

Title	Select, install, and terminate cables and wires in switchboards		
Level	4	Credits	13

Purpose	<p>This unit standard is for people engaged in the manufacture of switchboards in the electrotechnology industry.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – select cables, wires, and associated hardware for switchboards to match job requirements; – install cables, wires, and associated hardware in switchboards; – terminate cables and wires in switchboards in accordance with manufacturers' specifications; – identify and rectify switchboard cabling and wiring design problems; and – verify the installation of switchboard cabling and/or wiring in accordance with manufacturer's specification, job requirements, and industry practice.
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Classification	Electrical Engineering > Electric Switchboards
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Available grade	Achieved
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Explanatory notes

- 1 This unit standard may be used for learning and assessment off-job or on-job.
- 2 References
 Accident Compensation Act 2001;
 AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*;
 AS/NZS 3439.4:2009, *Low-voltage switchgear and control gear assemblies – Particular requirements for assemblies for construction sites (ACS)*;
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Health and Safety at Work Act 2015;
 The New Zealand Electrical Codes of Practice, available from [WorkSafe New Zealand](#);
 and all subsequent amendments and replacements
- 3 Definitions
Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.
Safe and sound practice – this relates to the installation of electrical equipment and is defined in AS/NZS 3000:2007.

4 Range

- a Candidates may refer to current legislation and Standards during assessment.
- b Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
- c All activities undertaken to produce 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

Select cables, wires, and associated hardware for switchboards to match job requirements.

Evidence requirements

- 1.1 Select cables and wire types to meet job specifications and identify alternatives where the preferred cables and wire types are not available.
- 1.2 Confirm voltage and current ratings of cables and wires.
- 1.3 Select hardware associated with cabling to meet job requirements.

Range hardware – ducting, trunking, wiring looms, cable ties, clamps, cleats.

Outcome 2

Install cables, wires, and associated hardware in switchboards.

Evidence requirements

- 2.1 Install ducting and/or trunking.
- 2.2 Select and use cable identification systems to meet job requirements.
- 2.3 Install cables and wires and ensure bending radii of cables conform to manufacturer's specifications.
- 2.4 Apply de-rating factors to cables and wires.

Range includes but is not limited to – bunching or grouping of conductors, parallel feeds, ring feeds.

Outcome 3

Terminate cables and wires in switchboards in accordance with manufacturers' specifications.

Evidence requirements

- 3.1 Strip insulation from cables and wires.
- 3.2 Select and fit lugs and/or ferrules in a manner that meets manufacturers' requirements.
- 3.3 Secure terminations in accordance with industry practice.
- 3.4 Mark progress of cables and wire terminations in accordance with job requirements.
- 3.5 Torque terminations to meet manufacturers' specifications and record settings in accordance with job requirements.

Outcome 4

Identify and rectify switchboard cabling and wiring design problems.

Evidence requirements

- 4.1 Identify and report cabling and/or wiring issues affecting safety and/or functionality.
- 4.2 Develop solutions to overcome cabling and/or wiring issues.
- 4.3 Obtain authority for variation to specifications.
- 4.4 Complete cabling and/or wiring in accordance with the variation.

Outcome 5

Verify the installation of switchboard cabling and/or wiring in accordance with manufacturer's specification, job requirements, and industry practice.

Evidence requirements

- 5.1 Verify terminations and interconnections.
- 5.2 Complete production documentation.

Replacement information

This unit standard replaced unit standard 14973.

Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 November 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 reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.