

## Technical solution sheet 4

# Working safely with ladders



### Using ladders during photovoltaic (PV) system installations

Employers have a duty to provide and maintain, so far as is reasonably practicable, a working environment that is safe and without risks to health.

The use of portable ladders presents a risk of fatal or serious injury for anyone needing to gain access to a roof or conduct light tasks.

For PV system installers, these risks may be increased due to the need to regularly move between the ground and roof.

In the hierarchy of control, ladders must only be used to reduce the risk of a fall after consideration of elimination, passive fall prevention, work positioning systems and fall arrest systems are deemed not to be reasonably practicable.

If a ladder is to be used, it must be utilised in accordance with regulation 45 of the Occupational Health and Safety Regulations 2017 (OHS Regulations) by ensuring that the ladder is fit for purpose, appropriate for the duration of the task and is correctly set up.

For more information on the hierarchy of control see regulations 44 and 45 of the OHS Regulations.

Ladders should only be used for access or light tasks that don't take too long to complete. They should not be used where large, heavy, or bulky items need to be installed or removed, for example, lifting solar panels and components onto a roof or using tools that require two handed dynamic operation such as pry bars or rotary hammer drills.

Follow this four-step risk management process to ensure hazards are identified, risks are assessed and controlled, and that employers fulfil their duty to monitor, review and revise controls when required:

**Figure 1:** The four-step risk management process



**This is part of a series developed with WorkSafe to help installers in our programs work safely in the solar industry.**

Use this sheet and others in this series to plan safe systems of work while installing photovoltaic systems.

#### In series 1:

- 1.1 Working safely at height during solar installations
- 1.2 Edge protection – Working at height
- 1.3 Manual handling of solar panels, heavy and bulky items
- 1.4 Working safely with ladders (this sheet)**
- 1.5 Safe work practices using elevating work platforms
- 1.6 Falls through skylights, fragile roofs, voids and penetrations
- 1.7 Working near asbestos-containing material

See: [solar.vic.gov.au/safety-and-quality](https://solar.vic.gov.au/safety-and-quality)



### Step 1: Identify hazards – before using a portable ladder

The starting point to managing risk is identifying the hazards associated with utilising ladders during PV system installations. It is important to understand where hazards exist and what strategies can be implemented to reduce the risk of injury.

To keep workers safe prior to using ladders, identify hazards including:

- » suitability of ground conditions to use a ladder
- » options to secure the ladder at top and bottom
- » access of unauthorised persons, pets or vehicles from doorways, driveways and garages
- » overhead conductors in the vicinity of the work area
- » penetrations or live edges in the vicinity of the work area
- » safe working loads of ladders to be observed
- » wear or chemical contamination on the ladder that may affect functionality and safe use
- » employees who require supervision
- » requirement for exclusion zones
- » suitability of the ladder for electrical work.

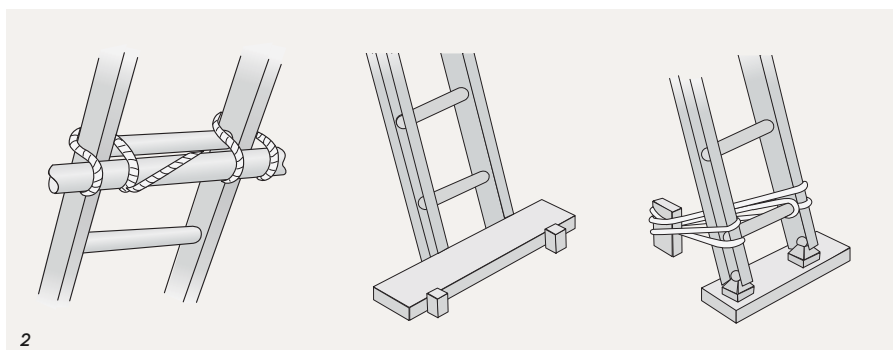
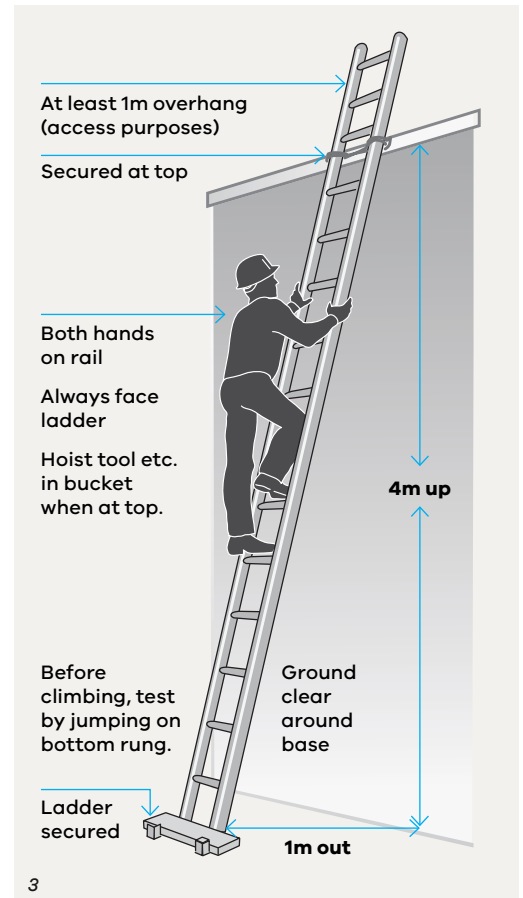
### Step 2: Assess risks – plan your use of ladders

Assess the risks to health and safety arising from the identified hazards. If a task involving a fall hazard has been identified, the risk of a fall can be assessed by determining:

- » the likelihood of a fall occurring
- » the potential distance a person could fall
- » the extent of harm that a person could experience in the event of a fall
- » the potential for people other than employees to be harmed, for example, pedestrians or homeowners.

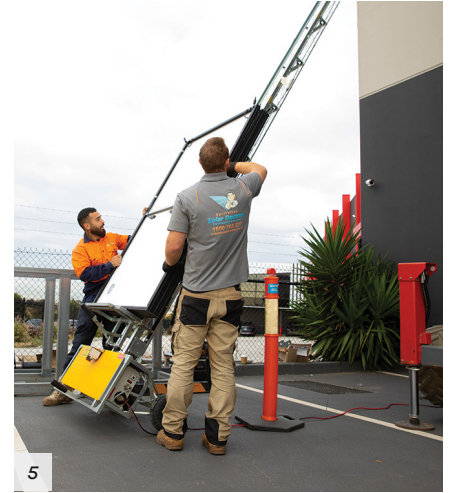
Ensure relevant information is documented in a safe work method statement (SWMS) when required. Where risk of a fall from a height greater than two metres exists, employers have a duty to document an emergency procedure to rescue and provide first aid to a worker immediately after the event of a fall as per regulation 49 of the OHS Regulations.

See the WorkSafe website for more information on when and how to complete a SWMS for construction activities: [worksafe.vic.gov.au/resources/safe-work-method-statements-swms](https://www.worksafe.vic.gov.au/resources/safe-work-method-statements-swms)



1-2. Some effective ways of securing a ladder  
3. Acceptable ladder use





### Step 3: Control risks – how can you control the risk of a fall from a ladder?

Documented control measures need to be in place to keep workers safe when using ladders during installation of PV systems.

Remember that the requirement for employers to consult with employees and independent contractors produces better outcomes due to their direct participation in identification, evaluation and adoption of new risk control measures and concepts. Direct participation also gives a sense of ownership that translates to improved uptake of control measures when implemented.

Regulation 44 of the OHS Regulations outlines the hierarchy for controlling risks associated with falls greater than two metres:

- » where reasonably practicable, eliminate the risk of a fall, for example by doing as much of the preparation work as possible on the ground
- » to minimise risk, so far as is reasonably practicable, by using passive fall prevention devices, work positioning systems, or by using fall arrest systems.

A ladder must only be used if all other control measures within the hierarchy of control in regulation 44 of the OHS Regulations are deemed to be impracticable. In this instance, a ladder must be fit for purpose, appropriate for the duration of task and set up correctly.

The risk of falling from a ladder during a PV system installation can be greatly minimised by having simple fall prevention controls in place. For example:

- » the ladder should be checked for damage and to ensure it is in a serviceable condition before use
- » the ladder should be an industrial type, comply with AS 1892.1:2018 *Portable ladders, Part 1: Performance and geometric requirements* and safe working loads observed
- » the ladder should be secured at top and bottom to prevent it slipping sideways or outwards
- » the ladder stiles should extend one metre above the landing surface
- » ensure the 4:1 ratio is employed, one metre out for every four metres of height
- » face the ladder at all times when ascending or descending
- » maintain three points of contact with the ladder at all times whilst ascending or descending
- » carry tools on a tool belt or in a backpack
- » never overstretch while on a ladder, keep the body centred within stiles
- » do not climb higher than the third step from the top of a straight ladder and never straddle the top of an A-frame ladder.

**Remember: doing nothing is not an option.**

### Step 4: Review and revise controls

Control measures are more effective where there is regular review of work procedures to make sure they are working as planned. An employer must review and, if necessary, revise control measures if:

- » changes are made to equipment or systems of work that could result in a fall
- » a notifiable incident occurs
- » if for any reason, the risk control measures fail to adequately control the risk
- » a Health and Safety Representative requests a review and/or revision of a control.

Your actions shouldn't stop at Step 4. You should repeat this process often to make sure your management of risk is working.

4. Scissor lift EWP in use.

5. Panel lifter used for the speedy and safe transport of solar panels onto a roof.

## Important resources

See the WorkSafe website for:

- » Compliance code: Prevention of falls in general construction: [worksafe.vic.gov.au/resources/compliance-code-prevention-falls-general-construction](https://worksafe.vic.gov.au/resources/compliance-code-prevention-falls-general-construction)
- » Compliance code: Prevention of falls in housing construction: [worksafe.vic.gov.au/resources/compliance-code-prevention-falls-housing-construction](https://worksafe.vic.gov.au/resources/compliance-code-prevention-falls-housing-construction)
- » A guide to falls prevention: [worksafe.vic.gov.au/resources/guide-falls-prevention](https://worksafe.vic.gov.au/resources/guide-falls-prevention)
- » Safe work method statements (SWMS): [worksafe.vic.gov.au/resources/safe-work-method-statements-swms](https://worksafe.vic.gov.au/resources/safe-work-method-statements-swms)

Also see:

- » Occupational Health and Safety Regulations 2017 (OHS Regulations): [legislation.vic.gov.au/in-force/statutory-rules/occupational-health-and-safety-regulations-2017](https://legislation.vic.gov.au/in-force/statutory-rules/occupational-health-and-safety-regulations-2017)

Australian Standards:

- » AS 1892.1:2018 *Portable ladders, Part 1: Performance and geometric requirements*
- » AS 1892.5:2020 *Portable ladders, Part 5: Selection, safe use and care*

## Any questions?

Call WorkSafe on 1800 136 089 or email [info@worksafe.vic.gov.au](mailto:info@worksafe.vic.gov.au)

[worksafe.vic.gov.au](https://worksafe.vic.gov.au)

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