

PREVENTION OF FALLS – WORKING ON ROOFS

1ST EDITION

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The following information is provided for people in the workplace who have responsibilities under the Occupational Health and Safety (OHS) Act 2004 for ensuring a safe and healthy environment. This guidance is intended to illustrate practical methods of reducing the likelihood of injuries from falls, both above and below two metres. You should also check the Occupational Health and Safety (Prevention of Falls) Regulations 2003 and the OHS Act to determine the legal requirements that relate to your specific situation.

The objective of the OHS (Prevention of Falls) Regulations is to prevent incidents at workplaces involving falls of more than two metres and to prevent or reduce injury resulting from those falls.

Working on a roof or inside a roof is a hazardous task if fall prevention measures are not utilised. Many injuries and deaths are caused by people falling either from a roof, through a roof, through an opening in a roof or while accessing a roof.



1.0 Adequate guard railing to roof work.

SOME COMMON ROOF WORK TASKS

- Installation and repair of telecommunication equipment such as satellite dishes and TV antennas.
- Installation and repair of skylights and vents.
- Inspection and installation of roof and wall insulation.
- Installation and maintenance of air-conditioning, solar-heating units, fans and storage tanks.
- Chimney repairs and maintenance.
- Maintenance of overhanging trees and shrubs.
- Repair and cleaning of spouting, guttering and downpipes.
- Installation of gutter guarding.
- Pest control.
- Roof maintenance and repair.
- Building inspection.
- Painting, plumbing and electrical work.
- Installation and maintenance of loft and attic.
- Installation and removal of building signs and billboards.
- Removal of items such as storm debris and balls.
- Building and housing construction*.

**Note: Where building and housing construction work is being undertaken and roof work is required you need to refer to the Code of Practice for Prevention of Falls in General Construction and/or the Code of Practice for Prevention of Falls in Housing Construction. This fact sheet does not provide guidance in relation to those tasks.*

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PROCESS FOR PREVENTING FALLS INVOLVING ROOFS

In relation to working on a roof or inside a roof, it is essential that employers use the following process:

- Identify any fall hazard. (**Find** tasks where someone can fall from height.)
- Assess the risks. (**Assess** the situation including the task, the conditions and the associated risks of a person falling and being injured.)
- Control the risk of a fall. (**Fix** the problem.)

FINDING FALL HAZARDS

Employers must ensure that any task an employee is required to undertake at a workplace, involving roof work, that involves a fall hazard is identified. Tasks must be identified where an employee could fall as follows:

- over an unprotected edge on a roof or from part of a roof structure;
- from a separate structure located on a roof;
- through a fragile or unstable roof;
- through a ceiling, skylight or vent;
- through a hole in a roof or ceiling;
- by overbalancing or losing grip on a steep pitched or sloping roof;
- by slipping on a roof surface;
- by being blown or knocked over the edge of a roof due to bad weather or equipment; and
- getting to or from a roof or different levels of a roof.

BEFORE WORKING ON A ROOF ASSESS THE SITUATION AND THE RISKS

An assessment needs to occur at all sites where roof work is required.

The questions in the table, right, are some of the questions that may assist in assessing the situation to determine risks involved with roof work.

ASSESSING THE SITUATION

- What is the task to be undertaken?
- Does it have to involve accessing or working on a roof? Is this all of the time or some of the time?
- What type of roof is it? Is it steep, fragile, unstable or slippery? Is this just in parts or all over? Is the roof made of rusted corrugated metal, plastic sheeting, glass or asbestos cement sheeting that is very fragile? Are there fragile parapets, skylights and vents present? Are these surfaces difficult to see due to weather or aging? Do fragile sections have guard railings installed around them?
- If there is some doubt as to the integrity of the roof structure or any safety measures present, has it been checked by an engineer or relevant professional?

- How long will the task take – a few minutes, a few hours, a few days? (Generally, the longer and more often someone has to work at height, the higher the risk of a fall unless high order safety measures are in place and used.)
- How high is the roof? (The higher the roof, generally the higher the risk of a fall and injury or death unless high order safety measures are in place.)
- Is the person who will undertake the task inexperienced or untrained? Are they a trainee or apprentice? Do they know how to use equipment safely? Do they know how to identify when a task is too dangerous to undertake or continue?
- How do workers access and descend from the roof or different levels on the roof? Are the measures used safe?
- Do tools, equipment or materials need to be loaded or removed from the roof? If so, how is this done? Is a hoist system available and used? Is a tool belt used to carry items?
- Does work need to occur in sunny conditions that produce reflective glare and excessive heat making it difficult to see or work?
- Is the work required in close proximity to electricity or electrical sources where someone could be electrocuted?
- Is the area below the work being undertaken at height cluttered with equipment, rubble and impaling hazards that someone could fall on?
- What safety measures are already in place to prevent a fall? Guard railing, safety mesh, scaffolding, elevated work platform, suitable anchorage points, catch platform, three metre clear zone, etc?
- Are these measures in good condition and able to be used safely?
- What supervision has been provided for employees working at height?

FIXING THE PROBLEM

The Regulations require that if an employee is to undertake a task that involves a fall hazard, the employer must ensure that the risk of a fall is eliminated and if it is not reasonably practicable to eliminate the risk then reduce the risk, so far as is reasonably practicable.

In other words, where it's determined a fall is likely then measures should be put in place to prevent a fall occurring. If it is not possible to prevent a fall completely then the risks of any fall and/or an injury need to be minimised where this is feasible.

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Eliminate the hazard

The best way to reduce the risk of a fall is not to work at heights in the first place. Working from the ground or on a solid platform will eliminate the risk of a fall from a roof entirely.

The following are ways of eliminating a fall hazard. (Note: this is not an exhaustive list and duty holders are encouraged to take an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever present reality):

- Accessing the roof from within the building through steps, stairs and lifts where provided.
- Working on items on or near the roof from ground level using devices with extension handles.
Example: pruning trees above a roof-line with a long-handled pruning saw, using a ball retrieval device to obtain balls in gutters, using a long-handled cleaning device for removing leaves from gutters.
- Installing a barrier that prevents the accumulation of dirt and leaves in gutters and down pipes.
- Cleaning spouting with a pressure water hose from ground level.
- Permanently relocating air-conditioning or similar units to ground level.
- Installing gauges and similar devices at ground level.
- Using high-technology equipment such as infrared devices to inspect roof cavities, ceilings and walls for pests at ground level or from a solid platform.

These and similar measures should be utilised where feasible.

While it doesn't eliminate a fall completely, temporarily relocating items to be inspected, tested, repaired, serviced or cleaned to ground level while work on them is carried out can reduce the amount of time spent working on a roof. This will reduce the overall risk of a fall.

Reduce the risk of falls

If it's not feasible to work from the ground or a solid platform at all times, employers need to make sure safety measures are in place that minimise the risk of an employee falling from a roof.

Safety measures that do not need to be altered, adjusted or operated once installed should always be considered first and used where feasible. Where these are not reasonably practicable or a risk still exists, only then consider measures that require a higher level of concentration and skill to operate safely. (Refer to shaded section for basic roof safety principals.)

If a combination of measures cannot be used to minimise the risk of a fall to an acceptable level then the task should not be undertaken until conditions change or safer alternatives are available.

BASIC SAFETY PRINCIPLES THAT SHOULD BE ADOPTED WHEN WORKING ON A ROOF

Ensure the following:

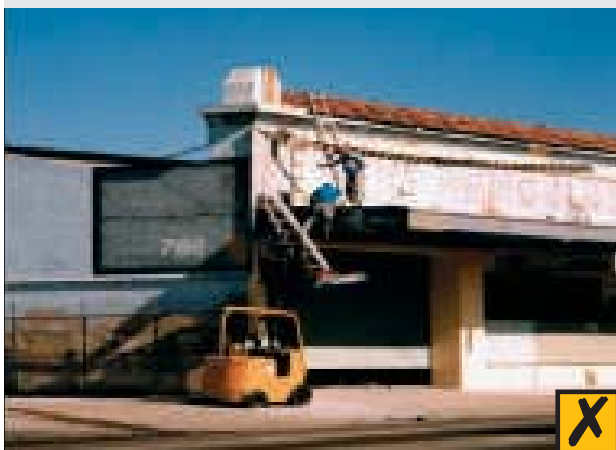
- ☑ Work is undertaken from the ground or a solid platform wherever possible.
- ☑ The roof is structurally sound and can hold the weight of employees and required equipment.
- ☑ All employees and contractors required to access or work on roofs are suitably trained in the risks associated with working at height, the use of fall prevention equipment and emergency procedures.
- ☑ Where a ladder is used to access or egress from a roof, it is of a suitable type and set up in a safe manner, secured at top and bottom. (Refer to WorkSafe Victoria information sheet on Prevention of Falls – Ladders.)
- ☑ Anyone working on a roof has suitable non-slip footwear.
- ☑ Emergency rescue procedures are in place if there is a risk of a fall and someone needs to be rescued.
- ☑ No access is permitted to fragile roofs and that such roofs are covered off and warning signs are placed where persons can gain access.



- ☑ Where work is required on a steep roof where the slope exceeds 35 degrees, do not stand on the roof. A steep pitched roof is an inappropriate surface to stand on due to the likelihood of sliding. Perimeter guard rails and catch platforms are also insufficient measures to protect workers on such roofs. In these circumstances, roof workers need a system to prevent sliding and to prevent falls from the perimeter. Use one or more of the following systems in such circumstances:
 - aerial access equipment, such as a cherry picker;
 - a work positioning system, such as a travel restraint or industrial rope access system; and
 - a scaffold platform, located at the roof edge and a roof ladder.

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- ☑ Where proprietary systems are required for fall prevention these should be configured, installed, used and dismantled in keeping with the manufacturer's instructions.
- ☑ Where work needs to be done on a fragile roof, temporary or permanent walkways that incorporate a guard rail should be provided. Where the slope of the roof exceeds one to six, cleats should be fixed to the top side of the walkway planks and the walkway should be adequately secured. Where safety mesh is present access across a fragile roof may be provided by crawl boards or planks laid across the pitch of the roof and in the box gutters to provide lengthwise access.
- ☑ Any skylights, vents, parapets or roof sheets that are fragile (i.e. are breakable or do not have safety mesh installed underneath) are clearly identified and visible and have either access barriers or edge protection such as guard railing installed around them.
- ☑ Any openings or holes in roofs are clearly identified and have edge protection such as guard railing placed around them.
- ☑ If the roof work is a major task, a stair or ladder access tower should be provided for access.
- ☑ Where roof work is going to take longer than a few hours, ensure edge protection is installed such as perimeter guard railing and/or scaffolding where this is feasible.



2.0 Highly risky practices for accessing and working on a roof.

- ☑ For minor roof tasks that are of short duration (less than a couple of hours) that are required in good weather conditions on a relatively standard single storey roof where the roof itself is flat or almost flat, structurally stable all over and non-slippery, administrative measures such as safe work practices may be sufficient to minimise the risk of a fall, providing the task can be undertaken safely. However, where equipment, rubble or impaling hazards are present in the surrounding area below and a two metre clear zone cannot be

maintained, physical fall protection measures should always be used to undertake the task rather than reliance solely on administrative measures.

- ☑ Where minor roof tasks of short duration (less than a couple of hours) are to be undertaken and there is an increased risk of a fall due to either weather conditions, a sloping roof or access is required near a potentially fragile section – then higher order safety measures need to be considered and used where reasonably practicable. In such a situation, apply one or more of the measures below where feasible until the risk of a fall is minimised:

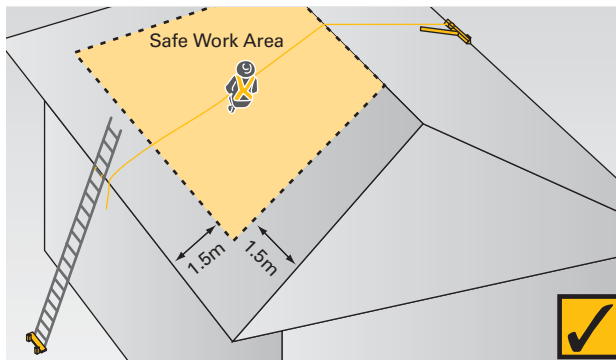
1. If weather is the only factor increasing the risk of a fall, where possible wait until conditions improve before commencing or finishing a job.
2. Where feasible, undertake the work from an elevating work platform such as a cherry picker or scissor lift. Where possible, consider scheduling jobs requiring such a device together to reduce any hire costs.



3.0 Undertaking work from an elevating work platform.

3. If work is required near a fragile section install either edge protection around it (e.g. barriers or guard railing) or install safety mesh underneath it before commencing work.
4. If an elevating work platform cannot be used or is not reasonably practicable in the circumstance, use a travel restraint system if one can be used safely. (Note: A person using a travel restraint device must not be able to approach an edge where a fall is possible. These systems are not designed for the impact loads that occur in the event of a fall.)

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4.0 Use of temporary roof anchor for travel restraint system.



5.0 This VICSES worker is using a safety harness system.

5. If a non-fragile sloping roof is stable and other measures cannot be used, use a specially designed roof ladder in combination with a fall arrest system to do the task.
 6. If the risk of a fall is still significant using other safety measures consider installing a catch platform or safety net to catch anyone who may fall.
 7. Scaffolding is not usually considered reasonably practicable for many small jobs, however, if none of the measures mentioned above can be used individually or in combination, then the task may require the installation of some kind of scaffolding. If for some reason scaffolding is not able to be installed, then the task is probably too dangerous to undertake. Contact WorkSafe Victoria or a consultant for advice in this instance.
- Administrative measures such as no go zones and safe work instructions in combination with other measures should always be used where all other measures have been considered and applied as far as reasonably practicable and the likelihood of a fall still exists.

Working inside a roof

Working from inside a roof is often a safer way to access the roof surface, but the risk of falling through a ceiling may be high. Tasks that require work inside a roof can be just as hazardous as tasks on the outside of a roof.

Any risk assessment or Job Safety Analysis should include consideration of the risks of falling through framework or fragile surfaces or through openings in the ceiling such as a manhole.

Ways of minimising risks when working inside a roof are:

- Use a step or elevating work platform set up on the ground or a solid platform to do the work from where possible.
- If a step or elevating work platform cannot be used to do the work, where possible use a ladder set up securely on the ground or on a solid platform.



6.0 Ladder being used to inspect a ceiling space.

If work in the ceiling space is required and cannot be done from a ladder, step or elevating work platform:

- Ensure joists and purlins are capable of bearing the required weight (i.e. weight of person(s), materials and equipment).
- Test the integrity of intended locations for footing and equipment before placing a load on the area.
- Do not stand on plasterboard or similar fragile material that makes up the ceiling at any time.
- Where possible use planks or specially designed crawl boards that can be placed across purlins or ceiling joists so kneeling, sitting or walking is possible.
- Be mindful of beams and roof trusses when moving or walking in the ceiling space.

All of the above safeguards can help reduce the risk of losing balance and falling through the ceiling.

Keeping up to date with fall prevention

Serious injuries and fatalities of people working on roofs or inside roofs with insufficient safeguards continue to occur. This guide provides a snapshot of some of the most effective processes and equipment to reduce the risk of falling. Ensure you keep up to date with the latest fall hazards and fall prevention measures available by checking with equipment manufacturers and suppliers, your industry or professional association and WorkSafe Victoria from time to time.

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MORE INFORMATION

WorkSafe Victoria

Specific information on working at heights can be obtained by contacting WorkSafe on 1800 136 089.

Acts and Regulations

Occupational Health and Safety Act 2004

Occupational Health and Safety (Prevention of Falls) Regulations 2003

Occupational Health and Safety (Plant) Regulations 1995

Acts and regulations are available from Information Victoria on 1300 366 356 or online at www.dms.dpc.vic.gov.au.

Publications

Prevention of Falls in General Construction (Code of Practice No. 28, 2004)

Prevention of Falls in Housing Construction (Code of Practice No. 29, 2004)

Guide to Manual Order Picking

Forklift Safety

These Codes and other falls prevention information are available from WorkSafe at www.workcover.vic.gov.au.

Australian Standards

Standards Australia has some useful information on ladders and fall protection devices available from www.standards.com.au.

Other tools that may assist with fall prevention

- Job analysis sheets
- Visual observations of work process
- Industry and union publications and forums
- Professional Association newsletters and forums
- Suppliers and suppliers magazines
- Manufacturer's instructions
- Consultation with Emergency Services on emergency procedures required for a particular job

Acknowledgements

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