Australian Government

CPCCSG3011 Install LED technology into signs

Release: 1

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Modification History

Release 1.

This version first released with CPC Construction, Plumbing and Services Training Package Version 2.

Revised unit of competency. Replaces superseded non-equivalent CPCCSI3011A Use LED technology for signage, CPCCSI3012A Apply electrical theory for illuminated signage, and CPCCSI3013A Install LED systems.

Application

This unit of competency specifies the outcomes required to select and install light emitting diode (LED) systems into signs. It covers identifying the appropriate LED system to achieve job requirements, laying out and installing the system into position, and connecting and circuit testing the system to ensure consistent distribution of light.

The unit supports sign manufacturers producing illuminated signs. It applies to signs illuminated using LED technology, including light boxes and fabricated letters which, depending on how the modules are positioned inside the letter, will produce either face-illuminated or halo-lit signs.

Where LED lighting is less than 240 volts, no licensing, legislative, regulatory or certification requirements apply to this unit of competency at the time of endorsement. Should lighting be above 240 volts, relevant state and territory regulatory authorities should be consulted to confirm licensing, legislative, regulatory or certification requirements that apply to this unit of competency.

Pre-requisite Unit

Nil

Competency Field

Signs and graphics

Unit Sector

Construction

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of

conditions.

1	Plan and prepare work.	1.1	***Job requirements*** are identified from specifications and client brief, confirmed, and applied to planning and preparation.
		1.2	Sign installation details are identified and applied to planning.
		1.3	***Tools, equipment*** and ***materials*** are selected to carry out tasks consistent with job requirements, and faults are identified and rectified before starting work.
		1.4	***Health and safety requirements*** are identified and applied to planning according to job requirements.
		1.5	Statutory and local authority requirements relating to the display of illuminated sign are identified and applied to planning.
2	Select and prepare LED modules.	2.1	LED system is selected according to job specifications and prepared for use.
		2.2	Quantity of transformers required is calculated according to job specifications, and type of LED system is selected.
3	Fix LED system to sign.	3.1	Sign is checked to be free of damage, and is cleaned and allowed to dry.
		3.2	LED modules are laid out and checked for completeness according to manufacturer recommendations.
		3.3	LED modules are safely fixed to sign according to type of illumination required and manufacturer specifications.
		3.4	Unused wires are safely capped or looped to avoid creating shadows on sign face.
4	Connect and test LED wires	4.1	Module wires are connected to transformers and regulated according to manufacturer specifications.
		4.2	Module wires are tested to be fully functioning and any

			defects are identified and rectified.
5	Position and check sign.	5.1	Sign is mounted to surface or placed into position according to job requirements.
		5.2	Sign is illuminated and checked for consistent distribution of light according to job requirements.
		5.3	Inadequately lit areas of the sign and possible causes are identified and lighting is rectified according to job requirements.
6	Clean up.	6.1	Finished sign and surrounding surface area are cleaned and waste materials removed according to statutory and regulatory authority requirements.
		6.2	Tools and equipment, including personal protective equipment (PPE), are cleaned, maintained and stored according to workplace requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature

Learning skills to:	• access a range of manufacturer support material to identify:
	  • changing technology in LED systems
	  • required approach to installing LED systems into signs.

Numeracy skills to:	• calculate:
	  • depth of sign and apply to selection of appropriate LED system
	  • required number of transformers and other elements used when installing LED into signs.

Oral communication skills to:	• identify and confirm lighting requirements.

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Reading skills to:	• interpret manufacturer instructions and recommendations relating to layout and connection of LED systems.
Writing skills to:	• report faults in LED systems and components to manufacturers and other relevant personnel using relevant documentation.
Problem-solving skills to:	• identify possible causes of faults in signs illuminated with LED technology and trial appropriate solutions.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Job requirements must include:

- lighting durability expectations
- location of sign
- quality of light required:
  - brightness
  - colour
  - lighting effect
- surface material to which sign is to be fixed
- type and dimensions of sign.

Tools and equipment must include at least three of the following:

- caulking gun
- circuit testing equipment
- electrical connection tools
- measuring tape
- PPE suited to working with LED technology
- soldering tools
- wire strippers.

Materials must include:	• LED lighting system • LED modules. •

Health and safety requirements must include:	• selection, correct fitting, and use of PPE prescribed under legislation, regulations and workplace policies and practices
	• emergency procedures, including:
	  • evacuation
	  • first aid
	  • location and use of firefighting equipment
	• contents of and terms used in safe work method statements (SWMS) for the safe use of tools and equipment
	• hazard identification and risk control procedures
	• safe operating procedures, including operational risk assessment and treatments associated with:
	  • soldering
	  • working with low voltage electrical wires
	  • working with power
	• workplace environmental requirements.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad