

<b>Title</b>	<b>Demonstrate knowledge of photovoltaic arrays mounting requirements</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	<p>This unit standard is for people who work with renewable energy systems and covers knowledge of the design and mounting procedures for photovoltaic arrays.</p> <p>People credited with this unit standard are able to demonstrate knowledge of photovoltaic arrays mounting requirements.</p>
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<b>Classification</b>	Renewable Energy Systems > Renewable Energy Systems - Installation and Maintenance
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<b>Available grade</b>	Achieved
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## Guidance information

### 1 References

All New Zealand standards (NZS) or Australian/New Zealand standards (AS/NZS) may be found at <http://www.standards.org.nz/>;

AS/NZS 1170.2:2011, *Structural design actions – Part 2: Wind actions*;

AS/NZS 1170.3:2003 A2: 2017, *Structural design actions – Part 3: Snow and ice actions*;

AS/NZS 1768:2007, *Lightning protection*;

AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*;

AS/NZS 5033:2012, *Installation and safety requirements for photovoltaic (PV) arrays*;

Electricity (Safety) Regulations 2010;

Electricity Act 1992;

Health and Safety at Work Act 2015, and associated regulations;

NZS 4219:2009, *Seismic performance of engineering systems in buildings*;

and all subsequent amendments and replacements.

### 2 Definitions

*Current regulations and standards* – in this unit standard this term is used to refer to the requirements of the above references.

*Enterprise policies and procedures* – those practices and procedures that have been promulgated by the company or enterprise for use by their employees.

*Industry practice* – those practices that competent practitioners within the industry recognise as current industry best practice.

*OSH* – occupational safety and health.

*PV* – photovoltaic.

- 3 Range
- a All measurements are to be expressed in Système Internationale (SI) units, and where required, converted from Imperial units into SI units.
  - b Candidates shall be supplied by the assessor with formulae involving more than three quantities.
  - c Use of a calculator during assessment is permitted.
  - d All activities must comply with any policies, procedures, and requirements of the organisations involved.
  - e All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with legislation, enterprise policies and procedures, ethical code, current regulations and standards, industry practice; and where appropriate, manufacturer's instructions, specifications, and data sheets.
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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of photovoltaic arrays mounting requirements.

#### Performance criteria

- 1.1 State safe methods for working on roofs and other elevated locations and outline OSH requirements.
- 1.2 Describe common methods of roof construction.  
Range three common methods.
- 1.3 Describe waterproofing methods that ensure roof waterproofing integrity.
- 1.4 Describe common types of roof mounted and free-standing PV array frame construction and methods of tilt angle adjustment.
- 1.5 Describe methods for attaching PV array frames to different roof types.
- 1.6 Describe array mounting methods for non-optimal facing roof sections.
- 1.7 Determine required fixing points for a commercial mounting system using tables as per AS/NZS 1170.2.  
Range building height, wind zone, terrain category, topographic factor.
- 1.8 Outline aesthetic considerations in choosing an array location and type of mounting.
- 1.9 Outline mounting and fixing methods for at least one type of commercially available building integrated PV product.
- 1.10 Determine safe perimeter zone and roof internal zone from roof dimensions for a commercial mounting system.

1.11 Describe methods for mitigating harmful effects of PV array frames on roof structures and water run-off capture.

Range galvanic corrosion, collection of leaves and debris, reduced rain cleansing.

1.12 Describe the relationship between mounting arrangements and PV array operating conditions.

Range module cooling, self-cleaning.

<b>Planned review date</b>	31 December 2024
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 July 2011	31 December 2015
Review	2	17 July 2014	31 December 2020
Review	3	24 October 2019	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact The Skills Organisation [reviewcomments@skills.org.nz](mailto:reviewcomments@skills.org.nz) if you wish to suggest changes to the content of this unit standard.