

# Work health and safety requirements for Solar PV installers

This bulletin outlines the work health and safety requirements for Solar PV installers under the [Work Health and Safety \(National Uniform Legislation\) Act 2011](#).

## Solar PV Installation considered High Risk Construction Work

[Regulation 289\(2\)\(e\) of the Work Health and Safety \(National Uniform Legislation\) Regulations 2011](#)

defines the meaning of construction work, which includes the installation, testing or maintenance of an essential service in relation to a structure.

The installation, testing, or maintenance of solar panels is considered the installation of an essential service (electricity) and is therefore considered to be construction work. This means that a safe work method statement (SWMS) must be prepared for the work.

Solar PV installers may do the following work, which is considered high-risk construction work under the Regulations:

- Work involving a risk of a person falling more than 2 metres (e.g. installing Solar PV panels on a roof).
- Work carried out or near energised electrical installations or services (e.g. installing Solar PV panels near the overhead service line or working in the ceiling space near the cables supplying the switchboard).
- Work carried out in an area at a workplace in which there is any movement of powered mobile plant (e.g. using a crane or scissor-lift to move equipment onto the roof).
- Work carried out in an area in which there are artificial extremes of temperature (e.g. working in the ceiling space to connect the supply cables to the inverter unit).

[Regulation 291](#) provides the full list of high-risk construction work activities.

The business installing the Solar PV system must prepare a safe work method statement (SWMS)—or ensure a SWMS has been prepared—before any high-risk construction work starts.

## What is a safe work method statement?

A SWMS is a written document that helps the business, supervisors and workers implement and monitor the control measures established at the workplace to ensure high-risk construction work is carried out safely.

A SWMS must identify and document:

- the high risk construction work activities to be carried out at a workplace;
- the hazards and risks to health and safety associated with these activities;
- the measures to be implemented to control the risks; and
- how the control measures are to be implemented, monitored and reviewed.

Further information on completing a Safe Work Method Statements is in the [Construction work – Code of Practice](#).

The person responsible for carrying out the high-risk construction work is best placed to prepare the SWMS in consultation with workers who will be directly engaged in the high-risk construction work. Working through the risk management process will provide the information needed for the SWMS.

## Make the SWMS available

The SWMS must be readily accessible to any person carrying out the high-risk construction work and for inspection by a WorkSafe Inspector. The SWMS must be kept until the high-risk construction work it was prepared for is completed, or for at least 2 years if a notifiable incident occurred during the high-risk construction work.

If you revise a SWMS, every version should be kept.

## The risk management process

The risk management process is a systematic process where you think about what could go wrong at the worksite and what the consequences could be. Then you must do whatever you can (in other words, whatever is 'reasonably practicable') to eliminate or minimise health and safety risks arising from your work activities.

The [How to manage work health and safety risks – Code of Practice](#) details the following four steps in the risk management process:

### 1. Identify hazards:

Find out what could cause harm to people.

### 2. Assess the risk

Understand the nature of the harm, how serious it can be and likelihood of it happening. This step might not be necessary if you are dealing with a known risk with known controls.

### 3. Control the risk

Implement the most effective control measure that is reasonably practicable in the circumstances and ensure it remains effective over time.

### 4. Review the control measures

Review the hazards and control measures to make sure they are working as planned.

Two important elements that need to occur during each step is management commitment to safety and consultation with your workers. If there are other tradies working at the worksite, you all need to consult with each other and coordinate your work activities.

## Common hazards for Solar PV installation

Identifying and understanding the hazards in the workplace is the important first step in completing a SWMS. The following are some common hazards faced by Solar PV installers.

### Working on the roof

- Falls from heights – either from open edges of the roof or through fragile sections of roofing, such as skylights, or tripping when moving from one level to another (e.g. from the ladder to the roof).
- Hit by falling objects – dislodged or unsecured objects or tools falling and hitting workers below.
- Electrocution and fire – Damaged solar panels or short circuits in the array wiring create a risk of electrocution and fire when the panels generate electricity when exposed to sunlight. Accidental contact with an overhead service line is also an electrocution risk.
- Heat stress – exposure to the sun combined with the radiant heat from the roof increases the risk of heat stress for workers on the roof.
- Asbestos exposure – Older buildings built before the 1990's are likely to contain asbestos. Eaves and switchboard panels are a common location for asbestos in the Northern Territory.

### Working in the ceiling

- Heat stress – radiant heat from the roof increases the temperature inside the enclosed ceiling space.
- Electrocution – rodents and other pests can damage electrical wiring in the ceiling space. Electrical wiring supplying the switchboard are live unless the property is disconnected. Supply cables from the solar panels to the inverter unit will be live when the solar panels are generating electricity.
- Sharp objects - protruding screws and nails in roof trusses and ceiling joists.
- Venomous creatures – snakes, spiders or other stinging insects can be found in the ceiling space.
- Asbestos exposure – Many buildings in the Northern Territory are likely to contain asbestos. Common areas Asbestos is can be found may include ceiling, eaves and switchboards.
- Exposure to pest control products distributed throughout the ceiling space.

### Working on the ground

- Hit by falling objects – dislodged or unsecured objects or tools falling from the roof.
- Slips and falls from unsecured ladders
- Hit by mobile plant – mobile plants such as cranes or elevated work platforms colliding with workers.
- Asbestos exposure.

It is important that you identify all the hazards at each specific worksite when you prepare your SWMS, rather than rely on a generic SWMS that covers the high-risk work activities your workers normally do.

**Example:** Some hazards might be unique to a specific worksite, such as an old house still having an asbestos roof. The SWMS in this example will need to detail the measures to control the risk of asbestos exposure.

## Control measures

Starting at the top of the hierarchy, you must always try to eliminate the risk, as this is the most effective control. If it is not reasonably practicable to eliminate the risk, you must minimise the risk by working through the alternatives in the hierarchy.

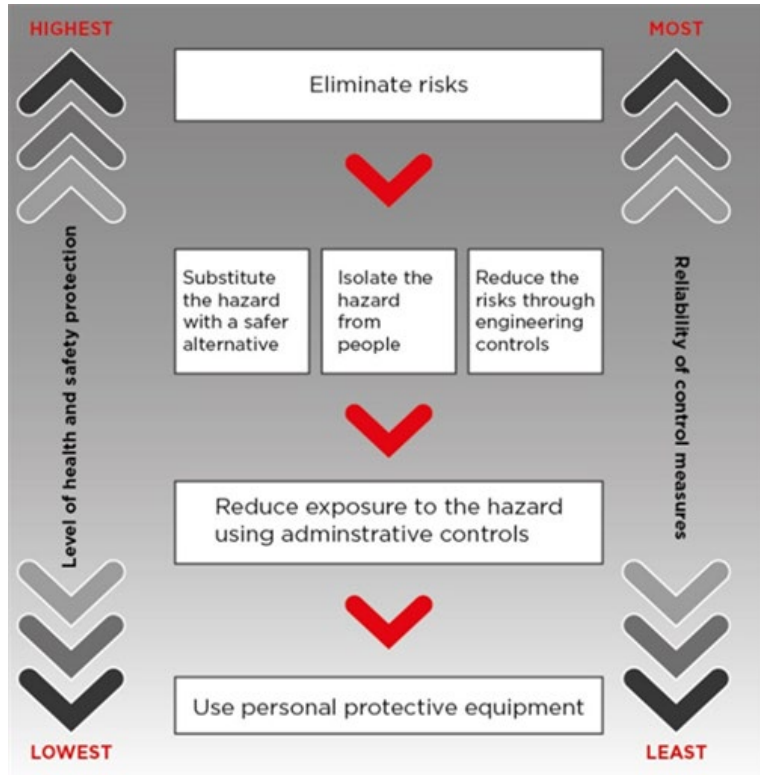


Image: The hierarchy of control measures.

You can combine a number of different control measures together if you feel it provides the highest level of protection for your workers. Check the regulations to ensure that you have the right information as some specific hazards such as falls from height and asbestos have specific requirements.

### Examples of using a combination of control measures

**Example 1:** Contact with energised wires in the ceiling space. To reduce the risk a company might introduce the following control measures:

- Isolate all power at the switchboard before accessing the ceiling space (**eliminate**);
- Lock out the main switch to prevent accidental energisation (**engineering**);
- Identify and avoid potentially energised cables, such as Solar PV and switchboard supply cables (**administration**);
- Adequate hands free lighting (such as a head mounted torch or freestanding area light) that allows workers to safely move about in the ceiling space (**personal protective equipment**).

**Example 2:** Interaction between Forklift and workers is a common hazard in warehouses, which can cause serious crush injuries. To manage this risk, the following control measures may be introduced:

- Install reverse alarms and flashing lights on all forklifts (**engineering**);

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- Paint designated walkways for workers to walk along (**administrative**); and
- Require all workers to wear high-vis vests (**personal protective equipment**).

Information about suitable controls for many common hazards and risks can be obtained from:

- [Codes of Practice](#) and [Guides](#) available on the [NT WorkSafe website](#);
- The user manual or operation manual for any plant, equipment you use in the workplace, or
- Safety data sheet for chemicals

Further information on how to control risks is in the [How to manage work health and safety risks – Code of Practice](#).

# Safe Work Method Statement - Template

**Note:** Work must be performed in accordance with this safe work method statement (SWMS). This SWMS must be kept and be available for inspection until the high-risk construction work to which this SWMS relates is completed. If the SWMS is revised, every version should be kept. If a notifiable incident occurs in relation to the high-risk construction work in this SWMS, the SWMS must be kept for at least 2 years from the date of the notifiable incident

<b>Person conducting a business or undertaking (PCBU):</b>			
<b>Principle Contractor (PC):</b>			
<b>Works Manager:</b>		<b>Date SWMS provided to PC:</b>	
<b>Work activity:</b>		<b>Workplace location:</b>	

High risk construction work			
Risk of a person falling more than 2 metres	<input type="checkbox"/>	Demolition of load-bearing structure	<input type="checkbox"/>
Work on a telecommunication tower	<input type="checkbox"/>	Temporary load-bearing support for structural alterations or repairs	<input type="checkbox"/>
Likely to involve disturbing asbestos	<input type="checkbox"/>	Work in or near a shaft or trench deeper than 1.5 m or a tunnel	<input type="checkbox"/>
Work in or near a confined space	<input type="checkbox"/>	Work on or near pressurised gas mains or piping	<input type="checkbox"/>
Work on or near chemical, fuel or refrigerant lines	<input type="checkbox"/>	Work on or near energised electrical installations or services	<input type="checkbox"/>
Work in an area that may have a contaminated or flammable atmosphere	<input type="checkbox"/>	Tilt-up or precast concrete elements	<input type="checkbox"/>
Work on, in or adjacent to a road, railway, shipping lane or other traffic corridor in use by traffic other than pedestrians	<input type="checkbox"/>	Work in areas with artificial extremes of temperature	<input type="checkbox"/>
Work in an area with movement of powered mobile plant	<input type="checkbox"/>	Diving work	<input type="checkbox"/>
Work in or near water or other liquid that involves a risk of drowning	<input type="checkbox"/>	Use of explosives	<input type="checkbox"/>

<b>Person responsible for ensuring compliance with SWMS:</b>		<b>Date SWMS received:</b>	
<b>What measures are in place to ensure compliance with the SWMS?</b>			
<b>Person responsible for reviewing SWMS control measures:</b>		<b>Date SWMS received by reviewer:</b>	
<b>How will the SWMS control measures be reviewed?</b>			
<b>Review date:</b>		<b>Reviewer's signature:</b>	

Safe Work Method Statement - Template

<b>What are the tasks involved?</b> List the work tasks in a logical order.	<b>What are the hazards and risks?</b> Identify the hazards and risks that may cause harm to workers or the public.	<b>What are the control measures?</b> Describe what will be done to control the risk. What will you do to make the activity as safe as possible?

Name of worker(s):	Worker signature:

Date SWMS received by workers:	
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