

<b>Title</b>	<b>Demonstrate knowledge of special electrical installations</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	<p>This unit standard covers essential basic knowledge relating to electrical installations in special situations, i.e. hazardous areas, pleasure vessels and marinas, medical areas, caravans and caravan parks, and high voltage installations, for use in the training of electricians.</p> <p>People credited with this unit standard are able to demonstrate knowledge of:</p> <ul style="list-style-type: none"> <li>– electrical installations and equipment in hazardous areas;</li> <li>– electrical requirements for relocatable premises and their site supplies;</li> <li>– electrical requirements for marinas and pleasure craft;</li> <li>– electrical requirements for patient treatment areas;</li> <li>– electrical requirements for electric security fences; and</li> <li>– requirements for high voltage installations.</li> </ul>
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<b>Classification</b>	Electrical Engineering > Core Electrical
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<b>Available grade</b>	Achieved
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### Explanatory notes

- 1 This unit standard has been developed for learning and assessment off-job.
- 2 Achievement of this unit standard does not by itself imply that trainees may legally perform prescribed electrical work in their own right. Until they are registered and licensed under the Electricity Act 1992, trainees are assisting, and must work under the supervision of a Supervisor of Electrical Work when carrying out prescribed electrical work. If the prescribed electrical work in question is carried out for reward the Supervisor of Electrical Work must hold a valid practising licence.
- 3 Outcome 1 is intended for general information in the training of electricians, and is not sufficient to qualify people for prescribed electrical work in hazardous areas. For competency in hazardous areas refer to unit standards 17054 to 17056 and 17058 to 17075.
- 4 References  
 Electricity Act 1992;  
 Electricity (Safety) Regulations 2010;  
 Health and Safety at Work Act 2015;  
 AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*, including Amendment 1;

AS/NZS 2381.1:2005, *Electrical equipment for explosive atmospheres – Selection, installation, and maintenance - General requirements*;  
 AS/NZS 3001:2008, *Electrical installations – Transportable structures and vehicles including their site supplies*, including Amendment A;  
 AS/NZS 3003:2003, *Electrical installations – Patient treatment areas of hospitals, medical and dental practices and dialyzing locations*;  
 AS/NZS 3004.2:2008, *Electrical installations – Marinas and recreational boats – Part 2: Recreational boats installations*;  
 AS/NZS 3016:2002, *Electrical installations – Electric security fences*, including Amendment A;  
 Standards Australia HB13-2007, *Electrical equipment for hazardous areas*;  
 and all subsequent amendments and replacements.

## 5 Definitions

*Special situations* include – hazardous areas, pleasure vessels and marinas, medical areas, caravans and caravan parks, and high voltage installations.  
 The term *current regulations and standards* is used in this unit standard to refer to the requirements of the above references.

6 Candidates may refer to the above legislation and standards during assessment.

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## Outcomes and evidence requirements

### Outcome 1

Demonstrate knowledge of electrical installations and equipment in hazardous areas.

### Evidence requirements

1.1 Principles of combustion are explained in terms of the fire triangle.

Range oxygen, fuel, ignition.

1.2 Properties of flammable gases and dust mixtures are described.

Range flammable gases – upper explosive limit, lower explosive limit, flash point, ignition temperature.  
 dust mixtures – particle size, dust concentration, presence of impurities, oxygen concentration, ignition temperature, minimum energy of ignition.

1.3 Sources of ignition are identified and described.

Range flames, welding, sparking, hot surfaces, chemical reaction, auto ignition; electrical sources such as overload, short circuit, static electricity.

1.4 Hazardous area zone classifications are described in simple terms.

1.5 Particular requirements for electrical installations in hazardous areas are described in accordance with current regulations and standards.

1.6 Electrical equipment for use in hazardous areas is identified from nameplate details and manufacturer's documentation, and described in terms of the protection method used.

Range nameplate details – protection method, temperature classification, gas group, approved certificate number, testing lab;  
protection methods – Ex d (flame-proof or explosion-proof), Ex e (increased safety), Ex h (hermetically sealed), Ex n (non-incendive or non-sparking), Ex o (oil immersion), Ex p (pressurised enclosure), Ex p1 (purging), Ex v (ventilation), Ex ia (intrinsic safety), Ex ib (intrinsic safety), Ex s (special protection), Ex m (encapsulation), Ex q (powder or sand filling), gas detection.

1.7 Certification requirements for electrical work in hazardous areas are stated according to current regulations and standards.

1.8 Requirements for periodic re-verification are outlined for hazardous areas according to current regulations and standards.

## **Outcome 2**

Demonstrate knowledge of electrical requirements for relocatable premises and their site supplies.

### **Evidence requirements**

2.1 Requirements for electrical site supplies for relocatable premises are identified in accordance with current regulations and standards.

2.2 Requirements for electrical installation in relocatable premises and their connection to the site supply are identified in accordance with current regulations and standards.

2.3 Requirements for electrical installation in tents are identified in accordance with current regulations and standards.

2.4 Requirements for periodic re-verification of electrical requirements for relocatable premises and their sites are outlined according to current regulations and standards.

## **Outcome 3**

Demonstrate knowledge of electrical requirements for marinas and pleasure craft.

### **Evidence requirements**

3.1 Requirements for electrical installation in marinas for pleasure craft berth supplies are identified in accordance with current regulations and standards.

3.2 Requirements for electrical installation in pleasure craft and their connection to the berth supply are identified in accordance with current regulations and standards.

- 3.3 Requirements for periodic re-verification of electrical requirements for marinas and pleasure craft are outlined in accordance with current regulations and standards.

**Outcome 4**

Demonstrate knowledge of electrical requirements for patient treatment areas.

**Evidence requirements**

- 4.1 Requirements for electrical installation in body-protected areas are identified in accordance with current regulations and standards.
- 4.2 Requirements for electrical installation in cardiac-protected areas are identified in accordance with current regulations and standards.
- 4.3 Requirements for periodic re-verification of electrical requirements for patient treatment areas are outlined according to current regulations and standards.

**Outcome 5**

Demonstrate knowledge of electrical requirements for electric security fences.

**Evidence requirements**

- 5.1 Requirements for the installation of electric fences are identified in accordance with current regulations and standards.

**Outcome 6**

Demonstrate knowledge of requirements for high voltage installations.

**Evidence requirements**

- 6.1 Requirements for high voltage electrical installations are identified in AS/NZS 3000.
- 6.2 Requirements for periodic re-verification of high voltage electrical installations are outlined according to current regulations.

<b>Replacement information</b>	This unit standard has been replaced by unit standard 29478.
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**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	26 May 2005	31 December 2021
Rollover and Revision	2	15 March 2012	31 December 2021
Revision	3	15 January 2014	31 December 2021
Review	4	21 July 2016	31 December 2021

<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>.

### Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.