



Australian Government

ICTTEN4244A Estimate and quote for carrier telecommunications equipment installations

Release 1

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Modification History

Release	Comments
Release 1	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i> .

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to estimate and quote for carrier telecommunications equipment installation.

It involves preparing detailed estimates and quotes and updating schematic drawings and specifications.

Application of the Unit

Technical staff who estimate and quote for carrier equipment installation apply the skills and knowledge in this unit.

This unit applies to indoor and outdoor installation within a carrier network. It may be applied to large scale commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), multimedia, fibre to the x (FTTx), radio and satellite installations.

This unit is one in a sequence of units that cover network design activities including:

- design drawings and specifications
- designing a dense wavelength division multiplexing (DWDM) system
- designing infrastructure
- estimating and quoting
- site survey.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Confirm and update schematic drawings and specifications	1.1 Review existing specifications and drawings for completeness 1.2 Prepare additional drawings and specifications for installation if required 1.3 Compare drawings and specifications with design brief to confirm requirements 1.4 Confirm cable and location details with the carrier
2. Cost resources and establish availability	2.1 Cost scheduled items using schedule of rates 2.2 Obtain quotes and supply dates for non-scheduled items 2.3 Estimate labour costs based on company practices 2.4 Negotiate costing with suppliers 2.5 Cross-check costings to ensure supply proposal matches carrier specification
3. Prepare estimates for carrier quote	3.1 Prepare estimates allowing for contingencies during installation and requirements of relevant legislation, codes, regulations and standards 3.2 Ensure estimates will return a profit on installation where appropriate
4. Prepare quote and confirm with carrier	4.1 Prepare a project installation quote from estimates to meet carrier installation requirements 4.2 Negotiate changes and variations to meet carrier and company needs
5. Obtain approval and initiate installation project	5.1 Obtain carrier's approval for project design drawings and estimate 5.2 Issue design drawings and specifications with authority to construct

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 carrier's telecommunications equipment
- communication skills to liaise and negotiate with carriers and suppliers on technical and operational matters
- literacy skills to interpret technical documentation, such as equipment manuals and specifications
- numeracy skills to estimate and quote for telecommunications installation
- problem-solving skills to solve equipment and logistics challenges
- task-management skills to:
 - adhere to safety requirements
 - work systematically with required attention to detail
- technical skills to estimate requirements for carrier telecommunications equipment installation.
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Required knowledge

- features of carrier telecommunications equipment
- manufacturer requirements for safe operation of equipment
- procedures for responding to typical issues and challenges that occur on site, including:
 - barricading
 - damage to site
 - obtaining access
 - problematic weather
 - safety management
 - vegetation and mud
 - waste management
- processes and techniques required to prepare plans, estimates and quotes for installations
- sources of legislation, codes of practice and other formal agreements relating to installing carrier telecommunications equipment that impact on the work activity
- typical issues and challenges that occur when dealing with carriers.

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: • prepare detailed estimates, and updated schematic drawings and specifications, including material and labour costs for telecommunications installations • negotiate with contractors on material availability and pricing for carrier network installations • complete detailed quotes for installations that allow for changes and variations • prepare and confirm quote with carrier.
Context of and specific resources for assessment	Assessment must ensure: • relevant databases, licensing requirements and other site-related documentation • sites on which estimates and quotes may be conducted.
Method 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 • review of written estimates and quotes with completed documentation • oral or written questioning on the estimate and quote process.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTCBL2017B Alter services to existing cable system. 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.
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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.

Carrier specification may include:	• cable • connectors • cost per cable length installed per outlet • equipment types: • bandwidth managers • digital subscriber line (DSL): • asymmetrical DSL (ADSL) • digital broadcasting • computer telephony integration (CTI) technologies • modems • network equipment • private automatic branch exchange (PABX) • radio frequency (RF) equipment • single line telephones • telephone systems • radio systems • optical systems, including FTTx • video and data • existing builders or electrical contractors schedule • frames • requirements for: • equipment • labour • materials • other resources • scope of works • support system • wireless networks: • cellular • microwave • radio • satellite • timeframes.
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Contingencies may include:	• need for integration with existing building works schedules where available • requirements for installation method or of any proprietary system being installed • relevant constraints.
Relevant legislation, codes, regulations and standards may 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 • Australian Communications Industry Forum (ACIF) standards and codes • cabling security codes and regulations • compliance with appropriate Australian Communications and Media Authority (ACMA) technical standard requirements for underground, aerial, Category 5, 6, 6A, 7 or 7A and unshielded twisted pairs (UTP) • Environment Protection Acts • fire regulations • Institute of Electrical and Electronics Engineers (IEEE) • mining legislation • noise abatement and heritage legislation • relevant international standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006 • Telecommunications Act and code of practice • Trade Practices Act • WHS Acts and relevant codes and standards.
Changes and variations may include:	• availability • delivery • disputes • insurance • maintenance • network/system security implications • preparation of manuals • restricted site access

	• testing requirements • time penalties.
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Unit Sector(s)

Telecommunications - Telecommunications networks engineering