

Title	Isolate and test low-voltage electrical subcircuits		
Level	2	Credits	2

Purpose	<p>This unit standard is designed to meet the requirements of first-time tuition in safety testing for electricians as required by the Electrical Workers Registration Board (EWRB). It does not cover testing of complete installations, nor testing in specialist areas such as work on overhead power lines, high voltage systems, or <i>works</i> as defined in the Electricity Industry Act 2010.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – isolate electrical circuits from the supply of electricity; and – test electrical circuits to ensure safety prior to reconnection.
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Classification	Electrical Engineering > Core Electrical
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Available grade	Achieved
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Explanatory notes

- 1 This unit standard has been developed for learning and assessment off-job or on-job.
- 2 This unit standard and unit standards 750, 15866, 15870, 29423, and 29425 together meet the assessment requirements of ERAC CEPCs 30.
This unit standard and unit standards 15852, 29421 and 29468 together meet the assessment requirements of ERAC CEPCs 31.
- 3 Achievement of this unit standard alone does not entitle trainees to legally perform prescribed electrical work without supervision. Until registered and licensed under the Electricity Act 1992, trainees are assisting, and must work under supervision when carrying out prescribed electrical work.
- 4 Definitions
CEPC – Critical Essential Performance Capability.
ERAC – Electrical Regulatory Authorities Council.
EWRB – Electrical Workers Registration Board.
Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.
RCD – Residual Current device.
Safe and sound practice – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*.

- 5 For coverage of knowledge and skill relating to testing of electrical appliances refer to unit standard 6705. Coverage of knowledge and skill relating to testing of complete electrical installations is covered in unit standards 15866 and 15870.
- 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.
- 7 Range
- a Electrical circuits – lighting circuit, power outlet, fixed wired appliance.
 - b Candidates may refer to current legislation and Standards during assessment.
 - c Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
 - d All activities and evidence presented for all outcomes and evidence requirements in this unit standard must be in accordance with:
 - i legislation;
 - ii policies and procedures;
 - iii ethical codes;
 - iv Standards – may include but are not limited to those listed in Schedule 2 of the Electricity (Safety) Regulations 2010;
 - v applicable site, enterprise, and industry practice; and,
 - vi where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and evidence requirements

Outcome 1

Isolate electrical circuits from the supply of electricity.

Evidence requirements

- 1.1 Explain the *test-before-touch* and the *prove-test-prove* principles with reasons for their importance in working safely.
- 1.2 Identify circuit as subcircuit or submains, and single-phase, two-phase, or three-phase.
- 1.3 Switch off load and give reasons for doing so.
- 1.4 Identify switch, fuse, or circuit breaker at the switchboard and disconnect the supply.
- 1.5 Apply safety tag, padlock, or disconnection isolator where appropriate.
- 1.6 Confirm isolation by tests using the *prove-test-prove* method.

Range tests – phase to neutral, phase to phase where appropriate, phase to earth.

Outcome 2

Test electrical circuits to ensure safety before reconnection.

Evidence requirements

- 2.1 Demonstrate checks and tests to prove isolation.
- 2.2 Confirm absence of unsafe conditions such as exposed wires, contacts, mechanical faults, and loose connections.
- 2.3 Test in accordance with Standards to confirm that the circuit is electrically safe.

Planned review date	31 December 2019
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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	N/A

Consent and Moderation Requirements (CMR) reference	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.

Comments on this unit standard

Please contact The Skills Organisation at reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.