of the line at the perimeter edge. If a right angle to the work position is not possible to achieve, the anchor point should be no more than 30 degrees to the work position. A mobile anchorage may be used.

- Use a secondary anchor point and/or an anchor line.
- Use a perimeter guardrail to prevent the possibility of a fall.
- Use a work positioning system, or some other means of access such as an elevating work platform.

## 5.6 INSPECTION AND MAINTENANCE OF FALL ARREST EQUIPMENT

Most fall arrest/restraint equipment has a service life of 10 years from the date of manufacture. However, harsh work environments may mean that equipment lasts only a few years.

Daily inspections must be done by the user of the equipment and they must be competent to do so.

Most equipment requires thorough inspection by a competent person six-monthly. These checks must be recorded for each individual item of equipment.

## 5.7 RESCUING A PERSON FROM A FALL

When using any personal fall protection system, a rescue plan must be in place.

- There should be enough workers on site that have been suitably trained in rescue procedures and the use of specialist rescue equipment.
- Workers must be familiar with and regularly practice specific techniques for rescuing personnel working with fall arrest equipment.
- Specialist rescue equipment must always be available, and maintained and inspected regularly to ensure that it is in good order and ready to be used whenever it may be required

## SECTION 6

# DESIGN REQUIREMENTS FOR SCAFFOLD AND FALL PREVENTION SYSTEMS

### IN THIS SECTION:

GENERAL

SCAFFOLD

EDGE PROTECTION SYSTEMS

SAFETY NETS

SOFT LANDING SYSTEMS  
DESIGN  
REQUIREMENTS FOR SCAFFOLD AND FALL  
PREVENTION SYSTEMS

## 6 GENERAL

Scaffolding and edge protection should meet current New Zealand Standards and Guidelines.

Collective fall arrest systems (Safety nets and soft landing systems) should meet international standards and New Zealand Guidelines.

Suppliers of scaffold, edge protection and collective fall arrest systems have a duty of care to ensure equipment complies with appropriate standards and is accompanied by manufacturers product information including:

- a list of all components with clear descriptions which should include weight.
- instructions for erection, dismantling, use, transportation and storage
- guidance for the servicing and inspection of the equipment and rejection of damaged components
- limitations of the system.

### 6.1 SCAFFOLD

#### 6.1.1 PREFABRICATED SCAFFOLD SYSTEMS

Prefabricated scaffold systems should meet the requirements of 6.1 and:

- meet the requirements of AS/NZS1576 parts 1,2,3 and AS/NZS1577
- product information should also include details to determine:
  - duty loadings
  - maximum heights
  - maximum number of working platforms

#### 6.1.2 TUBE AND COUPLER SCAFFOLDS

Tube and coupler scaffolds should meet the requirements of:

- AS/NZS1576.1 parts 1,2,3 and AS/NZS1577
- Good Practice Guidelines for Scaffolding.

### 6.2 EDGE PROTECTION SYSTEMS

#### 6.2.1 PREFABRICATED EDGE PROTECTION SYSTEMS

Prefabricated edge protection systems should:

- comply with 6.1
- meet the requirements of AS/NZS4994.1

Product information should also include:

- system limitations including roof slope, maximum rafter length, whether it is designed and tested for dynamic loading, etc.
- acceptable configurations including maximum span of rails, maximum extension of rails past posts, acceptable corner configurations, etc.
- requirements of the supporting structure including minimum size and grade of studs, rafters, etc. and the maximum span of those components.

## 6.2.2 EDGE PROTECTION SYSTEMS USING SCAFFOLDING

Edge protection systems using scaffolding must:

- comply with 6.1 and 6.2
- meet the performance requirements of AS/NZS4994.

## 6.3 SAFETY NETS

Safety nets used horizontally with a continuous boundary rope for collective fall arrest (System) should:

- meet the requirements of 6.1
- comply with class A of BS/EN1263-1
- be constructed of knotless, square mesh
- have a label attached showing:
  - manufacturers name and article code
  - date of manufacture
  - class and size of net
  - mesh size and configuration
  - unique identity or serial number
  - minimum energy absorption capacity
  - type of ongoing net inspections
- have at least three test samples attached when new
- when a net is 12 or more months old it must have a label attached showing the net has been tested within the last 12 months and meets the manufacturers minimum test energy absorption capacity.

- 

## 6.4 SOFT LANDING SYSTEMS

Soft landing systems should:

- comply with 6.1
- comply with BS publication PAS59: Specification for collective fall arrest soft landing systems (See note) or manufacturers information
- have a label showing:
  - the name of the manufacturer
  - date of manufacture
  - unique identity or serial number
  - nominal dimensions (length, width, height)
  - weight of the mat
  - maximum fall height the mat is designed for
  - evidence of non-ignitability
  - if the mat is directional it must be clearly marked which way is up
  - compliance with PAS 59, if applicable
- be supplied with product information including:
  - the need for the mats or bags to be installed by a competent person authorised by the manufacturer or supplier
  - how to prevent the modules from separating
  - limitations of use such as maximum free fall height
  - how to carry out a rescue
  - how to inspect and deal with the mats or bags after a fall or other significant impact.

**Note:** PAS 59: 2014 only applies to soft-filled systems and air/gas-filled systems where the volume of individual cells is less than 0.5% of the volume of the module in which the cells are inserted.

It does not apply to air/gas-filled systems that are designed to be inflated and deflated on site, or where the individual cell volume is greater than 0.5% of the volume of the module in which they are inserted.

Sealed air bag systems should be tested to the performance requirements of PAS 59:2004.

# SECTION 7

## SCAFFOLD CONSIDERATIONS

### IN THIS SECTION:

MINOR SCAFFOLDS

TOWERS AND MOBILE SCAFFOLDS

BRACKET SCAFFOLDS

VOID SCAFFOLDS

PERIMETER SCAFFOLDS

PERIMETER SCAFFOLD FOR ROOF EDGE  
PROTECTION

PERIMETER SCAFFOLD FOR CLADDING

PERIMETER SCAFFOLD FOR BRICKLAYING

PERIMETER SCAFFOLD FOR BLOCK LAYING



# 7 SCAFFOLD CONFIGURATIONS

All scaffolds should be erected in accordance with the Good Practice Guidelines for Scaffolding in NZ.

All scaffolds should be fitted with a completed scaffold tag and be inspected regularly by a competent person as per section 11.2.

## 7.1 MINOR SCAFFOLDS

A minor scaffold is a lightweight, portable, single bay scaffold with a working platform that cannot extend more than 2m in height. These scaffolds are very useful when working within a building structure or on a slab.

- Minor scaffolds must comply with the requirements of the GPG for Scaffolding in NZ and AS/NZS 1576 parts 1 and 3.
- Minor scaffolds must be erected in accordance with manufacturers information and the GPG for Scaffolding.
- Many minor scaffolds are designed so that the frames and braces fold out meaning there are few individual components.
- Minor scaffolds are usually designed to be used only on a hard, smooth surface such as a floor or slab.
- Minor scaffolds must have a minimum base width of at least half the height of the working platform or be fitted with outriggers.
- Minor scaffolds are easy to erect and require less training to become competent than most other forms of scaffold.

## 7.2 TOWER AND MOBILE SCAFFOLDS

A tower scaffold is free-standing scaffold of one bay. A mobile tower is supported on wheels or castors, so it can be moved on a firm, level surface.

Most tower scaffolds are constructed of aluminium frame systems or prefabricated steel systems.

Tower scaffolds are useful when accessing work that is localised such as installing a light fitting or flashing. Towers may not be productive when access is required on an area covering more than the length of one scaffold bay as moving the scaffold can be time consuming.

- Tower scaffolds must comply with the requirements of the GPG for Scaffolding in NZ and AS/NZS 1576 parts 1 and 3.
- Tower scaffolds must be erected in accordance with manufacturers' information and the GPG for Scaffolding. If there are components over 5m high they must be erected by a scaffolder with a Certificate of Competence.
- Tower scaffolds must have a minimum base width of at least one third the height of the working platform or be fitted with outriggers.
- Mobile tower scaffolds must not be moved with persons, material or equipment on them.
- Mobile scaffolds must have the brakes locked on all castors before use.

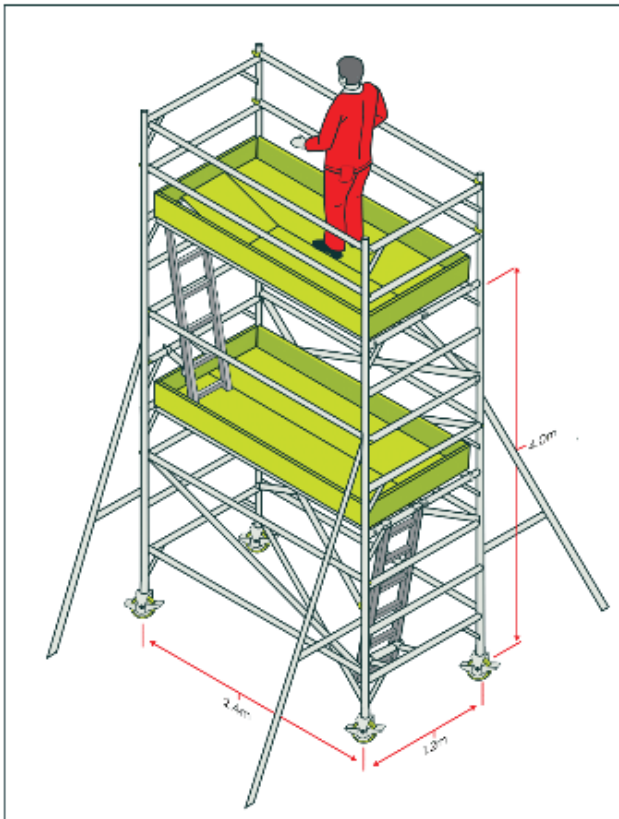


Figure 3: Mobile tower with outriggers

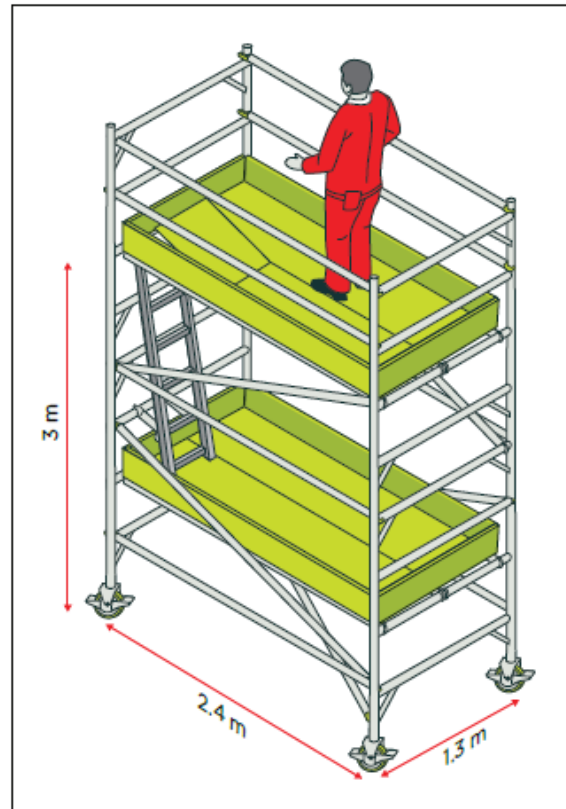


Figure 4: Mobile scaffold without outriggers

## 7.3 BRACKET SCAFFOLDS

Bracket scaffolds are constructed using prefabricated brackets which are hung from the top plate or fixed to the studs of the building.

Bracket scaffolds have the advantage of being free from the ground enabling excavation and similar work to proceed. They have the disadvantage of being fixed to the building which usually prevents installation of building wrap and cladding.

- Bracket scaffolds must comply with the requirements of the GPG for Scaffolding in NZ and AS/NZS 1576 parts 1 and 3. If used for edge protection the system must be designed and tested to withstand impact forces as per AS/NZS4994.
- Bracket scaffolds must be erected in accordance with manufacturers' information and the GPG for Scaffolding. If there are components over 5m high they must be erected by a scaffolder with a certificate of competence.
- Bracket scaffolds are usually limited to light duty and care must be taken not to overload them. If bracket scaffolds are used for edge protection the platform must be rated to medium duty.
- Care must be taken to ensure the supporting structure is not overloaded or weakened by using fixings such as bolts.
- Workers erecting bracket scaffolds must be competent in understanding the limitations of the supporting structure as well as the requirements for erecting the scaffold.

## 7.4 VOID SCAFFOLDS

Void scaffolds are prefabricated systems consisting of a working platform supported on horizontal members which are supported by the building structure.

Void scaffolds are used to fill penetrations such as atriums and stairwells.

- Void scaffolds must comply with the requirements of the GPG for Scaffolding in NZ and AS/NZS 1576 parts 1 and 3.
- Void scaffolds must be erected in accordance with manufacturers' information and the GPG for Scaffolding. If there are components over 5m high they must be erected by a scaffolder with a certificate of competence.
- Void scaffolds are usually limited to light duty and care must be taken not to overload them.
- Care must be taken to ensure the supporting structure is not overloaded or weakened by using fixings such as bolts.
- Workers erecting void scaffolds must be competent in understanding the limitations of the supporting structure as well as the requirements for erecting the scaffold.

## 7.5 PERIMETER SCAFFOLDS

Perimeter scaffolds are constructed of prefabricated scaffold systems or tube and coupler.

A perimeter scaffold may be used to carry out work on a section or sections of the building or the complete perimeter. Consultation with all trades using the scaffold will assist in designing and erecting a perimeter scaffold which can have multiple uses and maximise efficiency.

- Perimeter scaffolds must comply with the requirements of the GPG for Scaffolding in NZ and AS/NZS 1576 parts 1 and 3.
- Perimeter scaffolds must be erected in accordance with manufacturers' information and the GPG for Scaffolding. If there are components over 5m high they must be erected by a scaffolder with a certificate of competence.
- Perimeter scaffolds must have a minimum base width of at least one third the height of the working platform or be fitted with rakers or other means to stabilise the scaffold.
- If the scaffold is to have multiple uses it must be erected to meet the highest expected loadings. Alterations may be required to ensure the scaffold is fit for purpose.
- Working platforms should be wide enough to allow at least 450mm clear access past obstructions, tools and stacked material.
- Edge protection should be fitted to all platform edges except where the working face (Building) is within 300mm of the scaffold (Gap to platform or inside ledger).
- Toeboards should be fitted to the outside of all platforms to prevent objects falling and prevent injury.
- Access should be installed so that workers can safely access platforms. This should be in the form of an external ladder or a separate ladder or stair bay. Openings for access should be protected with a self-closing gate or tortured path.

## 7.6 PERIMETER SCAFFOLDING FOR ROOF EDGE PROTECTION (REP SCAFFOLDS)

Several factors, particularly roof pitch, will determine the appropriate configuration of REP scaffolding. Steeper roofs have increased risks and therefore have different requirements to roofs with a lower pitch.

- Single pole scaffolds should not be used for REP.
- REP scaffolds that do not incorporate a working platform must comply with 8.3 and the requirements of AS/NZS 4994 parts 1 and 2.
- The top working platform of REP scaffolding must be rated at least medium duty to withstand impact loads from a person falling.
- Guardrails must be constructed to withstand someone falling against them. They must be able to withstand a static load of 600N (62kg) in any direction without deflecting more than 100mm and withstand a force of 1200N (123 kg) without failing. If the roof pitch is over 15 degrees, the edge protection must be designed to withstand dynamic (Impact) loads.
- Ensure the scaffold is sufficiently stable to prevent overturning should someone fall from the roof and strike the guardrails. Options include using raker bays or raking tubes, widening the base of the scaffold or tying to the building.

### 7.6.1 CONFIGURATION FOR ROOF PITCH LESS THAN OR EQUAL TO 25 DEGREES

- Locate the platform as near to the gutter line as practicable and no more than one metre below the roof edge.
- Install the mid rail and bottom rail at 500 mm centres. A rail or the toeboard must be positioned within 200 mm of where the roof line projection intersects the guard railing.
- Install the top guardrail 900-1100 mm above this line.
- A safe means of access must be provided to the roof. This could be the platform in one bay lifted 500mm above adjacent bays so that it is 500mm below the roof edge. Intermediate steps may be provided between the platforms.

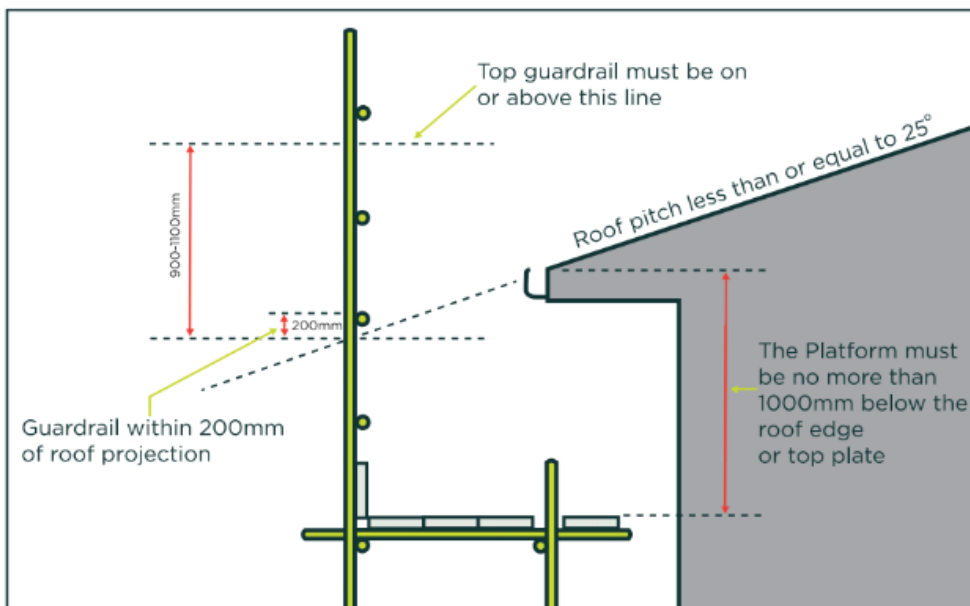


Figure 5: Roof edge protection for a roof pitch less than or equal to 25 degrees

## 7.6.2 CONFIGURATIONS FOR ROOF PITCH STEEPER THAN 25 DEGREES

**Note:** Rails and standards at scaffold end and rakers are omitted for clarity.

A roof with a pitch greater than 25 degrees has a higher risk of someone slipping and falling with increased risk of injury from impacting guardrails. For this reason, the REP scaffold should be set up so that the person sliding down the roof will be stopped by the platform rather than the rails.

- Locate the platform as close as practicable to the roof edge:
  - The horizontal gap must not exceed 200 mm from the fascia or 100mm from the outside of the guttering.
  - The platform should be level with the roof edge or within 300 mm below.
- Install the mid rail and bottom rail at maximum 500 mm centres.
- Consider using infill panels or screening where platform and toeboards may not be adequate to control the risk of falling objects harming people below.
- Where the scaffold is used to install trusses or other roof framing the top platform will need to be installed at a lower level (Within 1m below top plate) to facilitate framing and fascia installation. The platform is then moved up after trusses and fascia are installed and before roof cladding is installed.

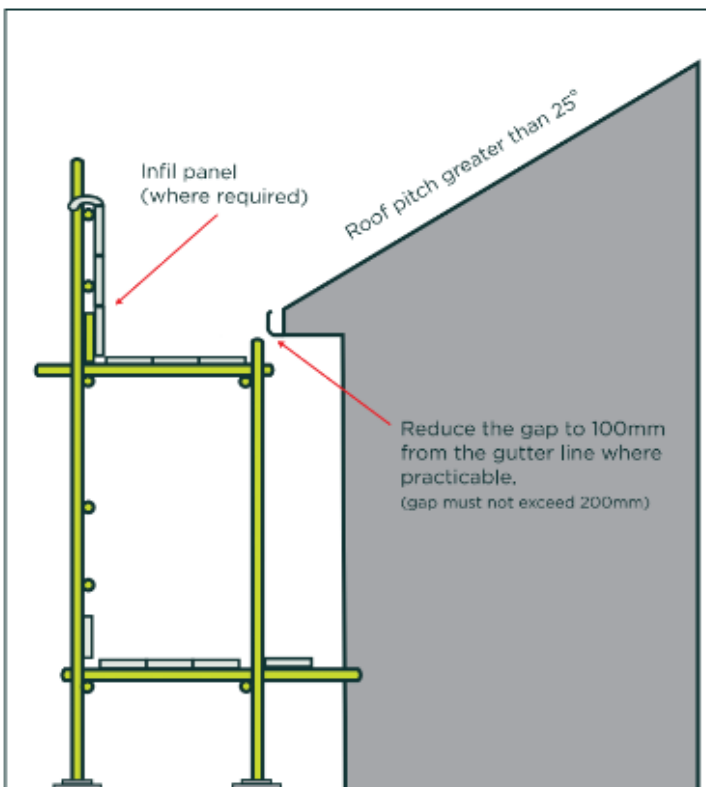


Figure 6: Roof edge protection for a roof pitch greater than 25 degrees

**Note:** Rails, standards at scaffold end, infill panel and rakers omitted for clarity.

### 7.6.3 ROOF EDGE PROTECTION FOR GABLE ENDS

Edge protection must be provided as close as practicable to the gable ends with the scaffold no more than 300 mm from the structure. The midrail should be no more than 500 mm above the line of the gable (slope of the roof) and the top guardrail 900-1100mm above the line of the gable. Guardrails should follow the slope of the roof

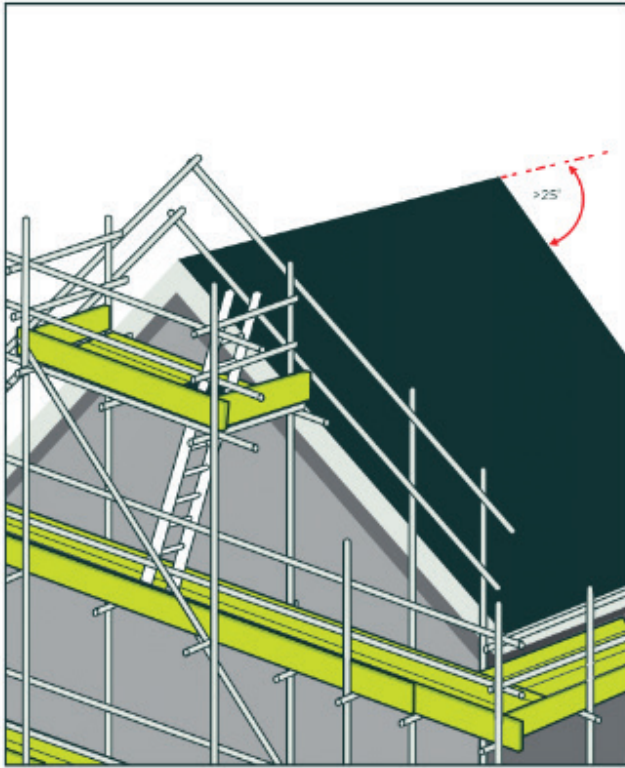


Figure 7: Typical gable end scaffold

## 7.7 PERIMETER SCAFFOLD FOR CLADDING

There are many factors effecting the appropriate configuration of perimeter scaffolding used for cladding.

If the scaffold is also used for REP, the platform heights will need to be set accordingly. This means the platform height may not be practical for cladding work and distances from the wall may also be affected.

This problem can be overcome by either altering platform heights for different users or utilising hop up platforms (Bay extension platforms) on the inside of the scaffold to achieve the appropriate platform heights and distances to the working face.

- The maximum gap from the working platform (Or inside ledger) to the working face is 300mm. If there is a wider gap the scaffold must be fitted with edge protection.
- Penetrations in walls such as windows or doors must be temporarily guarded with framing or edge protection fitted to the inside of the scaffold in front of the penetrations.
- Scaffold platforms must be wide enough to ensure at least 450mm clear access past stacked materials.
- The scaffold must have the appropriate duty rating to support the load of workers, tools and materials.
- Ensure there is sufficient gap to install windows and doors. There must also be adequate clearance for plastering once cavities and cladding are installed.
- Hop up platforms may be used to provide a working platform at the correct height for cladding or to fill a gap between the scaffold and the working face.

- Hop up platforms are usually rated as light duty and must not be overloaded.
- Hop up platforms may be removed to install windows and doors. This must be carried out by the scaffolder or by a competent person in consultation with the scaffolder and following a safe method of work. Platforms must be reinstated as soon as possible, or edge protection fitted to protect the opening created when the platform is removed.

## 7.8 PERIMETER SCAFFOLD FOR BRICKLAYING

Brick laying is a physically demanding occupation with continual lifting and repetitive movement. It is important that access is configured to provide a working platform that allows the user to work ergonomically. This requires a platform set up at the right height and within 100mm of the finished brick face.

- Measures should be taken to prevent bricks from falling from the scaffold. This can be in the form of brick guards which should be provided by the scaffolder and installed by the bricklayer where required.
- Brick layers' scaffolds should be rated at least heavy duty and platforms must be wide enough to provide 450mm clear access past stacked bricks.
- Users should ensure platforms are not overloaded and clear access is maintained.
- Rubbish, cut bricks and mortar should not accumulate on the scaffold.

### 7.8.1 SINGLE STOREY

On single storey houses with flat sites it may often be more efficient to remove perimeter scaffold erected for the roofing and carpentry trades before bricks are laid. This will allow the brick layer to lay the lower bricks up to shoulder height from the ground. A low height scaffold, normally less than 1metre to the platform, can then be erected by the bricklayer in accordance with NZ Good Practice Guidelines for Scaffolding and the scaffold system should comply with AS/NZS1576 or equivalent standard

Perimeter scaffold intended for use by roofers, carpenters and bricklayers on single story buildings:

- must be rated to heavy duty and sufficiently wide to allow 450mm access past stacked material.
- Where the roof pitch is 25 degrees or less the top platform is set up maximum 1.0m below the roof edge and should comply with 7.6.1 The platform is fitted with hop-ups and inside decks minimum 450mm wide. The inside of this deck should be 225mm from the outside face of the wall framing to allow a gap of 100mm to the finished face of the bricks.
- When the roof and fascia are complete, the hop-ups can be removed to install windows and building wrap. The top platform should be closed off from use while these platforms are missing.
- If the roof pitch is steeper than 25 degrees, the top platform will need to be lifted closer to the roofline before the roofing is installed. This platform may or may not be lowered back to its original height depending on site requirements.
- The brick layer can lay all the lower courses to shoulder height from the ground. When lower bricks have been laid the hop-up platform can be installed approximately 1.0 metre below the top platform and used to lay upper courses. Bricks can be stacked on the platform above but means must be in place to stop them falling from the scaffold. The platform should not be used as a working platform while the hop-up platform is in this position.

## 7.8.2 DOUBLE STOREY

The process for two storey walls is similar to single storey.

- Hop up platforms should be fitted at deck heights to allow the installation of doors and windows as well as the building wrap.
- The hop-up on the lower lift can be removed to lay bricks up to shoulder height from the ground.
- When lower courses are complete the lower hop-up is reinstated and bricks are laid to shoulder height.
- The top hop-up is then moved down to provide access for laying the top courses. The top platform will need to be locked of to prevent use while the hop-up is at the lower level.

Figure 8: Single storey bricklayer's scaffold

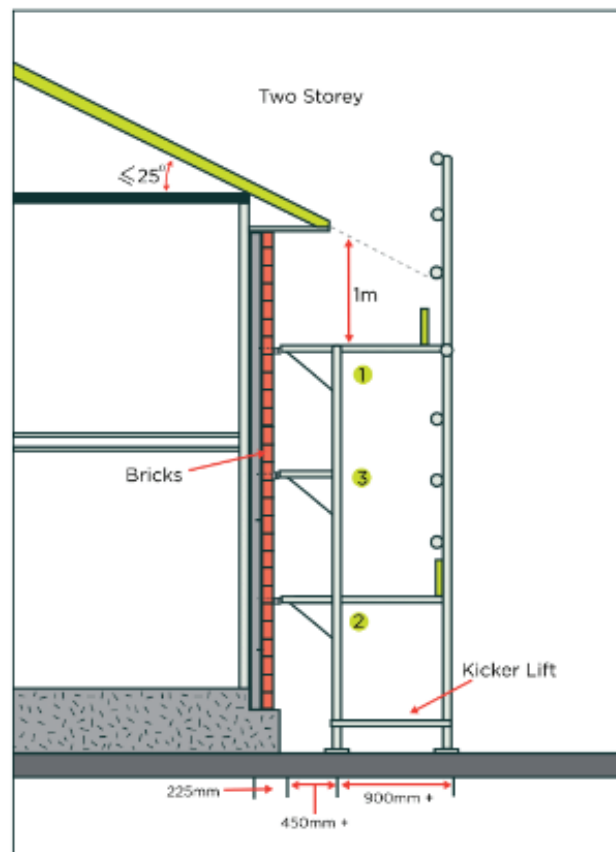
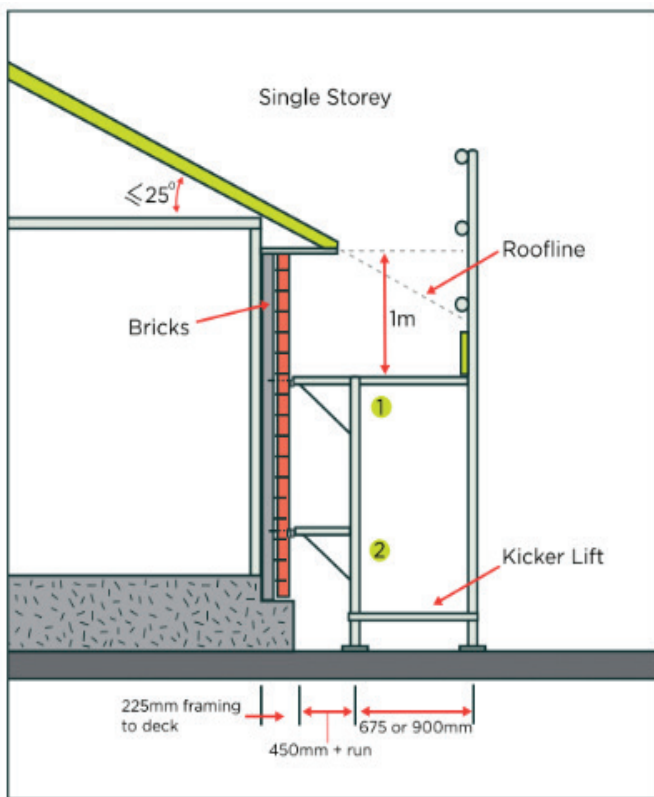


Figure 9: Double-storey bricklayer's scaffold



## 7.9 PERIMETER SCAFFOLD FOR BLOCK LAYING

- Scaffolds for block layers are normally set up specifically for the block layer but may still need to allow for installation of windows, roof trusses or other activities. Block layers' scaffolds should be erected in accordance with the general requirements of 7.8.
- Platforms should be heavy duty and at least 900mm wide to allow 450mm access past stacked blocks.
- Platforms need to be within 100mm of finished blocks.
- Set up platforms with hop-ups at least 450mm wide with a 100mm gap to the finished face to provide clearance for laying blocks adjacent to ledgers.
- Hop-ups should be moved in accordance with 7.8.1.
- Measures should be taken to prevent workers falling from the inside of the scaffold before the blocks are laid. This could be in the form of:
  - inside edge protection on the scaffold (this may obstruct the block layer)
  - moving the hop-ups every 500mm to ensure the blocks are laid at least 1.0m past the next lift
  - erecting temporary edge protection behind the wall
  - tying additional horizontal reinforcing bars temporarily across the vertical reinforcing to form edge protection.

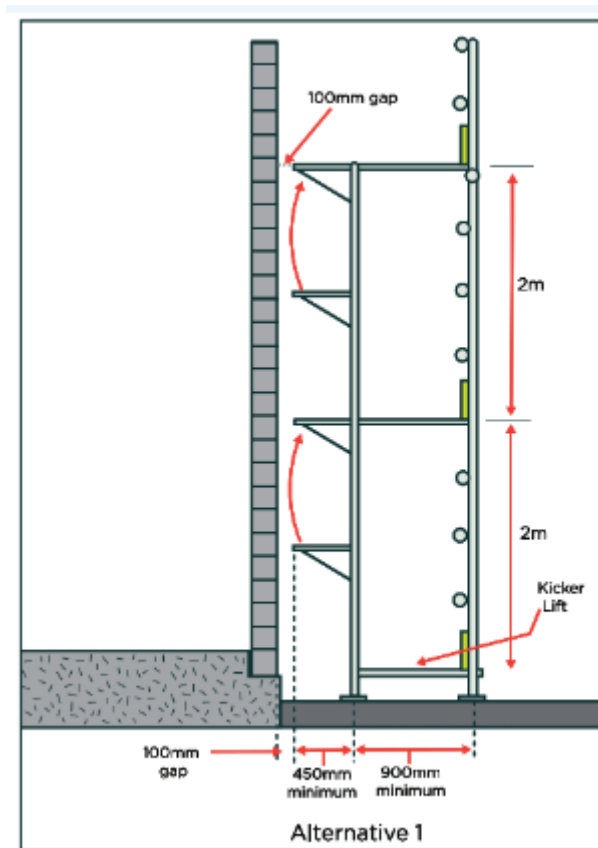


Figure 10: Blocklayer's scaffold

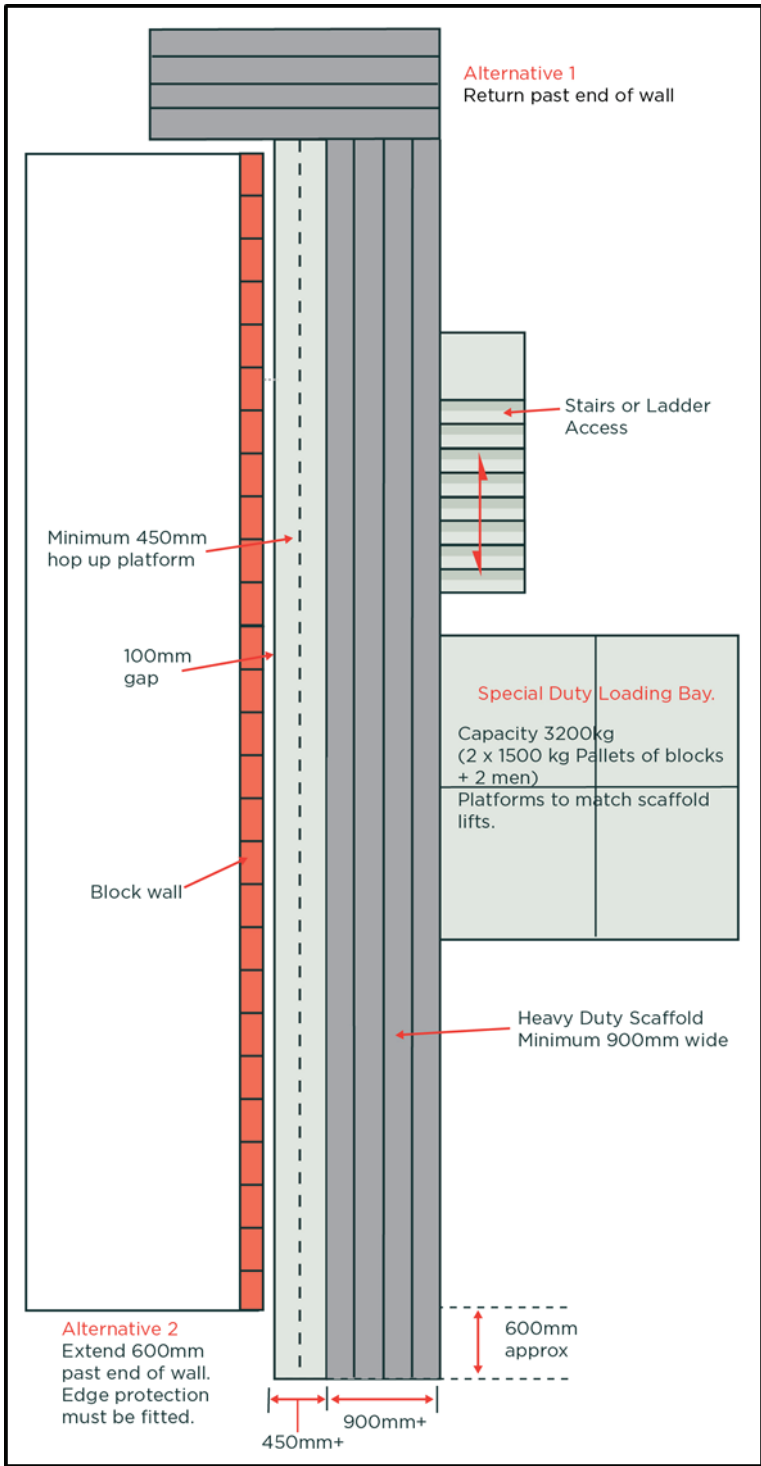


Figure 11: Plan view of block layers scaffold including loading bay

# SECTION 8

## EDGE PROTECTION CONFIGURATIONS

### IN THIS SECTION:

EDGE PROTECTION FOR EDGES OTHER THAN  
ROOF EDGES

INSTALLATION OF EDGE PROTECTION TO  
EDGES OTHER THAN ROOFS

ROOF EDGE PROTECTION SYSTEMS

## 8 EDGE PROTECTION CONFIGURATIONS

All prefabricated edge protection should be erected in accordance with:

- the manufacturers' instructions and AS/NZS4994
- Part 2: Roof edge protection-Installation and dismantling OR AS/NZS4994 Part 3: Installation and dismantling for edges other than roof edges.

Edge protection constructed of scaffold equipment must be erected in accordance with the Good Practice Guidelines for Scaffolding in NZ and meet the requirements of AS/NZS4994.

All edge protection should be fitted with a completed tag and be inspected regularly by a competent person as per section 11.2.

Edge protection systems should:

- have some structural flexibility to reduce the risk of injury to a person who falls against it
- not be able to detach from the supporting structure when impacted by a falling person
- should protect all edges of the perimeter of the work area or roof
- not have sharp edges
- where possible prevent material and other objects falling to the level below
- include a safe means of access which incorporates a self-closing gate or tortured path
- not have any gaps or openings which a person could accidentally pass through.

### 8.1 EDGE PROTECTION FOR EDGES OTHER THAN ROOF EDGES

Edge protection may be required around floor or balcony edges to protect workers until permanent structures are in place. There are many prefabricated systems available to use in this way. Generally, the systems will be attached by:

- screwing or bolting through the floor
- screwing or bolting through the joists at the floor edge
- clamping to the framing below the floor
- posts extending up from the floor or ground below
- clamp to parapet.

#### 8.1.1 SELECTION OF SYSTEM

The edge protection system should be selected to ensure that the risk to those installing the system and working on the area adjacent to it is eliminated or minimised as much as reasonably possible. Considerations in determining the appropriate system:

- Provision of safe access to the work area behind the edge protection.
- Safety of the operator installing the system and workers using the system.
- The design and strength of the supporting structure and the materials it is constructed from. (Refer to Scaffolding GPG)
- Whether anchorage points on the structure need to be repaired after the edge protection is dismantled.
- Preventing objects from falling to the level below.
- Any other hazards on the site that create a risk to the operator or workers.

## 8.2 INSTALLATION OF EDGE PROTECTION TO EDGES OTHER THAN ROOFS

Installation must be in accordance with the general conditions of this section and section 6.

Options for access to install edge protection include:

- using mobile elevated work platform such as a scissor lift
- using a mobile tower scaffold or minor mobile scaffold
- using ladders, but only if it's not possible to use a safer means of access

If the system is installed directly to the floor or a slab, the operator must eliminate or minimise the risk of falling by use of a restraint or fall arrest system.

Toeboards or infill panels should be fitted to prevent objects being dropped onto levels below. If this is not possible an exclusion zone should be set up below work areas.

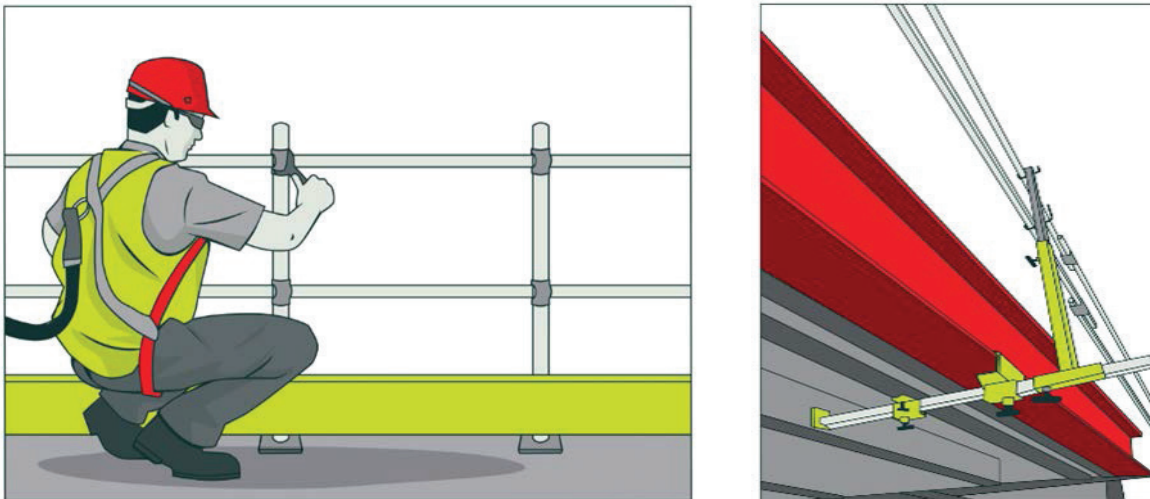


Figure 12: Examples of edge protection systems designed for edges other than roofs

## 8.3 ROOF EDGE PROTECTION SYSTEMS

Prefabricated roof edge protection systems can be used on roofs with pitches up to 35 degrees. These systems are designed to protect roofers installing roof cladding and others such as plumbers installing vents and flashings. Products with access platforms included should comply with the Scaffolding section of this document.

REP systems which may be used on roofs steeper than 15 degrees must be subjected to dynamic testing in accordance with AS/NZS4994.1.

REP systems used on roofs steeper than 25 degrees must be fitted with infill panels to all areas except within 1.8m of hips.

Generally, REP systems will be attached by:

- clamping to the roof or wall framing below the roof and cantilevering around the fascia
- clamping to the roof framing with posts penetrating through the roof cladding (Used with masonry tiles)
- brackets hanging over the top plate and cantilevering around the fascia
- posts extending up from the ground or floor below.

The edge protection system should be selected to ensure that the risk to those installing the system and working on the roof are eliminated or minimised as much as reasonably possible.

Considerations in determining the appropriate system:

- Roof slope, length of the roof in the direction of slope and grip on the roof
- Provision of safe access to the roof for workers and materials.
- Safety of the operator installing the system and workers on the roof.
- The design and strength of the supporting structure and the materials it is constructed from. Some supporting structural members may need to be strengthened.
- Where posts penetrate the roof how will the roof cladding be reinstated when the REP is dismantled.
- Preventing objects from falling to the level below.
- Any other hazards on the site that create a risk to the operator or workers.

### **8.3.1 INSTALLATION OF ROOF EDGE PROTECTION**

- Options for access to install edge protection may include:
  - Use mobile elevated work platform such as a boom lift.
  - Use a mobile tower scaffold.
  - Ladders are to be used only if it is not possible to use a safer means of access.
  - If the system requires the operator to work on the roof to erect or dismantle the system, they must minimise the risk of falling by use of a restraint or fall arrest system.
- If the REP does not include measures to prevent objects falling from the roof, then an exclusion zone should be set up below work areas.

### **8.3.2 CONFIGURATIONS**

- Roof edge protection barrier shall consist of one of:
  - top, middle and bottom rails
  - top and middle rails and toeboard
  - rails supporting non structural infill panels that perform the function of edge protection
  - structural infill panels that perform the function of rails and toeboards.
- For roof slopes less than 10 degrees the top rail must have an effective height of at least 900mm above the roof surface.
- For roof slopes between 10 and 35 degrees the top rail will have an effective height of at least 900mm above a point where a person can stand behind the REP, i.e., not less than 300mm behind the fascia line.
- The maximum gap between a top rail and midrail is 450mm. The maximum gap between a mid-rail and bottom rail or toeboard is 275mm.
- At corners, intersecting rails should be securely attached to each other or a post.
- Rails should be nominally parallel to each other.
- Where REP is outside the roof line the clear distance between the fascia line and the underside of the bottom rail shall be 150mm – 275mm.
- Where REP is outside the roof line the maximum horizontal distance from the bottom edge of the roof cladding (Or gutter if fitted) is 100mm.
- Where REP penetrates through the roof cladding:

- the distance between the bottom rail and the roof cladding should be 150mm – 275mm measured at a right angle to the roof surface.
- the maximum horizontal distance between the back of the post and the fascia line is 300mm.
- REP must not lean away from the roof by more than 20 degrees past vertical. The design must ensure that when the REP is impacted by a falling person the deflection added to the outward lean will not allow a person to fall between the rails.

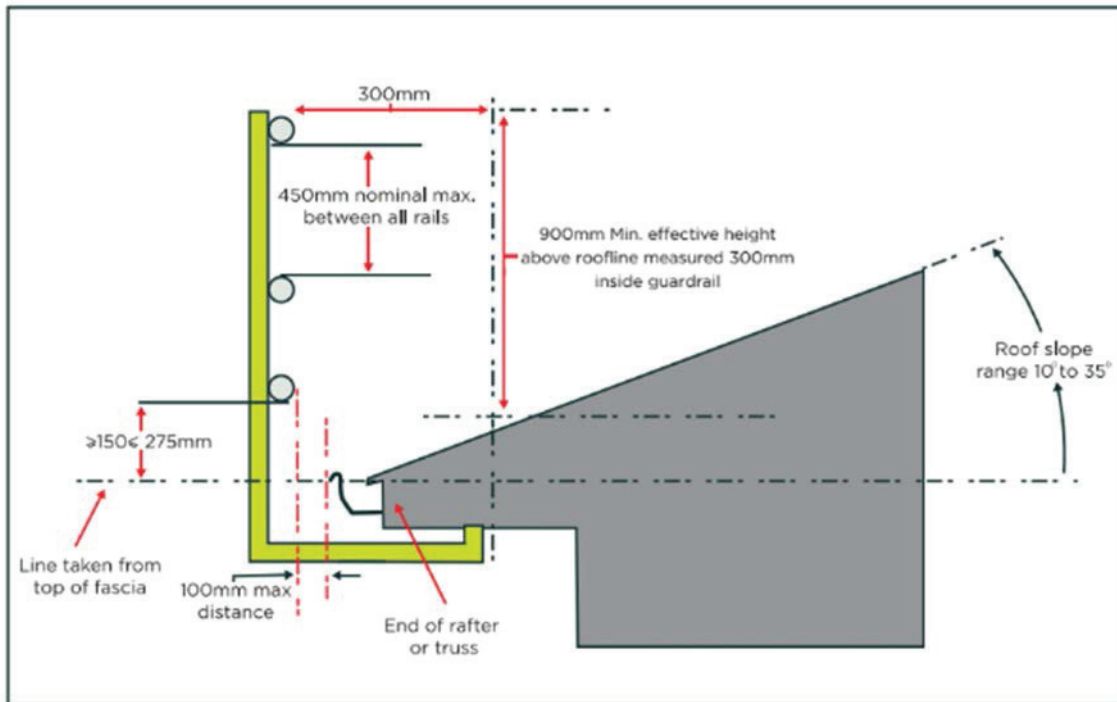


Figure 13: Guardrails outside a roof line

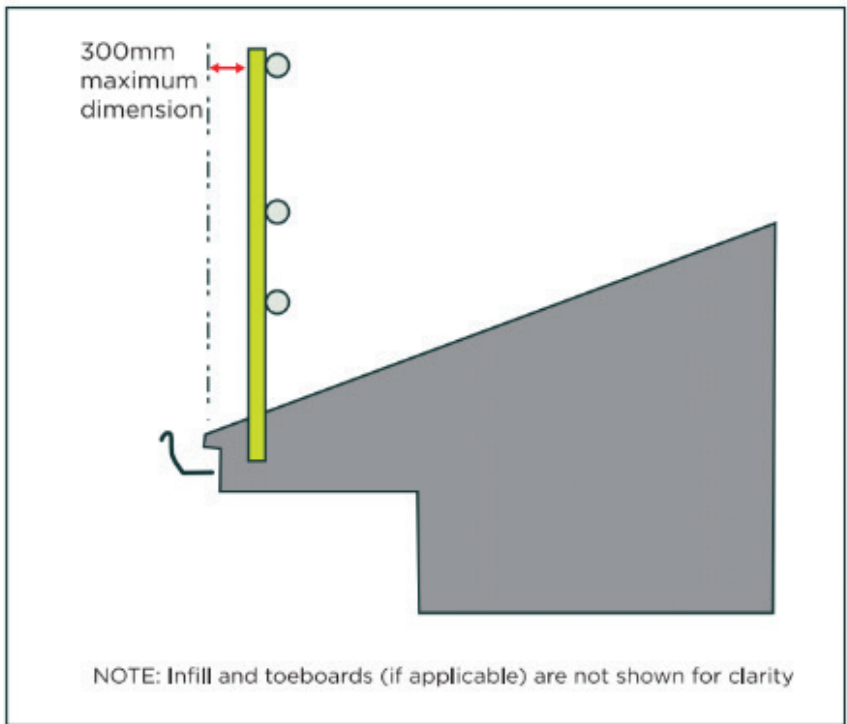


Figure 14: Guardrail inside a roof line

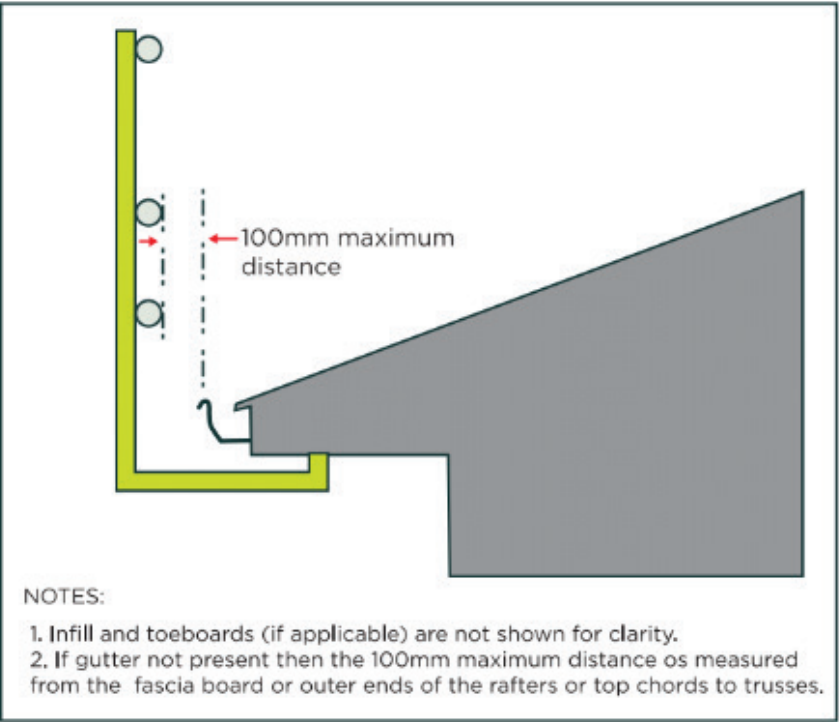


Figure 15: Guardrail outside a roof line



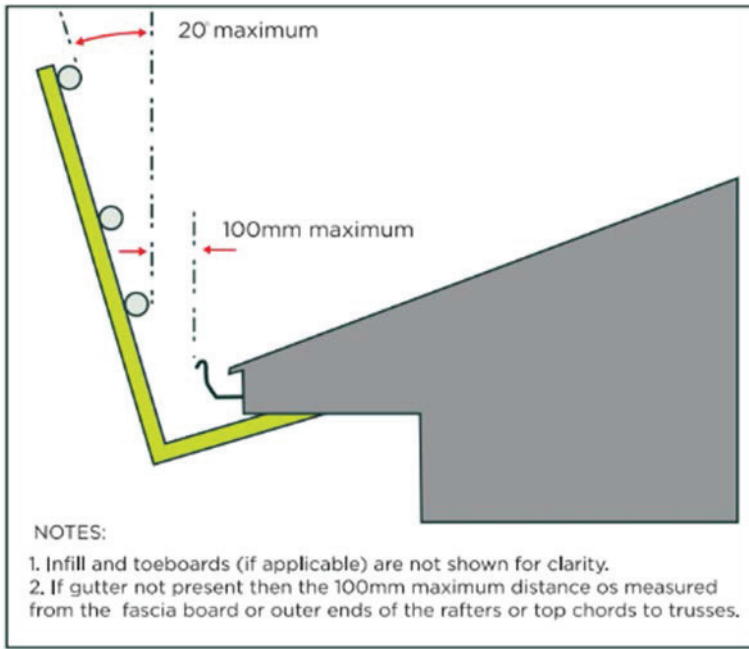


Figure 16: Guardrail leaning away from roof

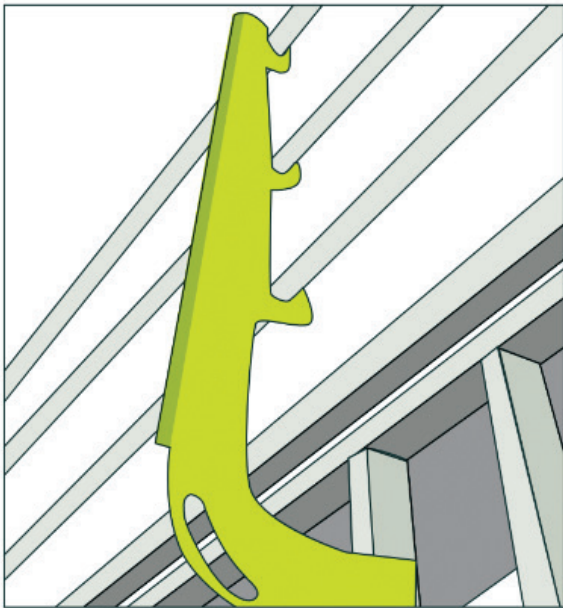


Figure 17: Stud mounted bracket

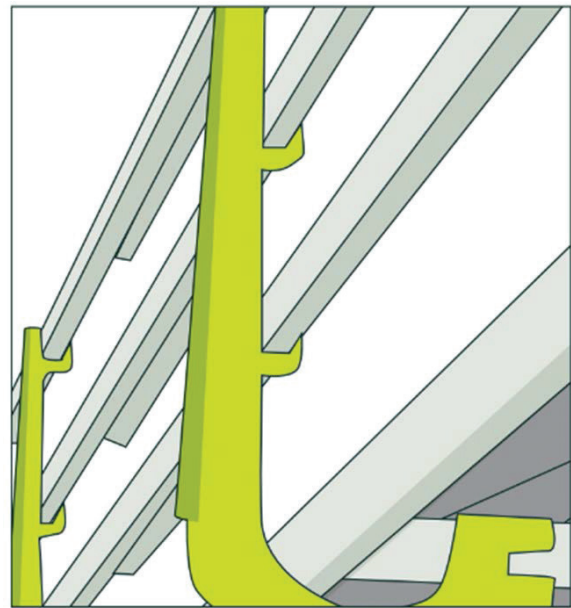


Figure 18: Nog mounted bracket

Figure 21: Access tower with ladders and tortured path

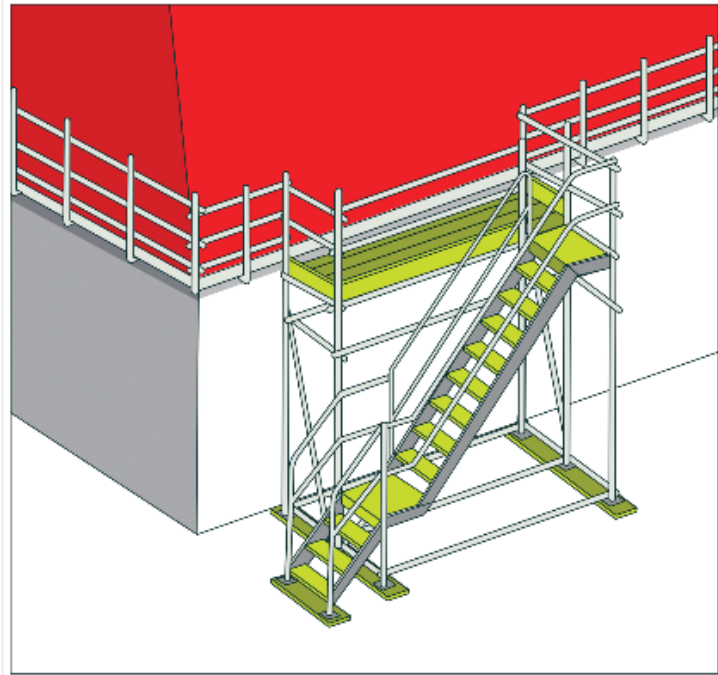
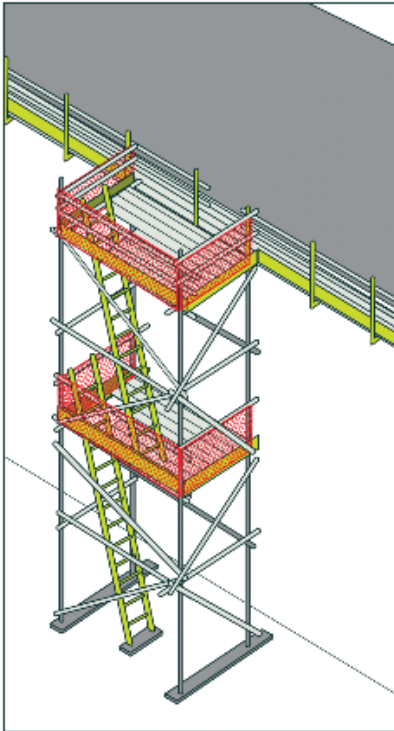
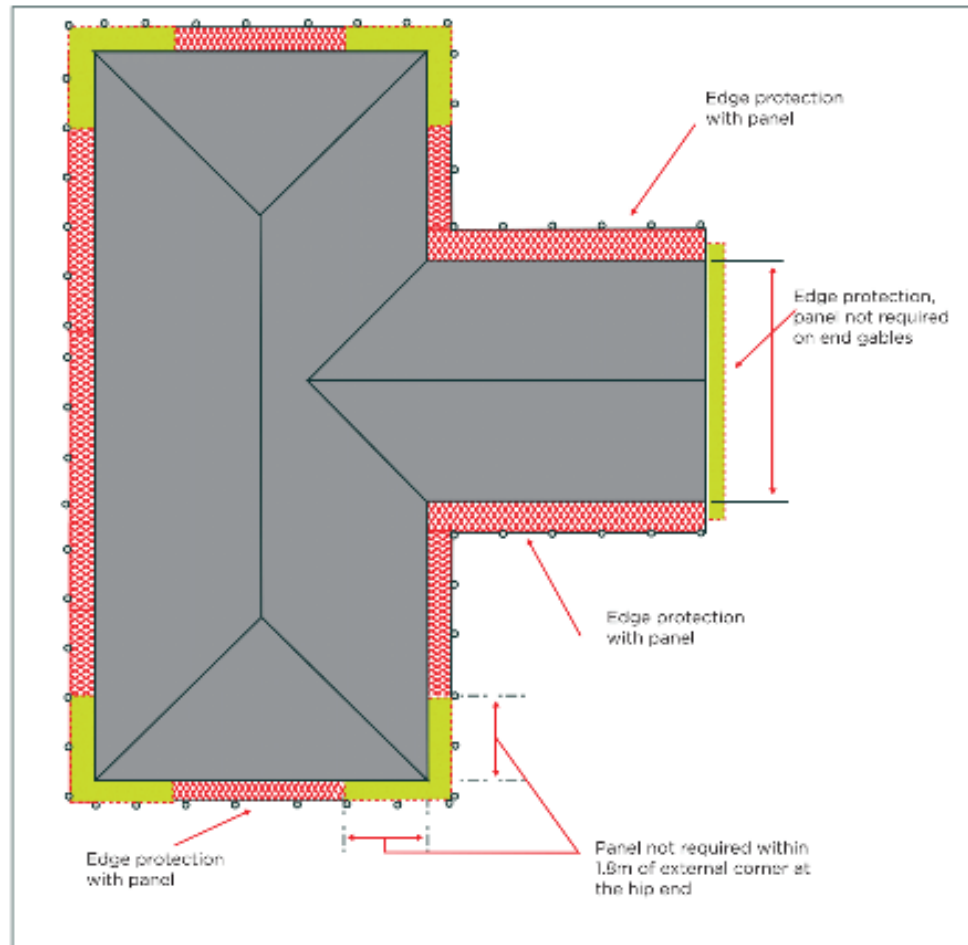


Figure 19: Stair tower

Figure 20: Roof edge protection for roof slope greater than 26°



# SECTION 9

## SAFETY NETS

### IN THIS SECTION:

PLANNING

INSTALLATION

RESCUE

## 9 SAFETY NETS

This guideline is a summary of the use of safety nets used for collective fall arrest for falls through the roof of residential buildings during construction. Safety nets should be erected in accordance with the Best Practice Guidelines for Safe Use of Safety Nets in NZ.

All safety nets should be fitted with a completed tag and be inspected regularly by a competent person as per section 11.2.

Safety nets are designed to progressively deflect (Stretch) and absorb the energy of a fall, which reduces the risk of injury to a falling person. The greater the fall height the greater the impact and therefore the deflection. This means the clearance required below the net increases as the fall height increases.

There must be enough clearance below the net to ensure the falling person does not hit an object or the ground while the net is deflecting. Ceiling battens, temporary bracing, stacked material or equipment create a serious risk within the deflection area below a safety net

**Note:** When safety nets are being used as the fall protection for roof framing and top plate work, ceiling battens must not be installed until the nets are no longer required. If ceiling battens are installed beforehand, the battens, not the safety nets, will be the first obstacle that a falling person strikes.

### 9.1 PLANNING

Safety net installation must be planned in consultation with everyone involved in supplying, installing and using the safety nets. Planning should include:

- erection and dismantle sequence
- location and strength of anchor points
- ensuring there is adequate clearance distance below the net
- means of access for erection and dismantling
- means of access for inspection, making temporary repairs and removing debris
- safety nets should not restrict construction work.

### 9.2 INSTALLATION

The means of access for erecting and dismantling the safety nets should be chosen to minimise the risk to the operator as much as reasonably possible.

Ladders may be used if there is no other alternative and used as part of a safe method of work. The operator should:

- check nets before use to ensure:
  - they are not damaged
  - the appropriate tags are attached
  - they are the correct size
- erect the nets as close as possible to the roof to minimise the fall distance, follow the roof line if possible.
- ensure the nets are accessible to carry out a rescue or remove debris. This may be from perimeter scaffold on the exterior of the building.
- ensure anchor points and the supporting structure will support the impact loads of a falling person.
- attach anchor points to primary structural members such as top plates, rafters or trusses.
- inspect the safety net system once completed to ensure it is correctly installed and fit for purpose.
- provide the person in charge of the site or their representative with a handover certificate that includes:
  - confirmation that all safety net components comply with BS EN 1263.1 or equivalent
  - confirmation that the safety net was installed in accordance with the BPG for Safe Use of Safety Nets
  - a description of the area being “handed over”
  - evidence that the safety nets were tested in the last 12 months
  - manufacturers’ information for the safety nets
- Attach a tag to the safety net system with:
  - the name of the operator who installed the safety nets
  - handover date
  - description and area of the net
  - serial or ID numbers of the nets
  - minimum clearance distance required under the nets.

## 9.3 RESCUE

The person in charge of the site must ensure that there is a rescue plan before any work is carried out above the nets.

- Ensure there is a rescue plan and that there is equipment and personnel on site to carry out a rescue immediately if a person falls.
- Ensure all workers on site know what the rescue plan is and what their role is in a rescue.

# SECTION 10

## SOFT LANDING SYSTEMS

### IN THIS SECTION:

GENERAL REQUIREMENTS

HANDLING AND STORAGE

INSTALLATION

RESCUE PLAN

# 10 SOFT LANDING SYSTEMS

## 10.1 GENERAL REQUIREMENTS

This guideline is a summary of the use of soft landing systems for collective fall arrest during residential construction. Soft landing systems must be installed by a competent person in accordance with the manufacturers' information and instructions and the *Best Practice Guidelines for Working at Height*.

**Note:** The latest available Guidance for soft landing systems is PAS 59: 2014. This guidance applies to soft filled systems and does not apply to inflated air-filled or other gas-filled systems. Wherever possible the performance requirements of PAS 59: 2014 should be met by other soft landing systems which do not fall within the scope of PAS 59: 2014.

Soft landing systems provide protection by reducing the distance that a person can fall and cushioning the impact of the fall. Bags or mats are generally clipped together to form rafts, so they can cover areas of any size.

They may be the only fall arrest system used, or they may be used in conjunction with safety nets. Areas that are too small for the effective installation of safety nets, such as bathrooms and wardrobe spaces, can be protected by installing soft landing systems. They may also be useful in situations such as below the outer edges of a raised work area.

Cushioning is achieved by a resilient filling such as polystyrene, or by maintaining a constant, low level, internal air pressure. Both soft-filled and air-filled systems must allow a certain amount of air loss through seams or vents or alternative system to reduce internal pressure when a fall occurs. This aids the cushioning effect and helps minimize the bouncing that can occur when the falling person strikes the mat.

Both types of system consist of individual mats or bags that are laid over the ground below the work area.

- They must be installed to cover the entire surface of the ground below a high work area.
- Where the area of the floor space does not allow a full module width against a wall, the modules may either ride partially up the wall, see Figure 22 or the final two rows of modules can be squeezed to fit the space.
- There must not be gaps between adjacent modules or modules and a wall, see Figure 23.
- The bags or mats are connected with interlocking clips to create a continuous landing surface so that a person falling onto the mats or bags will not fall between gaps.
- Where there are no interlocking clips, the modules can only be used in enclosed spaces where they can be contained by walls or partitions.
- Some air bag systems require an additional cover sheet over the bags.
- Some air-filled systems require pumps to operate continuously to provide a constant air pressure within the bags. The pumps and associated equipment require additional monitoring to ensure the system is safe for use.
- The fall height must be as small as reasonably practical (Usually 2 metres or less). See Figure 23. The fall height should not exceed the height recommended by the manufacturer.
- Mats or bags can be stacked on top of each other to reduce the fall height if necessary.
  - 'A double layer of mats or bags does NOT double the maximum fall height. Maximum fall height applies from the top of the second layer of the mats or bags i.e. The Manufacturer's maximum fall height restrictions from the top of the mats or bags. See figure 2.2
  - When a double layer of mats or bags are deployed it is important to ensure ROLL OFF has a soft landing. The lower layer should extend out beyond the top layer. See figure 26.

- When a double layer of mats or bags are deployed they should be stacked in opposite directions and the layers clipped together in at least four places.
- The operator must thoroughly inspect all equipment before and after use, including:
  - the outer casing of each mat or bag for UV damage or deterioration
  - all components including mats, bags, connectors and interlocking clips for damage or deterioration
  - the ID tag of each mat to make sure the date for the next inspection has not been passed.
- Any damaged or worn equipment must be removed from service and quarantined immediately for repair or destruction.

### 10.1.1 LEADING EDGE PROTECTION

Where soft landing systems are used as an alternative to edge protection, e.g., in a stairwell, the bags must:

- be placed so that they are tight against the fall edge
- extend at least 3 metres but preferably 5m beyond the fall edge. See figure 25

### 10.1.2 HANDLING AND STORAGE

- Do not walk on the mats unless necessary, such as to carry out a rescue.
- Do not expose the mats to heat or flame even if the outer skin, inner bag and filling are all treated with a flame-retardant chemical.
- Do not drag mats as they can tear on sharp or projecting objects.
- Do not throw scaffolding or tools onto the mats or bags.
- Try to avoid letting debris fall onto the mats. If debris does fall onto the mats, it should be removed as soon as possible.
- Pass mats or bags up to higher levels either directly, or from scaffolding or a forklift. Do not carry mats or bags up ladders.
- Keep mats and bags off the ground when storing outdoors.

## 10.2 INSTALLATION

- Ensure that the ground below the area requiring protection from falls is clear of rubbish.
- Remove all sharp objects that may puncture the mats or bags.
- Place mats or bags close together so there are no gaps that a person can fall between.
- Securely fasten all mats or bags together using both top and bottom connectors if provided.
- If possible, fasten the outside mats or bags to structural elements of the building (e.g. wall framing) so they cannot move in high winds.
- When using as an alternative to edge protection extend the leading edge of the mat coverage at least 3 meters (preferably 5 metres) beyond the edge of the work area.
- When all the mats or bags are in place, carry out a 'foot test' as follows:
  - Attempt to push your foot in between mats or bags.
  - If installed correctly, you should not be able to do so.
  - If you can push your foot into gaps, more mats or bags are required.
- When the soft landing system is complete provide the person in charge of the site with a handover certificate that includes:
  - confirmation that all components comply with manufacturers information



- confirmation that the soft landing system was installed in accordance with the BPG for Safe Use of Soft Landing Systems
  - a description of the area being “handed over”
  - evidence that the equipment was inspected by a competent person in the last 12 months
  - manufacturers’ information for the mats or bags
  - rescue procedure.
- Attach a tag to the soft landing system with:
    - the name of the operator who installed the system
    - handover date
    - description and area of the system
    - serial or ID numbers of the mats or bags
    - any limitations for use.

**Note:** When soft-filled mats or bags are being used as the fall protection for roof framing and top plate work, ceiling battens must not be installed until the mats or bags are no longer required. If ceiling battens are installed beforehand, the battens, not the mats or bags, will be the first obstacle that a falling person strikes.

## 10.3 RESCUE PLAN

The person in charge of the site must ensure that there is a rescue plan before any work is carried out above the mats or bags.

- Ensure there is a rescue plan and that there is equipment and personnel on site to carry out a rescue immediately if a person falls.
- Ensure all workers on site know what the rescue plan is and what their role is in a rescue.

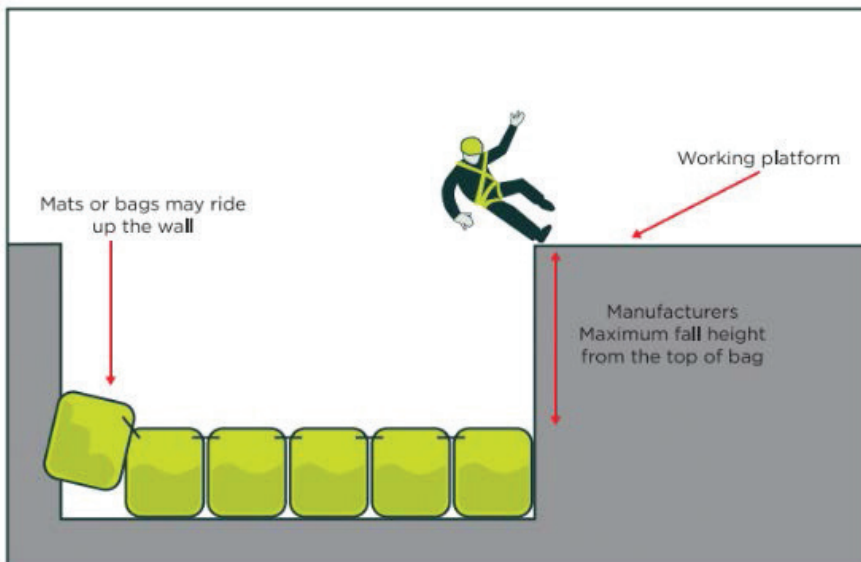


Figure 22: Installation – Safety mats or bags

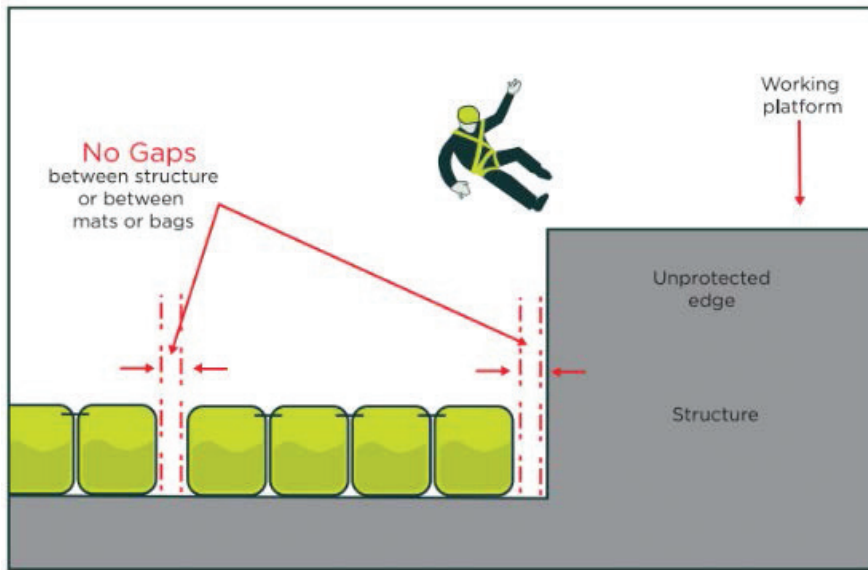


Figure 23: No gaps – Safety mats or bags

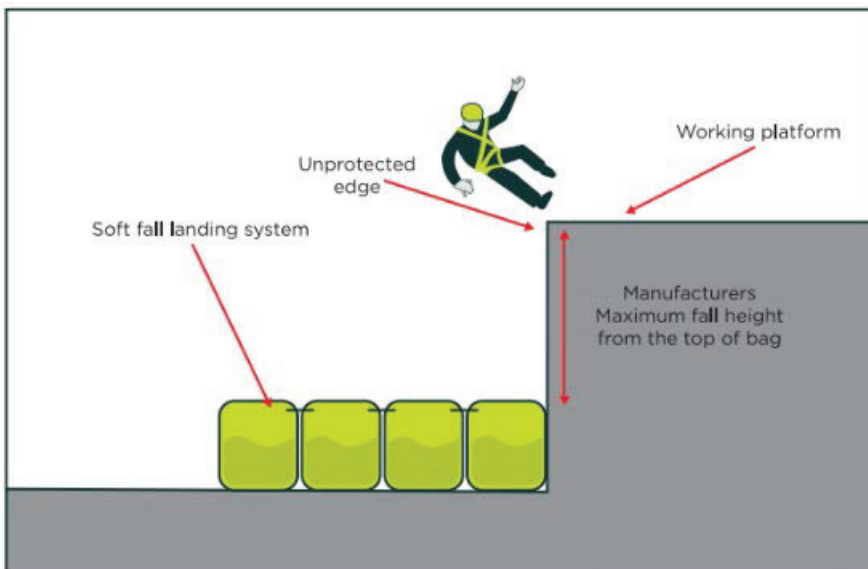


Figure 24: Maximum fall height – Safety mats or bags

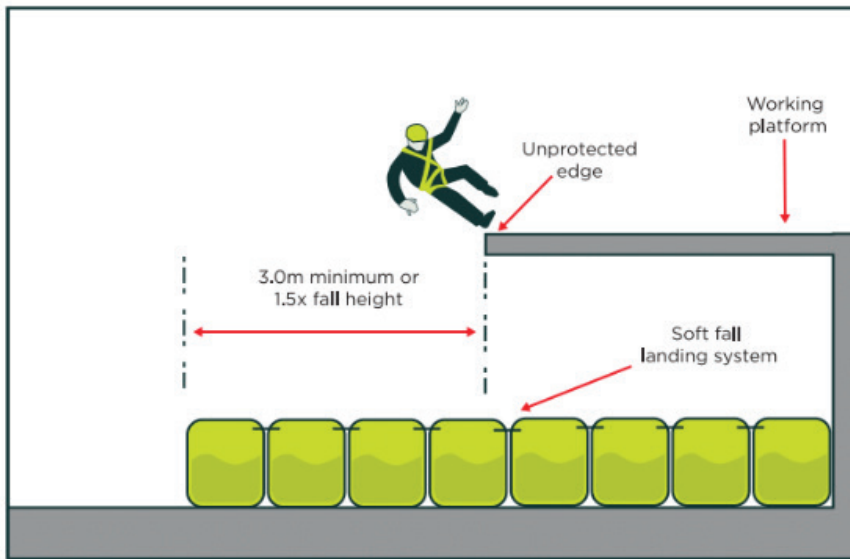


Figure 25: Leading edge protection – Safety mats or bags

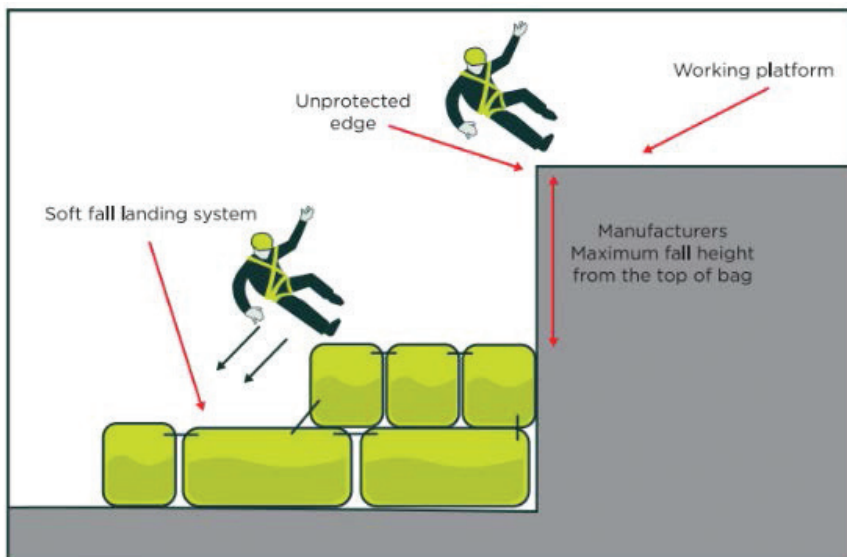


Figure 26: Roll off – Safety mats or bags

# SECTION 11

## USING SCAFFOLD & FALL PREVENTION EQUIPMENT

### IN THIS SECTION:

PRE-START CHECKS

REGULAR INSPECTIONS

ALTERATIONS

DAMAGE AND REPAIRS

HOUSEKEEPING

# 11 USING SCAFFOLD AND FALL-PREVENTION EQUIPMENT

People using the completed scaffold, edge protection, safety nets or soft landing system should follow any special requirements outlined on the handover certificate or tag.

Common risks when working at height:

- Slips and trips on slippery surfaces, decking with trip hazards or obstructed working and access platforms
- Falling through gaps in poorly constructed platforms or through unprotected openings
- Carrying or transporting tools and materials
- Hazardous substances such as asbestos and silica dust contaminating equipment
- Falling due to inadequate edge protection or climbing the outside of a structure
- Failure of equipment components
- Failure due to unauthorised alteration
- Equipment malfunction or collapse due to overloading, incorrect erection or design.

Standard requirements for work at height include:

- A safety helmet and appropriate safety footwear should be worn.
- Clear access of at least 450 mm should be maintained on all access and working platforms.
- Platforms, work area, safety nets and soft landing systems should be kept clear of rubbish and excess material.
- Harmful substances such as silica dust should be prevented from collecting on the scaffold.
- Tools and equipment should be in good working condition.
- Repairs and alterations should be carried out by a competent person. All scaffolds, edge protection, safety nets or soft landing systems that have been repaired or altered should be inspected.
- Equipment that is no longer safe to use should be taken out of service immediately until repairs have been done. It should be tagged to warn people and access points should be closed off.

## 11.1 PRE-START CHECKS

Pre-start checks before equipment is first used for the day will identify risks that arise from wear and tear, misuse, unauthorised alterations, weather or other serious events.

Daily checks should include the following:

EQUIPMENT	CHECK ✓
Tag is complete, and equipment has been inspected and found to be safe by a competent person within the last week.	<input type="checkbox"/>
The intended use described on the tag is appropriate to the task being carried out by the user.	<input type="checkbox"/>
The foundations or supporting structure are sound.	<input type="checkbox"/>
There is no evidence of the equipment being tampered with: <ul style="list-style-type: none"> <li>• No loose components lying around.</li> <li>• Access is safe and secure.</li> <li>• Edge protection is intact.</li> <li>• Bracing is in place.</li> </ul>	<input type="checkbox"/>
No rubbish or debris is left on the scaffold, safety net or soft landing system.	<input type="checkbox"/>

If the equipment does not meet all the requirements above the user should:

- mark the equipment as unsafe.
- remove or close of access to the equipment if possible.
- report the problem to the person in charge of the site.
- not use the equipment until the problems have been remedied by a competent person.

## 11.2 REGULAR INSPECTIONS

Scaffold, edge protection, safety nets and soft landing systems should be checked by a competent person weekly when in use or monthly if not in use. In addition, the equipment should be checked after any:

- severe storm or earthquake
- alteration
- change of use
- reported misuse or incident.

Inspections should be recorded and noted on the tag. The recorded information should include:

- date and time of inspection
- name of competent person inspecting the equipment
- any information needed by the user, e.g., change of use for a scaffold.

If the inspection finds damaged or unsafe equipment, it should be:

- marked as unsafe
- remove or close of access to the equipment if possible
- report the problem to the person in charge of the site
- Repaired or made safe as soon as possible.

## 11.3 ALTERATIONS

Alterations to scaffolding, edge protection, safety nets and soft landing systems must be carried out by a competent person in accordance with manufacturers information and the appropriate NZ Guidelines.

Alterations should not be made without the permission or knowledge of the person responsible for erecting, altering and dismantling the equipment.

Before any alterations may be made by the user they must:

- be a competent person
- have permission from the person responsible for the equipment
- follow a safe system of work.
- inspect the equipment on completion and complete the tag.

## 11.4 DAMAGE AND REPAIRS

Any damaged equipment must be reported to the person responsible for the equipment immediately. If the damage has made the equipment unsafe it should be:

- marked as unsafe
- closed for use by removing or closing of access to the equipment if possible
- reported to the person in charge of the site.

## 11.5 HOUSEKEEPING

Good housekeeping is essential on all construction sites to reduce risks, particularly:

- immediately removing any objects or debris from safety nets or soft landing systems
- not leaving rubbish or debris on working platforms or work areas where they can cause trips or be knocked off to land on a lower level
- ensuring clear access past tools and material is maintained on all working platforms
- ensuring all stairs, ladders, landings and access points are free of obstructions, rubbish and other material
- not letting dust, mortar or other contaminants build up on working platforms or equipment.

# APPENDICES

## APPENDIX A: DEFINITIONS

TERM	BRIEF EXPLANATION
<b>Access platform</b>	A platform that gives access to and from places of work for persons, materials or equipment.
<b>Accessory</b>	A fitting that is able to be attached to a structural member of a scaffold or edge protection system, or to join a structural member to something else. May be a fitting used to support a safety net.
<b>Act</b>	The Health and Safety at Work Act 2015.
<b>Adjustable baseplate</b>	A baseplate with an adjustable leg.
<b>Adjustable leg</b>	A threaded bar or tube with nut designed to fit inside a standard to support the load from the standard. Used for levelling in conjunction with a baseplate, U-head or castor.
<b>Anchorage device (Safety nets)</b>	A device or system used to connect a safety net to the structure. May include tie ropes, karabiners or other attachment devices.
<b>Anchorage line</b>	A flexible line secured to an anchorage point along which a fall arrest device is used to prevent a fall over an edge.
<b>Anchorage point</b>	A secure point of attachment to a structure to which a fall arrest system may be attached.
<b>Base lift or kicker lift</b>	A grid of ledgers and transoms close to the ground to provide extra rigidity to the scaffold or provide support for a low-level platform.
<b>Basejack</b>	See Adjustable baseplate.
<b>Baseplate</b>	A steel plate that distributes the load from a vertical loadbearing member to the ground or supporting structure.
<b>Bay length</b>	The horizontal distance between two longitudinal adjacent standards of a scaffold or the horizontal distance between support posts on a roof edge protection system.
<b>Border rope</b>	A rope that passes through each mesh around the perimeter of a safety net and determines the dimensions of the safety net.
<b>Bottom Rail</b>	The lowest rail in a roof edge protection system that does not include a toeboard or infill panel.
<b>Box tie</b>	A tie assembly that is positively fixed around every side of a column or beam.
<b>Brace</b>	A member fixed diagonally to two or more members of a scaffold or roof edge protection system to provide rigidity to the scaffold or roof edge protection system.
<b>Bracket</b>	Engineer designed bracket that is attached to a structure to support a scaffold or roof



TERM	BRIEF EXPLANATION
	edge protection system or safety net.
<b>Bracket scaffold</b>	A scaffold system with brackets attached to the studs or top plate of a building.
<b>Brickguard</b>	A meshed panel secured between standards that hangs between the top guardrail to the deck level. It sometimes incorporates a toeboard.
<b>Butt</b>	A short length of tube commonly fixed to a scaffold and butted up against another structure.
<b>Butt plank</b>	Standard scaffold planks butted end to end (as opposed to overlapping).
<b>Castor</b>	A swivelling wheel attached to the lower end of a standard, for the purpose of supporting a moving scaffold.
<b>Catching width</b>	The horizontal distance from the edge from which a worker can fall to the outer edge of the safety net.
<b>Certificate of competence</b>	Required under HSE Regulations for a scaffolder to erect, alter and dismantle specified scaffolds.
<b>Characteristic load (Safety nets)</b>	The calculated maximum load that an anchor point is designed to carry.
<b>Chartered professional engineer (CPEng)</b>	A statutory quality mark that indicates current competence to practice in New Zealand. A public CPEng register is available at <a href="http://www.ipenz.org.nz/ipenz/">www.ipenz.org.nz/ipenz/</a>
<b>Class (Safety nets)</b>	The safety net classification based on mesh size and energy absorption capacity.
<b>Clearance distance</b>	The minimum distance below a safety net that must be kept clear of objects that might impact a falling person as the net deflects under impact.
<b>Competent person</b>	A person who has the knowledge and skills acquired through training, qualification, or experience to carry out a task.
<b>Coupler</b>	A fitting that joins two tubes.
<b>Coupling rope</b>	A rope joining two safety nets.
<b>Direct supervision</b>	Within reach or visual contact to ensure immediate assistance can be provided in the event of an emergency.
<b>Dismantle</b>	To disassemble a scaffold, roof edge protection, safety net or soft landing system.
<b>Duty load</b>	Live loads permitted on a scaffold bay (light, medium, heavy or special) including persons, materials and equipment.
<b>Eaves bagging</b>	A rigging technique used to prevent waisting at the unsupported perimeter of a safety net.
<b>Edge protection system</b>	A structural system which is purpose designed to prevent workers and objects falling from the edge of a structure.

TERM	BRIEF EXPLANATION
<b>Egress</b>	Exit an area or work platform (opposite to access).
<b>Electrical conductor wires</b>	Power lines.
<b>Erection</b>	To assemble a scaffold, roof edge protection system, safety net or soft landing system.
<b>Eye bolt</b>	A component that attaches to a structure with an eye to enable something to be secured.
<b>Factor of safety</b>	The ratio between the ultimate and permissible stress.
<b>Fall arrest device</b>	A self-locking device to arrest a fall that works by travelling along a fixed or flexible anchorage line or letting out a spring-loaded anchorage line.
<b>Fall arrest harness (safety harness)</b>	An assembly of interconnected shoulder and leg straps, with or without a body belt, and used where there is likelihood of free or restrained fall.
<b>Fall arrest system</b>	An assembly of interconnected components comprising a harness connected to an anchorage point or anchorage system either directly or by means of a lanyard or pole strap, and whose purpose is to arrest a fall in accordance with the principles and requirements of AS/NZS 1891. Collective fall arrest systems include safety nets and soft landing systems.
<b>Foundations</b>	The support beneath a scaffold or roof edge protection system that distributes the imposed loads (e.g. the ground).
<b>Frame scaffold</b>	A scaffold assembled from prefabricated frames, braces and accessories.
Freestanding scaffold	A scaffold that is not attached to any other structure and is stable against overturning on its own account or if necessary assisted by stabilisers, rakers or bolster bays.
<b>Guardrail</b>	A structural member fixed parallel to a platform, walkway, stair, landing or the edge of a structure to prevent persons from falling.
<b>Guardrail system</b>	See edge protection system
<b>Hand over certificate</b>	A certificate certifying a scaffold, roof edge protection system, safety net or soft landing system is safe and giving its individual specifications that the client signs and returns.
<b>Hand rail</b>	A rail to provide handhold on a platform or stairway. It may form part of a guardrail.
<b>Hazard</b>	A situation or thing that could harm someone and includes a person's behaviour. For example, an unguarded machine, hazardous substances etc.
<b>Health and safety policy</b>	Statement of intent and commitment to provide a safe place of work and is normally signed by senior management.
<b>Heavy duty</b>	The duty loading of a scaffold to 675kg per bay, for persons, materials and equipment.
<b>Height</b>	The distance a person can fall from a scaffold or structure.
<b>Height of scaffold</b>	The vertical distance from the supporting structure to the highest working component.

TERM	BRIEF EXPLANATION
<b>H-Frame</b>	A prefabricated frame in the shape of an H.
<b>Hoardings</b>	Panels and perimeter fences used to partition areas like walkways, to protect workers and others.
<b>Independent scaffold</b>	A scaffold consisting two or more rows of standards and freestanding other than support from stabilising components or ties.
<b>Initial sag</b>	The amount of sag in a safety net due to self-weight of the net.
<b>Infill Panel</b>	A panel of wire mesh or equivalent material used to distribute loads to supporting rails (non-structural infill panel) or directly to the supporting posts (structural infill panel) of an edge protection system.
<b>Kickboard</b>	See Toeboard.
<b>Kicker lift or base lift</b>	A grid of ledgers and transoms close to the ground to provide extra rigidity to the scaffold or provide support for a low-level platform.
<b>Ladder</b>	An appliance on which a person may ascend or descend, consisting of two stiles joined at regular intervals by cross pieces (cleats, rungs steps or treads).
<b>Ladder access bay</b>	An independent scaffold bay attached to a scaffold or roof edge protection system with internal ladder access provided.
<b>Landing</b>	A level area providing access to a stairway or ladder or located at an intermediate level in a system of stairways and landings.
<b>Lanyard</b>	An assembly designed to connect a harness to an anchor point.
<b>Ledger</b>	A horizontal structural member that longitudinally spans between adjacent standards.
<b>Level</b>	A device used to find the vertical, horizontal and sometimes 45 degrees of a scaffolding member.
<b>Lift</b>	The vertical distance from the supporting surface to the lowest ledger of a scaffold or level at which a platform can be constructed. Also, the vertical distance between adjacent ledgers of a scaffold at which a platform can be constructed (e.g. average lift 2 metres).
<b>Light duty</b>	The duty loading of a scaffold to 225kg per bay, for persons, materials and equipment.
<b>Loading bay</b>	A platform on a scaffold for the storage of materials and equipment (also known as a loading platform).
<b>Longitudinal brace</b>	A brace in the vertical plane on the face of a scaffold to stop longitudinal movement of the scaffold.
<b>Medium duty</b>	The duty loading of a scaffold to 450kg per bay, for persons, materials and equipment.
<b>Member</b>	Anything that forms part of the scaffold assembly or roof edge protection system.
<b>Mesh</b>	A series of ropes arranged in either a square or diamond pattern to form a net.

TERM	BRIEF EXPLANATION
<b>Mesh rope</b>	The rope used to make the mesh of a safety net.
<b>Mesh size</b>	The distance from centre to centre of the mesh ropes across the mesh.
<b>Midrail</b>	A member fixed parallel to and above a platform, between the guardrail and the platform.
<b>Minor scaffold</b>	Lightweight, portable, single bay scaffolds, with a working platform that cannot be higher than 2 metres
<b>Mobile scaffold</b>	An independent freestanding scaffold that is mounted on castors.
<b>Modular scaffold</b>	A prefabricated scaffold assembly with individual components, braces and accessories of set sizes.
<b>Net system</b>	The safety net, tie ropes or other anchorage devices, and the supporting structure linked together to provide a collective fall arrest system.
<b>Notifiable event</b>	This is defined in HSWA as: the death of a person a notifiable injury or illness a notifiable incident.
<b>Notifiable work</b>	Particular hazardous work, as listed in the Health and Safety in Employment Regulations, that must be notified to WorkSafe in a written notification form.
<b>Officer</b>	Defined in HSWA, in summary it means a person that exercises significant influence over the PCBU's management. For example, the CEO, a director, or a partner in a partnership.
<b>Operator</b>	A competent person in charge of erecting, altering, dismantling or inspecting scaffolding, edge protection, safety net or soft landing system.
<b>Outrigger</b>	A component that increases the effective base dimension of a tower and is attached to a vertical load bearing member.
<b>Parapet</b>	A vertical element of a building usually located at the edge of a balcony or roof.
<b>Person conducting a business or undertaking (PCBU)</b>	Has the meaning provided in HSWA. In general, it means any person (or legal entity) running a business or undertaking. For example, a limited liability company, partnership, trust, incorporated society etc.
<b>Penetration</b>	Any opening in a roof, floor or wall, for example, skylight, stairwell, window opening.
<b>Pendulum effect</b>	The swing effect created when working in restraint using an anchor line at an angle which is not perpendicular to the roof edge.
<b>Perimeter</b>	The outside edge of a roof or building.
<b>Perimeter scaffold</b>	An independent scaffold that runs around all or part of the perimeter of the building and is more than one bay long.

<b>TERM</b>	<b>BRIEF EXPLANATION</b>
<b>Pitch</b>	The slope of the roof.
<b>Plan brace</b>	A brace in the horizontal plane that is attached to standards on opposite sides of a scaffold.
<b>Plank</b>	A component used to form a working platform or deck.
<b>Platform</b>	An elevated surface.
<b>Platform bracket</b>	A bracket attached to a scaffold that allows a platform to be placed between the scaffold and the building or structure.
<b>Post</b>	A structural member of an edge protection system which supports guardrails and infill panels and connects them to the building.
<b>Prefabricated platform</b>	A framed assembly of one bay length, incorporating a walking surface, that is capable of connecting to its support structure (deck or hatch deck).
<b>Prefabricated scaffold</b>	A scaffold assembly from prefabricated components and manufactured so that the components of the scaffold are predetermined. The system should be designed and manufactured in accordance with AS/NZS1576 or equivalent and supplied with full manufacturers information and instructions.
<b>Producer statement</b>	A suite of documents (PS1–PS4) to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate.
<b>Prefabricated edge protection</b>	An edge protection system which is designed and manufactured to AS/NZS4994 or equivalent and is supplied with full manufacturers' information and instructions.
<b>Purlin</b>	A horizontal secondary structural building component supporting roof cladding.
<b>Putlog</b>	A horizontal structural member spanning between ledgers or standards (tube transom) that is intended to support a platform.
<b>Rafter</b>	A sloped structural component of the building which supports the purlins and roof cladding.
<b>Raker</b>	A component that increases the effective base dimension of a scaffold.
<b>Return</b>	A part of a scaffold set up around a corner of a building or structure.
<b>Risk</b>	The likelihood of a specific level of harm occurring from a hazard.
<b>Risk assessment</b>	Involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening.
<b>Roof cavity</b>	The space between the ceiling and the roof.
<b>Roof edge</b>	The top edge of the fascia if no gutter is fitted or the outside edge of the gutter if it is fitted.
<b>Roof edge protection</b>	An edge protection system anchored to the residential building structure, roof cladding,

TERM	BRIEF EXPLANATION
<b>system</b>	supported from the ground or a level below the roof, or any combination of these, designed to prevent workers falling from the edge of a roof.
<b>Safe Working Load (SWL)</b>	The maximum load permitted upon an item or assembly that is deemed safe, which is well below the breaking load, failure load or maximum load which can be placed on the item or assembly.
<b>Safety harness system</b>	Fall arrest system for arresting a fall, consisting of harness, lanyard, shock absorber and scaffold hook.
<b>Safety helmet</b>	Protective headwear.
<b>Safety mesh</b>	Wire mesh designed to support roofing paper and prevent workers falling through a roof and must comply with AS/NZS4389 Safety mesh or equivalent standard.
<b>Safety net</b>	A net comprising mesh, border ropes, test meshes and labels installed as part of a net system to prevent workers falling through a roof or floor.
<b>Scaffold</b>	Any advanced scaffolding, basic scaffolding, or suspended scaffolding or any framework or structure, as defined in the HSE Regulations
<b>Scaffolder</b>	A person engaged in erecting, altering or dismantling scaffolding who holds a Certificate of Competence.
<b>Scaffolding equipment</b>	Any component, assembly or machine used for the construction of scaffolding.
<b>Sling</b>	A device which can be used as part of a fall arrest system.
<b>Soleboard or soleplate</b>	A member used to distribute a load through a baseplate to the supporting surface or supporting structure.
<b>Span</b>	The distance measured along a member between the centre lines of support points (e.g. putlogs supporting a scaffold plank or posts supporting guardrails on a roof edge protection system).
<b>Stabiliser</b>	A component that increases the effective base dimensions of a tower and is attached to a vertical load-bearing member.
<b>Stability</b>	Security of a scaffold against movement and overturning.
<b>Stanchion</b>	A vertical member used to support a guardrail, mesh panel or similar.
<b>Standard</b>	A vertical structural member that supports working platforms or loads and transmits a load to a supporting surface or structure.
<b>Strut</b>	A scaffolding member that supports a compressive force.
<b>Stud bracket scaffold</b>	A bracket scaffold where the brackets are attached to studs of a timber frame building.
<b>Supporting structure</b>	A structure, structural member or foundation that supports a scaffold, roof edge protection system or safety net.
<b>Test mesh</b>	A separate piece of mesh attached to a safety net, made from the same material and of the same batch as the mesh in the net to which it is attached, that can be removed to

TERM	BRIEF EXPLANATION
	test the UV deterioration of the net.
<b>Tie</b>	A member or assembly of members used to tie a scaffold or edge protection system to a supporting structure.
<b>Tie rope</b>	A rope used to secure the border rope of a safety net to an anchor point on the supporting structure.
<b>Toeboard</b>	A scaffold plank or purpose designed component fixed on edge at the edge of the platform to prevent materials falling from the platform. Also called a kick board.
<b>Transom</b>	A horizontal structural member transversely spanning an independent scaffold between standards.
<b>Transverse brace</b>	A brace in a plane that is vertical and at right angles to the building or structure (e.g. dogleg or parallel brace).
<b>Trap door</b>	A hatch or opening platform.
<b>Uniformly Distributed Load (UDL)</b>	A load distributed evenly along the length of a member.
<b>Waisting</b>	The effect of a safety net being pulled horizontally away from the supporting structure or intended perimeter of the net, due to over-tensioning or the self-weight of the net at an unsupported edge.
<b>Work at height</b>	Working at a place where a worker can be injured by a fall from one level to another.
<b>Worker</b>	Has the meaning provided in HSWA. In general, it is a person who carries out work in any capacity for a PCBU. It covers almost all working relationships, including employees, contractors, sub-contractors, and volunteer workers.
<b>Worker representative</b>	In relation to a worker, means: <ul style="list-style-type: none"> <li>- the health and safety representative for the worker</li> <li>- a union representing the worker</li> <li>- any other person the worker authorises to represent them (e.g. community or church leaders, lawyers, occupational physicians, nurses, respected members of ethnic communities).</li> </ul>
<b>Working load limit (WLL)</b>	The maximum working load that may be applied to any component or system, under general conditions of use.
<b>Working platform</b>	A platform that is intended to support persons, materials and equipment.

## **APPENDIX B: REGULATIONS**

All construction work must comply with the requirements of HSWA and all relevant regulations. These include both the HSE regulations and the GRWM Regulations.

### **SCAFFOLDING DEFINITION**

Scaffolding:

- means any advanced scaffolding, basic scaffolding, or suspended scaffolding or any framework or structure, of a temporary nature, used or intended to be used:
- for the support or protection of persons carrying out construction work or work connected with construction work, for the purpose of carrying out that work; or
- for the support of materials used relating to any such work; and
- includes any scaffolding constructed as such and not dismantled, whether or not it is being used as scaffolding; and
- includes any coupling, device, fastening, fitting, or plank used in the construction, erection, or use of scaffolding.

Regulations 22, 27, 35, and 53 of the HSE Regulations apply specifically to scaffolding. In addition, regulation 21 of the HSE Regulations and regulations 24 and 25 of the GRWM Regulations are very relevant to a scaffolding worksite.

### **REGULATION 21, HSE REGULATIONS – HEIGHTS OF MORE THAN 3 METRES**

In this regulation, the term employer does not include any employer who employs any employee to carry out any agricultural work in a workplace under the control of that employer. The definitions of employer and employee that apply to this regulation are outlined in Regulation 12.

Every employer must, so far as is reasonably practicable, ensure, in relation to every workplace under the control of that employer, that, where any employee may fall more than 3 metres:

- means are provided to prevent the employee from falling; and
- any means so provided are suitable for the purpose for which they are to be used.

### **REGULATION 22, HSE REGULATIONS – SCAFFOLDING**

In this regulation, the term employer means:

- every employer, in relation to every workplace under the control of that employer in which any construction work is carried out; and
- every person who controls a workplace in which any construction work is carried out.

Every employer must, so far as is reasonably practicable, ensure that, where any construction work cannot be carried out safely without the use of scaffolding:

- scaffolding is provided; and
- the scaffolding so provided is:
  - suitable for the purpose for which it is to be used; and
  - properly constructed of sound material; and
  - constructed with a sufficient reserve of strength having regard to the loads and stresses to which it may be subjected; and



- sufficient in amount for the purpose for which it is to be used.

## **REGULATION 27, HSE REGULATIONS – CERTIFICATES OF COMPETENCE**

The following kinds of certificates of competence may be issued under [regulation 38](#):

- a certificate of competence as a diver
- a certificate of competence as a powder-actuated tool operator
- a certificate of competence as a scaffolder.

A certificate of competence as a scaffolder shall authorise the holder to erect, maintain, repair, or dismantle on, some, or all of the following types of scaffolding:

- basic scaffolding
- advanced scaffolding
- suspended scaffolding.

## **REGULATION 31, HSE REGULATIONS - REQUIREMENTS OF APPLICANTS**

An applicant for a certificate of competence shall:

- fulfil the requirements of [regulation 35](#)
- be physically and mentally able to perform any task that it is reasonable to expect the holder of such a certificate to perform; and
- be of good character and reputation.

## **REGULATION 35, HSE REGULATIONS – REQUIREMENTS OF A SCAFFOLDER**

An applicant for a certificate of competence as a scaffolder shall:

- have a thorough knowledge of the use or uses to which the type or types of scaffolding in respect of which the applicant seeks a certificate may be put; and
- have a thorough knowledge of the erection, maintenance, repair, and dismantling of the type or types of scaffolding in respect of which the applicant seeks a certificate; and
- have a thorough knowledge of the practices that must be followed to enable scaffolding of the type or types in respect of which the applicant seeks a certificate to be used, erected, maintained, repaired, and dismantled safely; and
- have had suitable recent training, including suitable recent experience, in the use, erection, maintenance, repair, and dismantling of scaffolding of the type or types in respect of which the applicant seeks a certificate.

## **REGULATION 53, HSE REGULATIONS – SCAFFOLDER**

Every employer must, so far as is reasonably practicable, ensure that every employee who, in the course of carrying out construction work, erects, maintains, repairs, or dismantles scaffolding (being scaffolding any part of which is 5 metres or more above the ground) is the holder of a current certificate of competence with respect to:

- basic scaffolding, where the scaffolding being erected, maintained, repaired, or dismantled is basic scaffolding; or
- advanced scaffolding, where the scaffolding being erected, maintained, repaired, or dismantled is advanced scaffolding; or

- suspended scaffolding, where the scaffolding being erected, maintained, repaired, or dismantled is suspended scaffolding.

Nothing in this regulation prevents an employee training to become the holder of a certificate of competence as a scaffolder from erecting, maintaining, repairing, or dismantling scaffolding (being scaffolding any part of which is 5 metres or more above the ground), in the course of carrying out construction work, under the direct supervision of the holder of such a certificate, being a current certificate that authorises the holder to erect, maintain, repair, or dismantle scaffolding of the type that the employee is erecting, maintaining, repairing, or dismantling.

The definitions of employer and employee in regulation 50 apply to this regulation.

## **REGULATION 24, GRWM REGULATIONS – MANAGING RISKS ASSOCIATED WITH WORKING UNDER RAISED OBJECTS**

A PCBU must manage, in accordance with [regulations 5 to 8](#), risks to health and safety associated with work being done under any object that has been raised or lifted by any means.

If it is not reasonably practicable to eliminate the risk referred to in subclause (1), the PCBU must minimise the risk by, so far as is reasonably practicable, providing supports or other devices to be placed or used under the raised object so that the object cannot fall or be lowered while a worker or other person is under it.

## **REGULATION 25, GRWM REGULATIONS – MANAGING RISKS ASSOCIATED WITH FALLING OBJECTS**

A PCBU must manage, in accordance with [regulations 5 to 8](#), risks to health and safety associated with a falling object if the object is reasonably likely to fall on and injure a person.

If it is not reasonably practicable to eliminate the risk referred to in subclause (1), the PCBU must minimise the risk by providing and maintaining a safe system of work that includes:

- measures for preventing an object from falling freely, so far as is reasonably practicable; or
- if it is not reasonably practicable to prevent the object from falling freely, a system to arrest the fall; or
- if it is not reasonably practicable to comply with paragraph (a) or (b), providing an exclusion zone that persons are prohibited from entering.

## **OTHER REQUIREMENTS**

Consider the requirements of any applicable laws, regulations, codes of practice, Territorial Local Authorities (TLA), District Plans, Engineering Standards, by-laws, and any subsequent amendments.

Relevant legislation to consider may include the following Acts and regulations made under them:

- Land Transport Management Act 2003
- Building Act 2004
- Resource Management Act 1991
- Electricity Act 1992
- Gas Act 1992
- Local Government Act 2000
- Telecommunications Act 2001

## APPENDIX C: NOTIFICATIONS TO WORKSAFE

### NOTIFICATION OF PARTICULAR HAZARDOUS WORK

Employers (including persons who control the workplace) must notify WorkSafe at least 24 hours' before doing any hazardous work (as defined below).

These notices help WorkSafe plan workplace visits to promote health and safety for everyone in or near a workplace.

Notify WorkSafe by either:

- filing a Notification of Particular Hazardous Work online at: [www.worksafe.govt.nz](http://www.worksafe.govt.nz)
- downloading the notification form and posting or faxing it to WorkSafe.

### WORK THAT NEEDS TO BE NOTIFIED TO WORKSAFE

Defined in the HSE Regulations as:

- any commercial logging or tree-felling
- any construction work where:
  - workers could fall 5 m or more (excluding work on a house up to two-storeys high, a power or telephone line, or carried out from a ladder only, or minor or routine maintenance or repair work)
  - scaffolding from which someone could fall 5 m or more while being put up or dismantled
  - an appliance (other than a self-propelled mobile crane, excavator or forklift) has to lift weights of half a tonne (500 kg) or higher than 5 m
  - workers have to work in a pit, shaft, trench or other excavation that is more than 1.5 m deep and which is deeper than it is wide at the top
  - workers need to work underground in any kind of excavation, heading or drive, where there is ground cover overhead
  - work in any excavation in which any face has a vertical height of more than 5 m and an average slope steeper than a ratio of 1 horizontal to 2 vertical
  - work where explosives are used, or stored on site for this purpose
  - workers need to breathe air that is or has been compressed or breathe a respiratory medium other than air. (There is an exception in regulation 26(4), HSE Regulations).

### NOTIFIABLE EVENTS

A notifiable event is when someone dies or when a notifiable incident, illness or injury arises from work. WorkSafe must be informed of all notifiable events.

A notifiable illness is when someone becomes seriously ill as a result of work, and this is a notifiable event. All illnesses which require a person to be admitted to hospital for immediate treatment are also notifiable.

A notifiable injury is when someone has been seriously injured as a result of work then this is a notifiable event. All injuries which require a person to be admitted to hospital for immediate treatment are also notifiable.

A notifiable incident is when someone has been exposed to a serious and immediate risk because of an unplanned or uncontrolled work incident then this is a notifiable event.

## NOTIFIABLE INCIDENTS

HSWA requires PCBUs to notify WorkSafe if there is an unplanned or uncontrolled incident in relation to a workplace that exposes a person (worker or otherwise) to a serious risk to their health and safety because of immediate or imminent exposure to:

- a substance escaping, spilling, or leaking
- an implosion, explosion or fire
- gas or steam escaping
- pressurised substance escaping
- electric shock
- the fall or release from height of any plant, substance or thing
- damage to or collapsing, overturning, failing or malfunctioning of any plant that is required to be authorised for use
- the collapse or partial collapse of a structure
- the collapse or failure of an excavation or any shoring supporting an excavation
- the inrush of water, mud, or gas in workings in an underground excavation or tunnel
- the interruption of the main system of ventilation in an underground excavation or tunnel
- a collision between two vessels, a vessel capsize, or the inrush of water into a vessel
- any other incident declared in regulation to be a notifiable incident

## APPENDIX D: USEFUL INFORMATION

### STANDARDS

Standards relating to but not limited to, scaffolding and scaffolding components.

STANDARD	TITLE/SUBJECT
AS/NZS 1664.1	Aluminum structures – Limit state design
AS/NZS 1170.0	Structural design actions – Part 0: General principles
AS/NZS 1170.1	Structural design actions – Part 1: Permanent, imposed and other action
AS/NZS 1170.2	Structural design actions – Part 2: Wind actions
AS/NZS 1170.3	Structural design actions – Part 3: Snow and ice actions
AS/NZS 1170.5	Structural design actions – Part 5: Earthquake actions
AS/NZS 1554.1	Structural steel welding – Welding of steel structures
AS/NZS 1554.2	Structural steel welding – Stud welding (steel studs to steel)
AS/NZS 1554.4	Structural steel welding – Welding of high strength quenched and tempered steels
AS/NZS 1576.1	Scaffolding – General requirements
AS/NZS 1576.2	Scaffolding – Couplers and accessories
AS/NZS 1576.3	Scaffolding – Prefabricated and tube-and-coupler scaffolding
AS/NZS 1576.4	Scaffolding – Suspended scaffolding
AS/NZS 1576.5	Scaffolding – Prefabricated spliheads and trestles
AS/NZS 1576.6	Scaffolding – Metal tube and coupler scaffolding (deemed to comply with AS/NZS 1576.3)
AS/NZS 1577	Scaffold decking components
AS/NZS 1665	Welding of aluminum structures
AS/NZS 1892.1	Portable ladders – Part 1: Metal
AS/NZS 1892.3	Portable ladders – Reinforced plastic
AS/NZS 1892.5	Portable ladders – Selection, safe use and care
AS/NZS 3012	Electrical installations – Construction and demolition sites
AS/NZ 4994.1	Temporary edge protection – General requirements
AS/NZ 4994.2	Roof edge protection – Installation and dismantling

AS/NZ 4994.3	Installation and dismantling for edges other than roof edges
AS/NZ 4357	Structural laminated veneer lumber
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3609	Specification for timber ladders
BS PAS 59	Specification for collective fall arrest soft landing systems
BS 8411	Code of Practice for safety nets on construction sites and other
BS EN 1263-1	Safety nets – Part 1: Safety requirement, test methods
BS EN 1263-2	Safety nets – Part 2: Safety requirements for the positioning limits
NZS 3631	New Zealand timber grading rules
AS 2865	Safe working in a confined space
<b>STANDARDS RELATING TO THE DESIGN, USE AND MAINTENANCE OF INDUSTRIAL FALL-ARREST SYSTEMS AND DEVICES</b>	
AS/NZS 5532	Manufacturing requirements for single-point anchor device used for harness-based work at height
AS/NZS 1891.1	Industrial fall-arrest systems and devices – Part 1: Harnesses and ancillary equipment
AS/NZS 1891.2	Industrial fall-arrest systems and devices – Part 2: Horizontal lifeline and rail systems
AS/NZS 1891.2 (Supplement 1)	Industrial fall-arrest systems and devices – Horizontal lifeline and rail systems – Prescribe configurations for horizontal lifelines (Supplement to AS/NZS 1891.2)
AS/NZS 1891.3	Industrial fall-arrest systems and devices – Part 3: Fall-arrest devices
AS/NZS 1891.4	Industrial fall-arrest systems and devices – Part 4: Selection, use and maintenance
AS/NZS 4488.1	Industrial rope access systems - Specifications
AS/NZS 448`8.2	Industrial rope access systems – Selection, use and maintenance
<b>STANDARDS RELATING TO PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	
AS/NZS 1270	Acoustics – Hearing protection
AS/NZS 1337.1	Personal eye protection – Part 1: Eye and fact protectors for occupational applications
AS/NZS 1715	Selection, use and maintenance of respiratory protective equipment
AS/NZS 1716	Respiratory protective devices

## GUIDANCE

**WorkSafe New Zealand:** [www.worksafe.govt.nz](http://www.worksafe.govt.nz)

Good Practice Guidelines for Scaffolding in NZ
Best Practice Guidelines for Safe Use of Safety Nets in NZ
Best Practice Guidelines for Safe Use of Soft Landing Systems in NZ
Approved Code of Practice for Operator Protective Structures on Self-Propelled Mobile Mechanical Plant
Mobile Elevating Work Platforms
Construction Quick Guide
Working with Ladders and Stepladders
Workplace Exposure Standards and Biological Exposure Indices
Safe Use of Machinery
Construction Factsheets
Industrial Rope Access
Working at Height

**WorkSafe New Zealand – Energy Safety:** [www.energysafety.govt.nz](http://www.energysafety.govt.nz)

New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001)
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**New Zealand Transport Agency (NZTA):** [www.nzta.govt.nz](http://www.nzta.govt.nz)

Code of Practice for Temporary Traffic Management: Part 8 of the Traffic Control Devices Manual
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### **Environmental Protection Authority (EPA)**

For information about how to manage hazardous substances visit the Environmental Protection Authority’s website: [www.epa.govt.nz](http://www.epa.govt.nz) or call 0800 376 234.

### **New Zealand Legislation**

To access all legislation, including Acts and regulations visit the New Zealand Legislation website: [www.legislation.govt.nz](http://www.legislation.govt.nz)

### **WorkSafe New Zealand**

For information and guidance about health and safety visit Work Safe’s website: [www.worksafe.govt.nz](http://www.worksafe.govt.nz) or call 0800 030 040 .

For information and guidance specifically about electrical or gas safety visit WorkSafe’s website: [www.energysafety.govt.nz](http://www.energysafety.govt.nz) or call 0800 030 040 .

## **Local Council**

Your council might have additional rules that need to be met. Check with your local council for specific rules that apply in your region.

## **Local Utility Owners**

Check any local utility owners' websites for additional procedures that may need to be met – look for headings like *safety*, *working safely* or *public safety*.



**APPENDIX E: EXAMPLE FORMS AND TEMPLATES**

**HAZARD IDENTIFICATION AND RISK MANAGEMENT REPORT-** The purpose of this procedure is to inspect the work site for hazards and assess and manage the risks.

Person in charge:		Location:	
Job description:			
<b>WORK PARTY DETAILS</b>			
Work Group Member	Task Responsibility	Initials	
<b>HAZARD PROMPT</b>			
Personal Protective Equipment (PPE) required?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	Evacuation Procedures?
<b>HAZARD IDENTIFICATION &amp; CONTROL</b>			
HAZARD	EXISTS		METHOD OF CONTROL (To ELIMINATE, then if risk remains MINIMISE)
Fall	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Power lines	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Confined spaces	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Fire	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Public protection	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Traffic	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Overhead dangers	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Stacked materials	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Insecure scaffold	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Wind	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Vehicle loads	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Power leads/source	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Faulty plant	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Others	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
Site supervision signature:			Date: / /

## SCAFFOLD INSPECTION REPORT

Date: / /		Time:		Project:	
Client:			Location:		
Scaffolder:					
COMPLIANCE ITEM	COMPLIANT		REMEDIAL WORK DUE BY	COMPLIANT DATE	
Does the scaffold have a tag system attached to the entry point?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the tag say who erected it, show their contact details and when they erected it?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the tag show the purpose and duty loading?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Is the scaffold suitable for the purpose for which it's being used?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Is the scaffold stable?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the scaffold have base plates or base jacks centered on the safe boards?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Are the standards vertical and ledgers horizontal?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Are standards and ledgers staggered where possible?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Is the scaffold more than 300mm from the work face?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
If so, does the scaffold have inside guardrails and mid-rails?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the scaffold have face bracing a max of every 6 bays?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the scaffold have transverse bracing a max of every 4 bays?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Does the scaffold bracing follow the manufacturer's specs?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	
Are the platforms a min of 675mm wide or follow the manufacturer's specs?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /	

Is there clear access of 450mm on each platform?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the platforms secured?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are there gaps of more than 50mm in the platform?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is there safe access to every platform?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are ladders secured top and bottom?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are all ladders access openings protected with a gate, hatch or tortured path?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Do external ladders extend up to a max of every 2 lifts high?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are ties a max of 4.8m in the horizontal and in the vertical?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are rakers connected to the standards or within 300mm of the standards?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are rakers connected to the guardrails, midrails, or ledgers secured and checked?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Do the rakers have a horizontal brace connected back to the scaffold?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is screening required to protect the public or vehicles?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the scaffolders trained and wearing safety harnesses?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the people using the scaffold trained in its use?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
If the scaffold is compliant as per the Inspection List the tag should read 'SAFE'.	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
<b>Comments:</b>				
<b>Name:</b>			<b>Signature:</b>	

# MOBILE SCAFFOLD INSPECTION REPORT

Date: / /	Time:	Project:		
Client:		Location:		
Scaffolder:				
COMPLIANCE ITEM	COMPLIANT		REMEDIAL WORK DUE BY	COMPLIANT DATE
Does the scaffold have a tag system attached to the entry point?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the tag say who erected it, show their contact details and when they erected it?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the tag show the purpose and duty loading?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is the scaffold suitable for the purpose for which it's being used?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
If the scaffold becomes unsafe, or erecting and dismantling is incomplete, remove tag and mark 'UNSAFE' or similar.	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is the scaffold stable (3 to 1 for 2m or above, 2:1 for under 2m) see below?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the mobile have outriggers to increase the minimum base dimension, which are used and in contact with the ground?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the castors lockable and marked with their SWL?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the mobile have ladder access to all deck levels?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the mobile have midrails, guardrails, and toeboards at all levels?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the top guardrails between 900mm and 1100 mm high?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Does the mobile have diagonal bracing on both sides?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is the mobile fully decked, with the decks secured from moving?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
If the mobile is not fully decked, does it	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /

have guardrails to protect the voids?				
Does the mobile have a plan brace if not fully decked within 3m of the base?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Is the mobile more than 2.0m away from the edge of a building and any floor penetrations, voids etc.?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the people using the mobile trained in its use?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Are the scaffolders trained and wearing safety harnesses?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
If the scaffold is compliant as per the Inspection List, the tag should read 'SAFE'.	YES <input type="checkbox"/>	NO <input type="checkbox"/>	/ /	/ /
Comments:				
Name:			Signature:	

# SCAFFOLD REGISTER

<b>Project:</b>	<b>Site address:</b>
<b>Main contractor:</b>	<b>Contact:</b>
<b>Client(s):</b>	<b>Contact:</b>
<b>Scaffolding contractor:</b>	<b>Contact:</b>
<b>Scaffolder:</b>	<b>Certificate of competence number:</b>

## Register for each standing scaffold over 5m high.

<b>1. Type of scaffold: (tick one)</b>	<input type="checkbox"/> <b>Tube and Coupler</b>	<b>2. Duty: (tick one)</b>	<input type="checkbox"/> <b>Light</b>
	<input type="checkbox"/> <b>Prefabricated</b>		<input type="checkbox"/> <b>Medium</b>
	<input type="checkbox"/> <b>Proprietary</b>		<input type="checkbox"/> <b>Heavy</b>
	<input type="checkbox"/> <b>Timber</b>		<input type="checkbox"/> <b>Special</b>

**3. Safe duty load of \_\_\_\_\_ kg per platform (enter number of kgs)**

Maximum number of working platforms per bay which may be used on metal tubular or framed scaffolding are given in the following table:

MAXIMUM HEIGHT OF SCAFFOLD	MAXIMUM NUMBER OF WORKING PLATFORMS THAT MAY BE USED IN ANY BAY			
	Light Duty	Medium Duty	Heavy Duty	Special Duty
Up to 13.5 m	4	2	2	As specified by designer
Up to 33m	2	1	1	

**Light Duty:** 225kg per work platform contained within each scaffold bay (including a single point load of 100kg).

**Medium Duty:** 450kg per work platform contained within each scaffold bay (including a single point load of 150kg).

**Heavy Duty:** 675 per work platform contained within each scaffold bay (including a single point load of 200).

**Special Duty:** SWL as specified by Designer.

# INSPECTION RECORD

Location of scaffold on site:				
Length: _____ m	Number of bays:	Height: _____ m	Number of lifts:	
Limitations:				
Comment:				
DATE	TIME	INSPECTOR	SIGNATURE	COMMENTS
/ /				
/ /				
/ /				
/ /				
/ /				

Table 3: Grading for inspected scaffolding equipment

GRADING	EXAMPLES	RESULTING ACTION
Checked and approved	Scaffolding components confirmed as safe and suitable for use	May be used for normal operations.
Repaired	Bolts replaced on couplers Wedges replaced on modular scaffolding	May be used for normal operations.
Reduced length or cut down	Shortened tubes Cut-down planks	May be used in appropriate situations.
Downgraded	Scaffold plank downgraded to a soleboard	May be used in appropriate situations.
Scrapped (taken out of service)	Bent tubes Rotten planks Tubes with excessive rust or reduced wall thickness	May not be used or reintroduced back into service.



**SCAFFOLD HANDOVER CERTIFICATE**

The scaffold handover certificate releases the scaffolding to the client. The scaffold(s) have been inspected by the client and has been erected to the client’s requirements. All scaffolds have been erected as per the requirements of the *Good Practice Guidelines for Scaffolding in New Zealand*. The client undertakes to control the use, and users of the scaffold structure(s) while under their control as required by the Health and Safety at Work Act 2015 (HSWA), and the Health and Safety in Employment Regulations 1995 (HSE Regulations).

<b>Client:</b>		
<b>Location:</b>		
<b>Description:</b>		
<b>Comments (special conditions):</b>		
Authorised foreman/client: (print name clearly)	Signature:	Date: / /
Scaffolding representative: (print name clearly)	Signature:	Date: / /

**Note:** Scaffolding over 5.0m high is notifiable work, and the erection/dismantling or alterations including the movement of planks, can only be carried out under the supervision of a Scaffolder holding a current Certificate of Competency.

Scaffold notified to WorkSafe:	YES <input type="checkbox"/> NO <input type="checkbox"/>	
Number of lifts fully planked with full edge protection:		
Ladder/stair access bays to all working lifts:		
Screening:		
Scaffold register locations:		
Light duty 225kg per bay	Useable lifts per bay	Limitations:
Medium duty 450kg per bay	Useable lifts per bay	
Heavy duty 675kg per bay	Useable lifts per bay	
Special duty	Useable lifts per bay	



## CHECKLIST FOR SAFETY NET HANDOVER DOCUMENTATION

CHECKLIST FOR HANDOVER DOCUMENTATION	Y/N
Are nets in good condition, best tested in the previous 12 months, and have a valid ID and current test label attached.	
Have the nets been installed as close as is reasonably practicable to the underside of the work platform?	
Are all gaps between net and structure less than 100mm?	
Are attachment points a maximum of 2.5m apart for tie ropes; 1.8m apart for Grippas; 1.5-2.0m apart for net claws?	
Does the net sag between 5-10% of the shortest side of the net?	
If overlapped, are overlaps at least 2.0m and tiled correctly?	
If laced, has 8mm lacing/12mm rope been used and any gaps are less than 100mm?	
Are the knots tied correctly?	
Are all the nets attached to the structure/anchor points correctly?	
Is the net under-rolled correctly?	
Are there any materials/obstacles less than 3.0m below the netted area?	
Do people working above the nets need to take additional safety measures, e.g. a harness?	

CHECKLIST FOR SAFETY NET INSPECTIONS	Y/N
Are the nets correctly labeled?	
Are the labels current (i.e. less than 12 months old)?	
Are there distortions in the line or appearance of the nets or supporting framework?	
Has a net been used to arrest a fall or had a load imposed on it (appears as deformation of the net)?	
Has debris or imposed load damaged the net?	
Are anchorage points intact and good order?	
Is the net clear of debris?	
Are cuts or fraying of the mesh cord, tie ropes, etc. visible?	
Is there any other visible damage to the safety net system?	

**IF ANY OF THE CHECKS HAVE A 'YES' RESPONSE, NETS SHOULD EITHER BE REMOVED AND REPAIRED, OR TAKEN OUT OF SERVICE PERMANENTLY.**

## INSPECTION CHECKLIST – SOFT LANDING SYSTEMS

CHECKLIST FOR SOFT LANDING SYSTEMS INSPECTIONS	Y/N
Is the soft landing system installed correctly?	
If the mats or bags should be installed with a particular face up, have they been installed the correct way up?	
Are the mats or bags positioned correctly so they are below the work area?	
Is the distance between the top surface of the mats or bags and the working platform above no more than 2 meters or the maximum distance recommended by the manufacturer?	
Have the mats been placed so they provide at least 3 meters leading edge protection where they are below an unprotected edge?	
Is the entire area covered by mats/bags with no spaces to fall between mats?	
Are you able to push your foot between the mats/bags (foot test)?	
Are all modules securely clipped together?	
Are the mats/bags free of debris or rubbish?	
Is there evidence of damage or deterioration to the outer casing of the mats or bags?	
Are all components such as clips, undamaged and in good working condition?	
Is access and egress to the work area clear i.e. not restricted by the mats or bags?	
Is information labeling attached and current?	

### SAFE WORK METHOD STATEMENT

Job/Operation:	Job/Site and Location:	Sub Contractor:	Supervisor:
PPE required:	Date: / /	Date: / /	
Plant required:	Approved (title and signature):		
Signature required:			
SEQUENCE OF BASIC STEPS		HAZARD CONTROL METHOD	
List the steps required to complete the job (Follow the flow of the product or process)	List the potential significant hazards beside each step. Focus on what can cause harm and what can go wrong. Use Seven Point Analysis as a guide.		
Step no.	Step no.	Step no.	Step no.
SEVEN POINT ANALYSIS: TO HELP IDENTIFY HAZARDS. FOR EACH STEP ASK – CAN I?			
- Sprain or strain my back or other muscle?	- Be struck by or against anything?	- Come in contact with a hazardous substance?	
- Be caught in, on or between anything?	- Slip, trip or fall from height on the same or lower level?	- Come in contact with an energy source?	
- Be injured by poor plant/job design:			

## APPENDIX F: TASK PLANNER (WORKED EXAMPLE)

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE SPECIFIC CONTROLS
- Roof	<ul style="list-style-type: none"> <li>- Trusses</li> <li>- Rafters</li> <li>- Bracing</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- Roof edge protection</li> <li>- Safety nets</li> </ul>	<ul style="list-style-type: none"> <li>- Height of roof two storey</li> <li>- Type of structure/material Coloursteel</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- Roof edge protection</li> <li>- Safety nets</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding with hop-ups, stairs, loading bay</li> </ul>
- Roof	<ul style="list-style-type: none"> <li>- Roofing underlay</li> <li>- Purlins</li> <li>- Battens</li> <li>- Sarking</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Soft landing bags and mats</li> </ul>	<ul style="list-style-type: none"> <li>- Spacing of trusses/rafters/purlins/battens</li> <li>- Trusses 1m, purlins 800mm</li> <li>- Roof pitch and rafter length</li> <li>- 24 deg. Max. 6m rafter length</li> </ul>	<ul style="list-style-type: none"> <li>- Soft landing system</li> </ul>	<ul style="list-style-type: none"> <li>- Safety nets to 2<sup>nd</sup> story interior</li> <li>- Soft landing system in wardrobes</li> </ul>
- Roof	<ul style="list-style-type: none"> <li>- Laying sheets</li> <li>- Laying tiles</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Void scaffolds, birdcage scaffolds</li> <li>- Mobile scaffolds</li> </ul>	<ul style="list-style-type: none"> <li>- Construction programme</li> <li>- Grip on roof Slippery</li> <li>- Fixing methods Screwed</li> </ul>	<ul style="list-style-type: none"> <li>- Void scaffolds, birdcage scaffolds</li> <li>- Mobile scaffolds</li> </ul>	<ul style="list-style-type: none"> <li>- Set up exclusion zone around perimeter with site fence</li> </ul>
- Roof	<ul style="list-style-type: none"> <li>- Flashings</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling objects</li> </ul>	<ul style="list-style-type: none"> <li>- Exclusion zones</li> </ul>	<ul style="list-style-type: none"> <li>- Number of personnel 2</li> </ul>	<ul style="list-style-type: none"> <li>- Exclusion zones</li> </ul>	
- Roof	<ul style="list-style-type: none"> <li>- Access for personnel</li> <li>- Loading material</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Manual handling</li> <li>- Falling objects</li> </ul>	<ul style="list-style-type: none"> <li>- Crane/ Hoist</li> <li>- Stairs</li> <li>- MEWP</li> <li>- Ladder tower</li> <li>- Ladders</li> <li>- Loading platform</li> </ul>	<ul style="list-style-type: none"> <li>- Weight and volume of material</li> <li>- 2000kg Max length 6m</li> <li>- Site access</li> <li>- Truck access to side of house</li> <li>- Available space Plenty</li> </ul>	<ul style="list-style-type: none"> <li>- Crane/ Hoist</li> <li>- Stairs</li> <li>- MEWP</li> <li>- Ladder tower</li> <li>- Ladders</li> <li>- Loading platform</li> </ul>	<ul style="list-style-type: none"> <li>- Hiab trusses onto frames</li> <li>- Hiab coloursteel onto roof</li> </ul>
- Fascia	<ul style="list-style-type: none"> <li>- Installing fascia</li> <li>- Painting fascia</li> <li>- Installing spouting</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffold</li> <li>- MEWP</li> <li>- Mobile scaffold</li> </ul>	<ul style="list-style-type: none"> <li>- Fascia/gutter integrated</li> <li>- Access</li> <li>- Design</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffold</li> <li>- MEWP</li> <li>- Mobile scaffold</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffold with hop-up</li> </ul>

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE SPECIFIC CONTROLS
- Upper storey framing	<ul style="list-style-type: none"> <li>- Landing frames</li> <li>- Standing frames</li> <li>- Straightening and bracing</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Manual handling</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior void scaffold/birdcage</li> <li>- Interior edge protection</li> <li>- Safety nets</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> <li>- Crane</li> </ul>	<ul style="list-style-type: none"> <li>- Height of floor Second floor</li> <li>- Access to site Drive on</li> <li>- Space available on site</li> <li>- Ample</li> <li>- Access for crane /hiab</li> <li>- Accessible</li> <li>- Weight/size of frames</li> <li>- Max weight of bundle 1000kg</li> <li>- Construction programme</li> <li>- Staged multi-unit</li> <li>- Size of interior voids/ atriums</li> <li>- Stairwell only</li> <li>- Height of interior voids/atriums 1 storey</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior edge protection</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> <li>- Crane</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold with hop-ups, stairs, loading platform</li> <li>- Interior soft landing system until frames are stood and temporary stairs installed</li> <li>- Crane frames onto floor before scaffold extended to 2<sup>nd</sup> storey</li> </ul>
- Upper storey floor	<ul style="list-style-type: none"> <li>- Joist and framing</li> <li>- Laying floor</li> <li>- Access for trades</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Manual Handling</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior void scaffold/birdcage</li> <li>- Interior edge protection</li> <li>- Safety nets</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> </ul>	<ul style="list-style-type: none"> <li>- Height of floor 1 storey</li> <li>- Access to site Truck access</li> <li>- Space available on site</li> <li>- Ample</li> <li>- Access for crane /hiab</li> <li>- Yes</li> <li>- Weight/size of frames</li> <li>- Construction programme</li> <li>- Size and height of interior voids/ atriums Stairs only</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior edge protection</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold to 1<sup>st</sup> floor height only with hop ups and loading platform</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Hiab flooring onto exterior loading platform</li> </ul>



AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE SPECIFIC CONTROLS
- Exterior cladding	- Building wrap	- Fall off - Fall through - Falling objects	- Crane - Scaffold - Scaffold with hop-ups	- Design Simple - Materials used - Brick with steel roof	- Scaffold - Scaffold with hop-ups	- Scaffold with hop ups. Top lift 1m below roofline
- Exterior cladding	- Install windows	- Fall off - Falling objects - Manual handling - Body stressing	- MEWP - Mobile scaffolds	- Roof pitch - 24 degrees - Access for windows and joinery - Installed before bricks laid, no large windows	-	-
- Exterior cladding	- Soffits - Weatherboards - Monolithic cladding - Plastering - Painting	- Fall off - Falling objects - Manual handling - Body stressing	- Loading platforms - Stair access - Ladder access	- Site space for access and storage Ample - Ground conditions Soft clay	- Loading platforms - Stair access - Ladder access	- Loading platform for interior linings, windows, bricks.
- Exterior cladding	- Bricklaying	- Fall off - Falling objects - Manual handling - Body stressing	- Hoist /Crane - Exclusion zone	- Access for delivery vehicles/crane Gravel drive	- Hoist /Crane - Exclusion zone	- Hiab materials onto loading platform
- Interior Fit-out	- Electrical pre-line - Plumbing pre-line - HVAC - Insulation - Door frames	- Fall off - Falling objects - Manual handling - Body stressing - Slips and trips	- Void/birdcage scaffold - Edge protection - Soft landing systems - Mobile scaffolds Stairs	- Design - Size and height of voids - Stairs only - Type of floor Timber sheet 1 <sup>st</sup> floor, concrete ground floor	- Edge protection - Soft landing systems - Mobile scaffolds	- Stairs (Temporary stairs in stairwell) - Crane gib onto loading platform and pass through window
- Interior Fit-out	- Ceiling linings	- Fall off	- MEWP	- Floor finishes Carpet	- Stairs	-

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE SPECIFIC CONTROLS
	<ul style="list-style-type: none"> <li>- Wall linings</li> <li>- Skirtings and trim</li> <li>- Stopping</li> <li>- Painting/decorating</li> </ul>	<ul style="list-style-type: none"> <li>- Falling objects</li> <li>- Manual handling</li> <li>- Body stressing</li> <li>- Slips and trips</li> </ul>	<ul style="list-style-type: none"> <li>- Ladders</li> <li>- Stilts</li> <li>- Hoists</li> <li>- Crane</li> </ul>	<ul style="list-style-type: none"> <li>- Construction programme/stairs and balustrades fitted</li> <li>- Stairs fitted after linings</li> </ul>	<ul style="list-style-type: none"> <li>- Ladders</li> <li>- Stilts</li> <li>- Crane</li> </ul>	
- Exterior finish and maintenance	<ul style="list-style-type: none"> <li>- Roof and roof fittings; flue, vents, aerials, flashings, air conditioning, solar panels, skylights</li> </ul>	<ul style="list-style-type: none"> <li>- Fall off</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- Roof edge protection</li> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Ladder</li> <li>- Harness system</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Building programme</li> <li>- Fit vents, flashings, skylights before scaffold dismantled</li> <li>- Roof pitch 24 degrees</li> <li>- Roof grip Slippery</li> <li>- Roofing material Steel</li> <li>- Site access Easy</li> <li>- Anchor points None</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> </ul>
- Exterior finish and maintenance	<ul style="list-style-type: none"> <li>- Exterior lights, security and fittings</li> <li>- Decks and pergolas</li> <li>- Touch ups and cleaning</li> </ul>	<ul style="list-style-type: none"> <li>- Falls</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Ladder</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Building programme</li> <li>- Fit before scaffold dismantled</li> <li>- Ground conditions Soft</li> <li>- Slope of ground Flat</li> <li>- Site access Easy</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> </ul>
- Interior finish and maintenance	<ul style="list-style-type: none"> <li>- Decorating</li> <li>- Electrical fittings</li> <li>- Plumbing fittings</li> <li>- HVAC fittings</li> <li>- Balustrades</li> </ul>	<ul style="list-style-type: none"> <li>- Low level falls</li> <li>- Falls into voids</li> <li>- Slips and trips</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Birdcage scaffold</li> <li>- Soft landing system</li> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Minor mobile</li> <li>- Stairs</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Floor finishes</li> <li>- Construction programme for fitting stairs and balustrades</li> <li>- Design for whole of life maintenance</li> </ul>	<ul style="list-style-type: none"> <li>- Mobile scaffold</li> <li>- Minor mobile</li> </ul>	<ul style="list-style-type: none"> <li>- Minor mobile</li> <li>- Aluminium tower over stairs as needed</li> </ul>

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE SPECIFIC CONTROLS
	<ul style="list-style-type: none"> <li>- Joinery</li> <li>- Tiling</li> </ul>		<ul style="list-style-type: none"> <li>- Stilts</li> <li>- Ladder</li> </ul>			

From the task matrix, we have planned to use the following systems:

- Exterior scaffolding
  - Top platform 1m below bottom roof edge.
  - Inside hop-up platforms to allow alterations for different users.
  - Loading platform for loading of internal linings through a window opening and loading bricks on to the scaffold.
  - Stair access for efficiency
  - Scaffold erected to lower storey first to allow edge protection for flooring and standing frames without obstructing hiab access for material.
  - All fittings to be installed on roof and walls before scaffold is dismantled.
  - Co-ordination will be required to install scaffold in stages and move hop-up platforms.
- Soft landing systems will be used when laying second storey floor, protecting stairwell until temporary stairs are fitted and in wardrobes, etc where safety nets are impractical.
- Safety nets will be used for upper storey while trusses and roof are installed.
- Temporary stairs will be used in interior stairwell until permanent stairs are installed.
- Aluminium tower will be used to line, stop and paint stairwell.
- Minor mobile(s) will be used for interior fitout and finishing.
- Bulk materials, prefabricated frames and trusses will be lifted into position with hiab crane to minimise manual handling
- Work area will be isolated to form an exclusion zone using site fencing.

## APPENDIX G : TASK PLANNER TEMPLATE

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE-SPECIFIC CONTROLS
- Roof	<ul style="list-style-type: none"> <li>- Trusses</li> <li>- Rafters</li> <li>- Bracing</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- Roof edge protection</li> <li>- Safety nets</li> </ul>	<ul style="list-style-type: none"> <li>- Height of roof</li> <li>- Type of structure/material</li> </ul>		
- Roof	<ul style="list-style-type: none"> <li>- Roofing underlay</li> <li>- Purlins</li> <li>- Battens</li> <li>- Sarking</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Soft landing bags and mats</li> </ul>	<ul style="list-style-type: none"> <li>- Spacing of trusses/rafters/purlins/battens</li> <li>- Roof pitch and rafter length</li> </ul>		
- Roof	<ul style="list-style-type: none"> <li>- Laying sheets</li> <li>- Laying tiles</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Void scaffolds, birdcage scaffolds</li> <li>- Mobile scaffolds</li> </ul>	<ul style="list-style-type: none"> <li>- Construction programme</li> <li>- Grip on roof</li> <li>- Fixing methods</li> </ul>		
- Roof	<ul style="list-style-type: none"> <li>- Flashings</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling objects</li> </ul>	<ul style="list-style-type: none"> <li>- Exclusion zones</li> </ul>	<ul style="list-style-type: none"> <li>- Number of personnel</li> </ul>		
- Roof	<ul style="list-style-type: none"> <li>- Access for personnel</li> <li>- Loading material</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Manual handling</li> <li>- Falling objects</li> </ul>	<ul style="list-style-type: none"> <li>- Crane/ Hoist</li> <li>- Stairs</li> <li>- MEWP</li> <li>- Ladder tower</li> <li>- Ladders</li> </ul>	<ul style="list-style-type: none"> <li>- Weight and volume of material</li> <li>- Site access</li> <li>- Available space</li> </ul>		
- Fascia	<ul style="list-style-type: none"> <li>- Installing fascia</li> <li>- Painting fascia</li> <li>- Installing spouting</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling objects</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffold</li> <li>- MEWP</li> <li>- Mobile scaffold</li> </ul>	<ul style="list-style-type: none"> <li>- Fascia/gutter integrated</li> <li>- Access</li> <li>- Design</li> </ul>		

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE-SPECIFIC CONTROLS
- Upper story framing	<ul style="list-style-type: none"> <li>- Landing frames</li> <li>- Standing frames</li> <li>- Straightening and bracing</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Manual handling</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior void scaffold/birdcage</li> <li>- Interior edge protection</li> <li>- Safety nets</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> <li>- Crane</li> </ul>	<ul style="list-style-type: none"> <li>- Height of floor</li> <li>- Access to site</li> <li>- Space available on site</li> <li>- Access for crane /hiab</li> <li>- Weight/size of frames</li> <li>- Construction programme</li> <li>- Size of interior voids/atriums</li> <li>- Height of interior voids/atriums</li> </ul>		
- Upper story floor	<ul style="list-style-type: none"> <li>- Joist and framing</li> <li>- Laying floor</li> <li>- Access for trades</li> </ul>	<ul style="list-style-type: none"> <li>- Falling off</li> <li>- Falling through</li> <li>- Falling objects</li> <li>- Manual Handling</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Exterior scaffold</li> <li>- Exterior edge protection</li> <li>- Exterior soft-landing system</li> <li>- Interior void scaffold/birdcage</li> <li>- Interior edge protection</li> <li>- Safety nets</li> <li>- Interior soft landing system</li> <li>- Stair access</li> <li>- Ladder access</li> <li>- Crane</li> </ul>	<ul style="list-style-type: none"> <li>- Height of floor</li> <li>- Access to site</li> <li>- Space available on site</li> <li>- Access for crane /hiab</li> <li>- Weight/size of frames</li> <li>- Construction programme</li> <li>- Size and height of interior voids/atriums</li> </ul>		
- Exterior cladding	<ul style="list-style-type: none"> <li>- Building wrap</li> </ul>	<ul style="list-style-type: none"> <li>- Fall off</li> <li>- Fall through</li> <li>- Falling objects</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffold</li> <li>- Scaffold with hop-ups</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Materials used</li> </ul>		

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE-SPECIFIC CONTROLS
- Exterior cladding	- Install windows	- Fall off - Falling objects - Manual handling - Body stressing	- MEWP - Mobile scaffolds	- Roof pitch - Access for windows and joinery		
- Exterior cladding	- Soffits - Weatherboards - Monolithic cladding - Plastering - Painting	- Fall off - Falling objects - Manual handling - Body stressing	- Loading platforms - Stair access - Ladder access	- Site space for access and storage - Ground conditions		
- Exterior cladding	- Bricklaying	- Fall off - Falling objects - Manual handling - Body stressing	- Hoist /Crane - Exclusion zone	- Access for delivery vehicles/crane		
- Interior Fit-out	- Electrical pre-line - Plumbing pre-line - HVAC - Insulation - Door frames	- Fall off - Falling objects - Manual handling - Body stressing - Slips and trips	- Void/birdcage scaffold - Edge protection - Soft landing systems - Mobile scaffolds	- Design - Size and height of voids - Type of floor		
- Interior Fit-out	- Ceiling linings - Wall linings - Skirtings and trim - Stopping - Painting/decorating	- Fall off - Falling objects - Manual handling - Body stressing - Slips and trips	- Stairs - MEWP - Ladders - Stilts - Hoists - Crane	- Floor finishes - Construction programme/stairs and balustrades fitted	-	-
- Exterior finish and maintenance	- Roof and roof fittings; flue, vents, aerials, flashings, air	- Fall off - Body stressing	- Scaffolding - Roof edge protection	- Design - Building programme	-	-

AREA	TASK	RISK	POSSIBLE CONTROLS	CONSIDERATIONS	POSSIBLE SITE CONTROLS	SITE-SPECIFIC CONTROLS
	conditioning, solar panels, skylight		<ul style="list-style-type: none"> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Ladder</li> <li>- Harness system</li> </ul>	<ul style="list-style-type: none"> <li>- Roof pitch</li> <li>- Roof grip</li> <li>- Roofing material</li> <li>- Site access</li> <li>- Anchor points</li> </ul>		
- Exterior finish and maintenance	<ul style="list-style-type: none"> <li>- Exterior lights, security and fittings</li> <li>- Decks and pergolas</li> <li>- Touch ups and cleaning</li> </ul>	<ul style="list-style-type: none"> <li>- Falls</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Scaffolding</li> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Ladder</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Building programme</li> <li>- Ground conditions</li> <li>- Slope of ground</li> <li>- Site access</li> </ul>		
- Interior finish and maintenance	<ul style="list-style-type: none"> <li>- Decorating</li> <li>- Electrical fittings</li> <li>- Plumbing fittings</li> <li>- HVAC fittings</li> <li>- Balustrades</li> <li>- Joinery</li> <li>- Tiling</li> </ul>	<ul style="list-style-type: none"> <li>- Low level falls</li> <li>- Falls into voids</li> <li>- Slips and trips</li> <li>- Body stressing</li> </ul>	<ul style="list-style-type: none"> <li>- Birdcage scaffold</li> <li>- Soft landing system</li> <li>- MEWP</li> <li>- Mobile scaffold</li> <li>- Minor mobile</li> <li>- Stairs</li> <li>- Stilts</li> <li>- Ladder</li> </ul>	<ul style="list-style-type: none"> <li>- Design</li> <li>- Floor finishes</li> <li>- Construction programme for fitting stairs and balustrades</li> <li>- Design for whole of life maintenance</li> </ul>		