

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 – 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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Guidance Information

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 (version as cited in the Electricity (Safety) Regulations), *Electrical installations (known as the Australian/New Zealand Wiring Rules)*
- AS/NZS 61439.4:2016, *Low-voltage switchgear and controlgear assemblies – Part 4: Particular requirements for assemblies for construction sites (ACS)*, available at [Standards NZ](https://standards.nz)
- Electricity Act 1992
- Electricity (Safety) Regulations 2010
- Health and Safety at Work Act 2015
- The New Zealand Electrical Codes of Practice, available at WorkSafe New Zealand, [worksafe.govt.nz](https://www.worksafe.govt.nz) 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.

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
 - vi where appropriate manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

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

Performance criteria

- 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.

Performance criteria

- 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.

Performance criteria

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.

Performance criteria

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.

Performance criteria

5.1 Verify terminations and interconnections.

5.2 Complete production documentation.

Replacement information	This unit standard replaced unit standard 14973.
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Planned review date	31 December 2026
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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
Rollover and Revision	2	25 July 2024	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>.

Comments on this unit standard

Please contact the Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.