Title	Install and configure standard and non-standard structured cabling systems, hardware, and support facilities		
Level	4	Credits	45

Purpose	This unit standard is intended for service technicians and servicepersons, who develop and install standard and non-standard structured cabling systems, associated hardware, and support facilities. People credited with this unit standard are able to: – develop solutions for the installation of network systems, associated hardware, and support facilities; – prepare for installation of network systems, associated hardware, and support facilities; – co-ordinate the installation of network systems, associated hardware, and support facilities; – co-ordinate configuration routines of network systems, associated hardware, and support facilities; – test and commission network systems, associated hardware, and support facilities; – ensure regulatory compliance in terms of workplace health and safety when working on network systems, associated hardware, and support facilities; and – handover site to customer on completion of installation.

Classification	Electrical Engineering > Electrotechnology

Available grade	Achieved

Prerequisites	Unit 27911, *Demonstrate knowledge of workplace safety in an electrotechnology or telecommunications environment*; Unit 28881, *Enhance workplace safety and mitigate environmental impacts in an electrotechnology or telecommunications environment*; or demonstrate equivalent knowledge and skills.

Guidance Information

1 This unit standard has been developed for learning and assessment on-job or off-job in a simulated workplace environment or combination, and where electrical work is included under adequate supervision as defined in the Electricity Act 1992, unless the candidate is registered and licenced under the Electricity Act 1992.

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2 Recommended unit standards for entry:
Unit 30651, *Explain regulatory requirements for installing and servicing extra-low and low voltage customer premises systems*.
Unit 30643, *Demonstrate knowledge of the installation of electrotechnology systems on customer premises*.
Unit 32015, *Demonstrate knowledge of structured cabling systems*.

3 References
AS/NZS 11801.1:2019 *Information technology - Generic cabling for customer premises Part 1: General requirements (ISO/IEC 11801-1:2017, MOD),* available from https://www.standards.govt.nz/;
Consumer Guarantees Act 1993;
Contract and Commercial Law Act 2017, *Part 3 Sale of Goods*;
Electricity Act 1992;
Electricity (Safety) Regulations 2010;
Fair Trading Act 1986;
Hazardous Substances and New Organisms Act 1996;
Health and Safety at Work (Hazardous Substances) Regulations 2017;
Health and Safety at Work Act 2015;
New Zealand Electrical Codes of Practice available from WorkSafe New Zealand at www.worksafe.govt.nz;
Privacy Act 2020;
Resource Management Act 1991;
TCF Premises Wiring Cable Installers Guidelines for Telecommunications Services, available from https://www.tcf.org.nz;
and all subsequent amendments and replacements.

4 Definitions
Company practice – those practices and procedures that have been circulated by the company for use by their employees.
Co-ordinate – includes supervision, facilitation, and active involvement in the work to be completed.
Industry conventions – a set of agreed, specified, or generally accepted standards.
Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.
Non-standard – three or more services/network types, hardware or subsystems used or operating together to provide a purpose-built network system solution based on customer or installation requirements.
Safe and sound practice – relating to the installation of electrical equipment as defined in AS/NZS 3000 (version as cited in Electricity (Safety) Regulations).
Service technicians and servicepersons – for the purposes of this unit standard means, people who hold or who are working towards electrical registration as an Electrical Service Technician, Electrical Appliance Serviceperson (endorsed to disconnect and connect), or Electrical Appliance Serviceperson.
Structured cabling systems – also known as network systems.

5 Assessment
a Competence may be assessed on:
i Structured cabling systems or installations for voice and/or data which may include but are not limited to – home, office, industrial, data centre, distributed building services;

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ii Cabling which may include but is not limited to – optical fibre, twisted-pair copper, coaxial copper, or some combination of these;
iii Connecting hardware which may include but is not limited to – connecting blocks, patch panels, interconnections, cross-connections, or some combination of these components;
iv Support facilities which may include but is not limited to – cable support hardware, fire stopping and grounding hardware.

b Evidence of three different network system installations is required for each outcome of this unit standard, with one being a non-standard solution, except where otherwise indicated.

6 Range
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 safe and sound practice;
vi applicable site, company and industry practice, and industry conventions;
vii where appropriate or applicable, environmental requirements, manufacturer instructions, specifications, data sheets and manufacturer, supplier and company health and safety procedures.

Outcomes and performance criteria

Outcome 1

Develop solutions for the installation of network systems, associated hardware, and support facilities.

Performance criteria

1.1 Identify the requirements and scope of the network systems, and associated hardware and support facilities.

Range may include but is not limited to – equipment specification, customer requirements, budgetary constraints, company policies and procedures, health and safety.

1.2 Develop specifications in consultation with customer and/or supervisor.

Range may include but is not limited to – other resources, trades and services, work plan, installation plan, timeline.

1.3 Evaluate standard and non-standard solutions to meet customer requirements.

Range solutions may include but are not limited to – usability, reliability, interoperability, scalability, security.

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1.4 Prepare and present recommended solution to customer for approval.

Outcome 2

Prepare for installation of network systems, associated hardware, and support facilities.

Performance criteria

2.1 Prepare for installation.

Range may include but is not limited to – additional required resources and trade services, required materials, site access requirements, work plan, installation plan, specifications and drawings, supervisor or manager guidance.

2.2 Arrange permits or consents.

Range may include but is not limited to – Permit to Work, site access, security consents, customer consent.

2.3 Develop safety plans in accordance with company practice.

Outcome 3

Co-ordinate the installation of network systems, associated hardware, and support facilities.

Performance criteria

3.1 Co-ordinate the installation of hardware and equipment, and the termination of required services.

Range services – other trades, power supply;
evidence of five installations is required.

3.2 Co-ordinate the connections and interfaces between the network system and associated hardware and support facilities in accordance with customer and manufacturer's specifications.

Range may include but is not limited to – termination, labelling, securing, cable tray, trunking, conduit;
evidence of three types of connections/interfaces is required across all installations.

3.3 Complete documentation in accordance with company practice.

Range must include – use of electronic record system;
may include but is not limited to – labelling of systems and equipment, complete as-built documentation, recording of installation progress, updating of records and technical documentation;
evidence of two installations is required.

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Outcome 4

Co-ordinate configuration routines of network systems, associated hardware, and support facilities.

Performance criteria

4.1 Co-ordinate configuration of hardware.

Range may include but is not limited to – software, firmware, remote control, computer interface, micro-processor, embedded, manual; evidence of three configurations is required across all installations.

4.2 Co-ordinate configuration of interfaces to enable communication between hardware and software.

Range may include but is not limited to – TCP/IP and Ethernet addressing, serial communication, parallel communication, wireless communication, IR communication, USB; evidence of three types of interface is required.

Outcome 5

Test and commission network systems, associated hardware, and support facilities.

Performance criteria

5.1 Select test equipment to perform commissioning testing in accordance with manufacturer's instructions, specifications and commissioning requirements.

Range may include but is not limited to – safety testing, operational testing, acceptance testing, specification testing, performance verification.

5.2 Perform tests in a manner which does not impact on performance of other working systems or equipment.

5.3 Compare test results against design specifications to confirm performance is within permitted parameters.

Outcome 6

Ensure regulatory compliance in terms of workplace health and safety when working on network systems, associated hardware, and support facilities.

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Performance criteria

6.1 Perform risk assessment and manage any hazards on arrival at worksite.

Range may include but is not limited to – services mark up, utility clearances, other services interference, job safety analysis, stakeholder health and safety processes, consent requirements, work permit requirements.

6.2 Maintain safety in own work area in accordance with regulations.

Range may include but is not limited to – worksite policies, environmental management, health and safety, industry requirements, industry practice.

6.3 Comply with regulations when completing electrical tests, and completing or collecting certificates.

Range may include but is not limited to – ESC, COC, SDoC (producer statement).

Outcome 7

Handover site to customer on completion of installation.

Performance criteria

7.1 Co-ordinate site departure procedures in accordance with company practice.

Range may include but is not limited to – system checks, system restored to automatic or standby, ventilation system restored to normal.

7.2 Perform walk-through to confirm remedial work has been completed in accordance with company and industry practice, and co-ordinate post-installation site restoration.

Range remedial work may include but is not limited to – fire stopping, associated contractor services, wall repair, painting, floor coverings.

7.3 Hand over support materials to the customer in accordance with contract and company practice.

Range may include but are not limited to – as-built drawings, performance certification, test and commissioning results, maintenance material, product leaflet and instructions, testing instructions, troubleshooting guide, recording in electronic records system, product guarantee, producer statement, ESC, COC.

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7.4 Ensure completion of post job tasks in accordance with company practice.

Range may include but is not limited to – log and file information in relevant systems, complete customer reports as required, close out job tasks in record systems.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 January 2020	N/A
Rollover and Revision	2	28 August 2025	N/A

Consent and Moderation Requirements (CMR) reference	0120

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 qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.

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