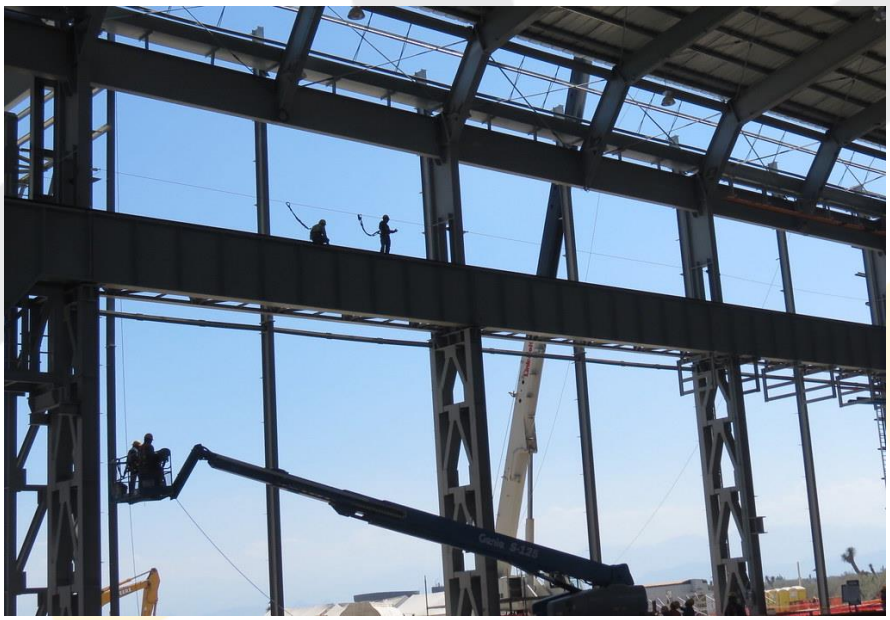
RIIWHS204E - Work safely at heights

Learner Guide



Name of the student	
Course date	

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Introduction

This Learner Guide includes some key points provided in the WorkSafe Victoria Compliance code: Prevention of falls in general construction.

How to use the Learner Guide

Simply work through the pages of the Learner Guide. The content provided for various topics will assist your understanding of working safely at heights and preventing falls. If there are areas of the Learner Guide that you would like to clarify, make a note of these in the Learner Guide and discuss these with your trainer during the workshop day.

This Learner Guide does not provide comprehensive information on all aspects of working safely at heights or all sections of the WorkSafe Victoria Compliance code: Prevention of falls in general construction. Further details will be covered during the classroom training and practical sessions. You may refer to the WorkSafe Victoria Compliance code: Prevention of falls in general construction for further reading.

All participants are advised to read our Student Handbook available via the web
www.constructiontrainninggroup.com.au

Compliance code: Prevention of falls in general construction

WorkSafe Victoria has developed the Compliance Code to help those with responsibilities relating to the prevention of falls in the construction industry according to the Occupational Health and Safety Act 2004 (OHS Act) and Occupational Health and Safety Regulations 2017 (OHS Regulations).

The Code applies to anyone who installs, erects or commissions plant to be used in any workplace in Victoria including, but not limited to, employers, self-employed persons, Health and Safety Representatives (HSRs), persons with management or control of a workplace and employees.

Video: Click on the link to watch a video on working at heights

Duties of employers

Under the OHS Act employers must provide and maintain a workplace for employees that is as risk free as possible including prevention of falls from two metres or less.

To prevent involuntary falls from more than two metres in the workplace employers must:

- identify all tasks that may involve a fall hazard of more than two metres
- eliminate any risk of fall by, for example, arranging for the work to be done on the ground, if this is possible
- if this is not possible, adopt some means of controlling the risk
- ensure that any plant used to control the risk is:
    - designed and constructed for the task
    - safe to use in those surroundings and conditions
    - must be installed, erected and dismantled as practicably as possible
- review and alter any measures taken to control risks:
    - before making any alterations that are likely to result in a fall
    - after a notifiable incident involving a fall or the risk of a fall
    - if the control measure does not adequately control the risk
    - after receiving a request from an HSR.
- establish emergency procedures to be followed for rescue and first aid in the event of a fall
- ensure that all high-risk construction work (HRCW), is not performed unless a safe work method statement (SWMS) is prepared before the work starts
- ensure the work is performed in accordance with the SWMS.

Responsibilities of a self-employed person

As far as possible, a self-employed person must ensure that there are no risks to other people arising from the self-employed person's work.

Responsibilities of employees

While at work employees must:

- take reasonable care for their own health and safety
- ensure that what they do does not harmfully affect other people
- cooperate with their employer by following any information, instruction or training given relating to the OHS Act or OHS Regulations.

The risk management process

The risk management process includes:

Identifying fall hazards

- Consider if you are required to undertake any tasks at a workplace that involves a fall hazard of more than two metres including:
    - on any plant or structure being constructed, demolished, inspected, tested, maintained, repaired or cleaned
    - on a fragile surface (e.g. cement sheeting roofs, rusty metal roofs, fibreglass sheeting roofs and skylights)
    - on a slippery or unstable surface (e.g. where it is possible the ground may collapse, such as poorly backfilled or compacted ground, or unstable areas such as on top of stacks of building materials, timber pallets or bricks)
    - when using equipment to get to and work at a higher level (e.g. scaffolds, elevating work platforms or portable ladders)
    - on a sloping surface on which it is difficult to stay balanced (e.g. glazed tiles or wet steel roof sheets)
    - near an unprotected edge (e.g. edges without guardrails or incomplete stairwells)
    - near a hole, trench, shaft or pit that is big enough to allow a person to fall into it.

Assessing any related risks

Perform risk assessment. If the risk is known about and understood, a risk assessment is not needed but if it is not clear how a fall risk can be controlled, a risk assessment can help. It helps to break each activity or process into smaller parts and assess each one separately.

If tasks and processes are the same in different workplaces or areas, a single risk assessment can be done using a standardised risk assessment template.

For each identified hazard, assess the risk by:

- looking at similar workplaces or processes
- looking at previous incident reports relating to falls
- consulting with HSRs (if any) and other employees
- looking at the way tasks or jobs are done
- looking at the way work is arranged
- working out the size and layout of the workplace
- assessing the number and movement of people
- determining the type of operation to be performed
- identifying the type of machinery or plant to be used
- assessing inspection and maintenance processes – are they adequate?
- examining the storage and handling of materials and substances
- checking current knowledge and training is good enough to safely perform the task
- examining procedures for all potential emergency situations and checking it is adequate.

If a fall hazard has been identified for a task, assess the risk by checking:

- how likely is it someone will fall
- the distance a person could fall
- the harm a person could receive if they fell.

The person carrying out the assessment must be sure the generic assessment is adequate for their workplace. Risk assessments must be done by people with the necessary:

- information
- knowledge
- experience

Controlling falls risk

An employer must try to eliminate any risk associated with a fall of more than two metres at the workplace. The risk might be eliminated by working on the ground or a solid construction. If this is not possible, they must work their way down the hierarchy of control until the risk is reduced as much as possible. Employees are also responsible for implementing appropriate risk control within their scope of practice. Employees can contribute to ideas and take part in trials for new risk control measures. This could improve the acceptance of risk control measures when they are implemented.

Video: Click on the link to watch a video on 'Falls from heights control measures'.

The hierarchy of control

When investigating risk control options, employers must consider relevant information about the nature of the work to be performed and how this may create a risk to health or safety. The hierarchy of control must be followed when controlling risks associated with a fall of more than two metres. The hierarchy of control is detailed below:

Level 1: Eliminate the risk

- prefabricating roofs at ground level
- prefabricating wall frames horizontally, then standing them up
- using precast or tilt-up concrete construction instead of concrete walls constructed in situ

Level 2: Use passive fall prevention

- scaffolds
- perimeter screens
- perimeter guardrailing
- guardrailing edges of roofs
- safety mesh
- elevating work platforms
- mast climbing work platforms
- work boxes
- step platforms

Excavation fall protection

- extended trench shields for trenching works
- secure covers over trenches or backfilling of trenches.

Level 3: Use a work positioning system

- travel restraint systems
- industrial rope access systems.

Level 4: Use a fall arrest system

- catch platforms
- safety harness systems (other than travel restraint systems).

Level 5: Use a fixed or portable ladder or implement administrative controls

- installing electrical wiring or fixing light fittings from a portable ladder.

Often it will be necessary to use a combination of risk control measures to effectively control a risk associated with a fall from any height. After considering all higher level controls, a level 5 control can be used. Administrative controls are the least effective way of controlling risks as they rely on human behaviour and supervision. They should only be used for reducing risk when higher order controls are not practicable. When higher order controls are already in place, administrative controls can also be used to help, e.g. work procedures can ensure the safe use of temporary work platforms, fall arrest systems and ladders. An administrative control may be as simple as a safe work procedure.

Personal protective equipment

Using safety footwear, gloves and hard hats is not a risk control for prevention of falls and this personal protective equipment (PPE) does not include safety harness systems.

Monitoring, checking and updating risk controls

Risk controls have to be kept in place to make sure they continue to prevent falls or at least control them. Measures should include:

- checking activities and work practices
- frequent inspection of guardrails, scaffolding and covers over trenches
- checking to make sure employees are doing the right thing
- testing equipment and PPE
- preventative maintenance of engineering controls and PPE
- making sure physical controls are still effective and, if not, fixing them.

High risk work licences

You must not do any high-risk work unless you hold the right high risk work licence.
The classes of high risk work licences include, but not limited to, the following:

- licences for scaffolding
- dogging
- rigging
- boom type elevating work platforms with a boom length of 11 metres or more.

Permit systems

Permit systems ensure that only competent people who are trained in the use of appropriate control measures work in an area where there is a fall hazard.

Work on a solid construction

Consider the following:

Structural strength

The surface (and its supports) must be structurally capable of supporting persons, material and any other loads applied to it. Where props are used to support suspended floors, formwork or similar areas, the props need to meet the following:

- proprietary brand props are marked with their safe working load
- timber props are designed for the loads imposed
- the props are secured top and bottom
- the props are tied to each other in the longwise and crosswise directions to form a stable, free-standing structure.

Surface and gradient

The area must have an even and easily negotiable surface and gradient that is non-slip and free from trip hazards and holes. Smooth surface working areas should not be steeper than 7 degrees (1 in 8 gradient). Cleated or grated surfaces, which provide greater slip resistance, should not be steeper than 23 degrees.

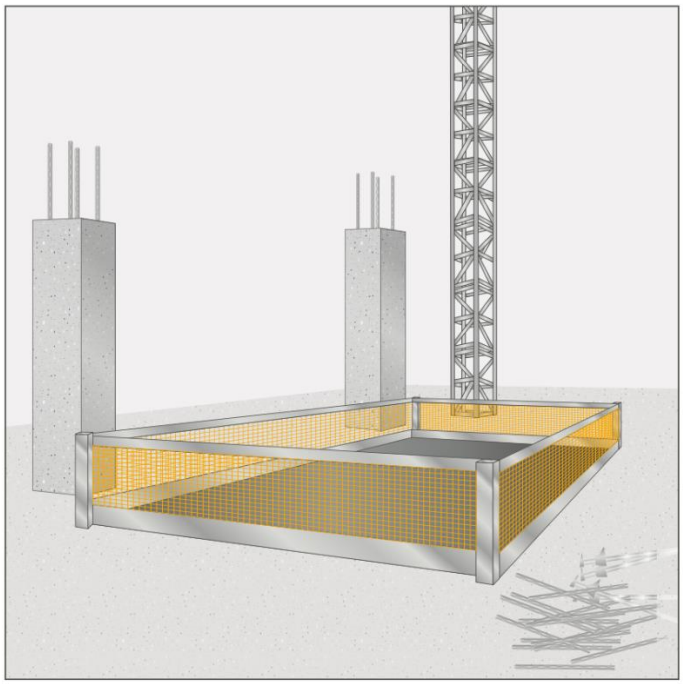
Edge protection

The solid construction must have barriers around the edges to prevent a fall from the area. Perimeter protection must be provided for all exposed edges, including:

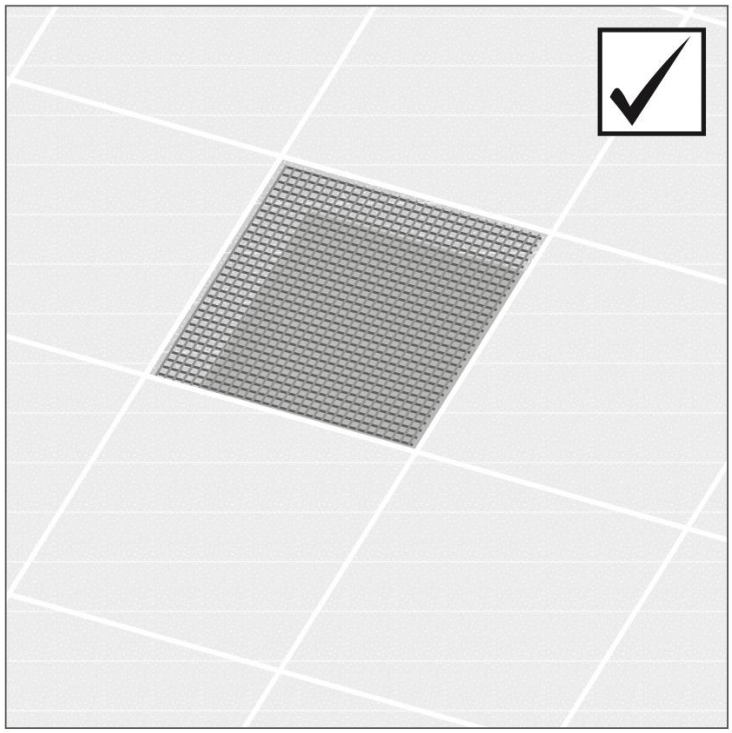
- perimeters of buildings or other structures
- perimeters of skylights or other fragile roof materials.

Void protection

The solid construction must have barriers around any openings such as guard railing to prevent a fall from the area. Fall protection can be embedded wire mesh. Holes or openings protected with embedded wire mesh should not be used as a work platform.



Open void through slab protected by guardrails.



Mesh embedded in the concrete floor. The hole also needs to be covered to prevent objects falling through.

Access and egress

The area must have a safe means of entry and exit. This could include:

- existing floor levels
- permanently installed platforms, ramps, stairways and fixed ladders, that comply with AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation
- temporary access ways and temporary stair systems
- secured single portable ladders set up at a slope of between 4:1 and 6:1, and extending at least 1m above the stepping-off point.

Ladder and stairway landings need to have the same level of edge protection for their open sides and ends as a solid construction.

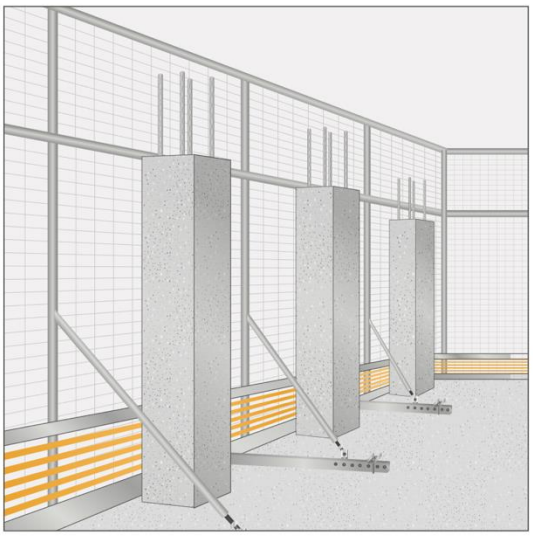
Step ladders and trestle ladders should not be used for entry to or exit from a solid construction.

Passive fall prevention devices

A ‘passive fall prevention device’ is material or equipment, or a combination of both, that:

- is designed for the purpose of preventing a fall
- after installation, does not need any ongoing adjustment, alteration or operation by any person to ensure it is capable of performing its function.

Examples include temporary work platforms, perimeter screens, guardrails, roof safety mesh and covers over trenches.



perimeter screen secured by props.

If employers cannot reasonably eliminate a risk associated with a fall of more than two metres, they must reduce the risk, as far as possible, by using a passive fall prevention device.

Perimeter guardrails

Guardrails should be used to provide effective fall prevention at:

- the edges of roofs and roof framing
- the edges of scaffolds
- the edges of work platforms, suspended slabs, formwork and falsework, walkways, stairways, ramps and landings
- the perimeters of buildings and other structures
- the perimeters of skylights and other fragile roof material
- openings in floor and roof structures
- the edges of shafts, pits and other excavations.

Barriers to restrict access

If edge protection is not provided around elevated areas including roofs and balconies and access is not allowed:

- barriers need to cordon off the area
- they must be secure
- they must restrict access to authorised people only
- signs must be erected to warn against entry to those areas

Suitable barriers could include locking the door to a balcony and controlling safe keeping of the key.
Where possible, barriers need to be placed at least two metres inside any unprotected edge or opening.
They can include:

- steel mesh panels
- metal posts and rails
- metal posts with timber rail assemblies.

They need to be highly visible and securely fixed to prevent displacement.

Safety mesh

Falling through a roof is one of the most common fall problems in the construction industry. Safety mesh is designed to prevent falls through a roof and when securely fixed can:

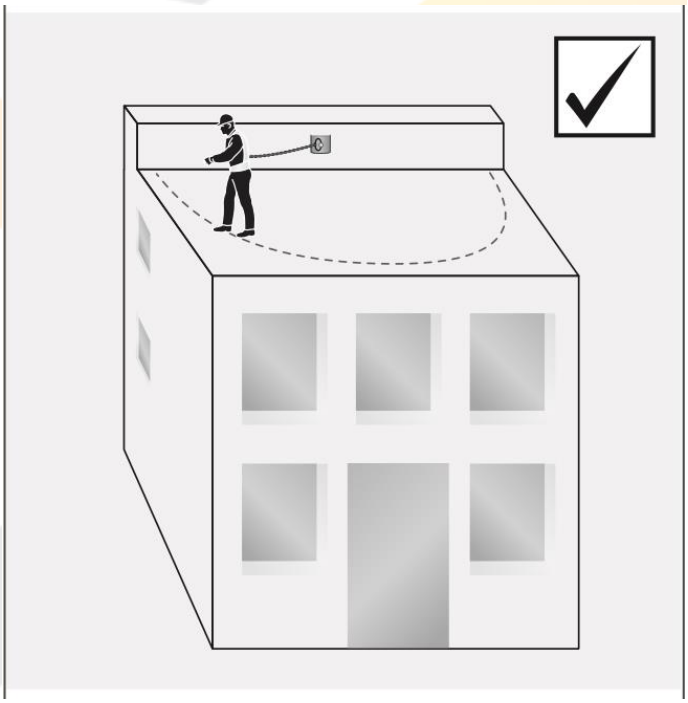
- provide fall protection for roof installers
- offer long-term protection against falling for maintenance and repair employees.

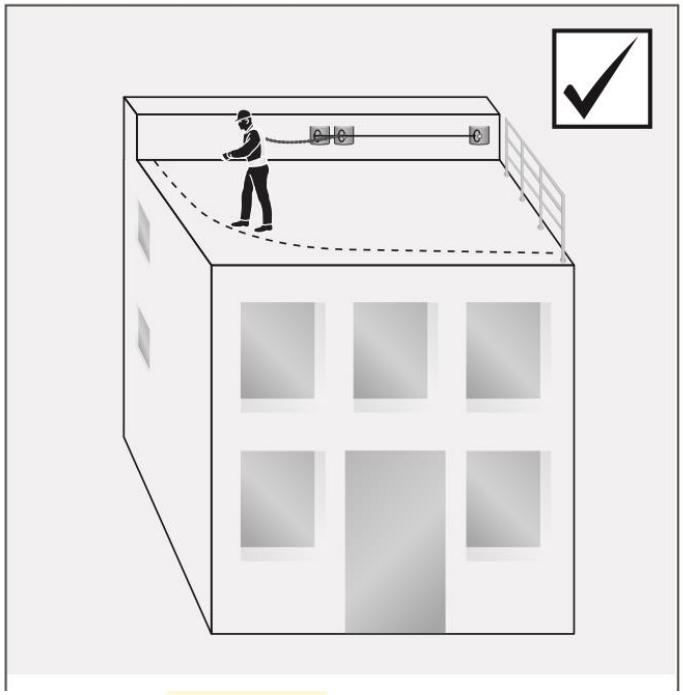
Work positioning systems

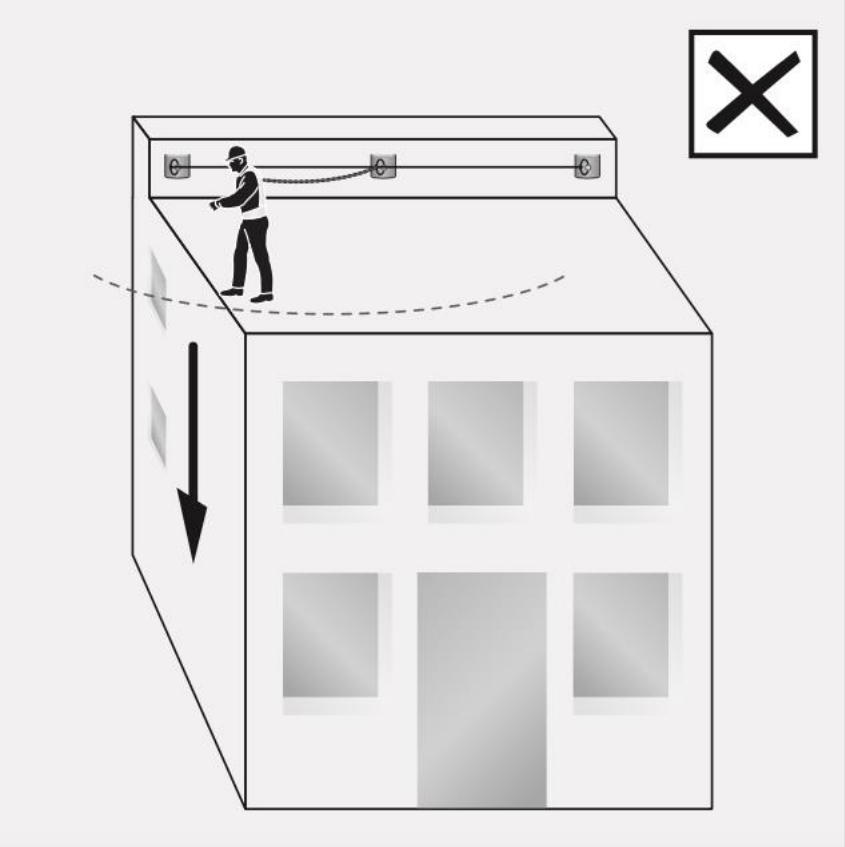
A work positioning system is:

- an industrial rope access system
- a travel restraint system
- any other equipment, other than a temporary work platform, that enables a person to be positioned and safely supported at a work location during the performance of a task undertaken at height.

A travel restraint system is a type of work positioning system. It is equipment worn by, or attached to, a person and designed to physically restrain the person from reaching an edge or elevated surface from which the person may fall.
The system usually consists of a safety harness connected by a lanyard to a suitable anchorage point or static line. The system needs to be set up to prevent the wearer from reaching the edge.
Travel restraint systems are not fall arrest devices.







Travel restraint system options – right and wrong.

Fall arrest systems

A fall arrest system is equipment or material, or a combination of both, that is designed to arrest the fall of a person. For example:

- industrial safety nets
- catch platforms
- safety harness or inertia reel systems (other than a travel-restraint system).

Fall arrest systems must only be used if it is not possible to use higher level control measures.

Industrial safety nets can provide a satisfactory means of protection and still allow employees to move around freely. Sometimes an internal safety net may be an effective method of arresting falls from buildings, structures or stairwell openings.

A catch platform is a temporary platform located below a work area, designed to catch a falling person. The platform needs to be strong enough to withstand the maximum potential impact load.

A safety harness fall arrest system:

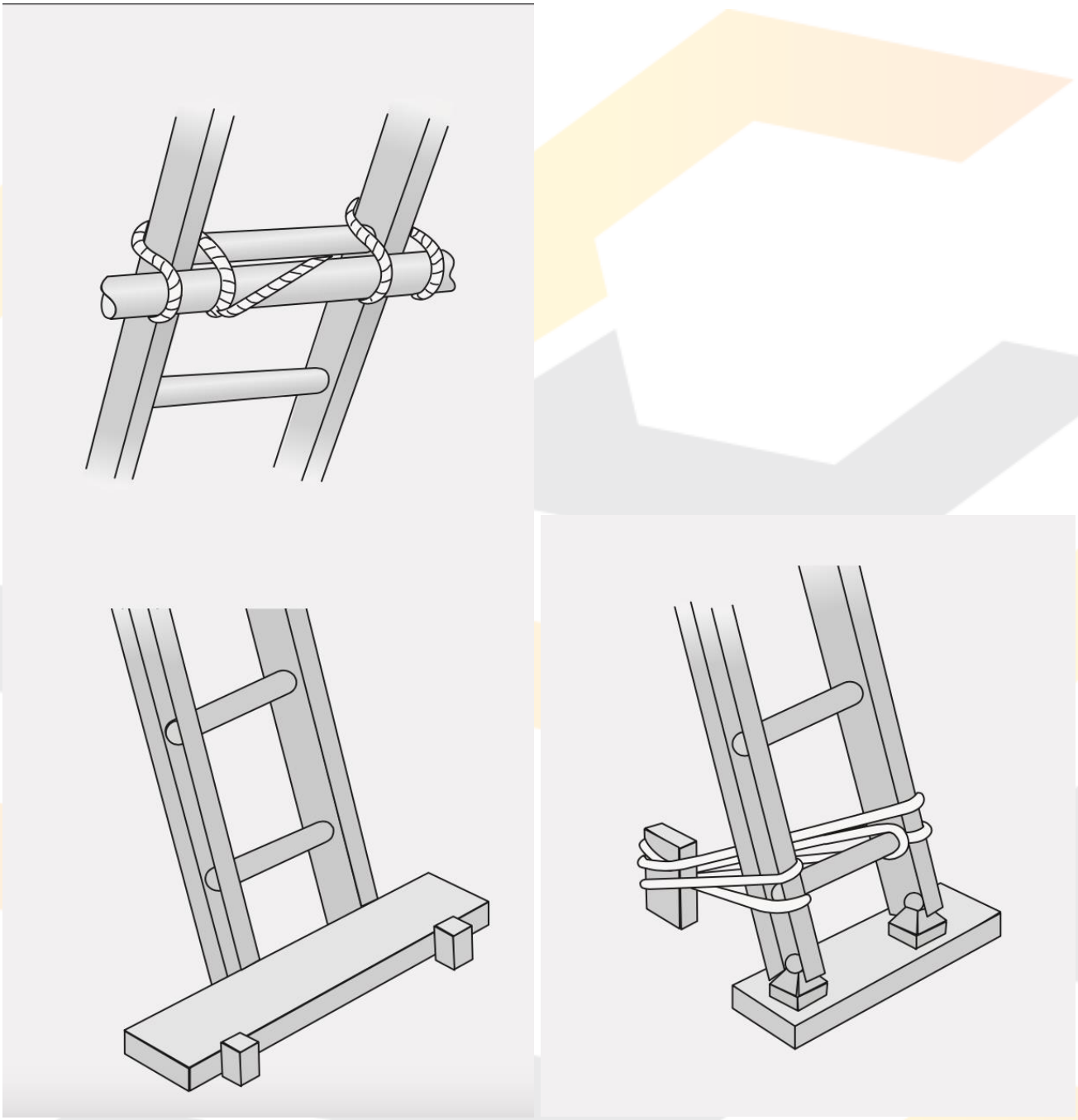
- should only be used where it is not possible to use a fall-prevention measure
- should only be used where the fall prevention measure applied is not fully effective on its own
- requires considerable skill to use safely
- in the event of an arrested fall can cause some physical injury to the user
- if there is the potential for a person to strike their head in a fall, a protective helmet should be worn.

Ladders

- Must only be used when it is not reasonably practicable to use a higher order control measure.
- Need to be used primarily as a means of access to or egress from a work area.
- Should only be used as a work platform if other methods of working at the required height are not possible
- Ladders must be correctly selected for the task and be appropriate for the duration of the task.
- Take into consideration the physical surroundings of where the task is to be undertaken and the prevailing weather conditions, e.g. metal ladders or metal-reinforced ladders should not be used for live electrical work.
- Fixed vertical ladders are generally not suitable for construction work.

Ladders used at a workplace:

- Need to be used on a surface that is solid and stable.
- Set up to prevent the ladder from slipping by:
    - placing single and extension ladders at a slope of 4:1
    - setting up stepladders in the fully opened position
    - securing single and extension ladders at both the top and bottom
- People using ladders should not:
    - handle or use ladders where it is possible for the employee or the ladder to make contact with powerlines
    - use metal or metal-reinforced ladders when working on live electrical installations
    - set up the ladder in places, such as driveways and doorways, where a person or vehicle could hit it (if necessary, erect a barrier or shut the door and lock it)
    - use a ladder near the edge of an open floor, hole or on scaffolding to gain extra height
    - over-reach (the employee's belt buckle needs to be within the ladder stiles throughout the work)
    - use any power (air, hydraulic, electric or battery) equipment or tool specifically designed to be operated with two hands, such as concrete cutting saws and circular saws
    - use tools that require a high degree of leverage type force (such as a pipe wrench or pinch bars) which, if released, may cause the user to overbalance or fall from the ladder
    - carry out work such as arc welding or oxy cutting
    - work over other people
    - allow anyone else to be on the ladder at the same time.



effective ways of securing a ladder.

Video: Click on the link to watch a video on Safe use of ladders

Image sources:

- WorkSafe Victoria Compliance code: Prevention of falls in general construction
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