

Title	Select, install, and commission basic extra-low voltage and low voltage customer premises systems		
Level	3	Credits	15

Purpose	<p>This unit standard covers the selection, installation and commissioning of basic extra-low voltage and low voltage customer premises systems cabling, equipment, systems, and services. It also covers the interconnection of associated services to achieve optimal performance.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – select and install cable support systems and cables for basic extra-low voltage and low voltage customer premises systems; – install equipment for basic extra-low voltage and low voltage customer premises systems; and – test and commission basic extra-low voltage and low voltage customer premises system installations.
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Classification	Electrical Engineering > Electrotechnology
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Available grade	Achieved
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Prerequisites	<p>Unit 27911, <i>Demonstrate knowledge of workplace safety in an electrotechnology or telecommunications environment</i>; Unit 30647, <i>Apply safe working procedures and practices in an electrotechnology environment and identify and control special hazards</i>; Unit 30648, <i>Demonstrate knowledge of installation practices and procedures for customer premises systems</i>; or demonstrate equivalent skills and knowledge.</p>
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Guidance Information

- 1 This unit standard has been developed for learning and assessment on-job.

2 References

AS/NZS ISO/IEC 15018:2019, *Information technology - Generic cabling for homes*;
AS/NZS 3000:2007– *Electrical installations (known as the Australia/New Zealand Wiring Rules)*;
AS/NZS 3080:2013, *Information technology - Generic cabling for commercial premises*;
TIA/EIA-568A – Commercial Building Wiring Standard;
Building Act 2004;
Electricity Act 1992;
Electricity (Safety) Regulations 2010;
Health and Safety at Work Act 2015;
Telecommunications Act 2001;
Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016;
Local Body regulations;
Telecommunications Carriers' Forum *Code for Residential, SOHO and Multi-dwelling Premises Wiring (Premises Wiring Code of Practice)* (2011) available at <https://1library.net/document/zp7jv37z-telecommunications-carriers-residential-dwelling-premises-wiring-premises-practice.html>;
and all subsequent amendments and replacements.

3 Definitions

CPE – Customer Premises Equipment.

Frames – structures into which an equipment cabinet, or equipment rack, is mounted.

Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.

ICT – Information and Communications Technology

Remote access – access to installed equipment by a management or operations centre of a service provider.

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)*.

4 Range

- a Evidence is required of at least four basic installations covering at least two different types of cable and two different types of equipment under limited supervision.
- b The assessment of this unit standard must be related to the candidate's area of workplace practice, and must be completed within industry acceptable time frames.
- c Demonstration of safe working practices 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 performance criteria 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, manufacturer instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Select and install cable support systems and cables for basic extra-low voltage and low voltage customer premises systems.

Performance criteria

- 1.1 Select and install cable support systems for each given application.
- Range support systems may include but are not limited to – cable tray, ladder rack, trunking, conduit, aerial support systems, catenary wire;
mounting hardware – fittings, fixtures, fastenings;
evidence of three support systems is required across the installations.
- 1.2 Select and install common cables for each given application.
- Range cables may include but are not limited to – copper, coaxial cable, fibre, multi-pair cable;
applications may include but are not limited to – CPE, broadcasting, radio systems, access network, core network, signals and communications;
installation may include but is not limited to – terminations, joints, use of colour code, use of appropriate tools and equipment, limitations of methods and techniques used for a given application.
- 1.3 Demonstrate management practices for cable support systems during installation.
- Range management practice – bend radius, securing, grounding, bonding, labelling, support, separation of services, future expansion;
support systems may include but are not limited to – cable tray, ladder rack, trunking, conduit, aerial, buried.
- 1.4 Consider relevant environmental conditions when performing installations.
- Range relevant environmental considerations may include but are not limited to – moisture ingress, insect and vermin ingress, corrosion, ventilation, equipment protection, cable protection, lightning protection, dust control, water and spoil management, fire stopping;
evidence is required for all environmental considerations relevant to the installation used for assessment.

Outcome 2

Install equipment for basic extra-low voltage and low voltage customer premises systems.

Performance criteria

- 2.1 Install frames, cabinets, and/or boards and related ICT systems for each given application.
- Range may include but is not limited to – cabinets racks, frames, distribution boards, gateways, network rack, construction, seismic suitability, suitability for loads; locations may include but are not limited to – equipment room/closet, patch-panels, cabinets, pedestals, pit, manhole; mounting methods may include but are not limited to – wall mount, pole mount, plinth, rack mount, underground.
- 2.2 Consider relevant environmental conditions when performing installations.
- Range relevant environmental considerations may include but are not limited to – moisture ingress, insect and vermin ingress, corrosion, ventilation, equipment protection, cable protection, lightning protection, dust control, water and spoil management, fire stopping; evidence is required for all environmental considerations relevant to the installation used for assessment.

Outcome 3

Test and commission basic extra-low voltage and low voltage customer premises system installations.

Performance criteria

- 3.1 Complete common commissioning testing to ensure installation meets minimum standards.
- Range types of tests – visual inspections, polarity, functional tests, end to end tests, remote access; test – safety, harm to equipment, damage to cabling, incorrect function, faults.
- 3.2 Prepare documentation as required before handover of installation.
- Range may include but is not limited to – technical test results, as built technical diagrams, customer documentation.
- 3.3 Prepare installation site and removal of waste from site for handover of installation to meet stakeholder satisfaction.
- 3.4 Complete handover procedures for the installation to meet stakeholder satisfaction and company handover procedure.

Planned review date	31 December 2027
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	14 December 2017	31 December 2024
Review	2	2 March 2023	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 Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.