

Title	Demonstrate knowledge of electrical safety and safe working practices for electrical workers		
Level	2	Credits	3

Purpose	<p>This unit standard is designed to meet the requirements of first-time tuition in safe working practices for electrical workers as required by the Electrical Workers Registration Board.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – demonstrate knowledge of the hazardous nature of electricity; – demonstrate elementary knowledge of the Health and Safety at Work Act 2015; – demonstrate knowledge of the safety management of electrical hazards; – demonstrate knowledge of general safety practices in the workplace; – demonstrate knowledge of special hazards; – demonstrate knowledge of safe use of tools and test equipment; and – analyse electrical incidents.
----------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Classification	Electrical Engineering > Core Electrical
-----------------------	------------------------------------------

Available grade	Achieved
------------------------	----------

Explanatory notes

- 1 This unit standard has been developed for learning and assessment off-job.
- 2 The Electricity Amendment Act 2006 empowers the Electrical Workers Registration Board (EWRB) to make rules pertaining to electrical regulation. The Rules of the Board carry the same authority as Regulations and must be adhered to.
- 3 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 3760:2010, *In-service safety inspection and testing of electrical equipment*, including Amendment 1;
 AS/NZS 4836:2011, *Safe working on or near low-voltage electrical installations and equipment*;

AS/NZS 60479.1:2010 *Effects of current on human beings and livestock - General aspects*;

Electrical Workers Registration Board, *Supervision Procedures for Trainees*; (October 2010), Wellington;

and all subsequent amendments and replacements.

- 4 The term *current regulations and standards* is used in this unit standard to refer to the requirements of the above references.
- 5 For coverage of knowledge of safety relating portable tools and appliances refer to unit standard 15848. For coverage of knowledge and skills relating to in-service safety inspection and testing of electrical equipment in accordance with AS/NZS 3760 refer to unit standard 6705.
- 6 The *prove-test-prove* method refers to proving the instrument before and after a test to ensure that it works properly, and is particularly important when confirming electrical isolation. Some instruments have fused leads and may give false indication of isolation if the fuse is open circuit or blows during the test. Proving is done by applying the instrument to a circuit that is known to be energised and observing the measured voltage, testing the circuit to be isolated to ensure it is in fact isolated, then proving the instrument again on a circuit that is known to be energised.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of the hazardous nature of electricity.

Evidence requirements

- 1.1 The nature of electric shock is explained in terms of how it may arise, its physiological effect, and the effects of voltage and current on the human body as described by Figure 14 of IEC 60479-1.
- 1.2 The hazards of short circuits and uncontrolled fault currents are explained in terms of the risk of fire and/or other damage to persons and property.

Outcome 2

Demonstrate elementary knowledge of the Health and Safety in Employment Act.

Evidence requirements

- 2.1 The scope, coverage, and object of the Act are briefly outlined.
- 2.2 The enforcement of the Act is briefly outlined.

Range inspector functions, rights of entry, issue of notices.

Outcome 3

Demonstrate knowledge of the safety management of electrical hazards.

Evidence requirements

- 3.1 The principles of risk assessment and control measures are explained.
- Range risk assessment – identifying hazards, assessing and prioritising risks, applying control measures;
control measures – eliminate, isolate, minimise, personnel training.
- 3.2 Persons responsible for safety of electrical workers are identified, and the principles of supervision of apprentices and trainees are outlined in accordance with the *Supervision Guidelines for Electrical Workers*.
- 3.3 The need for all electrical work to be performed by competent personnel is identified in accordance with current regulations and standards.
- 3.4 The warning and reporting procedures of unsafe situations in the workplace are explained in accordance with current regulations and standards.
- 3.5 Control measures to eliminate or minimise electrical hazards are identified.
- Range switching off, isolating supply, locking-off and tagging of isolators, disconnecting load side of isolator, proving supply is dead by testing, precautions when leaving unfinished work, precautions for working on live equipment, safety distances, personnel training, safety rules, insulating area, access control, inspection and testing of tools and equipment, inspection of clothing.

Outcome 4

Demonstrate knowledge of general safety practices in the workplace.

Evidence requirements

- 4.1 Aspects of worker behaviour that promote safety in the workplace are described.
- Range worker behaviour – carrying out instructions properly, asking if in doubt, reporting unsafe conditions, using correct tools and equipment, keeping the workplace clean and tidy, not distracting others or indulging in horseplay, wearing or using protective clothing and equipment provided, only using machinery if authorised to do so, obeying all safety rules and signs, using only authorised tools and equipment, not leaving tools on the floor or where they can fall on people below, not wearing loose or torn clothing, taking extra care when members of the public are present as they may not be aware of hazards.

4.2 Good housekeeping practices that reduce hazards and risks are described.

Range good housekeeping practices – cleaning up at intervals during the day; not allowing rubbish to accumulate; keeping the floor, aisles and passageways clear of obstructions; keeping fire exits and equipment clear of obstructions; storing tools and equipment in the correct place.

4.3 Safety practices relating to working at height are described.

Range ladders, working platforms, scaffolding, cherry pickers, harnesses.

Outcome 5

Demonstrate knowledge of special hazards.

Range special hazards – infrared, ultraviolet, radio waves, microwaves, electrostatic and electromagnetic fields, chemicals, gases, dusts, asbestos.

Evidence requirements

5.1 Special hazards, their harmful effects, and typical occurrences are identified.

Outcome 6

Demonstrate knowledge of safe use of tools and test equipment.

Evidence requirements

6.1 General principles relating to safe use of tools and test equipment are explained.

Range regular inspection of hand tools, routine testing of electrical tools against AS/NZS 3760, features and ratings of test equipment for use on live circuits.

6.2 Indications of tools and test equipment in poor condition are identified.

6.3 The prove-test-prove method is practically demonstrated.

Outcome 7

Analyse electrical incidents.

Range at least three case studies of electrical incidents, one of which resulted in the death of an electrical worker.

Evidence requirements

7.1 Case studies are examined and conclusions drawn as to the cause of the accident and the extent and nature of the damage resulting from the incident.

- 7.2 Fundamental errors made that led to the incident are identified in terms of hazardous practices used, testing procedures not followed, and general safety measures not taken.

Replacement information	This unit standard and unit standard 15852 replaced unit standard 1179. This unit standard has been replaced by unit standard 29465.
--------------------------------	--------------------------------------------------------------------------------------------------------------------------------------

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	10 February 1999	31 December 2013
Revision	2	3 April 2001	31 December 2013
Review	3	26 May 2005	31 December 2021
Rollover and Revision	4	15 March 2012	31 December 2021
Revision	5	15 January 2014	31 December 2021
Review	6	21 July 2016	31 December 2021

Consent and Moderation Requirements (CMR) reference	0003
------------------------------------------------------------	------

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.