

|              |   |                |          |
|--------------|---|----------------|----------|
| <b>Title</b> | <b>Draw and explain electrical diagrams</b> |                |          |
| <b>Level</b> | <b>3</b>                                    | <b>Credits</b> | <b>4</b> |

|                |  |
|----------------|--|
| <b>Purpose</b> | <p>This unit standard is for electricians and related trades, who need to draw and to understand electrical installation and control diagrams.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> <li>– demonstrate knowledge of electrical symbols, labelling techniques, and terminology; and</li> <li>– draw, label, and explain diagrams of simple electrically functional systems.</li> </ul> |
|----------------|--|

|                       |  |
|-----------------------|--|
| <b>Classification</b> | Electrical Engineering > Core Electrical |
|-----------------------|--|

|                        |          |
|------------------------|----------|
| <b>Available grade</b> | Achieved |
|------------------------|----------|

**Explanatory notes**

- 1 This unit standard has been developed for learning and assessment off-job.
- 2 This unit standard and unit standard 29426 meet the assessment requirements of ERAC CEPCs 40.
- 3 Definitions
  - CAD* – computer aided design.
  - CEPC* – Critical Essential Performance Capability.
  - ERAC* – Electrical Regulatory Authorities Council.
  - Industry practice* – those practices that competent practitioners within the industry recognise as current industry best practice.
  - 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 Both hand drawing or CAD can be used during assessment.
  - b Standard symbols to be used for all assessments.
  - c Candidates may refer to current legislation and Standards during assessment.
  - d Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
  - e 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

Demonstrate knowledge of electrical symbols, labelling techniques, and terminology.

#### Evidence requirements

- 1.1 Identify fifteen standard electrical drawing symbols from diagrams.
- 1.2 Describe standard labelling conventions.
- 1.3 Define control circuit terminology.

Range normal position, energised position, holding contacts, overload contacts, make contacts, break contacts, manual, automatic semi-automatic.

### Outcome 2

Draw, label, and explain diagrams of simple electrically functional systems and include symbol legends.

#### Evidence requirements

- 2.1 Draw and interpret two simple control circuit diagrams.
- 2.2 Draw and explain two simple scale location diagrams for an installation.
- 2.3 Draw and explain two simple single line electricity distribution diagrams showing equipment ratings and cable sizes.

|                                |  |
|--------------------------------|--|
| <b>Replacement information</b> | This unit standard and unit standard 29480 replaced unit standard 15845 and unit standard 15854. |
|--------------------------------|--|

|                            |                  |
|----------------------------|------------------|
| <b>Planned review date</b> | 31 December 2019 |
|----------------------------|------------------|

#### Status information and last date for assessment for superseded versions

| Process      | Version | Date         | Last Date for Assessment |
|--------------|---------|--------------|--------------------------|
| Registration | 1       | 21 July 2016 | N/A                      |

|  |      |
|--|------|
| <b>Consent and Moderation Requirements (CMR) reference</b> | 0003 |
|--|------|

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](mailto:reviewcomments@skills.org.nz) if you wish to suggest changes to the content of this unit standard.