Australian Government

ICTCBL4002B Prepare design drawings and specification for a cable installation

Release 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICTCBL4002B Prepare design drawings and specification for a cable installation

Modification History

Release	Comments
Release 2	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0*. References to other units updated. Outcomes deemed equivalent.
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 1.0*.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to prepare design drawings and specification for a cable installation.

Cable used must be compliant with appropriate Australian Communications and Media Authority (ACMA) technical standard requirements (e.g. for underground, aerial, Category 5, 6, 6A, 7 or 7A, or unshielded twisted pairs (UTP)).

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an ACMA-accredited registrar.

Application of the Unit

Technical staff who prepare design drawings and specifications for a cable installation apply the skills and knowledge in this unit.

This unit applies to indoor and outdoor installation within a customer premises. It may be applied to domestic, commercial or industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Gather information on existing and proposed installation	1.1 Confirm cable installation requirements with the customer 1.2 Inspect site to confirm building plans where possible 1.3 Review existing cable ***plans and drawings***
2. Determine installation options	2.1 Assess available installation options against customer requirements and ***relevant legislation, codes, regulations and standards*** 2.2 Establish and assess the cost of options against customer's budget 2.3 Select most suitable option based on function and cost considerations and present to customer
3. Prepare suitable drawings	3.1 Prepare clear and accurate cable installation drawings indicating proposed outlets and services 3.2 Provide drawings to relevant parties and file copies for later reference according to ***company policies***
4. Prepare cabling specifications	4.1 Prepare detailed ***cabling specifications*** for the ***cabling system*** 4.2 Prepare accurate costing from detailed specification, including equipment and material required
5. Verify specifications with customer	5.1 Verify prepared documentation with customer 5.2 Obtain authorisation and sign off from the customer to proceed according to company policy

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to read and interpret drawings related to:
  - cable coding system and identifiers
  - cable layouts
  - frame locations
  - outlet location
- communication skills to liaise with internal and external personnel on technical and operational matters
- literacy skills to interpret technical documentation, such as equipment manuals and specifications
- numeracy skills to:
  - take and analyse measurements
  - prepare accurate costing
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to prepare design drawings and specification.
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Required knowledge

- ACMA Competency Requirements for Telecommunications Cabling Provider Rules 2000
- information required to operate equipment according to a test specification
- features and operating requirements of test equipment
- legislation, codes of practice and other formal agreements that impact on the work activity
- manufacturer's requirements for safe operation of equipment
- specific occupational health and safety (OHS) requirements relating to the activity and site conditions
- test methods and performance requirements
- typical issues and challenges that occur on site.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine installation options • produce amended schematic and floor plan drawings • produce amended specifications • verify specifications with customer.
Context of, and specific resources for assessment	Assessment must ensure: • sites where cable installation may be conducted • use of equipment currently used in industry • relevant regulations, company policies and cabling specifications that impact on cable installation activities.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of a hands-on project completed by the candidate • oral or written questioning to assess knowledge of installation options • direct observation of the candidate assessing installation requirements • review of design drawings and specification for a cable installation, including costings prepared by the candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTCBL4004B Schedule and supply cabling installation. Aboriginal people and other people from a non-English speaking background may have second language issues.

	Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Plans and drawings may include:	• design drawings covering:
	  • floor plan drawings
	  • schematic
	• floor plan drawings which may be formal or informal, and may include:
	  • box locations
	  • cable routes
	  • frame location
	  • location and entry points of risers
	  • location of existing cabling
	  • service delivery points
	  • support systems
	• schematic drawings which may be formal or informal, and may include:
	  • box input and output
	  • frame capacities
	  • frame locations
	  • proposed cable routes
	  • site locations
	• other drawing terminology in use, including:
	  • cable plan
	  • reflected ceiling plans
	  • termination drawing
	• specifications, which may include:
	  • capacity of cable
	  • estimated labour hours
	  • proprietary system requirements
	  • support requirements
	  • termination system
	  • type of cable
	  • volume of cable.

Relevant legislation,	• Australian Communications Industry Forum (ACIF) standards and codes

codes, regulations and standards include:	• AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • Australian building codes and regulations • cabling security codes and regulations • fire regulations • industry drafting codes of practice • mining legislation • noise abatement and heritage legislation • OHS • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.

Company policies may refer to:	• industry standards including:
	  • appropriate AS and ACIF technical standards
	  • regulated or industry codes of practice
	• relevant parties including:
	  • builders
	  • cablers
	  • contractor
	  • customer
	  • relevant regulatory authorities.

Cabling specifications may include:	• capacity for future expansion • contingencies during installation • required services.

Cabling system may include:	• cable compliant with appropriate ACMA technical standard requirements:
	  • underground
	  • aerial
	  • Category 5, 6, 6A, 7 or 7A
	  • unshielded twisted pairs (UTP)
	  • shielded twisted pairs (STP)
	• ACMA-approved cabling products.

Unit Sector(s)

Telecommunications - Cabling