BCG03 General Construction Training Package

Volume 5 of 5

Version Number: 4
Review Date: 30 November 2006

BCG03
General Construction Training Package

The General Construction Training Package (BCG03) is comprised of five volumes. This division is necessitated by the size of the contents and the need to reduce costs to clients. Each volume contains common information together with the competency units essential for the particular sub-sectors.

Volume 5 of 5
General Construction Training Package (Volume 5)

This Training Package was endorsed by NTQC in November 2003.

BCG03 - General Construction Training Package

This work is the result of wide consultations with Australian industry participants. It is a collaborative view and does not necessarily represent the view of DEST or any specific body. For the sake of brevity it may omit factors which could be pertinent in particular cases.

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Published by:

First published: 9 January 2004

ISBN: 0 642 80465 6

Printed by:

AEShareNet Code: P

Print Version No: 4

Release Date: 08.12.2006

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Version Modification History

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
4	08.12.2006	Four additional qualifications Certificate III in Low Rise Structural Framing BCG31706 Certificate II in Steel Fixing BCG20206 Certificate II in Concreting BCG20306 Certificate II in Stonemasonry BCG20406
3	24.10.06	Two additional qualifications Certificate III in Formwork/Falsework BCG31506 Certificate III Wall & Ceiling Lining (Plasterboard) BCG31606 Twenty-eight additional units of competency: BCGPB3001A Fix standard plasterboard wall sheets BCGPB3002A Fix standard plasterboard ceiling sheets BCGPB3003A Fix battens BCGPB3004A Fix wet area sheets BCGPB3005A Fix ceiling sheets to external protected areas BCGPB3006A Fix fibre cement board BCGPB3007A Apply levels of finish standards to planning and inspection of own work BCGPB3008A Mix plastering compounds BCGPB3009A Finish plasterboard joins by hand BCGPB3010A Hand sand plaster work BCGPB3011A Finish category 1 & 2 wet areas BCGPB3012A Cut and fix paper faced cornice BCGPB3013A Plan travel routes BCGPB3014A Install batt insulation products BCGPB3015A Set up, move and dismantle scaffolding up to 4 metres BCGPB3016A Install and finish columns BCGPB3017A Rectify faults in plaster applications BCGPB3018A Use vacuum/electric sanding equipment to finish plaster work BCGPB3019A Install PartiWall plaster products BCGPB3020A Match, mitre and install cast ornamental cornice BCGPB3021A Install and fix residential acoustic plaster

Version	Release Date	Comments
		products BCGPB3022A Use mechanical jointing equipment to finish joints BCGPB3023A Load and unload plaster and plaster related products BCGPB3024A Use manual handling equipment to manoeuvre plaster products BCGPB3025A Store plasterboard/products BCGPB3026A Erect and maintain trestle and plank systems BCGPB3027A Inspect equipment for serviceability BCGCM1006A Work safely at heights
2	24/08/2006	Release of new volume to provide Certificate 4-6 qualifications
1	05/08/2004	Cat 1 change, Delete core unit BCGCO2004B Carry out concrete work from Certificate II in General Construction and Insert new core unit BCGCO2003B Carry out concreting to simple forms Current entry BCGWC2004B Install cast plaster and paper faced cornices be amended to read BCGWC3004B Install cast plaster and paper faced cornices.
1	18/06/2004	Cat 1 change, Replace unit BCGCO2004 Carry out Concrete Work as a core unit in Certificate III in Carpentry with unit BCGCO2003 Carry out concreting to simple forms.
1	09/01/2004	Primary Release, based on revision of the BCG98 Package

Forms control: All endorsed training packages will have a version number displayed on the imprint page of every volume constituting that training package. Every training package will display an up-to-date copy of this modification history form, to be placed immediately after the contents page of the first volume of the training package. Comments on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Changes to training packages will generally be batched at quarterly intervals. This modification history form will be included within any displayed sample of that training package and will constitute all detail available to identify changes.

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF see the *AQF Implementation Handbook, 3rd Edition 2002*. You can download it from the Australian Qualifications Advisory Board (AQFAB) website (www.aqf.edu.au) or obtain a hard copy by contacting AQFAB on phone 03 9639 1606 or by emailing AQFAB on aqfab@curriculum.edu.au

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications.

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate of ...
- Vocational Graduate Diploma of ...

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Statement of Attainment

Where an AQF qualification is partially achieved through the achievement of one or more endorsed units of competency, an RTO may issue a Statement of Attainment. Issuance of Statements of Attainment must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Under the *Standards for Registered Training Organisations*, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas;
- demonstrate basic practical skills, such as the use of relevant tools;
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas;
- apply a defined range of skills;
- apply known solutions to a limited range of predictable problems;
- perform a range of tasks where choice between a limited range of options is required;
- assess and record information from varied sources;
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the section of equipment, services or contingency measures

and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team co-ordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills. Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and co-ordination.

The self directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Applications involve participation in development of strategic initiatives as well as personal

responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team co-ordination may be involved.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.

The application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes is involved.

Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

Vocational Graduate Certificate

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.

- Substantial breadth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and management functions in highly varied and highly specialised contexts.
- Applications involve making significant, high-level, independent judgements in major broad or planning, design, operational, technical and management functions in highly varied and specialised contexts. They may include responsibility and broad ranging accountability for the structure, management and output of the work or functions of others.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major broad or technical and management functions in highly varied and highly specialised contexts.
- Generate and evaluate ideas through the analysis of information and concepts at an abstract level.
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills in complex contexts.
- Demonstrate responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.

Vocational Graduate Diploma

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of major functions, both broad and highly specialised, in highly varied and highly specialised contexts.
- Further specialisation within a systematic and coherent body of knowledge.
- Applications involve making high-level, fully independent, complex judgements in broad planning, design, operational, technical and management functions in highly varied and highly specialised contexts. They may include full responsibility and accountability for all aspects of work and functions of others, including planning, budgeting and strategy development.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

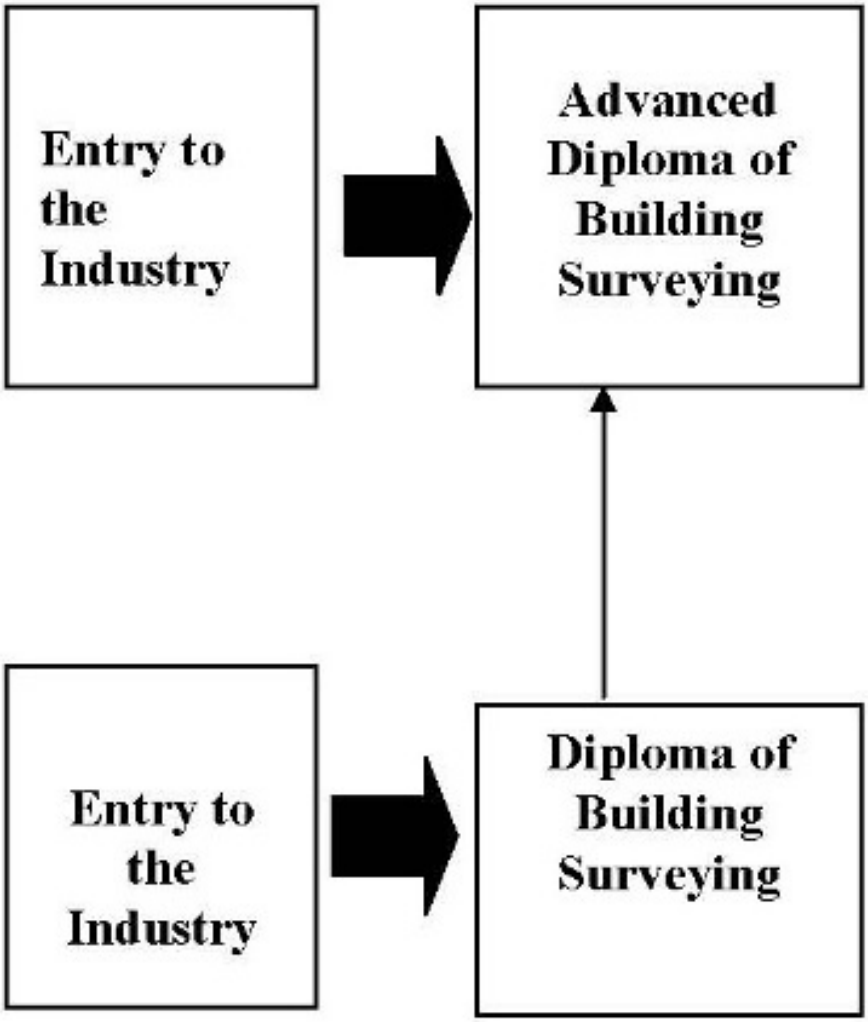
- Demonstrate the self-directed development and achievement of broad and highly specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major functions, both broad and within highly varied and highly specialised contexts.
- Generate and evaluate complex ideas through the analysis of information and concepts at an abstract level.
- Demonstrate an expert command of wide-ranging, highly specialised, technical, creative or conceptual skills in complex and highly specialised or varied contexts.
- Demonstrate full responsibility and accountability for personal outputs.
- Demonstrate full responsibility and accountability for all aspects of the work or functions of others, including planning, budgeting and strategy.

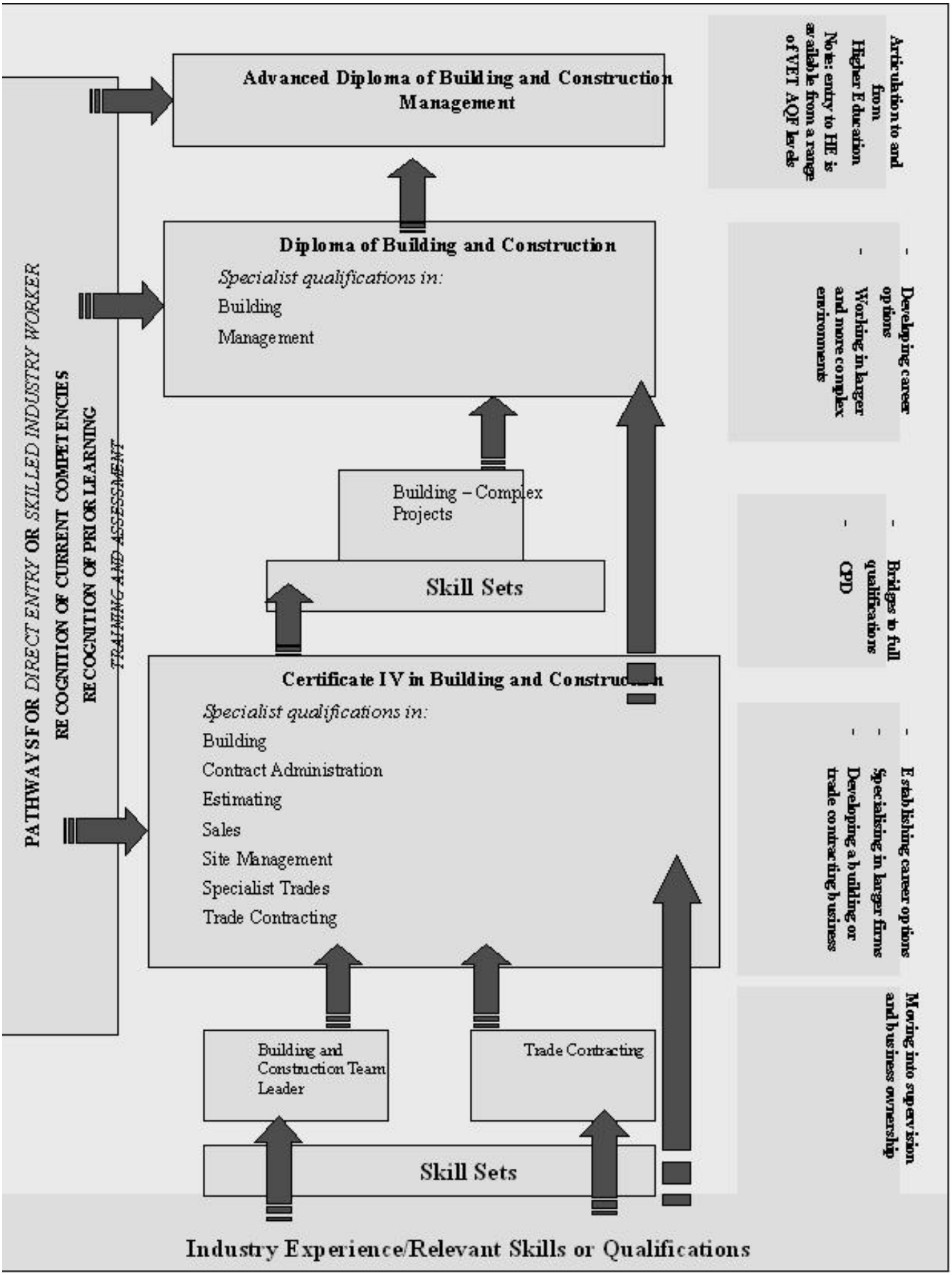
Training Pathways Outline

Entry levels and articulation are shown in the following diagrams:

ENTRY	CERTIFICATE		
	I	II	III
	General Construction (BCG 10103)		
		General Construction (BCG 20103)	
			Bricklaying/blocklaying (BCG30103)
			Carpentry (BCG30203)
			Concreting (BCG30303)
			Demolition (General Construction) (BCG30403)
			Dogging (BCG30503)
			Painting and Decorating (BCG30603)
			Rigging (BCG30703)
			Roof Tiling (BCG30803)
			Scaffolding (BCG30903)
			Solid Plastering (BCG31003)
			Steel Fixing (BCG31103)
			Wall and Ceiling Lining (BCG31203)
			Wall and Floor Tiling (BCG31303)
			Waterproofing (General Construction) (BCG31403)

Pathways to building surveying qualifications





Skill Sets

Definition

Skill sets are defined as single units of competency, or combinations of units of competency from an endorsed Training Package, which link to a licence or regulatory requirement, or defined industry need.

Wording on Statements of Attainment

Skill sets are a way of publicly identifying logical groupings of units of competency which meet an identified need or industry outcome. Skill sets are not qualifications.

Where skill sets are identified in a Training Package, the Statement of Attainment can set out the competencies a person has achieved in a way that is consistent and clear for employers and others. This is done by including the wording 'these competencies meet [the relevant skill set title or industry need is included]' on the Statement of Attainment. This wording applies only to skill sets that are formally identified as such in the endorsed Training Package.

All Statements of Attainment must include the wording 'A Statement of Attainment is issued by a Registered Training Organisation when an individual has completed one or more units of competency from a nationally recognised qualification'. The following may also be used 'these competencies form part of the [the relevant qualification(s) code and title are inserted]'.

This section below provides information on skill sets within this Training Package, with the following important disclaimer: **Readers should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.**

Skill Sets in this Training Package

Trade contracting

This skill set addresses the skills used by experienced tradespeople operating as a sole trader, or with limited staff, contracting their services to builders. The contractors may be in the early stages of developing and growing their newly established businesses.

The intent of the skill set is to provide an initial set of business skills to support contractors' existing trade skills.

The completion of this skill set provides a pathway to a range of Certificate IV qualifications.

BCGBC4004A	Identify and produce estimated costs for building and construction projects
BCGBC4024A	Resolve business disputes
BCGBC4034A	Apply codes and standards to building trade and services contracting
BSBCMN310A	Deliver and monitor a service to customers
BSBOHS403A	Identify hazards and assess OHS risks
BSBSBM401A	Establish business and legal requirements
BSBSBM406A	Manage finances
PLUS one of the following units:	
BCGBC4025A	Manage personal work priorities and professional development
BCGBC4031A	Process client requirements
BSBCMN420A	Write complex documents

The suggested form of words for inclusion on a Statement of Attainment is: These units from BCG03 General Construction Training Package meet industry requirements for experienced tradespersons performing trade contracting work in the construction industry.

Building, construction and services team leader

This skill set addresses the skills used by experienced tradespeople and operators who are moving into roles with additional responsibility and team leadership, typically in smaller businesses. The intent of the skill set is to identify the team leadership and other skills that will enable the development of staff under the supervision of an experienced site supervisor or builder. The completion of this skill set provides a pathway to a range of Certificate IV qualifications.

BCGBC4002A	Manage occupational health and safety in the building and construction workplace
BCGBC4009A	Apply legal requirements to building and construction projects
BSBFLM404A	Lead work teams

The suggested form of words for inclusion on a Statement of Attainment is: These units from BCG03 General Construction Training Package meet industry requirements for experienced tradespersons and operators working as building, construction and services team leaders in the construction industry.

Building - complex projects

The role of a builder requires the acquisition and use of a complex and diverse range of skills. The range and depth of skills required of a builder is amplified by the size and complexity of projects on which he or she works.

This skill set is designed as a 'bridge' for experienced builders already operating at the Certificate IV level who are preparing to undertake larger scale projects which may entail developing additional skills and also, possibly, seeking a higher level of builders' license in the relevant State/Territory. This skill set may be supported by a continuing professional development programs which are increasingly being required of builders.

The completion of this skill set provides a pathway to the Diploma qualification.

BCGBC5003A	Supervise the planning of on-site medium-rise building or construction work
BCGBC5007A	Administer the legal obligations of a building or construction contract
BCGBC5008A	Apply structural principals to the construction of medium-rise buildings
BSBFLM507B	Manage quality customer service
BSBPM505A	Manage project quality
BSBPM508A	Manage project risk

The suggested form of words for inclusion on a Statement of Attainment is: These units from BCG03 General Construction Training Package meet industry requirements for experienced builders in building-complex projects where it is necessary to apply a diverse range of skills to projects amplified by their size and complexity.

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the Australian Quality Training Framework (AQTF) *Standards for Registered Training Organisations*. Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements; licensing/registration requirements; and assessment pathways.

Benchmarks for Assessment

Assessment within the National Training Framework is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

In the areas of work covered by this Training Package, the endorsed units of competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the *Standards for Registered Training Organisations.*

The *Standards for Registered Training Organisations* can be downloaded from the DEST website at *www.dest.gov.au* or can be obtained in hard copy from DEST. The following points summarise the assessment requirements under the AQTF.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the *Standards for Registered Training Organisations*. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration. See Section 1 of the *Standards for Registered Training Organisations*.

Quality Training and Assessment

Each RTO must have systems in place to plan for and provide quality training and assessment across all its operations. See Standard 1 of the *Standards for Registered Training Organisations*.

Assessor Competency Requirements

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the *Standards for Registered Training Organisations* for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

Assessment Requirements

The RTOs assessments must meet the requirements of the endorsed components of Training Packages within its scope of registration. See Standard 8 of the *Standards for Registered Training Organisations*.

Assessment Strategies

Each RTO must identify, negotiate, plan and implement appropriate learning and assessment strategies to meet the needs of each of its clients. See Standard 9 of the *Standards for Registered Training Organisations*.

Mutual Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See Standard 5 of the *Standards for Registered Training Organisations*.

Access and Equity and Client Services

Each RTO must apply access and equity principles, provide timely and appropriate information, advice and support services that assist clients to identify and achieve desired outcomes. This may include reasonable adjustment in assessment. See Standard 6 of the *Standards for Registered Training Organisations*.

Partnership Arrangements

RTOs must have, and comply with, written agreements with each organisation providing training and/or assessment on its behalf. See Standard 1.6 of *Standards for Registered Training Organisations*.

Recording Assessment Outcomes

Each RTO must have effective administration and records management procedures in place, and must record AQF qualifications and Statements of Attainment issued. See Standards 4 and 10.2 of the *Standards for Registered Training*.

Issuing AQF Qualifications and Statement of Attainment

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the *AQF Implementation Handbook* and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued where the individual is assessed as competent against fewer units of competency than required for an AQF qualification. See Standard 10 and Section 2 of the *Standards for Registered Training Organisations*.

Industry advice for skilled delivery

The Construction and Property Services Industry Skills Council (CPSISC), on behalf of its industry, is committed to ensuring the quality of training and assessment outcomes. Critical to the achievement of this goal is the delivery of training and assessment services by skilled and experienced trainers and assessors.

In order to deliver the qualifications at Certificate IV to Advanced Diploma (excluding the Diploma and Advanced Diploma Building Surveying) within this Training Package, all trainers and assessors should have the following minimum competency, recognition and experience:

Certificate IV

Recommended construction industry requirements for trainers and assessors relative to relevant vocational competencies:

- relevant and current industry experience at a professional or para-professional level.

This may be evidenced by registration on the National Building Professionals Register (at either Levels 1 or 2) or registration on the National Building Technologists Register (at Level 1).

Examples of appropriate employment include:

- the principal or senior manager of a building practice constructing several complete houses a year
- project manager, contracts manager; site manager; quantity surveyor or general foreman on larger construction projects
- possession of the competencies being taught, and/or accepted by industry as subject matter experts, that will be evidenced by a relevant AQF qualification or other formal recognition at this or at a higher AQF level.

Examples of formal recognition are:

- proof of membership of a relevant professional body to at least Associate or Corporate (Chartered) level.

Diploma

Recommended construction industry requirements for trainers and assessors relative to relevant vocational competencies:

- relevant and current industry experience at a professional or para-professional level.

This may be evidenced by registration on the National Building Professionals Register (at level 1).

Examples of appropriate employment include:

- the principal or senior manager of a building practice working in the commercial construction sector and/or which completes a significant number of residential or commercial projects each year, including a number of concurrent projects
- project manager, contracts manager or other senior manager for a building practice working in the commercial construction sector and/or which completes a significant number of residential or commercial projects each year, including a number of concurrent projects
- possession of the competencies being taught, and/or accepted by industry as subject matter experts, that will be evidenced by a relevant AQF qualification or other formal recognition at this or at a higher AQF level.

Examples of formal recognition are:

- proof of membership of a relevant professional body to at least Corporate (Chartered) level.

Advanced Diploma

Recommended construction industry requirements for trainers and assessors relative to relevant vocational competencies:

- relevant and current industry experience at a professional or para-professional level.

This may be evidenced by registration on the National Building Professionals Register (at Level 1).

Examples of appropriate employment include:

- the principal or senior manager of a building practice working in the commercial construction sector and/or which completes a significant number of large scale and high rise projects each year including a number of concurrent projects
- project manager, contracts manager or other senior manager for a building practice working in the commercial construction sector and/or which completes a significant number of large scale and high rise projects each year, including a number of concurrent projects
- possession of the competencies being taught, and/or accepted by industry as subject matter experts, that will be evidenced by a relevant AQF qualification or other formal recognition at this or at a higher AQF level.

Examples of formal recognition are:

- proof of membership of a relevant professional body to at least Corporate (Chartered) level.

Licensing/ Registration Requirements

General construction

Licensing and registration requirements that apply to specific industries, and vocational education and training, vary between each State/ and Territory, and can regularly change. The developers of this Training Package, together with DEST, consider that the licensing/registration requirements described in this section apply to RTOs, assessors or candidates with respect to this Training Package. While reasonable care has been taken in its preparation, the developers of this Training Package and DEST cannot guarantee that the list is definitive or accurate at the time of reading; the information in this section is provided in good faith on that basis.

A number of occupations and roles within the building and construction are regulated in some or all of the States and Territories.

The regulatory authorities for the building and construction industry are:

Jurisdiction	Name of Regulatory Body	Address
Australian Capital Territory	ACT Planning and Land Authority	Second Floor South Dame Pattie Menzies House 16 Challis Street Dickson ACT 2602
New South Wales	Office of Fair Trading	Licensing and Industry Standards - Home Building Service Office of Fair Trading Level 4, 1 Fitzwilliam Street Parramatta NSW 2150
Northern Territory	Northern Territory Building Practitioners Board	First Floor Cavenagh House 38 Cavenagh Street Darwin NT 0800
Queensland	Building Services Authority	11 Edmondstone Street

		South Brisbane Qld 4101
South Australia	Office of Consumer and Business Affairs	Chesser House Level 3, 91-97 Grenfell Street Adelaide SA 5000
Tasmania	Building Standards and Regulation	30 Gordons Hill Road Rosny Park TAS 7018
Victoria	Building Practitioners Board	Level 27 Casselden Place 2 Lonsdale Street Melbourne VIC 3000
West Australia	Builders Registration Board	Parliament Court 18 Harvest Terrace West Perth WA 6005

Certification responsibilities and systems are administered by State legislation and may differ between States and Territories. In order to conduct assessments for statutory licensing or other industry registration conditions, assessors may need to meet additional requirements. While Registered Training Organisations may have information on the licensing requirements for their particular State or Territory, these requirements may change over time and differ between State and Territory jurisdictions. Assessors are therefore advised to contact the relevant licensing or registration body, details of which are outlined in the following chart.

The driving of plant on public roads will require the driver to obtain the relevant class drivers license from the relevant transport department or equivalent in their jurisdiction.

License/ Registration	Jurisdiction	Contact Details
Boom type elevating work platform (boom length 11m or more) Forklift truck Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist Explosive power tools Demolition Asbestos removal Vehicle loading crane (including and over 10m tonne)	Australian Capital Territory	ACT WorkCover www.workcover.act.gov.au

Concrete placing boom		
Boom type elevating work platform (boom length 11m or more) Forklift truck Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist Explosive power tools Formwork Welding Demolition Asbestos removal Vehicle loading crane (including and over 10m tonne) Concrete placing boom	New South Wales	WorkCover New South Wales www.workcover.nsw.gov.au
Boom type elevating work platform (boom length 11m or more) Industrial truck (forklift) operation Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist Vehicle loading crane (including and over 10m tonne) Asbestos Removal Concrete placing boom	Northern Territory	Northern Territory Work Health Authority www.deet.nt.gov.au/wha/
Operator of a boom type elevating work platform with a boom length of 11m or more	Queensland	Department of Industrial Relations (Workplace Health and Safety Division) www.dir.qld.gov.au

Operator of a fork lift truck (other than pedestrian operated) Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Man and materials hoist Vehicle loading crane (including and over 10m tonne) Concrete placing boom		
Boom type elevating work platform (boom length 11m or more) Forklift truck Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist Vehicle loading crane (including and over 10m tonne) Asbestos removal Concrete placing boom	South Australia	South Australia Workcover Corporation www.workcover.com
Boom type elevating work platform (boom length 11m or more) Forklift truck Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist	Tasmania	Workplace Standards Tasmania www.wst.tas.gov.au

Vehicle loading crane (including and over 10m tonne) Asbestos removal Concrete placing boom		
Boom type elevating work platform (boom length 11m or more) Forklift truck Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Materials hoist Personnel and materials hoist Vehicle loading crane (including and over 10m tonne) Asbestos removal Concrete placing boom	Victoria	Victorian WorkCover Authority www.workcover.vic.gov.au
Forklift truck (optional) Boom type elevating work platform (boom length 11m or more) Scaffolding - basic Scaffolding - intermediate Dogging Rigging - basic Rigging - intermediate Personnel and materials hoist Vehicle loading crane (including and over 10m tonne) Demolition Asbestos removal Concrete placing boom	Western Australia	Department of Consumer and Employment Protection (Worksafe) www.safetyline.wa.gov.au

Building Surveyors

In some States and Territories, building surveyors need to obtain accreditation/registration/license from the relevant State or Territory Authority to practice their profession. The relevant authorities in the States and Territories are indicated below.

All States and Territories have agreed to introduce a system of accreditation/registration for building surveyors. In the States and Territories where there is no statutory requirement at present for accreditation/registration/licensing, the local chapter of the Australian Institute of Building Surveyors offer accreditation to those who request it.

In order to conduct assessments for statutory accreditation/registration/licensing purpose the assessors in addition to the requirements stated in the Assessment Guidelines, assessors need to be accredited with (or have the ability to be accredited) with the Australian Institute of Building Surveyors at Assistant Building Surveyor (ABS) or Building Surveyor (BS) level. It is highly recommended that RTOs check with the relevant Authority or the local chapter of the Australian Institute of Building Surveying to find out about the latest assessor accreditation arrangements before commencing assessment activities

The regulatory authorities for building surveying are:

New South Wales - Planning NSW

www.planning.nsw.gov.au

Victoria - Building Control Commission

PO Box 536E, Melbourne Vic 3000

Queensland - Building Services Authority

www.bsa.qld.gov.au

Western Australia - There is no statutory requirement for accreditation at present.

South Australia - Planning SA requests that AIBS Chapter in SA accredits

Tasmania - The *Tasmanian Building Act 2000* requires building practitioners, including building surveyors, to be accredited.

Northern Territory - Building Practitioners Board NT

GPO Box 1680, Darwin NT 0801

Australian Capital Territory - There is no statutory requirement for accreditation at present.

Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.

Each of these assessment pathways leads to full recognition of competencies held - the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the *Standards for Registered Training Organisations*.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment

process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of Standard 8.2 of the *Standards for Registered Training Organisations* must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the relevant endorsed unit of competency)
- reliable (shows that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies
- existing workers
- individuals with overseas qualifications
- recent migrants with established work histories
- people returning to the workplace, and
- people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life

experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The *Standards for Registered Training Organisations* specify mandatory competency requirements for assessors. For information, Standard 7.3 from the *Standards for Registered Training Organisations* follows:

7.3	**a**	The RTO must ensure that assessments are conducted by a person who has:

		• the following competencies* from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:
		  • TAAASS401A Plan and organise assessment;
		  • TAAASS402A Assess competence;
		  • TAAASS404A Participate in assessment validation;
		• relevant vocational competencies, at least to the level being assessed.

	b	However, if a person does not have all of the competencies in Standards 7.3 **a** (i) and the vocational competencies as defined in 7.3 **a**(ii), one person with the competencies listed in Standard 7.3 **a**(i), and one or more persons who have the competencies listed in Standard 7.3 **a** (ii) may work together to conduct assessments.
		* A person who holds the competencies BSZ401A Plan assessment, BSZ402A Conduct assessment, and BSZ403A Review assessment from the Training Package for Assessment and Workplace Training will be accepted for the purposes of this standard. A person who has demonstrated equivalent competencies to BSZ401A and BSZ402A and BSZ403A in the period up to 12 months following publication of the Training and Assessment Training Package will also be accepted for the purposes of this standard.

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service (http://www.ntis.gov.au). Materials on the list have been noted by the National Quality Council as meeting their quality criteria for Training Package support materials.

Developing Assessment Tools

When developing assessment tools, assessors must ensure that they:

- are benchmarked against the relevant unit or units of competency
- are reviewed as part of the validation of assessment strategies as required under 9.2 (i) of the *Standards for Registered Training Organisations*
- meet the assessment requirements expressed in the *Standards for Registered Training Organisations*, particularly Standards 8 and 9.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the unit of competency TAAASS403A *Develop assessment tools*. There is no set format or process for the design, production or development of assessment materials.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

Assessments must meet the criteria set out in Standard 8 from the *Standards for Registered Training Organisations*. For information, Standard 8 from the *Standards for Registered Training Organisations* is reproduced below.

8		**RTO Assessments**
		The RTOs assessments meet the requirements of the endorsed components of Training Packages and the outcomes specified in accredited courses within the scope of its registration.
8.1		The RTO must ensure that assessments (including RPL):
	i.	comply with the assessment guidelines included in the applicable nationally endorsed Training Packages or the assessment requirements specified in accredited courses;
	ii.	lead to the issuing of a statement of attainment or qualification under the AQF when a person is assessed as competent against nationally endorsed unit(s) of competency in the applicable Training Package or modules specified in the applicable accredited course;
	iii.	are valid, reliable, fair and flexible;
	iv.	provide for applicants to be informed of the context and purpose of the assessment and the assessment process;
	v.	where relevant, focus on the application of knowledge and skill to standard of performance required in the workplace and cover all aspects workplace performance, including task skills, task management skills, contingency management skills and job role environment skills;

	vi.	involve the evaluation of sufficient evidence to enable judgements to be made about whether competency has been attained;
	vii.	provide for feedback to the applicant about the outcomes of the assessment process and guidance on future options in relation to those outcomes;
	viii.	are equitable for all persons, taking account of individual needs relevant to the assessment; and
	ix.	provide for reassessment on appeal.
8.2	a	The RTO must ensure that RPL is offered to all applicants on enrolment
	b	The RTO must have an RPL process that:
		i. is structured to minimise the time and cost to applicants; and ii. provides adequate information, support and opportunities for participants to engage in the RPL process.

Delivery and assessment of Employability Skills

Employability Skills are integral to workplace competency and, as such, must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below.

Training providers must analyse the Employability Skills information contained in units of competency in order to design valid and reliable learning and assessment strategies. This analysis includes:

- reviewing unit(s) of competency to determine how each relevant Employability Skill is found and applied within the unit
- analysing the Employability Skills Summary for the qualification in which the unit(s) is/are packaged to help clarify relevant industry/workplace contexts with regard to the application of Employability Skills at that qualification level
- designing learning and assessment activities that address the Employability Skills requirements.

For more information on Employability Skills in Construction and Property Services Industry Skills Council Training Packages go to the Construction and Property Services Industry Skills Council website at http://www.cpsisc.com.au.

Access and Equity

An individuals access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered reasonable if they do not impose an unjustifiable hardship on a training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

Industry Assessment Contextualisation 2

Assessment in the General Construction Industry

When assessing an area covered by a licence, or other regulatory requirement, the assessment must be conducted according to the requirements of the managing authority and according to the Assessment Guidelines contained within this Training Package. In the case of certificated occupations managed by a Regulator or NOHSC, assessment must be carried out by a certificated assessor in accordance with their guidelines. Interpretation and implementation of these guidelines are the responsibility of the relevant state or territory authority.

For further information on licensing requirements refer to:

the State/Territory Regulator listed in the Assessment guidelines; and/or

the National Occupational Health and Safety Commission or other relevant and current standards.

Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Contacts

Contact details for the National Network of Building and Construction Industry Training Advisory Bodies are as follows:

State or Territory	Organisation	Contact Details
New South Wales	Construction Industry Advisory Board (NSW) PO Box 1925 HORNSBY WESTFIELD NSW 1635	Chief Executive Officer Tel (02) 9987 4027 Fax (02) 9987 4072 Email: douglasg@citab.com.au
Queensland	Construction Training Queensland PO Box 28 SALISBURY QLD 4107	General Manager Tel (07) 3274 7999 Fax (07) 3276 7888 Email: info@ctq.com.au
Northern Territory	Major Industries Training Advisory Council GPO Box 1610 DARWIN NT 0801	Executive Director Tel (08) 8981 0077 Fax (08) 8922 9699 Email: tim@mitac.com.au
Western Australia	Building and Construction Industry Training Council (Inc) 1 st Floor	Executive Director Tel (08) 9381 3900 Fax (08) 9297 3635

	1152 Hay St WEST PERTH WA 6005	Email: bcticwa@bcticwa.com.au
South Australia	Construction Industry Training Board (SA) PO Box 1227 UNELY SA 5034	Chief Executive Officer Tel (08) 8172 9500 Fax (08) 8172 9501 Email: info@cpsisc.com.au
Tasmania	Tasmanian Building and Construction Industry Board PO Box 105 SANDY BAY TAS 7006	Executive Director Tel (03) 6223 7804 Fax (03) 6234 6327 Email: email@tbcitb.com.au
Australian Capital Territory	ACT Building and Construction Industry Training Council PO Box 882 DICKSON ACT 2602	Executive Director Tel (02) 6241 3977 Fax (02) 6241 3262 Email: citc@iimetro.com.au
National	Construction and Property Service Industry Skills Council PO Box 314 HALL ACT 2618	Chief Executive Officer Tel (02) 6230 2907 Fax (02) 6230 2849 Email: info@cpsisc.com.au

TVET Australia Ltd

Level 21, 390 St Kilda Road

MELBOURNE VIC 3004

PO Box 12211

A'Beckett Street Post Office

MELBOURNE VIC 8006

Telephone: (03) 9832 8100

Fax: (03) 9832 8199

Web: *www.atpl.net.au*

Email: sales@atpl.net.au

Innovation and Business Industry Skills Council

Building B, Level 2

192 Burwood Road

HAWTHORN VIC 3122

Telephone: (03) 9815 7000

Fax: (03) 9815 7001

Email: virtual@ibsa.org.au

General Resources

Refer to http://antapubs.dest.gov.au/publications/search.asp to locate the following ANTA publications.

AQF Implementation Handbook, third Edition. Australian Qualifications Framework Advisory Board, 2002, aqf.edu.au

Australian Quality Training Framework (AQTF) - for general information go to: www.dest.gov.au/sectors

Australian Quality Training Framework (AQTF) - for resources and information go to: www.dest.gov.au

Australian Quality Training Framework *Standards for Registered Training Organisations*, Australian National Training Authority, Melbourne, 2005. Available in hard copy from State and Territory Training Authorities or can be downloaded from www.dest.gov.au

TAA04 Training and Assessment Training Package. This is available from the Innovation and Business Skills Australia (IBSA) Industry Skills Council and can be viewed, and components downloaded, from the National Training Information Service (NTIS). National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses - www.ntis.gov.au*Style Guide for Training Package Support Materials*, Australian National Training Authority, Melbourne, 2003. Can be downloaded from the ANTA page at www.dest.gov.au

Assessment Resources

Training Package Assessment Guides - a range of resources to assist RTOs in developing Training Package assessment materials developed by DEST with funding from the Department of Education, Training and Youth Affairs. It is made up of 10 separate titles, as described at the ANTA publications page of www.dest.gov.au. Go to www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm

Printed and/or CD ROM versions of the Guides can be purchased from Australian Training Products (ATP). The resource includes the following guides:

1. Training Package Assessment Materials Kit
2. Assessing Competencies in Higher Qualifications
3. Recognition Resource
4. Kit to Support Assessor Training
5. Candidates Kit: Guide to Assessment in New Apprenticeships
6. Assessment Approaches for Small Workplaces
7. Assessment Using Partnership Arrangements
8. Strategies for ensuring Consistency in Assessment
9. Networking for Assessors
10. Quality Assurance Guide for Assessment

An additional guide "Delivery and Assessment Strategies" has been developed to complement these resources.

Assessment Tool Design and Conducting Assessment

VETASSESS & Western Australian Department of Training and Employment 2000, *Designing Tests - Guidelines for designing knowledge based tests for Training Packages*. Vocational Education and Assessment Centre 1997, Designing Workplace Assessment Tools, *A self-directed learning program*, NSW TAFE.

Manufacturing Learning Australia 2000, *Assessment Solutions*, Australian Training Products,

Melbourne.

Rumsey, David 1994, *Assessment practical guide*, Australian Government Publishing Service, Canberra.

Assessor Training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program - learning materials*, Australian Training Products, Melbourne.

Australian National Training Authority, *A Guide for Professional* Development, ANTA, Brisbane.

Australian Training Products Ltd *Assessment and Workplace Training, Training Package - Toolbox*, ATPL Melbourne.

Green, M, et al. 1997, *Key competencies professional development Package*, Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool*, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project - assessment systems and processes*, OTFE Victoria.

Toop, L., Gibb, J. & Worsnop, P. *Assessment system designs*, Australian Government Publishing Service, Canberra.

Western Australia Department of Training and VETASSESS 1998, *Kit for Skills Recognition Organisations*, WADOT, Perth.

BCGBC4001A Apply building codes and standards to the construction process for low-rise building projects

Unit Descriptor

This unit of competency specifies the outcomes required to access, interpret and apply relevant building codes and standards applicable to the construction processes of residential and low-rise commercial buildings ('low-rise' licensing classification with reference to Class 1 and 10 construction and Classes 2 to 9 with a gross floor area not exceeding 2000 metres square, not including Type A or Type B construction). To successfully construct low-rise buildings requires a thorough knowledge of the purpose and content of the Building Code of Australia (BCA) coupled with the ability to interpret other codes and standards related to a specific building.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, site managers and related construction industry professionals who have responsibility for ensuring compliance with building codes and standards in the residential and commercial construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Access and interpret relevant code and standard requirements.	1.1 Relevant performance requirements from the BCA that apply to individual projects (described as **low-rise**) are identified. 1.2 Requirements of relevant BCA deemed-to-satisfy provisions are determined. 1.3 Requirements of relevant Australian standards referenced in the BCA are accessed and interpreted accordingly.
2. Classify buildings.	2.1 Nature of a building according to use and arrangement is determined. 2.2 BCA criteria to determine the defined classification are applied. 2.3 BCA requirements for multiple classification are identified and interpreted.

3. Analyse and apply a range of solutions to a construction problem for compliance with the BCA.	3.1 Range of criteria that will ensure construction methods comply with the performance requirements of the BCA is determined. 3.2 Alternative solutions to a design or construction problem that will comply with the requirements of the BCA are discussed and proposed in accordance with company policies and procedures. 3.3 Performance based solutions are identified and documented in accordance with the requirements of the BCA. 3.4 ***Assessment methods*** referenced in the BCA to determine whether a Building Solution complies with ***performance requirements*** or deemed-to-satisfy (DTS) provision of the BCA are analysed and applied. 3.5 Relevant documentation is identified and completed in accordance with the requirements of the BCA.
4. Apply fire protection requirements.	4.1 Passive and active fire control elements for low-rise building required by the BCA and other legislation are identified and applied. 4.2 Level of fire resistance required for the construction of various low-rise buildings is determined. 4.3 Check of existing buildings for compliance with passive and active fire protection requirements is carried out in accordance with BCA requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and interpretation skills relating to documentation from a wide range of sources, including BCA and referenced documents
- application of design concepts and principles in accordance with BCA, namely:
  - Class 1 and 10
  - Classes 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- reading skills, including the interpretation of drawings and specifications
- technological skills to enable completion of documentation, calculations and measurements
- written and verbal communication skills.

Required knowledge:

- basic design principles and the behaviour of structures under stress, strain, compression, bending or combined actions
- BCA performance hierarchy
- definitions and common technical terms or usage specified under general provisions of BCA
- general nature of materials and the effects of performance
- interpretation and analysis of working drawings and specifications
- relevance of Australian standards
- relevant legislative and OHS requirements, codes and practices
- understanding of the BCA relating to:
  - Class 1 and 10
  - Classes 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Low-rise is described as falling within the BCA classes of:

- Class 1 and 10
- Classes 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction.

Assessment methods include:

- evidence of suitability as described in the BCA
- verification method as defined in the BCA
- comparison with BCA DTS provisions
- expert judgement as defined in the BCA.

Performance requirements include:	• the performance requirements of the BCA determined to be relevant to a specific project • performance requirements contained within other legislation applicable to a specific project • performance-based contractual requirements that must be fulfilled by any party.
Low-rise is described as falling within the BCA classes of:	• Class 1 and 10 • Classes 2 to 9 with a gross floor area not exceeding 2000 metres square, not including Type A or Type B construction.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the application of design principles and solutions specified in BCA performance requirements or deemed to satisfy provisions applicable to a particular building project. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • compliance with organisational quality procedures and processes
	  • application and interpretation of relevant documentation and codes
	  • accurate application of BCA performance requirements relating to the design and construction of a building
	  • demonstrated understanding of some Assessment Methods available to determine compliance with the BCA
	  • identification of faults and problems and proposed action to rectify.

Context of and specific resources for assessment

- Resource requirements for assessment include:
  - access to BCA and relevant documents referenced in the BCA
  - access to relevant legislation
  - project documentation, including design brief, design drawings, specifications, construction schedules and other supporting documents
  - research resources, including product information and data
  - relevant computer software package and suitable hardware.
  - Where applicable, physical resources should include equipment modified for people with disabilities.
  - Access must be provided to appropriate learning and/or assessment support when required.
  - Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.

BCGBC4002A Manage Occupational Health and Safety in the building and construction workplace

Unit Descriptor

This unit specifies the outcomes required to conduct an occupational health and safety (OHS) risk analysis, including the inspection of workplaces for hazards. The development and implementation of appropriate responses to reduce risks are also addressed, including responses required by state or territory legislation and regulation. The unit requires that candidates have a comprehensive and appropriate understanding of the complex range of legislative and workplace requirements for managing risk in building and construction workplaces.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons in the building and construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Determine areas of potential risk in the building and construction workplace.	1.1 ***Specific risks*** for the range of occupations in the workplace are identified and prioritised. 1.2 Construction site safety is evaluated and construction hazards and potential risk areas are identified in accordance with ***legislative requirements for OHS*** and company policies. 1.3 Hazards are identified and prioritised and required approaches to remediation are documented.
2. Inspect and report on areas of specific risk.	2.1 Inspection of the workplace is conducted to identify specific risks for the range of identified occupations. 2.2 Expert advice and advice from workplace personnel is sought as appropriate. 2.3 ***An inspection report*** is completed in accordance with best practice and statutory obligations.
3. Advise on implementation of control measures at the building and construction workplace.	3.1 Recommendations are made from findings of inspection report. 3.2 ***Relevant parties*** are consulted regarding compliance issues relating to statutory requirements. 3.3 Agreed control measures are implemented in conjunction with relevant ***workplace personnel***. 3.4 The effectiveness of control measures is monitored and reviewed.

4. Establish and review communications and educational programs.	4.1 Effective strategies for communicating occupational health and safety policy and practice are determined in consultation with appropriate personnel. 4.2 ***Communication strategies*** and ***educational programs*** specific to the building and construction industry and in accordance with statutory requirements and best practice are established. 4.3 The effectiveness of the communication and educational programs are reviewed.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of regulatory requirements, including safe work method statements and plans such as site safety plans
- appropriate literacy and numeracy skills
- communication skills
- initiative and investigation skills to be able to inspect the workplace and identify risks and hazards not immediately obvious
- inspection skills
- interpretation and application skills
- interviewing skills
- maintaining of records and documents
- negotiation/conflict resolution skills
- OHS auditing skills
- report writing skills
- research skills
- self-management skills to be able to monitor and evaluate the effectiveness of educational programs developed
- teamwork skills to ensure effective collaboration with relevant stakeholders
- technical skills in building and construction processes relevant to the workplace
- technological skills to be able to effectively use office software and equipment.

Required knowledge:

- current workplace/OHS legislation and advisory standards as applicable to each State or Territory, such as:
  - Plant Advisory Standard
  - Concrete Pumping Supplement
  - Work on Roofs Advisory Standard
  - Falling Objects Advisory Standard
  - Falls from Heights Advisory Standard
  - Steel Construction Advisory Standard
  - Excavation Advisory Standard
  - Scaffolding Advisory Standard
  - Demolition Advisory Standard
  - Formwork Advisory Standard
  - Construction Workplace Advisory Standard
  - Manual Handling in the Building Industry Advisory Standard
  - Asbestos Advisory Standards
  - Noise Advisory Standard
  - building and construction industry contracts
  - other relevant state or territory building and construction codes, standards and government regulations.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Specific risks for various occupations within the building and construction industry relate, but are not limited, to:

- falls from height
- falling objects
- scaffolding
- fall protection and access equipment
- formwork
- cranes, hoists and lifting gear
- pressure equipment
- welding, cutting and gouging processes in the construction industry in particular, oxy-acetylene
- commonly used high risk construction equipment, including:
  - lasers
  - explosive powered tools
  - compressed air nailing tools
  - ladders
  - high pressure jetting systems
  - material conveyors
- other commonly used construction equipment, including:
  - concrete mixers
  - manually operated power tools
  - hand held tools
  - wheelbarrows
  - mechanical trowels
- demolition, including asbestos removal
- spray painting
- working on roofs
- abrasive blasting
- working at heights
- pre-stressing and post-tensioning operations
- civil construction work, including excavation and trenching work
- masonry and concrete cutting
- steel fixing
- precast concrete manufacture installation
- concrete pumping
- steel construction
- protruding objects
- stacking and storing materials
- exposure to ultra violet light (UVL)
- environmental conditions
- Class 1 electrical work.

Legislative requirements for OHS must be adhered to in all planning and implementation stages, noting that:

- OHS requirements are to be in accordance with state or territory legislation and regulations and may include:
  - protective clothing and equipment
  - use of tools and equipment
  - workplace environment and safety
  - handling of materials
  - use of fire fighting equipment
  - use of first aid equipment
  - hazard control and hazardous materials and substances.
- personal protective equipment may include that prescribed under legislation, regulation and workplace policies and practices
- safe operating procedures may include but are not limited to:
  - recognising and preventing hazards associated with the use of tools and equipment
  - trip hazards
  - underground services
  - surrounding structure and facilities
  - hazardous materials
  - other machines
  - working at heights
  - working in proximity to others
  - worksite visitors/the public
  - working in confined spaces
- environmental requirements to cover water quality management must address waste management, stormwater protection and clean-up protection
- legislative requirements may require the development and use of site safety plans and safe work methods statements.

An inspection report may include:

- prescribed self assessment tools identified by a relevant state or territory authority (relevant legislation must be applied)
- check lists
- hazard sheet
- company safety procedure forms.

Relevant parties include but are not limited to:

- designers
- manufacturers and importers
- suppliers of plant
- principal contractors
- employers
- self employed persons/subcontractors
- workers
- persons in control of workplaces
- members of site safety committees.

Workplace personnel include but are not limited to:

- principal contractors
- employers
- self employed persons/subcontractors
- workers
- persons in control of workplaces
- members of site safety committees.

Communication strategies and methods may include but are not limited to:

- verbal communications
- issued site specific instructions and signage
- written communications including memos and emails.

Educational programs may include but are not limited to:

- general and site-specific induction training -noting that occupational health and safety induction training provided must meet the requirements of the jurisdiction in which the construction work is undertaken
- other forms of specialist and targeted training.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of mechanical principles and concepts in accordance with the range statement and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - sourcing and analysing legislative and planning requirements for OHS on the building and construction workplace
- producing effective inspection reports requiring:
  - identification of building and construction site specific workplace hazards
  - inspection of specific occupational interest and identification of potential risk
  - the capacity to advise on implementation of control measures at the construction workplace
  - establishing and reviewing educational programs with relevant parties.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - current copy of relevant state or territory OHS legislation, Act/regulation and advisory standards for first aid
  - samples of workplace incident data and incident reports
  - other relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.

BCGBC4003A Select and prepare a construction contract

Unit Descriptor

This unit specifies the outcomes required to select and prepare appropriate construction contracts including the sections, clauses and conditions for lowrise construction projects. The ability to interpret complex documents, communicate clearly and succinctly and negotiate are essential skills.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, project managers, estimators and managers in the building and construction industry who have a responsibility for selecting and preparing contracts for building work.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and analyse the essential elements, sections and clauses of a business contract.	1.1 Various types of ***building and construction contracts*** are identified and the appropriate application of each type is analysed. 1.2 The essential terms and elements of a valid contract are identified and analysed. 1.3 The importance of identifying an intention to create legal relations is analysed. 1.4 The rights and liabilities of parties under a contract are identified and analysed. 1.5 Common building contract terms and procedures are identified and applied. 1.6 Circumstances that bring about a breach of contract are identified and analysed. 1.7 Legislative requirements are identified and applied.
2. Select an appropriate contract for the works to be undertaken.	2.1 A contract, appropriate for the type of construction, is accurately selected. 2.2 The ***range of documents*** that collectively make up a contract is accurately identified and prepared. 2.3 The requirements associated with an offer and acceptance of a contract are accurately identified and applied. 2.4 The capacity of the parties to form a binding agreement in the form of a contract is confirmed. 2.5 Factors associated with the parties' consent to a contract are identified and applied.

3.	Prepare the contract.	3.1 Expert advice is sought as required in the preparation of the contract. 3.2 The impact of factors leading to the ***termination of a contract*** are defined, analysed and assessed during the preparation of the contract. 3.3 Contract rise and fall amounts are accurately calculated during the preparation of the contract. 3.4 The schedule of progress payments is assessed and included in the preparation of the contract. 3.5 Processes for applying for extensions of time are included in the preparation of the contract. 3.6 The final contract is prepared in consultation with relevant personnel and in accordance with the accepted processes of the organisation and legal requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- negotiation
- oral and written communication skills to facilitate effective communication by phone, facsimile, email or in writing, with members of the organisation and external parties, including clients and subcontractors, and to facilitate drafting detailed responses to queries relating to the finer points of contracts
- problem solving
- reading and comprehension skills to facilitate understanding and interpretation of complex legal text.

Required knowledge:

- definitions and interpretations commonly applied to contracts
- legal meanings of terms and clauses in building and construction contracts
- relationships between the organisation and its clients
- various contract types and the circumstances they cover.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Building and construction contracts relevant to the sector and enterprise needs may include:

- individual organisational contracts
- JCC Suite
- SBW2 Lump Sum
- CIC Suite
- MBA, HIA or other standard industry contracts
- Australian standard contracts (including the AS2124 and AS4000 series)
- SBW series contracts
- contracts required or supplied by regulatory authorities or state or territory legislation.

Range of documents includes:

- plans, drawings and specifications
- schedules
- project timelines
- materials lists
- human resource projections
- equipment, site accommodation and services information.

Factors related to the ***termination of a contract*** include definitions and applications of:

- repudiation of a contract by one party and its agreed definition
- unreasonable or vexatious notice
- conditions for completion at the cost of the contractor
- the effect of ousting the contractor from the building or construction
- abandonment of a contract
- relevant legislation and contract provisions.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- Competency is to be demonstrated by the selection and development of appropriate contracts which meet organisational and industry standards and which relate to at least one of the industry areas listed in the unit descriptor.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- It is essential that competence is demonstrated in the relevant aspects of contract selection, insertion of appropriate clauses, including rise and fall and progress payments.
- A person who demonstrates competency in this unit must be able to provide evidence of:
  - selection of the right contract for the particular project
  - selection of the appropriate clauses and conditions within the contract
  - identification of the causes of a breach of contract
  - specification of the requirements for the offer and acceptance of a contract
  - specification of the requirements for the termination of a contract
  - accurate calculation of rise and fall amounts
  - specification of the schedule for progress payments
  - specification of requirements for extensions of time
  - inclusion of all related documentation
  - reference to all relevant legislation.
- Persons demonstrating competence in this unit must be able to communicate effectively in English to the extent that they can discuss workplace issues clearly and without ambiguity during a normal telephone conversation.
- This unit requires the ability to read and interpret contracts, specifications, construction schedules and reports.
- Writing is required to the level of completing memos, schedules and evaluative reports and communicating complex ideas and alternatives.
- Numeracy is required at a level which supports the calculation of rise and fall amounts applicable to changed contractual circumstances.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in either a Building or Construction office
  - relevant codes, standards and government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4004A Identify and produce estimated costs for building and construction projects

Unit Descriptor

This unit specifies the outcomes required to establish the estimated costs associated with the acquisition of materials and labour on building and construction sites together with the application of relevant overhead costs and margins. Knowledge of physical resource and supplier identification, assessment of the availability of and requirements for skilled labour and application of appropriate codes, regulations and approvals gaining processes is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of estimators, builders, managers and trade contractors within the construction industry who have a responsibility for producing estimated costs for labour, materials, overheads and on-costs on various residential and commercial construction projects within their scope of work as a trade contractor or builder.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Read and interpret plans and/or specifications.	1.1 Appropriate plans and drawings are correctly identified. 1.2 Project ***plans and specifications*** are read and understood. 1.3 Levels, heights, gradients and other measurements are interpreted. 1.4 Measurements are made and quantities identified from plans and specifications and which conform to standard industry practice.
2. Identify and calculate labour costs.	2.1 The types and numbers of appropriate on-site personnel are identified and the time required on-site is estimated. 2.2 The labour hours for non-contract elements of on-site work are calculated. 2.3 The costs or rates for required on-site work are calculated.
3. Identify and establish physical resource requirements.	3.1 Physical resource requirements are identified. 3.2 Lists of materials are produced and quantities calculated. 3.3 Quantities against project or standard construction contracts are established. 3.4 Supplier prices for materials and consumables are obtained. 3.5 ***Plant or equipment requirements*** are identified and costed.

4. Develop estimated project costs.	4.1 Appropriate labour rates and material costs are selected and applied. 4.2 Estimates of ***unit costs***, as appropriate, are determined and applied. 4.3 Costs to the project of WorkCover, environmental protection agency requirements, seeking approvals, waste management site fees and other statutory or additional costs are identified and applied. 4.4 Company overhead recovery and margins are applied. 4.5 Completed estimated ***project costs*** for inclusion in a tender or bill are calculated.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- calculate labour hours and costs
- calculate materials quantities and costs
- extrapolate labour and materials costs from written information
- read drawings and specifications
- technological skills to facilitate use of the organisation's software and office technology, including appropriate costing software programs
- utilise appropriate costing software programs.

Required knowledge:

- national codes, including Building Code of Australia and the Plumbing Code of Australia, and Australian standards relevant to the industry sector
- state or territory and local government building and construction codes, standards and government regulations relevant to the form of building or construction being undertaken (eg WorkCover, EPA)
- types of building and construction drawings and specifications
- types, scope and usage of labour through the employee and subcontractor systems
- operation and structure of organisational costing and contracting system.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Plans and/or specifications include:	• sketches or drawings • statements of requirements • materials lists and quantity schedules • building codes • materials specifications.

Plant or equipment requirements include:

- on-site equipment such as compressors, pumps, generators, portable lighting, lifting equipment and portable compaction equipment etc
- heavy equipment such as wheeled and tracked earthmoving equipment, trucks and articulated vehicles
- mobile and/or tower cranes
- hoists
- conveyors
- communications equipment.

Unit costs may include but are not limited to the cost of:

- tiling per square metre
- painting per square metre
- masonry walls per metre square
- construction cost per square metre
- installation of sanitary ware per unit
- laying of foundation per metre
- laying of slabs per metre square
- installation of pipes per metre
- laying of steel tray roofing per metre square.

Project costs include:

- organisational and subcontract labour hours
- project administration costs
- overheads
- building or construction materials
- cost of meeting statutory requirements e.g. EPA
- waste removal fees
- fuels, lubricants, consumables
- site facilities such as offices, toilets, lunch rooms
- communications costs.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the preparation of a detailed estimate of labour, materials and other project costs as part of the preparation of a tender or bill for a residential or commercial construction project that is relevant to the specific trade(s) or sector.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identifying the materials required for a project
  - gathering information about material supply
  - interpreting measurements and calculating quantities and costs
  - planning and allocating human resources
  - identifying and costing other related costs such as those required to meet statutory and planning approval processes
  - producing documentation which meets the timeframes and quality standards established by the organisation
  - communicating effectively, both verbally and in writing.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, and government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4005A Produce labour and material schedules for ordering

Unit Descriptor

This unit specifies the outcomes required to produce schedules of resource requirements, so that orders can be placed for materials and labour for residential and commercial projects, and to record and track costs as they are incurred. Knowledge of codes, regulations and approvals processes, contractor systems, physical resource and supplier identification, and the ability to assess the availability of and requirements for skilled labour, are essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of site managers and forepersons, estimators, project managers, builders and managers in the construction industry with a responsibility for producing schedules for ordering materials and labour.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and apply all contract conditions to the schedules.	1.1 All contractual requirements are included in the schedules. 1.2 ***Local government and regulatory bodies'*** conditions of approval are included in the schedules. 1.3 Colour selections are included in the schedules. 1.4 Variations to contracts, raised by the client or the builder are included in the schedules.
2. Produce material and labour schedules, overlays and orders.	2.1 Nominated suppliers and contractors are detailed in work schedules. 2.2 Relevant overlay drawings are produced. 2.3 Contract details and instructions are included in orders. 2.4 Contract rates are applied to material and labour schedules.
3. Prepare site files.	3.1 All necessary site documents are included including approved ***plans and specifications***. 3.2 Call forward sheets are prepared detailing all orders.
4. Monitor and report on project costs.	4.1 ***Project costs*** are analysed against estimates during construction. 4.2 Approved variation costs are analysed. 4.3 A final project cost analysis is provided.
5. Maintain standard costs data files.	5.1 Approved variation cost increases are incorporated into site files. 5.2 Changes to standard plans, specifications and cost files are included in site files.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- reading skills to facilitate interpretation of drawings, contracts and specifications.

Required knowledge:

- operations and structure of organisational costing and contracting system
- state or territory building and construction codes, standards and regulations relevant to the form of building or construction being undertaken
- types of building or construction drawings and specifications
- types, scope and usage of labour through the employee and/or contractor systems.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Local government and regulatory bodies include:

- Shire or Municipal Councils
- water corporations or supply authorities
- health departments
- electricity supply authorities
- environmental authorities.

Plans and specifications include:

- plans, sketches or drawings
- colour selections
- statements of requirements
- materials and labour schedules
- building codes
- materials specifications
- contract requirements.

Project costs include:

- organisational and subcontract labour costs
- project administration costs
- overheads
- building or construction materials
- fuels, lubricants and other consumables
- site facilities such as toilets and storage sheds
- communications costs
- Professional Indemnity and other insurance costs.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed on the preparation of schedules for materials and labour for a sample building project.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identifying the materials required for the project and gathering supply information effectively
  - planning and allocating human and physical resources
  - producing documentation which meets the timeframes and quality standards established by the organisation
  - communicating information effectively within the organisation, to external agencies and to the client, as required.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4006A Select, procure and store construction materials for low-rise projects

Unit Descriptor

This unit specifies the outcomes required to supervise the systems through which materials are typically selected, acquired and stored on site for projects described by the Building Code of Australia as lowrise building or construction work ('low-rise' licensing classification with reference to Class 1 and 10 construction and Class 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction). It ensures the delivery to the site of materials which meet contract specifications and service requirements for low-rise projects.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, related construction industry professionals and managers within building and construction firms who have the responsibility for supervising and applying quality standards to the selection of construction materials. To achieve the outcomes for this unit, knowledge of relevant building construction materials and technologies, environmental effects on materials and evaluation procedures is required.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and evaluate the properties of building materials.	1.1 The suitability of ***materials*** commonly used in the region for ***low-rise*** buildings is identified for a given building system. 1.2 The properties of materials, their quality and the compatibility and non-compatibility of different materials are identified. 1.3 The environmental impacts of different materials are identified. 1.4 The impact of allowable tolerances on the conversion of naturally occurring materials is identified. 1.5 The tolerances for installing and assembling materials are identified and checked in regard to the nature of the work being performed and the requirements of the Australian standards.

2. Ensure suitable building materials are selected for application.	2.1 Materials that are structurally adequate and appropriate for the building system specified in the contract are selected. 2.2 Materials are selected for their safety, required fire resistance rating, suitability to the application, durability, serviceability, cost effectiveness and compliance with Australian standards. 2.3 Short and long-term degradation of materials is considered in relation to the building's proposed life cycle. 2.4 Alternative materials are evaluated and selected if specified materials are unavailable or unsuitable. 2.5 The selection of materials for use is finalised in accordance with contractual requirements and in consultation with relevant professionals and the client.
3. Supervise the acceptance, safe handling and storage of materials on site.	3.1 Limitations and effects of transportation on materials and components are determined and action is taken in the case of potentially damaging circumstances. 3.2 ***Materials are handled correctly and safely*** on site using appropriate equipment and safe working practices. 3.3 Materials are stored in accordance with manufacturer specifications and in compliance with the relevant Australian standards. 3.4 Processes are implemented for inspecting all materials delivered on-site for naturally occurring and/or manufactured defects before installation. 3.5 Personnel are aware of actions to be taken in the case of defects caused by incorrect installation, application or placement. 3.6 Timber is preserved and ferrous and non-ferrous metals which are used in the construction process are protected using established methods.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and report preparation
- application of safe work practices and materials handling
- development and management of standardized processes
- supervision
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- alternative materials
- building and construction materials and technologies
- Building Code of Australia (Class 1 and 10 and Class 2 to 9 with a gross floor area not exceeding 2000m2 but not including Type A or Type B construction)
- construction/contracting equipment and its use
- construction supply processes
- environmental effects on various building and construction materials
- relevant Australian standards
- relevant state or territory building and construction codes, standards and regulations
- testing procedures
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Materials commonly used in low-rise buildings include but are not limited to:

- concrete
- engineered timber products
- cements
- masonry units
- mortars
- glass
- flooring
- paints/coatings
- ceramics
- plasterboard
- plasterglass
- roofing
- framing
- structural steel.

Low-rise buildings are described within the BCA as:

- Class 1 and 10
- Class 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction.

Material suitability is identified by a range of processes, including:	• arranging relevant, industry standard, on-site quality tests for products to be used in low-rise buildings • arranging, industry standard, external quality tests or inspections and provision of results as necessary • referencing external reports, manufacturer specifications • analysing reports, manufacturer specifications or other reference material regarding the suitability of new building material technologies with reference to the BCA requirements • seeking expert appraisal from relevant industry professionals, including architects, designers, engineers • refusing acceptance of substandard or out of specification materials.
Records of materials testing are kept and reported by:	• obtaining appropriate records and reports for review and analysis • distributing copies in accordance with organisational policy • proving advice and information to regulatory authorities as authorised by the organisation • following up reports that indicate departures from quality or manufacturing requirements • taking appropriate remedial action within the scope of the individual's authority.
The decision making to ensure appropriate material are selected includes:	• identifying materials from specifications and drawings • identifying specifications and standards described in the contract documents • selecting and ordering materials which meet those requirements • arranging for expert advice as necessary to confirm or refute materials options.
Materials are handled correctly and safely by:	• ensuring the correct materials are being delivered to the correct site • undertaking quality checks within the competence of the individual • confirming products or materials are as ordered and signing off delivery documentation • allocation of space for on-site storage of materials • ensuring safe unloading and handling of construction materials • providing for adequate on-site security of materials • ensuring safe use of hazardous materials and complying with any statutory or regulatory requirements.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective supervision and application of quality standards to the identification selection and storage of the range of relevant construction materials cited in the range statement.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identification of suitable building and construction materials specified by the project or contract
  - the extent of effective verbal and written communication with manufacturers and suppliers of materials
  - effective and efficient testing of the materials to maintain quality standards onsite
  - effective sampling and record keeping processes
  - safe handling and storage of materials
  - compliance with organisational and legislative requirements.

Context of and specific resources for assessment

- The following resources should be made available as appropriate:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4007A Plan building or construction work

Unit Descriptor

This unit specifies the outcomes required to plan on-site activities, including the employment of physical and human resources and the development of documentation and advice for relevant authorities concerning residential and commercial projects. The ability to identify appropriate resources and suppliers, assess the availability of and requirements for skilled labour are essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers, forepersons and other professionals in the construction industry who have a responsibility to plan on-site construction work.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Appraise the contract documentation to identify the operational requirements.	1.1 The ***contract documentation*** is reviewed to identify any unusual aspects of construction, use of materials or penalties. 1.2 The availability of selected subcontractors to suit the job requirements is ascertained. 1.3 The availability of materials is assessed and confirmed with suppliers. 1.4 Site access requirements and limitations are identified and actions taken to facilitate entry. 1.5 ***Documentation for the authorities controlling construction work*** is prepared and the commencement date for the project is determined. 1.6 Procedures for controlling and recording site deliveries are implemented.
2. Implement strategies for construction operations.	2.1 ***Organisational strategies for implementing construction operations*** are identified. 2.2 Procedures for recording the hire of plant and equipment are implemented. 2.3 Organisational Health and Safety (OHS) policy and procedures are implemented, including hazard and risk management. 2.4 Procedures for the removal of existing services and hazardous materials are implemented in accordance with Environment Protection Agency requirements. 2.5 Procedures for the control of multiple projects are followed.
3. Prepare project schedule.	3.1 Construction operations are sequenced. 3.2 Operations details are entered into a manually prepared ***project schedule*** or computer based software package. 3.3 The critical path of the project is defined and revised as required. 3.4 Project timeframes are adjusted to account for anticipated delays.

4. Determine all the resources required.	4.1 Temporary services and site accommodation requirements are determined and documented. 4.2 Plant requirements and availability dates are determined and documented with reference to contract documentation. 4.3 On-site labour requirements are determined and documented with reference to contract documentation.
5. Prepare and submit condition reports.	5.1 Reports on the condition of existing building/s and structures on adjacent site boundaries are completed. 5.2 Copies of condition reports are forwarded to the owners of adjacent building prior to commencing construction.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- oral and written communication skills to communicate effectively by telephone, facsimile, email and in writing
- reading skills to follow instructions in matters concerning organisational policy.

Required knowledge:

- application of project management and critical path techniques to the organisation of materials, plant and people
- building and construction industry subcontractor system
- building, construction or civil construction practices in on-site project management
- internal documentation systems
- relevant state or territory building and construction codes, standards and government regulations
- regulatory approvals processes and timeframes
- types of building and construction industry contracts
- types of plant and equipment employed in the undertaking of organisational projects.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Contract documentation relevant to the sector and/or enterprise may include:	• individual organisational contracts • JCC Suite contracts • SBW2 Lump Sum • CIC Suite contracts • MBA and HIA contracts • Australian standard contracts (including the AS2124 and AS4000 series) • SBW series contracts.

Documentation for the authorities controlling construction work includes:

- applications for permits and service connections
- copies of plans, drawings and specifications
- environmental applications
- parking restriction applications.

Organisational strategies for implementing construction operations include:

- purchasing processes for building supplies or construction materials
- calling for tenders for subcontract operations
- advertising for tradespersons and other employees
- appointing project managers and construction supervisors
- briefing organisational personnel
- refining project critical path information.

A project schedule includes:

- human resource schedules
- schedules of plant and equipment
- materials delivery schedules
- project critical path
- project timeframes.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by preparing a project schedule and the associated documentation for a sample construction project.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identifying supplier alternatives and gathering supply information effectively
  - planning and allocating human resources effectively
  - producing documentation which meets the timeframes and quality standards established by the organisation
  - communicating information effectively within the organisation, to external agencies, as required, and to the client
  - identifying and communicating with the appropriate regulatory authorities to gain the necessary approvals.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4008A Conduct on-site supervision of the building and construction project

Unit Descriptor

This unit specifies the outcomes required to supervise the implementation of administration processes relating to residential and commercial construction projects. The ability to administer payments, supervise onsite communications, ensure compliance with quality control and record keeping processes are essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of site managers and forepersons, builders and managers with a responsibility for the administration of construction work.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Supervise the administration of claims and payment processes.	1.1 Contract payments are made in accordance with the contract allowance or orders. 1.2 Drawings against allowances are carried out in accordance with organisation policy or procedures. 1.3 Variations to contracts are authorised and corrective action taken where necessary. 1.4 Back-charges are applied in accordance with policy guidelines. 1.5 Payment of invoices for material supply is authorised. 1.6 Insurance claims for site loss or damage are completed and processed. 1.7 Administrative processes are conducted and supervised with reference to relevant ***regulatory and organisational requirements.***
2. Supervise and maintain onsite communications.	2.1 A diary of ***on-site communication*** and events is maintained, including communications with clients, contractors, inspections, union matters and suppliers. 2.2 File notes detailing specific instructions are prepared and issued. 2.3 Site reports detailing specific supervisory inspections are prepared and kept. 2.4 Variation requests or requirements are communicated to the appropriate person. 2.5 Requests for extensions of time are communicated to the appropriate person. 2.6 Notice of unsatisfactory work is communicated in writing to the appropriate individual(s). 2.7 Administrative processes are conducted and supervised with reference to relevant regulatory and organisational requirements.

3. Ensure management of and compliance with quality control procedures.	3.1 The relevant ***quality control procedures*** are identified. 3.2 Site checklists detailing specific items to be inspected at appropriate stages are utilised and completed. 3.3 Industry and organisational quality manuals or procedures are used in managing the quality process. 3.4 Local Authority inspections are arranged. 3.5 Quality requirements are communicated to on-site personnel and building work is assessed against construction standards. 3.6 Processes are put in place to supervise on-site work to ensure the performance of work to industry, regulatory and contractual standards. 3.7 Contractual quality standards are met.
4. Complete project administration processes.	4.1 The ***project administration processes*** and preparation for practical completion are carried out in accordance with the contract requirements and company policy. 4.2 The practical completion inspection procedure is identified, communicated to the client and applied on-site. 4.3 Hand-over procedures are identified and carried out in accordance with organisational policy. 4.4 Certificates and appropriate client information are provided at handover, including termite protection and appliance warranties. 4.5 Defects liability items are obtained from clients. 4.6 Defects are rectified and client sign-off is obtained. 4.7 Administrative processes are conducted and supervised with reference to relevant regulatory and organisational requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of contract terms and conditions
- application of quality processes
- communications skills to facilitate on-site meetings and dispute resolution
- interpersonal skills relevant to the supervision and monitoring of work processes
- written communication skills to facilitate the development and maintenance of accurate site records and the accurate completion of site reports.

Required knowledge:

- building and construction industry contracts payment system and obligations
- building and construction industry standards
- contract variation procedures and associated documentation requirements
- contracts employed in the building and construction industry
- certification requirements arising from work performed under regulations or local authority requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Regulatory and organisational requirements include:

- building approval conditions
- plans and specifications
- engineer reports
- safety management plans
- planning and scheduling
- wage and taxation requirements
- contract documents
- site consultations.

On-site communication includes:

- communicating with regulatory authorities and ensuring conformity with the relevant requirements
- maintaining environmental controls and obligations
- allocating and managing human recourses
- applying communication and interpersonal skills to facilitate dispute prevention and resolution
- dispersal and scheduling of plant and equipment
- placing orders for supplies or equipment
- participating in on-site meetings
- managing expenditures.

Quality control procedures include:

- quality checklists
- reviews of plans and specifications with clients
- checking materials supplied to the site
- comparing materials against specifications
- regular on-site progress and quality checks.

Project administration processes include:

- progress payments
- contract variations
- determining project progress
- inspections
- obtaining required certification
- defect identification and rectification.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the supervision of administration processes relating to a residential or commercial construction project, including the administration of payments, the supervision of on-site communications, compliance with quality control and record keeping processes.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - administering claims, variations, and drawings for work done and materials supplied in accordance with relevant regulatory and organisational requirements
  - establishing functional on-site communication systems which include the systematic gathering of information on site events
  - implementing a site safety policy
  - maintaining and monitoring on-site quality processes
  - assessing work against construction quality standards and ensuring that rework is carried out
  - administering on-site project completion procedures and informing the client as required.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4009A Apply legal requirements to building and construction projects

Unit Descriptor

This unit of competency specifies the outcomes required to apply legal requirements to building and construction projects of residential and lowrise commercial buildings ('low-rise' licensing classification with reference to Class 1 and 10 construction and Classes 2 to 9 with a gross floor area not exceeding 2000 metres square, not including Type A or Type B construction). Application of legal requirements includes the capacity to ensure compliance with all contractual requirements. A thorough knowledge of the application of current legal and regulatory requirements is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers, forepersons, estimators and other construction industry personnel who have the responsibility to apply legal requirements to residential and low-rise commercial building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply the laws relating to builder licensing or registration.	1.1 The ***licensing or registration legislation*** relevant to the region is researched and identified. 1.2 The classifications for builders, supervisors and managers are applied.
2. Apply OHS legislation and provisions on site.	2.1 The main provisions of ***OHS legislation*** and regulations are researched and identified and local legislative requirements are met. 2.2 The regulations and codes applicable to on-site construction are identified, applied and monitored. 2.3 Site safety signage requirements are identified and applied.
3. Apply the codes, Acts and regulations, and standards relevant to construction.	3.1 The current ***codes, Acts and regulations, and standards*** applicable to a particular building and construction project are researched. 3.2 The construction process is carried out in accordance with codes, Acts and regulations, and standards concerning construction, insurance, sustainability and environmental matters and appropriate bylaws.
4. Comply with insurance or regulatory requirements for housing construction.	4.1 ***Insurance cover*** is arranged in accordance with legal requirements. 4.2 Contract law is applied in accordance with common law principles, relevant state or territory laws and regulations, and fair trading legislation.

5. Apply legislation to financial transactions.	5.1 Payroll systems are set up and administered in compliance with current legislative requirements. 5.2 Goods and Services Tax systems are set up and administered in compliance with current legislation.
6. Meet building contract obligations.	6.1 The correct form of contract is selected for the project. 6.2 The contracted work is carried out in accordance with the contractual obligations applicable to both parties. 6.3 The conditions of the contract, including approvals and financial matters, are met.
7. Apply industrial relations policies and obligations relevant to housing construction.	7.1 The relevant ***industrial relations policies and obligations*** are researched, identified and applied. 7.2 Company policy and obligations under subcontract agreements are complied with in regard to the employment of subcontract companies. 7.3 Relevant awards are applied to contracts. 7.4 Workplace agreements are used in accordance with company policy. 7.5 Proactive measures are taken to ensure discrimination and harassment are not practised in the workplace. 7.6 Provisions of training agreements are identified and applied. 7.7 Reference material on industrial relations or legal information is made available to employees.
8. Apply dispute resolution processes.	8.1 Organisational dispute resolution processes are applied. 8.2 Customer complaints are dealt with according to company policy. 8.3 Disputes are documented and outcomes recorded and maintained.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to research, access and interpret complex documents
- oral communication skills to communicate with local or regulatory authorities on matters relating to site conditions or approvals and to negotiate on matters concerning industrial relations by telephone, or face to face
- written communication skills for communicating by memo, letter, facsimile or email with subcontractors, staff, clients and regulatory authorities.

Required knowledge:

- building and construction industry contracts
- occupational health, safety and rehabilitation (OHS&R) frameworks and obligations under federal and state or territory legislation and regulations
- risk management processes and practices and the planning required to develop those plans
- state or territory building and construction codes, standards and government regulations
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Licensing or registration legislation includes:

- state laws such as:
  - Builders Registration Act 1939 and the Home Building Contracts Act 1991 in Western Australia
  - Home Building Act and Regulations 1989 in New South Wales.

OHS legislation includes:

- state laws such as:
  - Occupational Health and Safety Act 1984 in Western Australia
  - Occupational Health and Safety Act 1983 in New South Wales
  - Occupational Health and Safety Act 1985 in Victoria
  - Occupational Health and Safety Act 1986 in South Australia
  - WorkCover Queensland Act 1996.

Codes, Acts, regulations and standards include:

- Building Code of Australia
- Timber Framing Code
- relevant Australian building and construction standards
- the latest editions of:
  - AS1720 Timber Structures
  - AS3600 Concrete Structures
  - AS4100 Steel Structures
- relevant state or territory Fair Trading Acts and regulations
- relevant state or territory and local authority planning and other approval requirements.

Insurance cover includes:

- home owners' warranty
- workers' compensation
- superannuation.

Industrial relations policies and obligations include:

- federal, and state or territory industrial legislation
- federal, and state or territory industrial awards.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the preparation of a portfolio of the legislative requirements for one residential and one low-rise commercial building and construction project case study. ('Low rise' licensing classification with reference to Class 1 and 10 construction and Classes 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction).

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an understanding of the appropriate registration, licensing or compliance requirements of state or territory registration authorities
  - the capacity to demonstrate the meeting of appropriate business registration requirements
  - identification and specification of the appropriate insurance documentation citing protection which meets local industry requirements
  - identification and specification of requirements for compliance with:
  - OHS legislation
  - legislation pertaining to financial transactions, including payment of wages and subcontractor and supplier invoices
  - relevant building and construction codes, Acts, standards and regulations
  - sustainability and environmental legislation
  - industrial relations laws
  - the legal obligations of contractual agreements.

Specific resources for assessment

- The following resources should be made available as appropriate:
  - documentation that should normally be available in either a building, or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - a technical reference library with current publications on measurement, design, building construction and manufacturer product literature
  - a suitable work area appropriate to the construction process.

Context of assessment

- Assessment of this competency must focus on a holistic evaluation of the extent to which the individual demonstrates their performance against the performance criteria and the criteria established in the range statement and the evidence guide. Individual performance of competence must result in a realistic expression of underpinning knowledge through problem solving, prediction of outcomes, cause and effect, or similar dynamic process specific to the unit.
- Assessment of this competency must take account of the endorsed Assessment Guidelines in the Building and Construction Training Package.
- Assessment should be undertaken in the context of the level of performance expected within the relevant key competencies prescribed for the unit.
- Assessment must take place in the workplace or under industry agreed simulated workplace conditions or a combination of workplace and simulated conditions.

Method of assessment

- Evidence should be collected over the full cycle of the on-site supervisory process and may involve observation, verbal or written questioning of related underpinning knowledge, submission of completed projects, anecdotal evidence or 360 degree assessment.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4010A Apply structural principles to residential low-rise constructions

Unit Descriptor

This unit specifies the outcomes required to apply structural principles to the erection or demolition of low-rise residential structures using conventional methods. The unit addresses those structures classified by the Building Code of Australia as Class 1 and Class 10. Knowledge of the application of structural principles in accordance with the Australian standards is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers, forepersons and other managers in the building and construction industry who have a responsibility for overseeing and managing the demolition or erection of structures.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply structural principles to the planning of the erection and/or demolition of a structure.	1.1 The main ***structural principles*** that apply to the erection or demolition of a ***residential low-rise*** structure are identified. 1.2 The structural performance of a structure is described in terms of the effect of the section properties of various materials. 1.3 The structural performance characteristics of slabs, floors, beams, columns and retaining walls are explained and applied to the planning of the construction work. 1.4 The demolition of existing structures is coordinated in accordance with legislative and planning requirements and safe work practices.
2. Analyse and plan for the structural integrity of Class 1 and Class 10 buildings.	2.1 Relevant ***industry professionals*** are consulted as required to provide advice regarding the design process and the structural integrity of the proposed Class 1 or Class 10 building. 2.2 Collect and analyse ***project documentation*** to assist in the analysis of the plans and specifications. 2.3 Project documentation is analysed for conformance with the BCA requirements for bushfire, high wind, earth quake and alpine environments. 2.4 New and emerging building technologies are assessed for application to the construction process and their conformance with the requirements of the BCA and Australian standards. 2.5 Pre-commencement site inspection is conducted to confirm analysis.

3.	Plan, coordinate and manage the laying of footings.	3.1 ***Footings*** are set out in accordance with the building's plans. 3.2 The structural integrity of the footings specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 3.3 Footings, as specified in the building plan, are laid and checked for conformance with project documentation. 3.4 Damp coursing and the provision of termite barriers and other relevant techniques are planned, implemented and checked in accordance with codes, standards and industry practice.
4.	Plan, coordinate and manage the laying of the floor system.	4.1 Concrete slab or bearers and joists specified in the building plan are assessed for structural integrity and compliance with relevant codes and accepted industry construction principles. 4.2 The laying of the ***floor system***, as specified in the building plan, is supervised and checked for conformance with project documentation.
5.	Plan, coordinate and manage the building of the structural and nonstructural wall systems.	5.1 The technical construction principles and performance of ***materials*** used in the construction are identified and analysed in the planning of the building and construction project. 5.2 Application of bracing requirements, tie-downs, tolerances, allowances, fixing and installation of components are planned, implemented and checked for conformance with relevant Australian standards and codes, and manufacturer specifications. 5.3 Structural timber members are selected for low-rise buildings to conform to the requirements of AS1684. 5.4 Processes are put in place and managed to ensure the quality of the frame whether it is factory pre-cut and pre-nailed, factory pre-cut and assembled on-site or cut and assembled on-site. 5.5 Vapour permeable sarking or a water proof membrane, relevant to the construction method, is attached and checked. 5.6 The building plans and relevant codes and standards are identified and implemented to ensure appropriate allowances have been made for ***relevant services*** to be installed.

6. Plan, coordinate and manage the building of the roof system.	6.1 The structural integrity of the roof system components specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 6.2 The erecting of roof trusses is planned, implemented and checked in accordance with the building plan requirements, the ***type of roof*** being constructed and the relevant codes and accepted industry construction principles. 6.3 Processes are put in place and managed to ensure the quality of the manufactured roof trusses or hand cut roof system. 6.4 Roof sarking and cladding is planned, installation supervised and checked for conformance with codes, standards and industry practice.
7. Plan, coordinate and manage the external wall cladding of the structure.	7.1 The structural performance of the ***cladding*** to be used for bracing in the frame construction is assessed for compliance with relevant codes, manufacturer specifications and accepted industry construction principles. 7.2 Installation of the cladding, as specified in the building plan, is supervised and checked for conformance with standards and accepted industry construction principles. 7.3 Installation of the windows and external doors are supervised to ensure conformance with relevant codes, manufacturer specifications and accepted industry construction principles.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- apply Australian standards and codes, and manufacturer specifications
- apply structural principles to a variety of structures within the BCA Classes 1 and 10
- select structural members based on project or specification requirements
- self-management to enable effective evaluation and management of own work and implementation of processes
- technological skills to enable safe application of technology to the construction process
- work safely to OHS regulations and site requirements.

Required knowledge:

- building and construction industry contracts
- relevant state or territory building and construction codes, standards and government regulations
- underlying mathematics related to structural analysis
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Structural principles include:

- loads and loading
- the solution of force systems
- the behaviour of structural materials
- section properties
- the performance of beams
- wind bracing
- the performance of columns
- the performance of roof trusses.

Residential low-rise buildings as described within the BCA are:

- Class 1 and 10.

Industry professionals may include:

- architects
- engineers
- draftspeople
- quantity surveyors
- surveyors.

Project documentation may include:

- registered plans
- original contour survey plan
- site plan
- soils investigation report
- engineer's footing design/specifications
- retaining walls and tanking design/specifications
- underpinning, rock anchors and shoring design/specifications
- structural floor systems, wall systems and roof systems
- design/specifications
- contract plans
- building approval plans.

Footings may be:

- bored pier footings
- column or stump
- pier and beams
- concrete slab floors.

The range of components of the ***floor system*** includes:

- bearers and joists
- platform floor construction
- fitted (cut-in) floors
- engineered floor joists
- sheet flooring
- tongue and groove flooring
- compressed sheet wet area flooring.

Materials typically used include but are not limited to:

- timber
- structural steel
- concrete block
- cavity brick.

Relevant services may include:

- plumbing and drainage
- electrical, electronic and communication systems
- extractive vacuum and exhaust systems
- ducting for heating and cooling
- passive and active fire detection and prevention systems
- smoke control and containment systems
- powered systems for operating doors and windows.

The ***type of roof*** includes:

- hip and valley
- Dutch hip
- Dutch gable
- north light
- gable end
- dual pitch roof
- box gable
- skillion.

The ***cladding*** used on timber frame constructions includes:

- weatherboards
- brick veneer
- fibre cement or compressed wood panelling
- coatings over base materials
- colorbond/zincalume sheeting.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of principles and concepts in accordance with the range of variables and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - assessing the structural integrity of a variety of structures found on building and construction sites
  - applying the structural principles behind the safe erection and demolition of a low-rise structure classified within the BCA as Class 1 and Class 10
  - applying technical construction principles to the appropriate selection, integration and building in of construction elements and components
  - coordinating, planning, implementing and checking the building of a low-rise structure.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4011A Apply structural principles to commercial low-rise constructions

Unit Descriptor

This unit specifies the outcomes required to apply structural principles to the erection or demolition of low-rise projects of a more complex nature than single residential dwellings and which are typically commercial structures classified in the Building Code of Australia as classes 2 to 9 with a gross floor area not exceeding 2000 metres square but not including Type A or Type B construction. Knowledge of the application of structural principles in accordance with the Australian standards is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers, forepersons and other managers in the building and construction industry who have a responsibility for overseeing and managing the demolition or erection of low-rise structures.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply structural principles to the planning of the erection and/or demolition of a structure.	1.1 Main ***structural principles*** that apply to the erection or demolition of a ***low-rise commercial*** structure are identified. 1.2 Structural performance of a structure is described in terms of the effect of the section properties of various ***materials*** and their related construction methods. 1.3 Structural performance characteristics of slabs, beams, columns and retaining walls are explained and applied to the planning of the construction work. 1.4 Demolition of existing structures is coordinated in accordance with legislative and planning requirements and safe work practices.
2. Analyse and plan for the structural integrity of class 2 to 9 buildings.	2.1 Relevant ***industry professionals*** are consulted as required to provide advice regarding the design process and the structural integrity of the proposed commercial low-rise building. 2.2 Collect and analyse ***project documentation*** to assist in the analysis of the plans and specifications. 2.3 Project documentation is analysed for conformance with the BCA requirements for bushfire, high wind, earth quake and alpine environments. 2.4 New and emerging building technologies are assessed for application to the construction process and their conformance with the requirements of the BCA and Australian standards. 2.5 Pre-commencement site inspection is conducted to confirm analysis.

3.	Plan, coordinate and manage the laying of footing systems.	3.1 ***Footing systems*** are set out in accordance with the building plans. 3.2 Structural integrity of the footings specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 3.3 Footings, as specified in the building plan, are laid and checked for conformance with project documentation. 3.4 Damp coursing and the provision of termite barriers and other relevant techniques are planned, implemented and checked in accordance with codes, standards and industry practice.
4.	Plan, coordinate and manage the laying of the floor system.	4.1 Floor system components specified in the building plan are assessed for structural integrity and compliance with relevant codes and accepted industry construction principles. 4.2 Laying of the ***structural floor system***, as specified in the building plan, is supervised and checked for conformance with project documentation.
5.	Plan, coordinate and manage the building of the structural wall systems and wall cladding systems.	5.1 Technical construction principles and performance characteristics of ***structural wall systems*** and ***wall cladding systems*** are identified and analysed in the planning of the building and construction project. 5.2 Processes for the erection of the wall systems and wall cladding systems are identified, implemented and checked for conformance with relevant Australian standards and codes, and manufacturer specifications. 5.3 Building plans and relevant codes and standards are identified and implemented to ensure appropriate allowances have been made for ***relevant services*** to be installed. 5.4 Windows and external doors are installed in accordance with relevant codes, manufacturer specifications and accepted industry construction principles.
6.	Plan, coordinate and manage the building of the structural roof system and roof cladding system.	6.1 Structural integrity of the ***structural roof system*** and ***roof cladding system*** components specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 6.2 Construction of the roof system and roof cladding system, including details of service penetrations, skylights and roof ventilators, is planned, implemented and checked in accordance with the building plan's requirements, the type of roof being constructed and the relevant codes and accepted industry construction principles. 6.3 Processes are put in place and managed to ensure the quality of the finished roof system.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analytical skills and the capacity to foresee potential problems
- apply Australian standards and codes, and manufacturer specifications
- apply structural principles to a variety of low-rise structures
- coordination of the work and advice of internal and external professionals
- management and planning
- problem solving
- select structural members based on project or specification requirements
- self-management to enable effective evaluation and management of own work and implementation of processes
- technological skills to enable safe application of technology to the construction process
- work safely to OHS regulations and site requirements.

Required knowledge:

- building and construction industry contracts
- new and emerging building technologies, techniques and materials
- relevant state or territory building and construction codes, standards and government regulations
- underlying principles related to structural analysis
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Structural principles include:

- loads and loading
- the solution of force systems
- the behaviour of structural materials
- section properties
- the performance of beams
- wind bracing
- the performance of columns
- the performance of roof trusses
- the principles of form work.

Low-rise commercial buildings as described within the BCA are:

- Classes 2 to 9 with a gross floor area not exceeding 2000 metres square, not including Type A or Type B construction.

Materials and their related construction methods may include but are not limited to:

- tilt-slab construction
- portal frame construction
- single-leaf (reinforced) masonry construction
- post and beam construction
- brick veneer and cladding over timber framed and lightweight section steel framed construction
- cavity brick construction
- lightweight concrete (AAC) construction
- earth-wall construction
- pole frame construction
- post and truss construction.

Industry professionals may include:

- architects
- engineers
- draftspeople
- quantity surveyors
- surveyors.

Project documentation may include:

- registered plans
- original contour survey plan
- site plan
- soils investigation report
- engineer's footing design/specifications
- retaining walls and tanking design/specifications
- underpinning, rock anchors and shoring design/specifications
- structural floor systems, wall systems and roof systems
- design/specifications
- contract plans
- building approval plans.

Footing systems may include:

- mass concrete piers
- reinforced concrete piers and beams
- drilled or driven piles
- screw piles
- concrete slab floors
- waffle pod slabs.

The range of components of ***structural floor system*** includes:

- brick bases
- suspended and slab-on-ground concrete slab floors
- timber and steel floor construction
- engineered timber products
- panel systems of concrete and AAC.

Structural wall systems include:

- composite walls featuring tilt-slab, post and beam, pole and truss and portal frame
- masonry walls incorporating cavity brick, single-leaf masonry and lightweight concrete (AAC)
- framed walls incorporating timber, engineered timber products and lightweight section steel
- earth walls, including rammed earth and mud brick.

Wall cladding systems include:

- tilt-slab
- unfired, fired and autoclaved masonry
- coatings over base materials
- boarding
- sheeting.

Relevant services may include:

- plumbing and drainage
- electrical, electronic and communication systems
- extractive vacuum and exhaust systems
- ducting for heating and cooling
- passive and active fire detection and prevention systems
- smoke control and containment systems
- powered systems for operating doors and windows.

Structural roof system includes:

- trussed roof framing - prefabricated and site fabricated
- rafter and purlin
- roof types, including:
  - hip
  - north light
  - gable, including dual pitch
  - skillion.

Roof cladding system includes:

- concrete, clay and metal tiles
- shakes and shingles
- metal sheeting - short and long run.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of principles and concepts in accordance with the range of variables and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - assessing the structural integrity of a variety of structures found on building and construction sites
  - applying the structural principles behind the safe erection and demolition of a low-rise structures classified within the BCA as Classes 2 to 9 with a gross floor area not exceeding 2000 m2 but not including Type A or Type B construction
- applying technical construction principles to the appropriate selection, integration and building in of construction elements and components
- coordinating, planning, implementing and checking the building of a low-rise structure.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4012A Read and interpret plans and specifications

Unit Descriptor

This unit specifies the outcomes required to read and interpret plans and specifications in order to inform estimation, planning and supervisory activities.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of site managers, forepersons, estimators, builders, managers and other building and construction industry personnel who have a responsibility for ensuring the currency of plans and specifications and for reading and interpreting these for application to estimation, planning and related supervisory activities.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify types of drawings and their purposes.	1.1 The purpose and advantage of different types of drawing are identified. 1.2 Different aspects of drawings are identified.
2. Apply commonly used symbols and abbreviations.	2.1 Commonly used symbols and abbreviations on drawings are identified, understood and applied. 2.2 Common building and construction terms used on drawings are identified, understood and applied.
3. Locate and identify key features on a site plan.	3.1 The building site is identified from location drawings. 3.2 True north and building orientation are identified from details provided on the site plan. 3.3 The key features of the site plan are identified.
4. Identify and locate key features on drawings.	4.1 The key features of plans, elevations and sections are identified. 4.2 Client requested variations to standard plans are identified on drawings.
5. Correctly read and interpret specifications.	5.1 PS and PC sums are identified and correctly applied. 5.2 Customer variations to standard specifications are identified. 5.3 Correct interpretations of essential elements are applied to estimation, planning and supervisory tasks and communicated. 5.4 Building codes or standards affecting the work to be undertaken are identified, including references to Australian standards and the Building Code of Australia.
6. Identify non-structural aspects to the specification.	6.1 The key features of products included in the specification are identified, including the design, purpose, aesthetics and cost relationships.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills to interact effectively by telephone, facsimile, email and in writing with clients, organisational personnel and appropriate local authorities
- translation of documented requirements into on-site activities and site and structural features from two dimensional to three dimensional formats.

Required knowledge:

- building and construction practices
- internal documentation systems
- regulatory approvals processes and timeframes
- relevant state or territory building and construction codes, standards and regulations
- types of building and construction drawings and drawing perspectives
- types of building and construction industry contracts.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Types of drawings include:

- sketch plans
- working drawings
- presentation drawings
- CAD drawings
- initial sketches
- preliminary and final drawings and plans however produced
- detailed amendment drawings
- construction information
- service details such as wiring, piping, ducts and waste disposal
- details of roads, pathways, parking areas, boundaries and landscaping.

Aspects of drawings include:

- plans
- elevations
- sections
- views in isometric projection and perspective.

Key features of the site plan include

- location and situation
- access and egress
- contours and slopes
- major geological and topographical features
- existing dwellings, buildings or other structures
- retaining walls
- drainage lines
- paving
- set backs
- service connection points
- easements
- stormwater disposal
- trees and vegetation.

The ***specification*** may include:

- materials lists
- schedules of quantities
- performance data and material technical data
- levels and survey information
- stress, load and bearing calculations.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by reading and correctly interpreting a range of plans and specifications for activities relating to medium-rise residential and commercial construction projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the ability to read and interpret plans and specifications, including identification of key features, levels, contours, sections, service entry points, site features to be removed or retained and other details pertinent to the construction process
  - the ability to identify the characteristics and features of sites and structures pertinent to a construction project, including:
    - the correct orientation of structures on site
    - establishing the location of key on-site features in relation to building or other structures
    - identifying and incorporating customer variations to agreed plans and specifications
    - correctly interpreting essential elements and applying these to estimation, planning and supervisory tasks
    - effectively communicating changes to specifications to organisational personnel and confirming variations with the client.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4013A Prepare and evaluate tender documentation

Unit Descriptor

This unit specifies the outcomes required to evaluate contract specifications and information and to prepare tender documents associated with projects in the building and construction industries. Knowledge of tender preparation and interpretation of project demands and requirements and the capability to bring together a body of diverse information are essential. How to find the information and present it in a manner which meets organisational needs in short time frames is important, as is the ability to manage time effectively.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, estimators and managers in the building and construction industry who have a responsibility to evaluate and prepare tenders for residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Evaluate the contract risk.	1.1 Contracts are selected according to company policy. 1.2 Tender documents for the selected contracts are evaluated, and the risks to be considered when preparing the tender are identified.
2. Prepare the tender documentation.	2.1 All the information necessary for preparing the tender is acquired. 2.2 Company procedures and instructions are followed in the preparation of the tender.
3. Identify and attach the appropriate supporting documentation.	3.1 Information and supporting documentation required to support the tender is accurately identified and selected. 3.2 Vital information, drawings, specifications or other supporting documents are attached to the tender documentation as required.
4. Evaluate the completed tender documentation.	4.1 A preliminary evaluation of the completed tender documentation is conducted. 4.2 The tender documents and calculations are checked to ensure conformity with company financial and administrative guidelines.
5. Obtain tender approval or endorsement.	5.1 The tender documentation is provided to the appropriate staff member for approval or endorsement. 5.2 Final documents, including any amendments, are prepared for submission to the client.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- calculate labour hours and costs
- calculate materials quantities and costs
- extrapolate labour and materials costs from written information
- produce documentation which meets company needs
- read drawings and specifications
- utilise appropriate costing software programs.

Required knowledge:

- operations and structure of organisational costing and contracting system
- state or territory building and construction codes, standards and government regulations relevant to the form of building or construction being undertaken
- types of building, construction or civil contracting drawings and specifications
- types, scope and usage of labour through the employee and subcontractor systems.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

It is recognised that an individual candidate will apply this unit to his/her specific trade skill area. The relevant trade areas that this unit can be applied to include:

- painting
- plastering
- tiling
- plumbing and services
- stonemasonry
- bricklaying
- carpentry
- cabinet making and joinery.

Tender documents includes:

- plans and/or drawings
- materials specifications
- site layout information
- cost schedules
- estimated time frames
- details of specific terms and conditions to be included/excluded in relation to contracts
- human resource details, including known subcontractors
- details of specialist resources.

Risks include:

- exposure through clauses which work against the organisation
- risk of default or non-performance of key players
- inappropriate funding levels and funding shortfalls
- circumstances such as weather, labour shortages and delivery delays which delay project completion and subsequent delays in progress payments
- industrial disputation through misunderstandings or overt action
- failure to adequately anticipate labour or materials costs
- disputation over payments
- breaches of contract.

Supporting documentation includes:

- artist impressions
- product information
- reports or findings beneficial to the organisation
- organisational information
- promotional materials
- documentation processes required by building information modelling (BIM).

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the preparation of complete tender documentation for a construction contract.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identification of the requirements of selected contracts for tender
  - gathering detailed information effectively
  - the ability to check documentation and calculations in short timeframes
  - producing documentation which meets the quality standards established by the organisation
  - communicating effectively, both verbally and in writing.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building, construction or civil contracting office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4014A Prepare simple building sketches and drawings

Unit Descriptor

This unit of competency specifies the outcomes required to produce sketches and drawings. The sketches may be used to clarify or communicate ideas to clients or other parties. They also may be simplified versions taken from architectural drawings and designed to capture design concepts or options. The sketches may be used for estimating purposes and to show measurements and other requirements for building and construction works. This unit does not describe more complex drafting skills.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, experienced tradespeople, project managers and estimators with a responsibility for preparing sketches and drawings.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to make sketches and drawings.	1.1 The ***types of drawings required*** and ***key features to be recorded*** are identified in conformity with the scope and standard of the job being undertaken. 1.2 The ***OHS requirements*** on-site are identified and followed. 1.3 The ***tools and equipment*** required for inspection and/or measurement and for producing the drawings are gathered and checked for safety and serviceability.
2. Create simple sketches and drawings.	2.1 An inspection of the relevant area is carried out as required and measurements are taken and recorded. 2.2 Simple two and three dimensional sketches and drawings are created using ***standard drawing conventions*** and incorporating relevant codes and standards. 2.3 Sectional drawings of simple structural elements are created using standard drawing conventions.
3. Notate and process drawings.	3.1 Essential information is recorded on the drawing with symbols and abbreviations according to standard drawing conventions. 3.2 Drawing are labelled, dated and processed according to organisational administration and quality procedures.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- calculating and measuring techniques and their application
- drawing techniques
- interpretation and application of the relevant standards and codes.

Required knowledge:

- drawing conventions and features including direction, scale, key, contours, symbols and abbreviations
- requirements of the relevant codes, standards, statutory and authority requirements
- safe work methods.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

The types of drawings required include:

- land boundaries and footprint of building
- floor plan
- sectional views
- orthographic drawings
- schematic drawings of wiring and pipework.

The ***key features to be recorded*** may include:

- walls
- wall penetrations
- ceiling heights and variations
- doors
- services
- light fittings/power supplies.

The OHS requirements may include:

- use of personal protective equipment
- installation of scaffolding
- detailing power supplies
- details of all services
- understanding of any hazards located in the area.

Tools and equipment mayinclude:

- recording devices, i.e. pen/paper
- computer
- digital camera.

Standard drawing conventions include:

- standard design symbols common to the building and construction industries.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by creating a set of sketches and drawings for a small work project in the relevant field of expertise.
- Measurements of components, sub-assemblies, products, models, equipment, layouts or facilities needed for the preparation of the required drawings are made and recorded.
- Calculations of required dimensions and other drafting details based on measurements and other relevant information are made.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the production of clear and effective drawings and sketches with appropriate notations and labelling
  - the application of appropriate techniques for making inspections and taking measurements
  - the ability to make good any incursions into the fabric of a building
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes
  - selection and use of appropriate processes, tools and equipment
  - interactive communication with others to ensure safe and effective worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - access to an appropriate work-site
  - appropriate documentation and data related to tasks
  - scaffolding and/or fall protection equipment
  - tools and equipment relevant to activity process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4015A Prepare specifications for all construction works

Unit Descriptor

This unit of competency specifies the outcomes required to prepare specifications, using standard forms of specification as a basis. The preparation of a clearly understood specification for construction works requires establishing the level of detail required and identifying all the inherent contractual obligations. The capacity to develop specifications that may range from outline to detailed specifications and which conform to NATSPEC or other industry standards is required. The specifications may stipulate materials, quality of work and project timelines. In order to achieve the outcomes for this unit, knowledge of relevant industry legislation and standards, and the ability to research information and communicate well with clients are required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports needs of builders, site managers, estimators, forepersons and other construction industry personnel who have a responsibility for preparing specifications for residential and commercial construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Determine the specification requirements.	1.1 The project brief, working drawings, development approval and other relevant documents are examined to identify the essential information to be included in the specification. 1.2 ***Standard specifications*** are examined to determine suitability for adaptation to the current project. 1.3 Non-standard requirements are developed and where technical aspects require clarification, advice is sought from specialists.
2. Assess the nature and scope of the work.	2.1 A site inspection is conducted to establish site layout and preliminary site-work requirements and site details and features are recorded. 2.2 The specification includes all relevant details at a level necessary to describe clearly the nature and ***scope of the work***, including ***prescriptive and performance requirements***. 2.3 Research is undertaken to establish appropriate schedules, using relevant ***data sources***. 2.4 Details are tabulated and cross-referenced to ensure consistency between the design brief, the working drawings and the specifications. 2.5 The details in the specification conform to industry codes of practice, Australian standards and relevant statutory requirements. 2.6 Information requested from specialists, colleagues and clients is coordinated and added to the specifications where required.

3. Prepare the specification document.	3.1 The specification clearly identifies the ***contractual obligations*** and rights of the parties involved. 3.2 The specification document is complete, checked thoroughly for compliance with requirements and edited. 3.3 The specification is presented to the client in the required format and timeframe.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- attention to detail
- client service
- communication, including liaison with specialists
- document management
- identification of specification requirements
- identifying documentation requirements
- product/service analysis
- read, interpret and understand a range of documents including design briefs, drawings, plans, regulations and codes of practice
- research and investigation
- teamwork.

Required knowledge:

- client requirements
- document control
- documentation requirements for specifications
- enterprise policy relating to specifications
- industry codes of practice
- NATSPEC
- relevant Australian standards
- relevant legislation including contract law and trade practices legislation
- research sources to determine schedules
- schedule of rates
- standard specification documents
- types of specification and their use.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Standard specifications may include:

- developed specifications
- detailed specifications, which address specific components such as mechanical, structural, electrical or other requirements
- documentation requirements arising from building information modelling (BIM)
- NATSPEC or other industry Standard specifications
- preliminary or outline specifications.

Scope of the work includes:

- type of product or service
- quantities
- characteristics
- sizes
- patterns
- dimensions
- location
- surfaces
- compatibility
- allowance for the provision of services
- lining systems
- fitout.

Prescriptive and performance requirements include:

- prescriptive requirements: detail relating to materials and quality of work, quality assurance, nominated subcontractors, provision of site access/facilities and costs
- performance requirements: standards of work, work schedules and milestones.

Data sources include:

- publications and journals
- computer data files
- statutes
- statistical summaries
- policy statements
- media reports
- local, state or territory, and federal government documents and registers.

Contractual obligations include:

- type of tender
- insurance requirements
- expected performance levels
- prescriptive requirements
- occupational health and safety issues.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective preparation of a specification applicable to one area of construction project work.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with OHS and organisational quality procedures and process within the context of this unit of competency
  - application and interpretation of relevant documentation and codes
  - application of design principles relating to performance of structural members
  - identification of typical faults and problems and necessary action taken to rectify
  - an ability to conduct a site inspection and identify and record relevant site details and features
  - an understanding of different types of specification and their use
  - appropriate selection of standard specification documents
  - an ability research data sources to determine schedules
  - an ability to communicate with clients in order to determine client requirements.

Context of and Specific resources for assessment

- Resource implications for assessment include:
  - documentation including a design brief, working drawings and other supporting documentation where available
  - research data sources, including manufacturers'/ product information, current industry practice and samples
  - relevant industry codes of practice
  - relevant regulations/legislation
  - a client file for information and review.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4016A Administer a construction contract

Unit Descriptor

This unit specifies the outcomes required to administer building and construction contracts for either residential or commercial projects.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of needs of builders, estimators, trade contractors and other building and construction professionals who have a responsibility for administering contracts for building work.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and analyse the essential elements, sections and clauses of a business contract.	1.1 Various types of ***building and construction contracts*** are identified and the appropriate application of each type is analysed. 1.2 Legislative requirements relating to building and construction contracts are identified and applied 1.3 The essential terms and elements of a valid contract are identified and analysed. 1.4 The importance of identifying an intention to create legal relations is analysed. 1.5 The rights and liabilities of parties under a contract are identified and analysed. 1.6 Common building contract terms and procedures are identified and applied. 1.7 Circumstances that bring about a breach of contract are identified and analysed.
2. Select an appropriate contract for the works to be undertaken	2.1 A contract, appropriate for the type of construction, is accurately selected. 2.2 The ***range of documents*** that collectively make up a contract is accurately identified and prepared. 2.3 The requirements associated with an offer and acceptance of a contract are accurately identified and applied. 2.4 The capacity of the parties to form a binding agreement in the form of a contract is confirmed. 2.5 Factors associated with the parties' consent to a contract are identified and applied.

3. Identify and apply the factors involved in the termination of a business contract.	3.1 The impact and effects of repudiation of a contract by one party are identified and analysed. 3.2 An agreed definition of acceptance of repudiation by the other party is identified and applied. 3.3 Definitions of unreasonable or vexatious notice are identified, agreed and applied. 3.4 A definition of the conditions for completion at the cost of the contractor is identified and applied. 3.5 A definition of the effect of ousting the contractor from the building or construction site is identified and applied. 3.6 A definition of abandonment of a contract is identified and applied. 3.7 Contracts are terminated in accordance with relevant legislation and contract provisions.
4. Administer the contract.	4.1 Contract rise and fall amounts are accurately calculated. 4.2 Progress payments due under the contract are accurately processed. 4.3 Applications for extensions of time are processed in accordance with company policy and contract conditions. 4.4 Variations to the contract are identified, negotiated and documented. 4.5 Action is taken to minimise liquidated damages or penalties nominated in the contract. 4.6 Contracts are administered and any contractual disputes are resolved in accordance with the contract and relevant legislation and regulations. 4.7 The appropriate certificate is issued upon completion of the contract work.
5. Finalise a contract.	5.1 A definition of practical completion of the contract is identified and applied. 5.2 A definition of defects liability under a building or construction contract is identified and applied. 5.3 Conditions for the issuing of a final certificate are identified and applied. 5.4 Documentation arising from the finalisation of a contract is completed and secured for records purposes.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analytical skills to use and apply data
- maintenance of files
- monitoring of price variations
- oral and written communication skills to facilitate effective communication by phone, facsimile, email or in writing, with members of the organisation and external parties including clients and subcontractors, and to facilitate drafting detailed responses to queries relating to the finer points of contracts
- reading and comprehension skills to facilitate understanding and interpretation of complex legal text
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- basic understanding of the Australian legal system and relevance to contracts
- contracts required, or supplied, by regulatory authorities
- definitions and interpretations commonly applied to contracts
- legal meanings of terms and clauses in building and construction contracts
- relationships between the organisation and its clients
- various contract types and the circumstances they cover.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Building and construction contracts include:

- individual organisational contracts
- contracts required or supplied by regulatory authorities
- JCC Suite
- SBW2 Lump Sum
- CIC Suite
- MBA and HIA contracts
- Australian standard contracts (including the AS2124 and AS4000 series)
- SBW series contracts.

Range of documents includes:

- plans, drawings and specifications
- schedules
- project timelines
- materials lists
- human resource projections
- equipment, site accommodation and services information.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- Competency is to be demonstrated by the selection, development and administration of appropriate contracts which meet organisational and industry standards and which relate to at least one of the industry areas listed in the unit descriptor.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- It is essential that competence is demonstrated in the relevant aspects of contract selection, insertion of appropriate clauses and administration of events arising from contract clauses, including rise and fall and progress payments.
- A person who demonstrates competency in this unit must be able to provide evidence of:
  - selection of the right contract for the particular project
  - selection of the appropriate clauses and conditions within the contract
  - administration of the contract to the standard required by the organisation and within any legal or regulatory requirements that may exist within the State or Territory in which the work is being done
  - determination of the appropriate measures to be taken in the event of an anomaly in the rendering of the contract.
- Persons demonstrating competence in this unit must be able to communicate effectively in English to the extent that they can discuss workplace issues clearly and without ambiguity during a normal telephone conversation.
- This unit requires the ability to read and interpret contracts, specifications, construction schedules and reports.
- Writing is required to the level of completing memos, schedules and evaluative reports and communicating complex ideas and alternatives.
- Numeracy is required at a level which supports the calculation of rise and fall amounts applicable to change contractual circumstances.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required:
  - assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4017A Arrange resources and prepare for the building or construction project

Unit Descriptor

This unit specifies the outcomes required to procure the physical and human resources necessary to ensure the development of on-site facilities and the availability of personnel, plant and equipment, materials and other site essential items for low-rise ('low-rise' licensing classification with reference to Class 1 and 10 construction and Classes 2 to 9 with a gross floor area not exceeding 2000 metres square, not including Type A or Type B construction) construction projects. Knowledge of physical resource acquisition and supply processes, identification and procurement of suitable labour through the organisation's own employees and/or subcontractors is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons, estimators and other building and construction industry professionals who have a responsibility to acquire the physical and human resources required for residential and commercial construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Notify the client and relevant authorities and agencies of the schedule of works.	1.1 All the fees due are paid and the site hand-over date is confirmed with the client. 1.2 Insurance and security requirements are established and provided. 1.3 Parking restrictions are determined and advised to relevant personnel. 1.4 All the ***authorities*** requiring formal notification of the commencement of work are contacted.
2. Organise the delivery of on-site accommodation and facilities.	2.1 Identify the requirements for ***on-site accommodation and facilities***. 2.2 The site office, storage sheds and on-site toilet facilities are arranged, received and positioned. 2.3 Site signage is erected to comply with regulations. 2.4 Processes are developed and implemented to identify and protect existing services at the site. 2.5 ***Council requirements*** are identified and met.
3. Organise the delivery of plant.	3.1 On-site ***plant*** delivery dates are confirmed. 3.2 Hoardings are erected and rubbish removal facilities are arranged.
4. Arrange the connection of temporary services.	4.1 Temporary power and water connections are arranged with service providers. 4.2 Temporary site access and egress is arranged and authorisations obtained from the local authority.

5. Organise on-site human resources.	5.1 ***On-site human resource requirements*** are identified. 5.2 The construction work supervisor is engaged or appointed. 5.3 Industrial relations and safety matters are addressed as required. 5.4 Appropriate personnel are engaged according to project needs.
6. Order materials.	6.1 Orders for prefabricated materials are placed using approved company documentation and site delivery dates are confirmed. 6.2 The construction arrangements required by the contract are finalised to satisfy the project schedule.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- coordinating a range of team members and activities
- effective management of a site
- interpretation of plans
- oral and written communication skills to communicate effectively with on-site and off-site personnel by telephone, facsimile, email and in writing
- planning and scheduling
- supervising site(s)
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- contract documentation, quantities, rates and costs related to payments and claims
- differences in and uses of various building and construction industry contracts
- resource procurement processes
- safe working policy and procedures
- scope, operations and structures of the building and construction industry subcontractor system
- state or territory building and construction codes, standards and government regulations relevant to the form of building or construction being undertaken.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Low-rise is described as falling within the BCA classes of:	• Class 1 and 10 • Classes 2 to 9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction.

Authorities include:

- local government agencies
- environmental protection agencies
- water authorities
- electricity authorities
- road traffic authorities.

On-site accommodation and facilities include:

- sheds
- office facilities
- lunch rooms
- toilet facilities
- dormitories
- caravans.

Council requirements include:

- tree conservation
- consent matters
- heritage protection.

Plant includes:

- portable generators and lighting equipment
- pumps
- air compressors
- wheeled or tracked earthmoving equipment
- pile driving equipment.

On-site human resource requirements include:

- administrative personnel
- supervisors and forepersons
- tradespersons
- construction workers
- drivers and machine operators
- cooks and kitchen hands.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by identifying, planning and putting in place the essential infrastructure, including human, physical, plans and processes, required to commence and support a construction project.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - procuring resources effectively
  - communicating effectively, both verbally and in writing with suppliers and subcontractors
  - completing documentation to organisational standards
  - advising appropriate authorities and gaining the necessary approvals or responses.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4018A Apply site surveys and set out procedures to building and construction projects

Unit Descriptor

This unit specifies the outcomes required to the conduct of basic measuring and levelling techniques as part of the set out procedures performed on building projects. It includes the use of technical instruments, application of standard procedures and performance of calculations necessary in the set out of construction projects.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, site supervisors and related construction industry professionals who have responsibility for ensuring accurate application of site surveys an set out procedures prior to residential and commercial construction.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Perform setting out, measuring techniques and associated calculations.	1.1 Trigonometric and geometric calculations commonly used with grid lines, off sets and right angle triangles are calculated and recorded without error. 1.2 Site set out procedures are carried out according to standard work methods on ***sites***. 1.3 Errors in measured distances due to site characteristics and measurement methods are identified and explained. 1.4 ***Cut and fill calculations*** are conducted without error.
2. Set up and use levelling devices.	2.1 Use of ***levelling device*** is demonstrated in accordance with standard operating procedures. 2.2 The error present in a level by the 'two peg test' device is demonstrated in accordance standard operating procedures. 2.3 Reduction in a closed level run by rise and fall method and by HPC method is carried out in accordance with standard practices. 2.4 Calculation of staff readings to enable a specific RL set out to be determined is calculated without error.
3. Mark out and determine levels on a grid for contouring and volume calculations.	3.1 Set out grid and levels are determined. 3.2 Contour plans are prepared from grid levels to specified tolerances and stated contour intervals. 3.3 The volume of solids, the surface being levelled and contoured is determined to specified tolerances.

4. Construct longitudinal sections and determine associated grades and levels in typical drainage and pipeline situations.	4.1 Longitudinal sections are drawn from reduced levels and running chainages. 4.2 Levels and 'clearances' from given grades and distances are determined to specified tolerances. 4.3 Calculations and expressions of grades in three forms (percentages, run ratios, and angles) are determined to specified tolerances. 4.4 Calculations for 'batter' levels from grades and distances are determined without error.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of design concepts and principles relating to structural systems
- application of measurements and calculations
- attention to detail when transferring levels
- communication skills
- reading skills, including interpretation of drawings, specifications and documentation from a wide range of sources
- use of levelling devices for survey and site set outs.

Required knowledge:

- applications of structure in building systems and application to survey and site set out
- BCA and Australian standards
- design principles
- level and grade checking used to perform survey control to accuracy criteria
- nature of survey and levelling devices and effect of performance on site
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Sites may include:	• residential developments • low-rise commercial construction.
Cut and fill calculations include:	• area and volume of land to be levelled • area of land to be filled • volume of fill required • use of appropriate software.
Levelling device may include, but not be limited to:	• laser • theodolite • EDM equipment • optical plummets.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the application of survey and site set out procedures and principles of selection and use of two (2) levelling devices to survey and set out sample building projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • compliance with OHS and organisational quality procedures and process within the context of this unit of competency
	  • application and interpretation of relevant documentation/codes
	  • accurate application of survey/levelling principles relating to performance of site set out including contouring, volume and grade calculations
	  • identification of typical faults and problems and necessary action taken to rectify such faults.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including levelling devices information and data
  - access to relevant legislation, regulations and codes of practice
  - relevant computer software package and suitable hardware where applicable to survey and set out practices
  - access to levelling devices.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4019A Apply sustainable building design principles to water management systems

Unit Descriptor

This unit specifies the outcomes required to apply sound water management principles as part of the implementation of sustainable building and construction processes. The range of legislative and council planning requirements are addressed in addition to the need to respond to growing consumer demand for sustainable buildings and environmentally friendly developments.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons, estimators and builders and managers in the building and construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply legislative and planning requirements for effective water management systems to the building process.	1.1 The current, relevant state or territory and council requirements for the ***management of water systems*** are identified as part of the building and construction design process. 1.2 Client needs and expectations for the design and use of water management systems are identified and negotiated. 1.3 Expert plumbing and other advice is gathered as part of the planning process. 1.4 Relevant Australian standards are consulted to identify the implications for the conduct of the building project. 1.5 Environmental and resource efficiency issues are identified and addressed.
2. Identify and apply opportunities for improved water management.	2.1 The impact of client/resident behaviour on effective water management and use is identified. 2.2 The opportunities for the selection of efficient water management ***fixtures and appliances*** as part of the building design are identified, evaluated and applied. 2.3 The relative installation and ongoing usage costs of efficient water management fixtures and appliances are quantified and communicated to the client. 2.4 Efficient water management fixtures and appliances are used as negotiated within the building project.
3. Apply sound water management principles to the site and its landscaping.	3.1 Soil and sediments are contained to the construction site as part of the site preparation and management. 3.2 Sound ***waste management practices*** are used on site. 3.3 Effective sediment control barriers are in place and used. 3.4 Topsoil and/or local rocks are stockpiled and retained for later use in landscaping. 3.5 Appropriate input is made to the landscape design process to optimise water use, re-use and recycling.

4. Promote best practice in water management.	4.1 The selection, location and installation of tanks to optimise the re-use of roof water are evaluated and implemented. 4.2 The costs, planning implications and construction techniques for the re-use of grey water are identified and implemented as negotiated with the client. 4.3 The costs and performance characteristics of various materials used in the installation of water management systems are identified and negotiated with the client.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of Australian standards and codes, and manufacturer specifications
- evaluation of alternate water management systems
- technological skills to facilitate use of the organisation's software and office technology
- work safely to OHS regulations and site requirements.

Required knowledge:

- building and construction industry contracts
- relevant state or territory building and construction codes, standards and government regulations
- underlying mathematics related to evaluation of alternate water management systems
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Management of water systems includes:	• roof water re-use • grey water recycling.
Fixtures and appliances include:	• taps • showerheads (low flow and maxi flow) • toilet • spas • washing machines • dishwashers.
Waste management practices used on the site include:	• ensuring the run-off from the cleaning up of equipment, e.g. after painting, is handled appropriately • waste bins are used and emptied appropriately.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of mechanical principles and concepts in accordance with the range statement and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - sourcing and analysing legislative and planning requirements for water management on the building process
  - calculating costs and savings of implementing alternate water management systems
  - applying the principles of effective water use, recycling and re-use to the planning of a building project
  - producing work plans that reflect effective water management.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4020A Build thermally efficient and sustainable structures

Unit Descriptor

This unit specifies the outcomes required to apply sound principles of thermal efficiency as part of the implementation of sustainable building and construction processes. The range of legislative and council planning requirements are addressed in addition to the need to respond to growing consumer demand for sustainable buildings and environmentally friendly developments.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons, estimators and builders and managers in the building and construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply legislative and planning requirements for thermal efficiency to the building process.	1.1 Current, relevant state or territory and council requirements for ***the building of thermally efficient structures*** are identified. 1.2 Factors that contribute to the construction of a 5-star rated dwelling identified within the Building Code of Australia are identified and the impact of ***regional climate differences*** is assessed. 1.3 Client needs and expectations for the design and construction of thermally efficient structures are identified and negotiated. 1.4 Expert design and other advice is gathered as part of the planning and construction process. 1.5 Relevant Australian standards are consulted to identify the implications for the conduct of the building project.
2. Review design solutions for effectiveness and compliance.	2.1 Impact of radiation, convection, conduction and evaporation on the thermal comfort of residents is identified. 2.2 Orientation of the building, location and size of glazing, and use of thermal mass as design features are evaluated for effectiveness and compliance with planning and other regulatory requirements. 2.3 Effective strategy for insulating the structure is evaluated, costed and communicated to the client. 2.4 Building designs are assessed for their compliance with the energy efficiency requirements of the Building Code of Australia's 5-star rating system. 2.5 Consultations with designers and clients are conducted to ensure final construction plans are effective, efficient and compliant.

3. Manage the building process to ensure an effective outcome.	3.1 Effective communications are established between designers, architects and clients to ensure effective thermal performance is embedded from the design to construction phase. 3.2 Ensure effective quality assurance processes are in place to evaluate and implement the building of a 5-star dwelling. 3.3 Assess and communicate to the client cost effective strategies to achieve the desired level of thermal performance. 3.4 Life cycle costs of various construction approaches are assessed and negotiated with the client.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of Australian standards and manufacturer specifications
- application of the Building Code of Australia Part 3.12
- evaluation of the thermal efficiency of building design solutions
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- building and construction industry processes for building sustainability
- relevant state or territory building and construction codes, standards and government regulations
- underlying mathematics related to the calculation of thermal efficiency
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Requirements for the ***building of thermally efficient structures*** include:	• use of relevant construction methods • orientation of building • appropriate use of thermal mass (noting impact of climatic conditions) • glazing size and orientation • insulation.
Regional climate differences and the impact on effective design solutions include areas with:	• hot humid climates • hot arid climates • mixed climates • cooling climate.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of mechanical principles and concepts in accordance with the range of variables and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - sourcing and analysing legislative and planning requirements for thermal efficiency on the building process
  - calculating costs and savings of implementing alternate thermally efficient systems
  - applying the principles of thermal efficiency to the planning of a building project
  - producing work plans that reflect effective thermal efficiency.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4021A Minimise waste on the building and construction site

Unit Descriptor

This unit specifies the outcomes required to support sustainable building practices by minimising waste on the building and construction site. The range of legislative and council planning requirements are addressed in addition to industry best-practice in relation to the management of by-products generated and removed from demolition, renovation and construction sites.

Employability Skills This unit contains employability skills.

Application of the Unit This unit of competency supports the needs of builders, site managers and forepersons, estimators and builders and managers in the building and construction industry.

Unit Sector Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan a waste management strategy.	1.1 Current, relevant state or territory and council requirements for the management and minimisation of building waste are identified. 1.2 Relative costs and savings associated with ***strategies to minimise waste*** are calculated and negotiated with the client. 1.3 Effective communications are established with the architect, designer, engineer and other relevant professionals to ensure project plans incorporate waste minimisation strategies. 1.4 Relevant Australian standards are consulted to identify the implications of waste minimisation strategies for the conduct of the building project. 1.5 A waste management strategy to support the building and construction project is developed.
2. Manage materials procurement to minimise waste.	2.1 Building and construction materials are evaluated to identify high quality and more durable materials which will extend the life of the structure and simplify its future extension and refurbishment. 2.2 Recycled materials are used where appropriate and with regard to regulatory and standards restrictions. 2.3 Procurement specifications are developed which seek to minimise ***packaging waste***.
3. Manage the building process to reduce waste.	3.1 Demolition practises are determined and used to increase the recovery of materials for recycling and re-use. 3.2 Strategies are adopted to minimise the volume of site excavation and other materials that are disposed of in landfill. 3.3 Litter abatement strategies are adopted on site. 3.4 The safe and environmentally effective disposal of unavoidable waste is planned and implemented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of Australian standards and manufacturer specifications
- application of the Building Code of Australia
- problem solving to determine optimum waste minimisation practices
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- building and construction industry processes for building sustainability
- relevant state or territory building and construction codes, standards and government regulations
- underlying mathematics related to the calculation of costs and savings associated with waste minimisation strategies
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Strategies to minimise waste include:

- procurement policies that encourage use of recyclable/recycled material
- building to standard sizes
- contracts with subcontractors that require implementation of waste minimisation
- materials salvage and recycling
- litter abatement
- use of reusable delivery and storage containers.

Methods of reducing ***packaging waste*** include the use of:

- metal strapping in place of shrink wrapping
- paper packaging in place of plastic
- shredded paper packing in place of foam
- recyclable or reusable containers.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective application of principles and concepts in accordance with the range of variables and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - sourcing and analysing legislative and planning requirements for waste minimisation on the building process
  - calculating costs and savings of implementing alternate waste minimisation systems
  - producing a strategy/plan for effective waste minimisation.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4022A Supervise tilt-up work

Unit Descriptor

This unit specifies the outcomes required to organise, coordinate and supervise tilt-up work on site. The knowledge and skills required to apply licensing and other regulatory requirements to the process is addressed. This unit recognises that the erection of tilt-up pre-cast concrete panels requires the application of highly structured processes and the application of safe work practices.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of site supervisors and builders with a responsibility for supervising tilt-up work onsite.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Provide effective administration.	1.1 ***Licenses and approvals required*** for tilt-up work are checked or obtained, a work plan is prepared, and work is notified to relevant regulatory authorities if necessary. 1.2 Copies of all structural and design documents, pre-cast panel shop drawings, layout plans and other documents are obtained, stored on site and accessed as required. 1.3 Details of persons assigned to perform tilt-up work are checked to ensure relevant competency licences are held and that any ***regulatory training requirements*** have been met.
2. Plan and set up site.	2.1 Site security, amenities, services and ***emergency/first aid*** facilities are provided and associated site procedures are prepared. 2.2 Requirements for footings, structural elements, concrete slabs and site access roads for the tilt-up work are reviewed and made available. 2.3 Concrete panel casting and/or delivery sequence is planned to support the work sequence, taking into account the required curing times for the concrete panels. 2.4 Traffic management and public safety plans and procedures are developed and exclusion zones planned for the concrete panel delivery, casting and erection operations. 2.5 Ground conditions such as soakwells and drains likely to affect crane stability are identified, crane standing areas are checked for strength and compaction, crane suppliers are consulted and suitable crane operating locations identified and recorded. 2.6 A site specific ***occupational health and safety management plan*** is prepared and implemented, the work plan is implemented, and ***OHS risk control measures*** applied.

3. Organise and coordinate tiltup work.	3.1 A delivery sequence for concrete panels cast off-site, or a casting and curing schedule and distribution of panels on-site, is coordinated. 3.2 Process is put in place to ensure concrete panels are placed and stored in accordance with engineer's requirements. 3.3 Concrete panel inspection records are checked to confirm design specifications have been followed during panel fabrication and manufacture. 3.4 Process is put in place to ensure erection areas are cleared, exclusion zones set up, barriers erected and site personnel advised of restricted access areas prior to erection of concrete panels. 3.5 Process is put in place to ensure fixings and anchor bolts supplied for temporary bracing are checked for conformance with designer and engineer's specifications. 3.6 Process is put in place to ensure correct type of braces are fixed to panels prior to lifting, and locating dowels and shims are correctly placed and components are positioned and propped in accordance with shop drawings or as approved by the engineer. 3.7 Supervision of ***safe work method statements***, safe systems of work and safe work practices, drawings, specifications and engineering details is undertaken to ensure the required procedures are followed by workers and contractors during the erection of the concrete panels. 3.8 In the event of unanticipated circumstances, job safety analysis and other tools are used to identify hazards, assess risks and create safe systems of work and safe working procedures as necessary.
4. Confirm tilt-up stabilisation.	4.1 Erected concrete panels are checked for conformance with design and engineering specifications. 4.2 Structural steel elements being fixed to the temporarily braced panels are checked to ensure that they are in accordance with designed engineering specifications. 4.3 Process is put in place to ensure the erected structure is inspected by an engineer and certified as being sound prior to the removal of temporary bracing from concrete panels in line with the relevant state or territory regulatory requirements. 4.4 Process is put in place to ensure braces are removed methodically with temporary bracing and other erection elements stacked and removed from site. 4.5 On completion of the erection work processes are put in place to ensure the work areas are cleared before other trades are permitted to enter exclusion zones. 4.6 Work completion procedures are applied, relevant personnel are notified of work completion and site records are maintained to company requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- numeracy and measuring skills to check and calculate dimensions and levels
- oral communication skills to facilitate discussion of workplace hazards and risks clearly and without ambiguity during tilt-up work, and to ensure safe systems of work and safe work practices are followed
- reading and interpretation skills to interpret and apply information from plans, procedures, tilt-up guidance material, legislative requirements and design specifications
- writing skills to facilitate the completion of memos, schedules, site records and safe work method statements.

Required knowledge:

- Australian Safety and Compensation Council's National Standard for Construction Work and National Code of Practice for induction training for construction work
- capacity and limitations of plant, lifting gear and equipment used in tilt-up work; includes associated safe systems of work
- capacity and limitations of rigging and equipment, including use of load charts
- grouting, bracing, torquing, stabilisation and fixing work practices
- hazard identification and the formulation of safe work method statements and safe systems of work. Safe systems of work include those for safe work at height (fall arrest equipment, and scaffolding and access equipment)
- interpretation of plans, drawings and specifications for tilt-up work
- OHS regulations and codes of practice and Australian standard 3850 Tilt-up concrete construction as related to the supervision of tilt-up work.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Licenses and approvals required includes:	• building licenses, and notification and approval which may be required under OHS legislation for tilt-up work.
Regulatory training requirements refers to:	• induction and training which may be required under state or territory OHS legislation for tilt-up work; and induction and training in accordance with the Australian Safety and Compensation Council's National Standard for Construction Work and National Code of Practice for induction training for construction work.
Emergency/first aid includes:	• emergency shutdown and stopping, extinguishing fires, OHS, first aid and emergency and evacuation requirements.

OHS management plan refers to:	• the requirements of the Australian Safety and Compensation Council's National Standard for Construction Work.
OHS risk control measures refers to:	• those in accordance with OHS standards, regulations and codes of practice and includes but is not limited to trip hazards, noise, working with dangerous materials, manual handling, working in confined spaces, working at height, and electrical hazards such as overhead cables and conduits • control measures required by different site and soil conditions • control measures required by other site conditions such as working with surrounding structures, restricted site access conditions, traffic control issues and working in proximity to others, including worksite visitors and the public.
Safe work method statements refer to:	• the requirements of the Australian Safety and Compensation Council's National Standard for Construction Work.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by demonstration of the successful supervision of a tilt-up construction project.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- It is essential that competence is demonstrated in the relevant aspects supervising the erection of one multi point pre-cast tilt slab and one cast in-situ tilt slab each of at least 10 tonne.
- Competence requires full compliance with the Australian Safety and Compensation Council's National Standard for Construction Work and National Code of Practice for induction training for construction work. Competence also includes demonstrated familiarity with and understanding of tilt-up construction codes of practice, standards, regulations and approvals gaining processes, and their application.
- A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
  - access and apply legislative requirements
  - identify OHS hazards and assess and control OHS risks associated with the tilt-up construction process
  - prepare the site OHS management plan
  - plan, prepare and carry out the tilt-up construction process and implement state or territory legislative requirements and guidance material
  - identify potential hazards and interpret and apply information from plans, specifications, drawings and procedures.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in either a Building or Construction office
  - relevant codes, standards and government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the candidate, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4023A Plan and undertake the site inspection and assessment of asbestos products and materials

Unit Descriptor

This unit specifies the outcomes required to plan, inspect and remove samples of asbestos materials and substances. The unit includes the research, planning, preparation and conduct for the inspection of asbestos materials. It also includes the competence to remove, handle and quarantine samples for testing.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of site managers, forepersons and related industry professionals with a responsibility for planning and undertaking site inspections and assessments of asbestos products and materials and removing samples for testing.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for the inspection.	1.1 Building plans and records are researched to determine the potential type(s) of asbestos and other potentially hazardous materials. 1.2 The ***locations*** containing ***asbestos materials*** are identified and assessed. 1.3 The methods for asbestos inspection and the removal of small asbestos samples in each location are determined. 1.4 The steps in the inspection process are planned to comply with ***legislative requirements, standards and codes of practice***. 1.5 A ***job specification*** and report sheet are prepared.
2. Undertake an asbestos inspection and assessment.	2.1 The ***human and physical resources*** required for the job are identified and confirmed. 2.2 The client is informed of the process and timing and queries are answered. 2.3 The site is secured in accordance with asbestos inspection methods. 2.4 ***Plant, tools and equipment*** are selected to carry out tasks consistent with the requirements of the job. 2.5 An asbestos inspection is undertaken in accordance with the job specification and relevant ***OHS procedures***. 2.6 Asbestos sample/s is/are removed from the structure in accordance with the asbestos removal plan. 2.7 Removed asbestos samples are placed into appropriate sample bags, sealed, labelled and removed from the site in accordance with regulatory requirements. 2.8 Sealing and repairs of asbestos material are undertaken in accordance with the job specification, relevant OHS procedures and legislative requirements, standards and codes of practice.

3.	Clean up the job site.	3.1	The work area is cleared and materials disposed of in accordance with legislative requirements, standards and codes of practice.
		3.2	Plant, tools and equipment are cleaned and hazardous material handled and disposed of in accordance with legislative requirements, standards and codes of practice.
		3.3	Plant, tools and equipment are maintained and stored in accordance with manufacturer recommendations.
4.	Prepare samples for testing and finalise report.	4.1	Samples are tagged, identified and forwarded to the testing laboratory in accordance with legislative requirements, standards and codes of practice.
		4.2	Reports are completed in accordance with the job specification and standard work practices.
		4.3	Reports are forwarded to relevant individuals and bodies in accordance with legislative requirements, standards and codes of practice.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills:
  - timely verbal and written client/customer communication
  - verbal and visual instructions and fault reporting, including mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
  - on-site meeting processes, including notification/scheduling (time, place, and purpose), task discussions and local coordination of procedural and operational issues.
- reading and interpretation skills to facilitate understanding of:
  - information sources, including verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
  - instructions issued by authorised organisational or external personnel
  - manufacturer specifications and instructions where specified
  - organisational work specifications and requirements
  - regulatory/legislative requirements pertaining to the inspection and removal of asbestos
  - relevant Australian standards and codes of practice
  - safe work procedures related to the inspection and sample removal of asbestos.

Required knowledge:

- asbestos containing materials
- asbestos identification procedures
- asbestos hazard management
- control methods
- general construction terminology
- handling requirements of differing types of asbestos materials
- hazards associated with the inspection and removal processes
- health surveillance requirements
- health hazards and effects
- knowledge of current asbestos legislation and codes of practice
- materials handling, storage and environmentally friendly hazardous waste management
- other hazardous substances
- personal protective equipment
- plans, drawings and specifications
- quality requirements
- risk assessment processes and contingency planning
- techniques associated with the material safety data sheets inspection, assessment and removal of asbestos sample(s)
- types, characteristics, uses and limitations of tools, plant and equipment involved in the inspection, assessment and removal of asbestos sample(s)
- workplace and equipment safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Locations containing asbestos include:

- house walls
- house roofing
- roof eave linings
- electrical meter boards
- bathroom:
  - wall lining
  - ceiling lining
  - tile lining
- hot water heater (millboard sheet)
- textured wall panelling
- under floor tiles
- shed roofing (corrugated asbestos)
- shed walls
- dog kennels
- lining above windows and doors
- wood heaters
- sub floor packing
- insulation in heaters and stoves
- hot water piping chased into walls.

Asbestos materials:

- asbestos may be located in friable materials or non-friable products and may be sprayed, bonded or embedded
- asbestos materials may take the form of:
  - asbestos boards
  - asbestos coatings
  - asbestos-based lagging materials
  - bonded asbestos
  - asbestos-based floor tiles.

Legislative requirements, standards and codes of practice include:

- all current federal and state or territory legislation, regulations and codes of practice relating to materials containing asbestos, for example:
  - Dangerous Substances (Asbestos) Act 2005 (ACT)
  - Occupational Health and Safety (Asbestos Removal Work) Regulation 1996 (NSW)
  - Work health (Occupational Health And Safety) Regulations 1996 (NT)
  - Code of Practice for Safe Treatment, Removal and Disposal of Asbestos Cement Sheeting and Asbestos Coated Metal Sheeting, 1992 (QLD)
  - Code of Practice for the Safe Removal of Asbestos 1986 (SA)
  - Occupational Health and Safety Act 1989 (TAS)
  - Occupational Health and Safety (Asbestos) Regulations 1992 (VIC)
  - Health (Asbestos) Regulation (WA)
- advice on current legislation and codes for a specific location should be sought from the relevant statutory and local authorities before commencing to plan for work.

A job specification includes:

- confirming the information supplied by the client, as listed in the code of practice, e.g.:
  - nature of the location of materials to be removed - indoors, outdoors and exposed to weather
  - technical description of materials to be removed
  - dimensions and details of material usage
  - details of asbestos materials to be left in place
- specifying removal methods, including:
  - isolation of locations
  - contamination control
  - waste disposal program
  - equipment and temporary building requirements.

Human and physical resources include:

- appropriately trained staff
- personal protective equipment:
  - disposable coveralls
  - double strap disposable mask (p1 or p2)
  - disposable filters
  - gumboots or workboots with no laces
  - disposable gloves.
- isolating materials:
  - ropes
  - barriers
  - plastic screens
  - waste containers
  - warning signs.
- water, power, heat, light and drainage
- access equipment such as scaffolding or ladders
- accommodation, decontamination and canteen facilities.

Plant, tools and equipment include:

- drills
- wrenches
- pliers
- scrapers
- brushes
- dustpans and brushes
- approved vacuum cleaner with HEPA filter
- bars (crow and pinch)
- sledge hammers
- hammers
- shovels/spades
- brooms
- hoses and spray fittings
- fall protection devices
- signs and barricades
- decontamination units/chambers
- scaffolds
- ladders
- step ladders.

OHS procedures include:

- OHS requirements are to be in accordance with legislation/regulations/codes of practice, organisational safety policies and procedures and project safety plan. This may include protective clothing and equipment, air monitoring equipment, use of tools and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, organisational first aid, hazard control and hazardous materials and substances.
- Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices.
- Safe operating procedures are to include but not be limited to the conduct of operational risk assessment and treatments associated with working with dangerous/hazardous materials, working in confined spaces, surrounding structures, falling objects, plant movement, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public.
- Emergency procedures related to equipment operation are to include but may not be limited to organisational first aid requirements and evacuation, emergency shutdown and stopping.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by undertaking an asbestos inspection and assessment ensuring:
  - correct selection and use of appropriate procedures, plant and equipment
  - removal of asbestos samples
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - communication and working effectively and safely with others and customer/client.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the ability to locate, interpret and apply relevant information, standards and specifications
  - compliance with site safety plan and OHS legislation/regulations/codes of practice applicable to workplace operations
  - compliance with organisational policies and procedures, including quality requirements
  - safe and effective operational use of tools, plant and equipment for the inspection and sample removal of asbestos
  - correct identification of the requirements and application of the process.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - workplace location or simulated workplace
  - appropriate plant, tools and equipment for the inspection, assessment and removal of asbestos samples
  - appropriate materials for the inspection, assessment and removal of asbestos samples
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4024A Resolve business disputes

Unit Descriptor

This unit specifies the outcomes required to advise on or resolve business disputes which may arise in the course of activities in residential and commercial contracting projects. Dispute resolution procedures may be applied as one of the disputing parties, or as an independent party.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons, estimators, managers and other construction industry personnel who have the responsibility to ensure that business disputes are resolved in a positive manner.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Develop and implement dispute resolution procedures.	1.1 Established business ***dispute resolution procedures*** are consulted and implemented as appropriate. 1.2 In the absence of established business dispute resolution procedures, these are developed and documented and agreement to the procedures is secured from all parties. 1.3 Recording procedures are established and provision for record keeping made. 1.4 External arbitrators or conciliators are identified for consultation when disputes cannot be resolved internally.
2. Conduct an initial investigation into business disputes and possible resolution strategies.	2.1 The nature and ***cause of business disputes*** is identified and documented. 2.2 Parties to the dispute are identified, approached individually and the issues are clarified and documented. 2.3 Solutions based on an examination of the information collected and with reference to contractual arrangements are suggested.
3. Identify opportunities for dispute resolution.	3.1 Efforts are made to bring the disputing parties together. 3.2 Where necessary, external arbiters or conciliators are consulted. 3.3 Relevant statutory laws are identified, applied and followed. 3.4 Disputes are resolved in accordance with common law.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- negotiation
- oral communication skills to research and evaluate information and circumstances surrounding a business dispute
- problem solving
- written communication skills to write memos and reports, complete checklists, send emails and faxes and communicate by telephone.

Required knowledge:

- contractual and business frameworks underpinning the building and construction industry
- mores, values and attitudes of various groups in the community
- psychological and emotive behaviour of persons under pressure.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Dispute resolution procedures include:

- on-site negotiations
- arbitrated decisions
- litigated decisions
- mutual resolution
- common law outcomes
- reference to contractual obligations.

Causes of business disputes include:

- contract payment issues
- different opinions about design, structural layout, dimensions
- structural finish, quality, materials or construction methodology
- dissatisfaction with project progress.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by developing a set of dispute resolution procedures and demonstrating how these would apply to a selection of case study disputes.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the ability to identify the nature of the dispute and the identity of the parties to the dispute
  - the capacity to document the details of the dispute in sufficient terms for an unambiguous evaluation of the issues to occur
  - the ability to identify and follow established dispute resolution procedures
  - the ability to develop and implement dispute resolution procedures, where there are none established
  - an understanding of the need to remain completely impartial in any involvement in a dispute.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in either a Building, Construction or Civil Contracting office
  - relevant codes, standards, government regulations
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4025A Manage personal work priorities and professional development

Unit Descriptor

This unit specifies the outcomes required to present confidently, prepare for personal responsibilities in the workplace and provide opportunities for personal professional development.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers and forepersons, estimators, managers and other residential and commercial construction industry personnel.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Manage self.	1.1 ***Personal qualities*** recognised as best practice are demonstrated. 1.2 Organisational strategies and priorities and personal responsibilities and accountability are reflected in personal performance plans. 1.3 Stable work performance is maintained under pressure. 1.4 Difficult situations are addressed and concluded positively. 1.5 Mental and physical fitness are maintained to enable work performance requirements to be met. 1.6 Personal grooming, appearance and hygiene standards are maintained at a high level.
2. Set and meet own work priorities.	2.1 Competing demands are assessed and organised to achieve individual, team and organisational ***work priorities***. 2.2 Events are managed effectively to accomplish individual, team and organisational goals and objectives, and personal job requirements. 2.3 Technology is used to improve efficiency and effectiveness in managing work priorities and commitments.
3. Develop and maintain professional competence.	3.1 Personal strengths and weaknesses are assessed against the requirements of the job to determine personal development priorities. 3.2 Feedback on performance is used to improve professional development. 3.3 Management skills are identified and developed to enhance personal performance. 3.4 Participation in professional networks and associations is used to enhance knowledge, skills and relationships.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- managing change
- managing conflict
- managing improvement processes
- oral communication skills to participate in workplace conversations and meetings and to communicate by telephone
- reading skills to facilitate the comprehension and interpretation of a range of workplace documents
- written communications skills to produce memos and reports, complete checklists, send emails and faxes.

Required knowledge:

- mores and values of the workplace
- professional network and associations within the industry
- relevant local codes, standards and regulations applicable to the building and construction industry
- the technologies applicable to and found within the workplace
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Personal qualities include:

- timeliness and punctuality
- perseverance
- neatness of personal presentation
- integrity
- probity
- fairness
- confidence
- patience.

Work priorities include:

- work in progress
- planning new work
- individual and team goals and targets
- dealing with conflicting goals
- prioritising and scheduling
- reassessing performance
- determining work and personal needs.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the preparation of a personal work and personal development plan.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • an understanding of personal motivation and commitment
	  • the ability to manage day to day responsibilities and conflicting demands in an efficient and cooperative manner
	  • the ability to relate positively to fellow workers and the management team
	  • the ability to assess personal strengths and weaknesses and plan and implement appropriate personal development.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building or construction office
  - relevant codes, standards, government regulations
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4026A Arrange building applications and approvals

Unit Descriptor

This unit specifies the outcomes required to prepare documentation and submit a building approval application or submission to appropriate authorities and the management of the submission through to its final approval.

To successfully manage building approvals requires a detailed understanding of the technical documentation that must be prepared, including building plans and specifications together with knowledge of the current regulatory and planning processes. The unit requires the ability to communicate effectively with related building professionals, planning officers and clients.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for coordinating and managing the building approval process. The unit has application to residential and commercial building projects. Although the building approval process is highly structured, there is a significant degree of variability between building approval submissions which requires problem solving and effective communications to achieve the required outcomes.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan the process for lodging approval applications.	1.1 The ***approvals*** required for each project stage are identified. 1.2 The level and type of ***information and documentation*** needed for the application is determined and confirmed, where appropriate, in consultation with ***external specialists***. 1.3 A plan is determined to develop and submit the plan for approval, recognising scheduling requirements and the needs of the client. 1.4 External specialists are consulted, as required, to facilitate certification of documents.
2. Prepare and lodge applications for approval.	2.1 All necessary documentation and supporting information is prepared and checked for conformance with the requirements of the building approval authority. 2.2 The impact of the planning application on the range of ***stakeholders*** is analysed and strategies adopted to maximise the likelihood of their support for the application. 2.3 All necessary documentation and supporting information is lodged with the approval authority. 2.4 Confirmation of the status of the application is sought at appropriate intervals to ensure continuing progress.

3. Evaluate and review outcome of application.	3.1 The outcome of the building approval application is assessed to determine the impact on the project. 3.2 Where required, minor changes and/or amendments are negotiated in accordance with client, enterprise and approval authority requirements. 3.3 Rejected submissions are analysed to determine the likely success of an appeal or a resubmission and the course of action is determined with the client. 3.4 Confirmation of the status of the application is determined at regular intervals and conveyed to the client in a timely manner.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- oral communication skills to facilitate liaison with clients, consultants, specialists and approval authorities
- reading skills, including the interpretation of a range of documents such as working drawings, plans, specifications, codes of practice and regulations
- written communication skills to facilitate preparation of planning submission and reports.

Required knowledge:

- building approval processes
- documentation requirements of building approval submissions
- enterprise document control processes
- enterprise policy relevant to building approval submissions
- industry code of practice
- range of planning approval types
- relevant Australian standards
- specialists available for certification of documentation.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Approvals include:

- development applications
- building approval applications for:
  - staged approval
  - full approval
- sustainability requirements
- fees and levies.

Information and documentation include:

- design briefs
- working drawings
- plans
- specifications
- specialists reports.

External specialists include:

- structural, mechanical and electrical engineers
- building surveyors, quantity surveyors and site surveyors
- geo-technical and/or environmental specialists.

Stakeholders include:

- client
- neighbours
- existing tenants
- local community
- interest groups
- finance providers
- employee/staff.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the preparation, submission and management of a building approval. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - logical, accurate and complete documentation of planning submissions
  - sound document control processes
  - application of relevant Australian standards
  - ability to manage a range of approval types, e.g. fire safety compliance, sustainability or other approvals which may be required by the local authority
  - ability to interpret building approval requirements and processes.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including client briefs, designing concepts, construction schedules and necessary supporting documentation
  - client file and information for review.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4027A Establish a basis for sales consulting

Unit Descriptor

This unit specifies the outcomes required to develop information about the sales process. The unit covers the construction industry and establishing personal standards in support of the sales process.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants and other professionals within the building and construction industry who have a responsibility for the marketing and sale of newly constructed residential and commercial structures.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Develop knowledge of the industry.	1.1 ***Industry sectors*** are identified. 1.2 Knowledge of the styles within industry sectors is developed, including individual design, project and architectural designs, renovations and additions. 1.3 ***Market segments*** within the relevant industry sector are identified.
2. Demonstrate the key attributes of an industry sales consultant.	2.1 Honesty and integrity in dealing with members of the public are demonstrated. 2.2 A genuine desire to meet people's needs and an interest in assisting them with their purchase is demonstrated. 2.3 Activities, which focus on the customer and assist them to make realistic decisions is a feature of customer interaction. 2.4 A high level of professionalism is demonstrated, including loyalty to the organisation and concern for the customer. 2.5 Industry codes of conduct are honoured and a high level of probity and proficiency is demonstrated.
3. Manage self-development and personal performance.	3.1 A ***self-development*** plan is produced, which reflects individual and company goals and targets. 3.2 ***Personal performance*** is reviewed, evaluated and modified, as required. 3.3 Processes are put in place to maintain personal mental and physical well being.
4. Develop and maintain professional competence.	4.1 Ongoing training and development, to meet ongoing requirements for professional development programs, is identified and attended. 4.2 Participation in professional networks and associations is used to enhance knowledge, skills and relationships.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis
- communication skills to interact clearly and effectively with members of the public, convey information factually and accurately without overpowering the client and to express a genuine interest
- listening and questioning skills to avoid misinterpretation of client requirements
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- available education and training opportunities
- industry intelligence and market analysis
- professional development models
- self improvement models.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Industry sectors include:

- single and multiple storey buildings
- double brick, brick veneer, rammed earth, and steel frame construction residences
- timber and/or fibro-cement construction.

Market segments include:

- first and subsequent home buyers
- speculative and investment buyers.

Self- development includes:

- professional development relating to sales and industry skills
- membership of professional associations
- undertaking appropriate training courses
- maintaining product and construction knowledge
- maintaining financial and lender knowledge.

Personal performance includes:

- oral communication skills
- presentation skills
- mannerisms and demeanour
- level of achievement
- commitment to organisational goals and objectives
- commitment to achieving sales targets.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by preparing and submitting a self development plan and a marketing plan for the sale of a structure.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an understanding of the role and importance of the sales consultant in identifying the characteristics of the sectors of the construction industry and the range of products available in each sector
  - the ability to demonstrate the key attributes of a sales consultant, including personal presentation, oral communication skills and mannerisms which support client contact and instil confidence
  - an understanding of the importance of adhering to organisation ethical and probity standards
  - the ability to manage personal professional development and performance in line with organisational expectations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standard and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area
  - promotional materials and relevant information on marketing, market segments and sales strategies.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4028A Prepare design brief for construction works

Unit Descriptor

This unit specifies the outcomes required to generate a brief for a conventional design, seek feedback on drafts, negotiate with the client and prepare a final design brief for client approval.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, site managers, estimators, forepersons and other construction industry personnel who have a responsibility for preparing design briefs from client requests for residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Confirm client requirements.	1.1 Client requirements are clarified and confirmed through discussion with the client, and team member, if appropriate. 1.2 The financial expectations of the client are reconfirmed. 1.3 Preliminary design notions are discussed with team members to ensure consistency with the client's vision.
2. Clarify stakeholder requirements.	2.1 Input from ***stakeholders*** is assessed to confirm the responsibilities, requirements and limitations of the design brief. 2.2 An analysis of the site survey is commissioned, as appropriate, and all relevant information is gathered and used to inform the development of the brief.
3. Negotiate engagement with the client.	3.1 The ***fee proposal*** is discussed with the client and amended as appropriate prior to formalisation of the agreement. 3.2 The scope of services to be undertaken within the contract is discussed and confirmed with the client, either directly or by delegation to a team member. 3.3 Draft proposals are presented to the client, and client feedback is used to modify and improve the proposal. 3.4 The design brief is finalised in compliance with stakeholder requirements and all documentation is completed to client satisfaction.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills, including oral communication, active listening, questioning and negotiation skills;
- customer service
- numeracy skills, including budgeting and forecasting;
- reading skills, including the interpretation of a range of documents such as design briefs, sketches, drawings and plans
- risk analysis and management.

Required knowledge:

- fee structures
- industry codes of practice
- relevant statutory requirements
- scope of services provided by the enterprise.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Stakeholders include:

- architects and designers
- construction managers, site supervisors
- services authorities
- federal, state or local authorities
- regulatory bodies
- principals of the building and construction company or other relevant senior personnel
- subcontractors.

Fee proposals to be developed with consideration given to:

- cost/benefit analysis
- financing options
- client profile and relationship to the building and construction company.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective preparation of a design brief applicable to construction project work.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an understanding of financial, legal and administrative factors affecting the contractual relationship
  - the ability to communicate with clients effectively
  - the ability to apply and interpret relevant statutory requirements
  - the ability to analyse and commission a client design brief which complies with the requirements of all relevant stakeholders.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - access to documentation, including any correspondence relevant to the assessment
  - access to relevant management information.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4029A Apply construction information to the sales process

Unit Descriptor

This unit specifies the outcomes required to apply construction information to the sales process in order to develop the customer's knowledge of construction processes and the effects on contract and building timelines. Effective communication with the client and provision of accurate information which contributes to a positive relationship between the client and the organisation are essential to performance.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants and other professionals within the building and construction industry who have a responsibility for the marketing and sale of new residential and commercial constructions.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify the approvals required before starting construction.	1.1 Statutory ***approvals***, in accordance with contractual or legal requirements, are identified and explained to the customer. 1.2 ***Insurance cover***, required in accordance with legal or contractual requirements, is identified and explained to the customer.
2. Identify the sequence of construction.	2.1 The main trade components of construction are identified and explained to the customer. 2.2 The construction process sequence is identified and explained to the customer. 2.3 The approximate duration of the main stages of construction are identified and explained to the customer. 2.4 The ***industry conditions*** that affect construction times are identified and explained to the customer.
3. Identify the requirements for establishing a site before starting construction.	3.1 ***Site establishment requirements***, in accordance with legal requirements and company policy, are identified and explained to the customer. 3.2 Arrangements for access to the site are established with the client.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communicate with the client in a clear and concise manner
- estimate approximate construction timeframes based on the specifications of the building and site details
- respond to client questions about the building construction process
- technological skills to facilitate use of the organisation's software and office technology.

Required knowledge:

- approvals which must be obtained prior to commencement
- building construction process and sequence of events
- site establishment requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Approvals include:

- Local Government Act building provisions approvals
- building license approvals
- Health Department effluent disposal approvals
- water service and sewerage connection approvals
- electricity supply permits.

Insurance cover includes:

- indemnity
- builder all risk
- public liability
- workers compensation.

Industry conditions include:

- availability of labour and materials
- provisions for inclement weather
- sub-contacting structure.

Site establishment requirements include:

- site facilities
- signage
- water connection
- protection for adjoining owners
- access and egress
- earthworks
- drainage
- electricity supply
- rubbish and waste disposal.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by listing the approvals and insurances required for a construction project, identifying the requirements for establishing the site and the sequence of the construction.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identification and explanation of the nature of the approvals which have to be obtained before the contract proceeds
  - ensuring that the right information is passed on to the client at the right time
  - providing information that is accurate and easily understandable without unnecessary jargon
  - using information effectively in communicating with clients
  - explaining the circumstances which can contribute to delays in building progress and the impact of those delays.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the sales process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4030A Analyse and communicate industry information

Unit Descriptor

This unit specifies the outcomes required to analyse and communicate information about the industry environment and opportunities. The unit extends the information base for the sales process and furthers the ability of the salesperson to sell the industry and its products to the community.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants and other professionals within the building and construction industry who have a responsibility for the marketing and sale of new residential or commercial constructions.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Review external and internal industry operating environments.	1.1 The factors forming the ***external operating environment*** are identified. 1.2 ***Economic factors*** impacting on the housing industry are understood and taken into account. 1.3 Knowledge of the availability of land, the characteristics of new sub-divisions and the geographic location is demonstrated. 1.4 The impact of ***social factors*** affecting the industry are understood and taken into account. 1.5 The ***personal perceptions*** of potential clients are recognised and noted. 1.6 The ***capacity*** of the industry and the building and construction company to meet client requirements is understood and factored into communications with the client.
2. Identify and evaluate competition to building and investment.	2.1 Factors which provide ***competition*** for finance are understood. 2.2 ***Other markets*** which compete for investments are identified and their strengths and weaknesses analysed and understood.
3. Identify and communicate the benefits of the industry's operating structure.	3.1 The benefits of the industry's subcontract system are explained to clients. 3.2 The competitive nature of the industry market place is identified as a strength benefiting the client. 3.3 Alternative opportunities in speculative and project construction are explained to the customer. 3.4 Company operating structures and industry productivity information are used effectively to attract customers.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analytical skills and initiative to facilitate identification of alternative opportunities in project construction
- communication skills to interact clearly and effectively with members of the public, convey information factually and accurately without overpowering the client and to express a genuine interest
- listening and questioning skills to avoid misinterpretation of client requirements
- planning and organisational skills to facilitate the effective gathering, researching and evaluation of information
- problem solving skills to be able to identify and address any barriers to the process of communicating and selling the benefits of the industry to clients
- technological skills to enable access to industry information.

Required knowledge:

- attributes which contribute to good customer relations e.g. listening and making eye contact
- economic circumstances and seasonal factors which influence the volume of housing sales
- effect of body language and personal appearance on client attitudes and behaviour
- industry-specific, including market segments and product range
- purchasing patterns and other socio-economic data
- types of potential customers and the factors which stimulate their decision to purchase a new dwelling.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

External operating environment:

- characteristics of the market place that influence an individual's building/property investment decisions include:
  - perceptions about the value of the currency and possible movements
  - perceptions about the investment value of the completed property
  - perceptions about the resale value of the property
  - speculative ambitions
  - interest rate movements.

Economic factors include:

- level of economic activity
- current interest rates
- availability of finance.

Social factors include:

- job security or insecurity
- level of socio-economic activity
- business confidence
- migration.

The personal perceptions of clients include:

- perceptions about the value of the currency and possible movements
- perceptions about the investment value of the completed property
- perceptions about the resale value of the property
- speculative ambitions
- perceptions of potential interest rate movements.

Capacity to meet client expectations and needs may be influenced by:

- current order levels
- availability of labour and materials
- current financial situation
- projects already committed.

Competition includes:

- the effects of investments in:
  - the share-market
  - art
  - antiques
  - rental properties.

Other markets include:

- existing real estate properties
- high rise apartments
- mobile homes
- apartments
- high rise construction
- holiday homes and resorts
- retirement villages
- duplexes and triplexes
- terrace housing.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the preparation and submission of a current market analysis for the local region, outlining the external operating environment, competition and local opportunities.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an understanding of the external operating environment, economic and social factors and associated issues such as land availability which relate to housing sales
  - an understanding of internal factors which can affect construction planning
  - the ability to sell the benefits of housing construction to customers as a form of investment
  - an understanding of the importance of adhering to organisational ethics and probity standards
  - the ability to provide detailed information to clients effectively and efficiently.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4031A Process client requirements

Unit Descriptor

This unit specifies the outcomes required to process client requirements in relation to contract documentation, including drawings and specifications appropriate to residential and commercial construction projects. Knowledge of the construction planning process and the ability to obtain client information, accurately convey that information to those developing the contract documentation and complete the administration of the contract documentation process is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants, site managers, forepersons, estimators and other professionals within the building and construction industry who have a responsibility for processing client requirements.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and communicate the design requirements.	1.1 Client design requirements are identified and documented. 1.2 Client needs are met by providing correct technical or product knowledge. 1.3 Restrictive covenants are identified and communicated to the client. 1.4 Planning requirements are identified and applied. 1.5 Documentation and design risks, including copyright issues, are identified and addressed.
2. Interpret site costs reports.	2.1 A site investigation is arranged to determine the site features and costs. 2.2 Site costs are communicated accurately to the client. 2.3 Client understanding of the extent and cost of the ***site works*** required is confirmed.
3. Arrange and oversee the preparation of sketch plans.	3.1 The requirements for sketch plans and drawings are accurately communicated to drafting personnel. 3.2 Plans are forwarded to the client for approval or amendment. 3.3 Costing and variation requests accurately communicate client requirements.
4. Finalise the contract requirements.	4.1 All sketch plans, specifications and costing documents are discussed with client. 4.2 All documents sighted by the client are signed and details initialled.
5. Prepare the preliminary contract and/or plan agreement.	5.1 The plan agreement/preliminary ***contract*** is prepared and completed according to organisational policy. 5.2 Documents are submitted to the relevant department or personnel for checking and recording.

6. Oversee the contract and contract construction documents.	6.1 ***Contract documents*** are prepared according to instructions. 6.2 Construction documents are prepared according to preliminary contract/plan agreement details.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills to facilitate communication in writing, by telephone, facsimile, email and in person with staff, clients and regulatory authorities
- personnel and resource management skills to achieve development or project objectives
- teamwork skills to facilitate efficient and effective administration of contracts.

Required knowledge:

- building and construction industry contracts
- building and construction industry planning processes
- financial and business principles
- regulatory authority approvals processes for the area in which the project is to be undertaken
- roles of relevant stakeholders involved in the administration of building and construction contracts
- state or territory building and construction codes, standards and government regulations.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Site works include:	• earthmoving, using tracked or wheeled earthmoving equipment • activities intended to render an area suitable for building or other construction activity • determining and setting out building or construction features • establishing personal and vehicle access and egress to and from the site.
Forms of ***contract*** may include:	• individual organisational contracts • JCC Suite contracts • SBW2 Lump Sum • CIC Suite contracts • MBA, HIA and standard industry contracts • Australian standard contracts (including the AS2124 and AS4000 series) • SBW series contracts.

Contract documents include:	• formal contracts • design details • site plans and sketches • materials specifications • quantities • building permits or approvals • certification from local authorities.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by effective processing of client requirements.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • obtaining accurate and detailed information concerning client needs
	  • selecting the right type of contract for the particular project
	  • processing the contract and all other relevant correctly
	  • selecting the appropriate clauses and conditions to apply within the contract
	  • administrating the contract to the standard required by the organisation and within any legal or regulatory requirements that may exist in the State or Territory in which the work is being done
	  • obtaining confirmation, by initial and signature, of client acceptance of the project documentation and plan agreement/preliminary contracts.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4032A Apply contract law to sales processes

Unit Descriptor

This unit specifies the outcomes required to apply contract law to the sales process, for either residential or commercial construction. Knowledge of contract selection, pre-contract agreements, preliminary contracts, insertion of appropriate clauses and the inclusion of the contract in the sales process is essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants, builders and other professionals in the building and construction industry who have a responsibility for applying relevant legislation to the sales process.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply contract law as it relates to the sales process.	1.1 ***Contract law*** is applied according to relevant federal and state legislation and common law principles, including the law of contract, offer and acceptance. 1.2 The importance of the contract to the sales process and the implications of contract law are explained to the client. 1.3 The types and purpose of contracts employed within the industry and are explained to the client. 1.4 ***Clauses in the contract*** are described to the client and the reasons for inclusion and impact explained. 1.5 The appropriate measures to be taken, in the event of an anomaly in the rendering of the contract, are determined and explained to the client.
2. Identify other legislative requirements applying to the sales process.	2.1 Contracts are negotiated in accordance with ***other federal, and state or territory laws, regulations and codes***, including the Trade Practices and Fair Trading Acts and regulations. 2.2 Cooling off periods, definitions of building work and PS and PC allowances are applied.
3. Identify and apply types of pre-contract agreements.	3.1 Identify ***pre-contract agreements*** which meet legal and enterprise requirements. 3.2 ***Pre-contract*** clauses are discussed and agreed with the client. 3.3 Apply the correct pre-contract agreements.
4. Finalise the precontract agreement with customer.	4.1 Clauses which reflect client requirements are included in the pre-contract agreement. 4.2 Documents are signed in accordance with legal and organisational requirements. 4.3 A payment or deposit is received from the client in accordance with legal and contractual requirements. 4.4 Documents are processed according to organisational policy.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to act with initiative and foresight to ensure clauses, pre-contractual arrangements and other legalities are applied accurately to the process
- oral and written communication skills to facilitate effective communication by phone, facsimile, email or in writing, with members of the organisation and external parties, including clients and subcontractors and to facilitate drafting detailed responses to queries relating to the finer points of contracts.
- problem solving skills to facilitate effective negotiation of contracts with clients
- reading and comprehension skills to facilitate understanding and interpretation of complex legal text.

Required knowledge:

- contract types and the circumstances they cover
- definitions and interpretations commonly applied to contracts
- definitions of building work
- Fair Trading regulations, including cooling-off periods
- legal meanings of terms and clauses in building and construction contracts
- relationship between the organisation and its clients
- roles of relevant stakeholders critical to the application of contract law to the sales process.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Contract law includes:

- common law
- federal, and state or territory legislation such as:
  - Home Building Contracts Act 1991 in Western Australia
  - Home Building Act and Regulations 1989 in New South Wales
  - Builders Registration Acts in various States or Territories.

Clauses in the contract include:

- scope of work
- offer and acceptance
- terms and representations
- retention of moneys
- cost adjustments
- payments
- extensions of time.

Other federal, and state or territory laws, regulations and codes include:	• Fair Trading Act 1987 in WA • commonwealth Trade Practices Act • consumer credit codes in each State or Territory • common law.
Pre-contract agreements include:	• preparation of plan agreements • preliminary contracts • offer and acceptance documentation.
Pre-contract clauses include:	• scope of work • time for completion • conditions.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the effective application of mechanical principles and concepts in accordance with the range of variables and application to only one sector of the building and construction industry.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • explaining to the client the importance of the contract in the sales process and how the contract is applied
	  • selecting the right contract for the particular project and explain the reasons for that choice
	  • selecting the appropriate clauses and conditions within the contract and explaining the impact of those clauses
	  • administering the contract to the standard required by the organisation and within any legal or regulatory requirements that may exist within the State or Territory in which the work is being done
	  • determining and explaining the appropriate measures to be taken in the event of an anomaly in the rendering of the contract.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable sales area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4033A Maintain the sales environment

Unit Descriptor

This unit specifies the outcomes required to set up and maintain the sales environment, providing a clean and attractive location in which to promote and sell the organisation's products and services.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of sales consultants and other professionals within the building and construction industry who have a responsibility for the marketing and sale of new residential and commercial constructions. It is essential that competence is demonstrated by the ability to establish and maintain an environment in which the best features of display are possible and customers feel free to discuss their ideas and options and obtain accurate and well informed advice.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Organise the display or presentation area.	1.1 The ***display or presentation area*** is maintained in a neat and professional manner. 1.2 Customer facilities are provided, including adequate parking, children's activity area and adequate seating. 1.3 The display or presentation area is correctly arranged for adequate access, reduced noise, privacy and desk or demonstration space.
2. Place, display and arrange plans, brochures and product information.	2.1 Displays are set up at an appropriate level, within reach, ensuring that traffic through the area is not impeded. 2.2 The ***product information*** provided is accurate, understandable and attractively packaged. 2.3 The main features of products are identified, including design and visual features, specifications and cost advantages. 2.4 Enterprise promotional campaign materials are made available to all sales consultants.
3. Implement housekeeping policies.	3.1 Displays or sales areas and offices are used in accordance with company policies. 3.2 ***Housekeeping*** requirements such as cleaning, lighting and room aesthetics are addressed to maintain a pleasant and fresh environment.
4. Identify maintenance requirements.	4.1 Maintenance requirements are identified and communicated to the organisation. 4.2 Maintenance matters are followed up.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills to interact clearly and effectively with members of the public, convey information factually and accurately without overpowering the client and to express a genuine interest
- coordinating and scheduling skills
- creative problem solving skills to ensure product displays are set up within designated areas without impeding traffic
- listening and questioning skills to avoid misinterpretation of client requirements
- technological skills to enable effective use of marketing and sales strategies, preparation of documentation and communication with clients.

Required knowledge:

- contemporary understanding of effective interior design solutions
- enterprise standards for the management of the display home or setting.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Display or presentation areas include:

- areas set aside for promotional purposes in display centres
- front office scenarios
- portable display areas and stands
- mobile display space
- exhibition space.

Product information includes:

- brochures
- plans and drawings
- artists impressions and sketches
- price lists
- colour charts
- samples of materials and building products.

Housekeeping includes:

- general cleanliness and hygiene of display areas
- rubbish and litter removal
- regular dusting and vacuuming
- maintaining adequate lighting
- maintaining the cleanliness of display racks and space.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by arranging a sales presentation area with appropriate displays of product information.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the ability to select the most appropriate location in which to establish the sales environment, providing an area in which it is possible to hold a private conversation with limited distraction from other persons in the area
  - the ability to establish displays of materials and drawings in positions of prominence without obstructing the movement of people through the area
  - the ability to maintain an environment, which is well lit and pleasantly appointed, clean and free from dirt and debris.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, government regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - sales and promotional materials and display units
  - a suitable work area appropriate to the sales process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4034A Apply codes and standards to building trade and services contracting

Unit Descriptor

This unit specifies the outcomes required to access, interpret and apply relevant codes and standards applicable to the performance of building trade contracting and plumbing services. To successfully comply with the range of relevant codes and standards requires a thorough and relevant knowledge of the purpose of the Building Code of Australia (BCA) and/or the Plumbing Code of Australia (PCA) coupled with the ability to interpret and apply specific and relevant standards across the range of trades and service sectors.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the trade contractors and building service sector practitioners who have responsibility for ensuring compliance with the building or plumbing codes and standards which are relevant to their industry sector. The unit can be applied to different trades within the building, construction and plumbing and services industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Access and interpret relevant code and standard requirements.	1.1 Clauses from the national industry code (BCA or PCA) that apply to ***relevant trade areas*** are identified. 1.2 Prescriptive requirements of relevant BCA or PCA clauses are determined. 1.3 Requirements of relevant ***Australian standards*** are accessed and interpreted appropriately. 1.4 Application of relevant state or territory variations (Schedule of Referenced Documents) within the BCA or PCA are accessed and their application evaluated.
2. Apply relevant codes and standards.	2.1 Relevant codes and standards are applied to the selection of work methods. 2.2 Relevant codes and standards are applied to the selection of materials and equipment. 2.3 ***Assessment methods*** are put in place to ensure compliance with relevant codes and standards.
3. Manage ongoing compliance with codes and standards.	3.1 Strategies are identified to ensure current standards and codes are accessed and used. 3.2 Mechanisms are identified and used to inform workers of the required application of relevant codes and standards 3.3 Impact of new materials, equipment or work processes on compliance with relevant codes and standards is evaluated before implementation. 3.4 Relevant documentation and reporting processes are identified and completed in accordance with the relevant codes and standards.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and interpretation skills relating to documentation from a wide range of sources, including BCA, PCA and Australian standards
- application of design concepts and principles in accordance with BCA and standards
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- reading skills, including the interpretation of drawings and specifications
- technological skills to facilitate use of the organisation's software and office technology
- written and verbal communication skills.

Required knowledge:

- definitions and common technical terms or usage specified under general provisions of BCA, the PCA and other standards
- nature of materials and the effects of performance
- relevant legislative and OHS requirements, codes and practices
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

It is recognised that an individual candidate will apply this unit to his/her specific trade skill area. The ***relevant trade areas*** that this unit can be applied to include:

- painting
- plastering
- tiling
- roof tiling
- plumbing and services
- stonemasonry
- bricklaying
- carpentry
- cabinet making and joinery.

Australian standards include but are not limited to:

- Australian standards:
  - AS/NZS2908 Cellulose cement products
  - AS3660 Termite management
  - AS3740 Waterproofing of wet areas in residential buildings
  - AS3786 Smoke alarms
  - AS4256 Plastic roof and wall cladding material
  - AS3553-1988 Adhesives for floor and wall applications - resilient vinyl, linoleum and rubber sheet and tiles
  - AS3958.1-1991 Ceramic tiles - guide to the installation of ceramic tiles
  - AS/NZS2311:2000 Guide to the painting of buildings.

Assessment methods include:

- evidence of suitability
- verification method
- comparison with the DTS provisions
- expert judgement.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed on the application of design principles and solutions specified in the 'deem to satisfy' and 'performance' based concept of BCA criteria applied to building projects or the PCA applied to plumbing and services projects. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of relevant BCA or PCA codes and standards relating to performance and compliance of building project work
  - demonstrated understanding of the Assessment Methods available to determine whether a Building Solution complies with Performance Requirements or Deemed to satisfy (DTS) Provisions of BCA
  - identification of typical faults and problems and necessary action taken to rectify.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - BCA and relevant Australian/New Zealand standards
  - PCA and relevant Australian/New Zealand standards
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including product information and data
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4035A Initiate the heritage works process

Unit Descriptor

This unit specifies the competency required to undertake the essential processes prior to the conduct of heritage works, such as conservation, restoration, duplication and preservation on a building or structure of historical significance. The unit recognises the complexity of the heritage restoration process and the importance of establishing effective work relationships and communications between the range of professionals, tradespeople and stakeholders involved in the project. Establishing common understanding of the nature of the site to be restored and the tasks to be performed are critical to the effective and efficient completion of the project.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the range of technical specialists, builders, project managers and related construction industry professionals who have responsibility for heritage restorations.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify project, location and surrounds.	1.1 Location and nature of the restoration work to be undertaken is identified and recorded following consultations with the architect and site inspections. 1.2 ***Access*** to and from the work location is noted and recorded. 1.3 Area to be disturbed is determined and surrounding areas are noted for possible work application effects and cover ***protection requirements***. 1.4 The nature of the work is assessed and noted for possible use of ***heavy or bulky equipment***. 1.5 Any effect on public access is assessed and recorded to ensure protection of the public and the environment are undertaken.
2. Consult with technical specialists.	2.1 Consultations with the conservator, engineer or supervisor are conducted to discuss and clarify the specific job requirements. 2.2 Specific risks and areas of concern arising due to the nature of the heritage and conservation aspects of the work are identified. 2.3 Agreed processes and timeframes are established to ensure effective communications between the project team members. 2.4 Role responsibilities and requirements are discussed, understood and agreed with project team members.

3. Consult with clients and stakeholders.	3.1 Consultations are held with the client and other stakeholders, as appropriate, to clarify expectations regarding access to the site, performance of the work and timeframes. 3.2 Clients and stakeholders are consulted to ensure common understanding of the historical and/or cultural significance of the heritage building under restoration. 3.3 Appropriate communication channels and reporting processes are discussed and agreed, as appropriate, with the client and other relevant stakeholders.
4. Clarify the impact of contractual requirements.	4.1 Relevant ***contractual requirements*** affecting performance of the restoration work are identified and clarified. 4.2 Relevant dispute resolution processes that are to be used if required are identified.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis skills to be able to analyse operations and develop procedures
- oral and written communication skills, including the ability to facilitate discussions which enable the collation of relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- organisation skills, including the ability to plan for and set out work
- reading skills, including the ability to interpret drawings and documentation from a variety of sources
- time management skills and prioritisation skills to enable work to be completed to agreed timeframes.

Required knowledge:

- Australian standards relevant to the nature of the work
- conservation processes, including good conservation practice arising from principles of Burra Charter
- dispute resolution processes
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture and the characteristics and features of period architecture
- trade specific techniques used in restoration work
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Access to the site may include:

- access to structures and storage facilities or space, which may be limited.

Protection requirements may include:

- protection for the public
- environmental protection.

Heavy or bulky equipment may include:

- compressors
- cranes
- excavators
- mobile scaffold or working platforms.

Contractual requirements may include:

- performance standards
- timeframes
- materials to be used.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by completion of relevant processes and activities essential prior to the commencement of a heritage restoration project addressing all aspects contained within this unit.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - application of conservation considerations and consultative processes associated with preservation of historic structures
  - demonstrated understanding of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes within the context of initiating the heritage restoration process
  - identification of job-specific requirements and inherent risks associated with heritage restoration
  - ability to select and use appropriate processes to analyse and identify particular needs for project
  - ability to communicate and agree on expectations and timeframes for the work to be undertaken
  - application of appropriate techniques to cross reference interlocking or overlapping operations
  - sound techniques to check and ensure all relevant information and stages of preparation are fully covered
  - interactive communication with others to ensure all factual information is gathered and shared with relevant stakeholders.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - restoration project appropriate to competency
  - appropriate documentation and data related to project.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4036A Prepare to undertake the heritage restoration process

Unit Descriptor

This unit specifies the competency required to undertake the preparation of the heritage restoration job by skilled and experienced tradespeople.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the range of tradespeople across disciplines who are involved in heritage restoration. It is not the intent of this or related units to replicate the technical processes associated with the performance of the trade skills necessary to complete the work. The unit applies to the particular processes associated with the application of existing high level trade skills in the specialist heritage restoration environment.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Ensure compliance with conservation and workplace standards.	1.1 Conservation requirements and processes associated with the preservation of historically significant buildings are identified. 1.2 ***Quality Assurance*** requirements associated with the performance of the relevant trade skill are identified. 1.3 ***OHS requirements***, including the identification of ***personal protective equipment***, are identified. 1.4 ***Safety hazards*** are identified and correct procedures to minimise risk to self and others are identified and implemented.
2. Identify and obtain historical data.	2.1 The period and style of construction of the building or structure is ascertained and recorded. 2.2 Available construction information is sourced from engineers and records and analysed for relevant and historically accurate information. 2.3 ***Materials*** used for previous restoration work are identified, recorded and verified as appropriate for the work. 2.4 Information relevant to the location, structure and specifications of the building are photographed or collated using alternative means and recorded.
3. Prepare work area and resources.	3.1 Cover protection of nearby surfaces is carried out in accordance with restoration activities. 3.2 Scaffolding barricades and signage are erected to OHS regulations in accordance with job requirements. 3.3 Appropriate lighting is erected at the site. 3.4 Materials required for the identified restoration work are calculated and acquired in accordance with organisational procedures. 3.5 ***Tools and equipment*** are selected and checked for serviceability.

4. Establish and maintain records for restoration purposes.	4.1 A method of organising files is determined in accordance with organisational procedures. 4.2 A system of presentation of the file is organised and a list made of ***relevant categories of information***. 4.3 Photographs of the current structure are taken and stored for future reference as required. 4.4 Details of materials used, including colour matches, are recorded and filed throughout the life of the restoration project.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- mathematical and numerical skills to be able to calculate material quantities and measure accurately
- oral and written communication skills, including the ability to facilitate discussions which enable the collation of relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- organisation skills, including the ability to plan for and set out work
- reading skills, including the ability to interpret drawings and documentation from a variety of sources.

Required knowledge:

- Building Code of Australia and other relevant Australian standards relevant to the nature of work and materials being utilised
- conservation processes, including good conservation practice arising from principles of Burra Charter
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture, the characteristics and features of period architecture and period plastering associated with historic buildings
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Quality assurance includes:	• quality records • workplace operations and procedures • quality of materials • preparation of surfaces • application techniques • quality of tools • attention to specifications of work • cleanliness of surfaces.

OHS requirements legislation and regulations may cover:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling materials
- working platforms and scaffolding
- use of ladders.

Personal protective equipment includes:

- boots
- safety glasses/goggles
- ear plugs/muffs
- masks/respirators
- gloves
- cap.

Safety hazards include:

- cutting back loose surfaces
- working from platforms
- handling hazardous materials
- dust
- wind.

Sources for ***historical data*** include:

- National Trust
- historical society
- building trust
- municipal building records
- elderly local residents
- restoration contractors.

Materials required may include:

- specialist materials of the relevant period era
- fixings and fasteners of the period era
- plaster mixes
- tiles
- paints.

Tools and equipment neededwill vary according to the type of specialist restoration work to be undertaken and may include but are not limited to the following:

- plastering:
  - wood floats
  - steal floats
  - hawk
  - spirit level
  - trowel
- plumbing:
  - hammers
  - mallet
  - blow torch
- tiling:
  - squares
  - scrapers
  - power leads
  - trowels
  - mortar boards
  - straight edges
- bricklaying:
  - shovels
  - wheelbarrow
  - string lines
- carpentry:
  - measuring tape/rule
  - hammers
  - spirit level
  - hand saws
  - scrapers
  - power leads
  - trowels
  - mortar boards
  - straight edges
- stonemasonry:
  - chisels
  - wheelbarrows
  - modelling tools
- painting:
  - brushes
  - straight edges
  - ladders
- general construction:
  - shovels
  - modelling tools
  - brooms
  - wheelbarrows
  - trowels.

Relevant categories of information listed in file include:

- original structure and construction
- restoration work carried out
- materials in construction and finishing
- specialist materials - period era
- materials and suppliers
- materials - technical data
- OHS building regulations
- construction - technical data
- reference notes
- drawings, sketches, photographs
- specifications
- restoration records
- technical brochures.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by carrying out the processes required to prepare to undertake a restoration project. Assessment should address the specific criteria contained within the unit and range statement.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - application of conservation considerations and consultative processes to determine desired restoration application and finish
  - demonstrated understanding of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes within the context of heritage restorations
  - sound recording and identification of materials used
  - use of appropriate techniques to provide cover protection
  - safe and effective procedures to handle hazardous materials
  - identification of typical faults and problems that occur and necessary action taken to rectify
  - interactive communication with others to ensure safe and effective worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - historic work locations appropriate to competency range and activities
  - materials appropriate to application activities
  - appropriate documentation and data related to tasks
  - scaffolding equipment, plant, tools and equipment relevant to activity processes.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4037A Prepare drawing for heritage works

Unit Descriptor

This unit specifies the outcomes required to prepare drawings for heritage works associated with historic buildings and structures of cultural significance. To successfully prepare drawings requires a comprehensive understanding of architectural forms specifically period architecture and appropriate drafting techniques. The unit requires the ability to interpret specifications for drawings, measure and calculate dimensions accurately and an ability to work to scale.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for heritage works during residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for drawing requirements.	1.1 Specifications for drawing is identified from request or conservation authority requirements. 1.2 The dimensions of the ***historical or significant building*** are determined in accordance with appropriate ***methods***, taking into account the type of structure, access to details and previous drawings available, if applicable. 1.3 The method of recording feature details is determined in accordance with the nature of the feature, location and accessibility. 1.4 The method and system of recording identification, location and dimensional information is determined and applied in accordance with requested drawing requirements. 1.5 Equipment and instruments required are identified, listed and used in accordance with recording task requirements.
2. Organise information for drawing preparation.	2.1 Information is gathered and organised to determine the overall dimensions of the building, structure or details to be drafted. 2.2 Information is gathered to identify and group all recorded details associated with each area or section of the building or structure. 2.3 The size of the drawing and scale to be used is determined in accordance with the dimensions of the building, structure or section. 2.4 Sketches, tracings or photographs of recorded features are identified and located with other recorded information related to ***feature work***.

3.	Draw or develop orthographic description.	3.1 Block layout of views and designed spacings, where applicable, are drawn or developed to planned layout and scaled accurately to recorded or calculated dimensions. 3.2 ***Orthographic description*** views are detailed to show visible lines of structure and elements as seen with each view to correct scale representation of recorded dimensions. 3.3 Architectural drawing conventions, symbols and hatching, where applicable, are shown on drawings in accordance with AS1100.301 - 1985 Architectural Drafting. 3.4 Plans of large buildings are produced by use of grids, where applicable, to provide cross referencing and dimensioning by coordinates. 3.5 Dimensions and reference notations are located relevantly on drawings to provide full detailed descriptions as required with each view. 3.6 Appendices and reference details of drawing are provided with drawing as required in accordance with overall request.
4.	Draw or develop sectional detailed drawings.	4.1 Sectional detailed drawings are drawn or developed to scale to show detailed structural description of relationship between elements in accordance with recorded dimensions. 4.2 Architectural hatching is shown on drawings to represent materials, in accordance with relevant Australian standards. 4.3 Dimensions and reference notation are located on drawings to provide full details of sectional description.
5.	Develop detailed drawings of feature work.	5.1 Photographic recording of feature work shape and design is enlarged by photocopying to provide more realistic size for analysis and reproduction. 5.2 Gridlines are determined in accordance with actual dimensions of the feature work shape and are reproduced to enlarged photocopy. 5.3 The enlarged photocopy is closely examined for distortion from the photographing process and adjustments are made to the design, as necessary. 5.4 Tracing recordings are examined in accordance with the whole feature or part thereof and linked with other tracings or sketches to ascertain the feature shape to be reproduced. 5.5 The design shape drawings are developed to produce accurate design to scale with grid lines where applicable. 5.6 Cross sectional details are produced accurately to scale, to provide three dimensional information. 5.7 Dimensions, reference notation, specific location and appendices are produced for drawings in accordance with client request or design aims.

6. Complete work.	6.1 Drawings are checked for accuracy, clarity of line, completeness of drawing and associated dimensions and details. 6.2 Copies are made, where applicable, in accordance with original request. 6.3 Production details and coded reference information is recorded.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to prepare drawings
- ability to use instruments and equipment for measuring
- mathematical and numerical skills, including the ability to calculate measurements accurately
- oral and written communication skills, including the ability to record information
- organisation skills, including the ability to set out work
- reading skills, including the ability to interpret drawings and documentation
- work to scale.

Required knowledge:

- Australian standards - AS1100.101, AS1100.301
- conservation processes, including good conservation practice arising from principles of Burra Charter
- finishing trade applications - materials
- methods of measuring
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture and the characteristics and features of period architecture
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

The ***historical or significant building*** may include:

- cathedrals and churches
- government buildings
- civic buildings
- commercial and retail buildings
- mansions
- houses
- out buildings
- fences
- walls
- wharves
- external features
- built or sculptured artefacts
- doors
- windows.

Methods include:

- physically tape and measure all internal and external measurement
- scale proportion of roof, chimney and spire heights from photograph where wall height is determined
- calculate height by use of levelling equipment and/or trigonometry
- accurate tracing of shapes or features.

Feature work includes:

- ornamental plasterwork
- ornamental stonework
- decorative tiling
- mosaic tiling
- ornamental mouldings.

Orthographic description includes:

- plans
- front, rear and side elevations
- sectional elevations
- sectional plans.

Sectional detailed drawings include:

- internal wall construction
- sub floor construction
- footings and foundation
- ceiling construction
- ceiling and roof framing construction
- external wall construction
- cladding details
- roofing details
- chimney construction
- fence construction.

Development of drawings include:

- drafting techniques
- computer aided drafting
- drawings should be developed in accordance with National Trust guidelines or in accordance with AS1100.101 - 1992 Technical Drawing - General Principles and AS1100.301 - 1985 Architectural Drawing.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by carrying out the necessary preparatory processes and developing at least two examples of each form of drawing specified in this competency standard using sample or case study heritage projects for buildings listed within the range statement.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - clear understanding of conservation considerations and consultative processes associated with preservation of historic structures
  - clear appreciation of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - ability to apply organisational quality procedures and processes within the context of preparing drawings to conservation requirements
  - ability to apply sound recording and identification system for measurements, locations and details
  - ability to select and use appropriate processes, instruments and equipment to measure and record information
  - ability to use appropriate and safe techniques to obtain measurements and details
  - sound and accurate techniques in preparing information for related drawings
  - ability to select and use appropriate techniques to ascertain accurate analysis of featured design shapes
  - sound techniques to ensure all relevant information is included in orthographic description
  - ability to select and use appropriate techniques to produce accurate, sharp and complete drawings.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - historic locations appropriate to competency range
  - drafting and/or computer equipment
  - equipment relevant to measuring processes.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4038A Prepare workplan for restoration work

Unit Descriptor

This unit specifies the outcomes required to prepare a workplan and the corresponding procedures necessary to carry out restoration work on a building or structure of historical significance.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for heritage restorations during residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify project, location and surrounds.	1.1 Location and nature of the ***restorationwork*** to be undertaken is identified and recorded following consultations with the architect and site inspections. 1.2 ***Access*** to and from the work location is noted and recorded. 1.3 Area to be disturbed is determined and surrounding areas are noted for possible work application effects and cover protection. 1.4 The nature of the work is assessed and noted for possible use of ***heavy or bulky equipment***. 1.5 Any effect on public access is assessed and recorded to ensure protection of the public and the environment is undertaken. 1.6 The presence of ***hazardous materials*** is identified and appropriate workplace procedures are followed. 1.7 A heritage works safety management plan is produced.
2. Prepare site prior to commencing work.	2.1 Demolition processes and procedures, if applicable, are identified and noted. 2.2 Restoration processes are identified and noted for procedures to repair or replace material and finish surface area with restoration work. 2.3 Where applicable, height and dust considerations are identified and noted to inform requirements for scaffolding and cover protection. 2.4 OHS requirements for support of work personnel during the period of project are identified and recorded. 2.5 Site preparation requirements are determined and recorded with ***comments*** for inclusion in the workplan.
3. Identify demolition and salvage work.	3.1 Procedures required to carry out the demolition are identified in stages and recorded. 3.2 Materials to be salvaged and preserved are identified and recorded for specific handling procedures. 3.3 Procedures for the handling and storage of salvaged materials are identified and protection and reference comments are recorded in accordance with organisational procedures.

4. Identify material delivery and storage requirements.	4.1 Materials of substantial size and quantity are identified for delivery access and location or storage prior to use and comments recorded in accordance with organisational procedures. 4.2 General materials are identified for delivery and location or storage prior to use and comments recorded in accordance with organisational procedures.
5. Identify and record restoration processes.	5.1 Preparation of surfaces, where applicable, are identified for stage processes and application work and comments recorded in accordance with organisational procedures. 5.2 Application, fixing or installation of material is determined and particular comments recorded in accordance with organisational procedures. 5.3 Application of finishing processes is identified and particular comments recorded in accordance with organisational procedures. 5.4 Repairs and restoration work to disturbed locations are identified and comments recorded for inclusion in work plan.
6. Identify and record cleanup procedures.	6.1 Items for clean-up and removal are listed and relevant procedures included in the work plan. 6.2 Unused or re-usable materials and waste are listed for storage or removal procedures. 6.3 Cleaning of the area is specified and relevant comments of anticipated processes are noted. 6.4 Removal of portable workforce sheds is identified and listed in the workplan and related comments are recorded.
7. Prepare workplan.	7.1 Recorded notes and information are reviewed for direct reference and inclusion in the workplan. 7.2 Additional areas of information for the work plan are researched and determined in content and expression. 7.3 Information is prepared and the work plan written in accordance with organisational procedures. 7.4 The draft workplan is checked and amended to ensure completeness of all necessary stages prior to ***workplan presentation***.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis skills to be able to analyse operations and develop procedures
- organisation skills, including the ability to plan for and set out work
- oral and written communication skills, including the ability to facilitate discussions which enable the collation of relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- reading skills, including the ability to interpret drawings and documentation from a variety of sources
- report writing and preparation skills.

Required knowledge:

- Australian standards relevant to the nature of work and demolition
- conservation processes, including good conservation practice arising from principles of decorating and finishing techniques used in restoration work
- Burra Charter
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture and the characteristics and features of period architecture
- site preparation and organisation skills
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Restoration work includes:

- structural restoration
- structural replacement
- roofing restoration
- cladding restoration
- lining finishes
- applied finishes
- decorative finishes.

Access includes:

- access to structures and storage facilities or space may be limited.

Heavy or bulky equipment includes:

- compressors
- cranes
- excavators
- mobile scaffold or working platforms.

Hazardous materials include:

- materials containing asbestos
- lead paint.

Comments include:

- Comments regarding various controlling authorities for OHS, municipal building control, EPA and structure trust authority may be included as appendices to work plan.

Workplan presentation includes:

- preliminary investigation
- site preparation
- delivery and storage of materials
- protection of public
- protection of environment
- work location preparation
- protection of structure
- excavation
- demolition and salvage
- preparation of surfaces
- restoration
- finish application
- clear work location
- clear site.

Methods include:

- Methods of carrying out restoration work may vary in accordance with analysis during application work where consultation is required to determine best conservation application.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by carrying out the processes for determining the work site operations for a heritage type restoration project and developing and preparing a workplan for the project.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - application of conservation considerations and consultative processes associated with preservation of historic structures
  - demonstrated understanding of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes within context of preparing workplans to conservation requirements
  - application of sound recording and identification system for determining worksite operations
  - ability to select and use appropriate processes to analyse and identify particular needs for project operations
  - ability to apply appropriate techniques to ensure coverage of all elements of project's operations
  - sound and accurate techniques in preparing identified and determined information for reference in workplan
  - application of appropriate techniques to cross reference interlocking or overlapping operations
  - ability to select and use appropriate format and presentation to produce final finished plan
  - sound techniques to check and ensure all relevant information and stages of the project are fully covered
  - interactive communication with others to ensure all factual information is gathered.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - restoration project appropriate to competency
  - appropriate documentation and data related to project.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4039A Undertake the heritage restoration process

Unit Descriptor

This unit specifies the competency required by skilled and experienced tradespeople to undertake heritage restoration work.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the range of tradespeople across disciplines who are involved in heritage restoration and conservation projects. It is not the intent of this or related units to replicate the technical processes associated with the performance of the trade skills necessary to complete the work. The unit applies to the particular processes associated with the application of existing high level trade skills in the specialist heritage restoration environment.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Undertake restoration work.	1.1 Performance of the technical restoration work is undertaken in accordance with the highest standards of the relevant ***trade skills***. 1.2 ***Legislative and organisational requirements*** are complied with throughout the undertaking of heritage restoration work. 1.3 Ongoing consultations with the architect and relevant stakeholders are maintained to ensure contractual requirements are fulfilled.
2. Monitor progress of restoration work.	2.1 Conformance with the restoration workplan is monitored during completion of the restoration work. 2.2 Adjustments to processes and the workplan to address problems that emerge during the heritage restoration are made and documented as required, in accordance with established organisational or job procedures. 2.3 Reporting of work progress is completed in accordance with the established workplan, job and contractual requirements. 2.4 Technical issues arising during the restoration that impact on the work of related trades are identified and communicated. 2.5 Effective strategies for problem resolution are identified within the project team.
3. Ensure area is cleaned at completion of the restoration work.	3.1 Scaffolding is dismantled carefully, removed and stored. 3.2 Cover protection for surfaces is carefully removed. 3.3 Surface protection and unused materials are removed and stored. 3.4 Work area is cleared and all waste material is disposed of in accordance with legislative and organisational requirements. 3.5 Tools and equipment are cleaned, maintained and stored.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- equipment handling techniques and safe handling practices
- mathematical and numerical skills to be able to calculate material quantities and measure accurately
- oral and written communication skills, including the ability to facilitate discussions which enable the collation of relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- organisation skills, including the ability to plan for and set out work
- problem solving skills to enable resolution of technical issues which threaten to disrupt work
- reading skills, including the ability to interpret drawings and documentation from a variety of sources
- trade skills relevant to the restoration work being undertaken.

Required knowledge:

- Building Code of Australian and other Australian standards relevant to the nature of work and materials being utilised
- conservation processes, including good conservation practice arising from principles of Burra Charter
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture, the characteristics and features of period architecture and period plastering associated with historic buildings
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Trade skills used in heritage restoration work may include:

- plumbing
- tiling
- plastering
- painting
- carpentry
- gilding
- stonemasonry.

Legislative and organisational requirements include:

- OHS requirements, including the use of personal protective equipment, barricades and safe handling practices for all materials
- adherence to all relevant codes and Australian standards
- compliance with relevant quality assurance requirements pertaining to the relevant trade skill being employed.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by application of a recognised trade skill to a heritage restoration project. Completion of the heritage project should include correct application of trade skills and knowledge, ongoing monitoring of own work, compliance with relevant legislation and adherence to relevant heritage restoration codes and standards as well as organisational requirements and the application of correct clean up procedures at completion of the work.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - application of conservation considerations and consultative processes to determine restoration application and finish
  - demonstrated understanding of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes within the context of heritage restorations
  - sound recording and identification of materials used
  - use of appropriate techniques to provide cover protection
  - safe and effective procedures to handle hazardous materials
  - identification of typical faults and problems that occur and necessary action taken to rectify
  - interactive communication with others to ensure safe and effective worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - historic work locations appropriate to competency range and activities
  - materials appropriate to application activities
  - appropriate documentation and data related to tasks
  - scaffolding equipment, plant, tools and equipment relevant to activity processes.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4040A Prepare report for heritage restoration work

Unit Descriptor

This unit specifies the competency required to prepare and present written reports detailing conditions associated with buildings and structures of historic significance requiring restoration or preservation attention. Reports are completed for specific areas of work in accordance with individual building trade applications.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for heritage restorations.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Gather information to be included in the report.	1.1 Details of the ***area of the structure*** and information regarding ***areas of fault*** are identified. 1.2 A ***general description of the building or structure*** and its period of construction is identified. 1.3 Surrounding area and faults are identified for ***inspection and investigation***. 1.4 Assessment of unsafe conditions is conducted and identified for investigation.
2. Assess and outline possible means of restoring the areas of the structure.	2.1 Assessment of conditions and the degree of deterioration and disturbance is conducted and recorded using appropriate technical language. 2.2 Possible ***causes for deterioration*** of condition and stability are assessed and recorded as guidelines for investigatory enquiries and restoration considerations. 2.3 Sound construction or finish applications surrounding or adjacent to the faulted area are identified and recorded to inform restoration processes. 2.4 Relevant information regarding unsafe conditions at or around the structure are identified and recorded. 2.5 Advice regarding restoration techniques and work required is identified and documented based on assessment of the structure.
3. Document and present the report.	3.1 A method of presenting the report in a logical and sequential manner is determined with key stakeholders and implemented. 3.2 The report is written to provide all investigated and determined information in accordance with the request and to the agreed format. 3.3 The report is written in a manner which will be readily understood by relevant stakeholders.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to prepare drawings and work to scale
- ability to use instruments and equipment for measuring
- mathematical and numerical skills, including the ability to calculate measurements accurately
- organisation skills, including the ability to set out work
- oral and written communication skills, including the ability to record information in appropriate and accepted reports relevant to the heritage restoration sector
- reading skills, including the ability to interpret drawings and documentation
- teamwork skills and the ability to work with others to ensure coordination and cooperation between self and others in the heritage restoration.

Required knowledge:

- Building Code of Australia and other relevant Australian standards relevant to the nature of work and materials being utilised
- conservation processes, including good conservation practice arising from principles of Burra Charter
- methods and processes relating to historic building construction, including the range and use of building materials, structure of buildings and drafting techniques
- relevant architectural knowledge, including orders of architecture and the characteristics and features of period architecture
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Buildings and structures may include but are not limited to:

- cathedrals and churches
- government buildings
- civic buildings
- commercial and retail buildings
- mansions
- wharves
- houses
- fences
- out buildings
- walls.

Area of the structure may include:

- footings and sub floor structure
- floors
- wall structure
- wall lining
- ceilings
- roof structure
- wall cladding
- rood cladding
- external walls
- windows
- doors
- fences.

Identification of ***areas of fault*** requires:

- location of fault, internal or external to the building or structure
- number of separate faults
- nature and extent of the fault or deterioration, identified in technical terms relevant to the respective trade work required.

General description of the building or structure may include:

- address of the structure
- type of structural construction
- type and condition of materials used in structure including details of any missing materials
- description of the area surrounding structure where influential to the fault
- references to north and south identified and recorded in relationship to the sides of the structure.

Inspection and investigation may involve use of access and safety equipment which may include:

- inspection investigations ladders
- trestles and planks
- torches
- hand tools
- straight edges
- spirit levels
- boots
- hard hat
- masks/respirators
- gloves
- safety glasses
- jacket.

Causes of deterioration may include:

- fire damage
- water damage
- storm impact from vehicles or trees and other objects.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by carrying out the processes to determine all relevant information and prepare a written report on at least three separate categories of work areas as listed within the range of variables.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - application of conservation considerations and consultative processes associated with preservation of historic structures
  - demonstrated understanding of preservation of fabric
  - compliance with OHS regulations applicable to workplace operations
  - application of organisational quality procedures and processes within the context of preparing reports
  - application of sound identification and recording system of investigation findings
  - an ability to use appropriate processes, tools and equipment to carry out investigation examinations
  - use of appropriate safe techniques to use ladders and scaffolding
  - demonstration of safe and effective procedures to handle hazardous materials
  - sound and accurate techniques to prepare information for report
  - selection and use of appropriate terminology relevant to applicable trade
  - sound techniques to ensure report is well written and accurate
  - interactive communication with others to ensure safe and effective worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - historic work locations appropriate to area of work
  - appropriate documentation and data related to investigations
  - ladder and/or scaffolding equipment
  - plant, tools and equipment relevant to investigation processes.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4041A Undertake preparations for refractory work

Unit Descriptor

This unit specifies the outcomes required to undertake basic preparations prior to the commencement of work using refractory bricks and materials. It covers the reading and interpreting plans and specifications, ensuring the use of quality materials as specified by engineers the implementation of relevant safety precautions prior to commencement of work.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the specialist and advanced trades people working in refractory bricklaying. It may be applied in the construction or repair of various fire resistant structures including but not limited to boilers, kilns and industrial furnaces.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Interpret refractory plans and specifications.	1.1 ***General and detailed refractory plans*** are accessed and analysed to determine the nature of work to be undertaken. 1.2 Standard ***signs and symbols*** are noted, interpreted and implemented. 1.3 ***Notes*** to the plan are observed and complied with in accordance with design requirements. 1.4 Specified ***materials*** required are identified from the plans and obtained in accordance with organisational procedures.
2. Implement safety requirements.	2.1 Material Data Sheets are accessed and relevant ***safetyprecautions*** implemented. 2.2 Organisational ***occupational health and safety requirements*** are implemented and maintained.
3. Prepare refractory materials and equipment.	3.1 Test certificates of materials are checked to ensure materials meet the required specifications of the job as detailed in the refractory plans. 3.2 ***Tools and equipment*** are selected and checked for serviceability. 3.3 Mortar is prepared and mixed to design requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- mathematical and numerical skills to be able to calculate material quantities and measure accurately
- oral and written communication skills, including the ability to collate relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- organisation skills, including the ability to plan for and set out work
- reading skills, including the ability to interpret plans, specifications, drawings and documentation from a variety of sources
- teamwork skills and the ability to work with others to ensure coordination and cooperation between self and others
- technical skills to ensure ability to select and use relevant plant, tools and equipment.

Required knowledge:

- Building Code of Australian and other relevant Australian standards relevant to the nature of work and materials being utilised
- characteristics and applications of different materials used in refractory brick work
- methods and processes relating to the use of refractory bricks and insulation materials for the construction of fire resistant structures
- organisational procedures for the acquisition of materials
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

General and detailed refractory plans and specifications include:

- general plans show the entire structure to be constructed
- detailed plans show aspects and sections of the structure in greater detail than the general plan.

Signs and symbols appearing on refractory plans and specifications may relate to:

- tolerances
- dimensions and scales
- sections of the structure
- particular views of the structure
- quality control requirements
- materials to be used
- assembly of completed parts of the structure.

Notes to the plans may include:

- details of Australian standards to be complied with
- quality control requirements to be followed and documented
- requirements for samples of castables to be taken.

Materials may include:

- fire bricks
- fire clay
- stainless steel joints
- castables
- different types of insulation materials including insulation board and bricks.

Safety precautions may include:

- the use of personal protective clothing, including:
  - respirator
  - dust masks
  - disposable overalls
  - eye and ear protection
  - gloves
  - steel toe capped shoes
- environmental precautions such as:
  - the operation of an extraction system to filter dust and fumes.

Occupational health and safety requirements legislation and regulations include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling materials
- working platforms and scaffolding.

Tools and equipment may include:

- measuring tape/rule
- rubber mallet/scutch
- mortar boards
- trowels
- string lines
- straight edges
- clay mixer.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by carrying out relevant preparations for refractory work prior to commencement of the work. It should include an analysis and interpretation of the plans and specifications, a demonstrated understanding of all aspects detailed in the plans, implementation of safety precautions and the correct preparation of relevant materials and equipment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - demonstrated understanding of the purpose and application of refractory bricklaying
  - compliance with OHS regulations applicable to workplace operations
  - safe and effective procedures to handle hazardous materials
  - application of organisational quality procedures and processes within context of constructing or repairing structures employing refractory materials
  - sound ability to read and interpret two dimensional refractory plans and specifications
  - ability to select and use processes, tools and equipment appropriate to the job requirements
  - ability to prepare materials and samples in accordance with job requirements
  - identification of typical faults and problems with materials and equipment that occur and necessary action taken to rectify
  - effective communication with others to ensure safe worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - materials appropriate to application activities
  - plant, tools and equipment relevant to activity processes
  - where applicable, physical resources should include equipment modified for people with disabilities
  - access must be provided to appropriate learning and/or assessment support when required
  - assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4042A Construct a fire brick wall and arch using refractory materials

Unit Descriptor

This unit specifies the outcomes required to construct a brick wall and arch using refractory materials including castables, bricks and insulation. It covers the application of unique skills and knowledge relevant to refractory work.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the specialist and advanced trades people working in refractory bricklaying. It may be applied in the construction or repair of various fire resistant structures including but not limited to boilers, kilns and industrial furnaces.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Set out and prepare the base location of work.	1.1 The location of the brickwork is set out to position in accordance with ***job specifications and drawings***. 1.2 The base location is prepared so that the surface is dry, horizontal, clean and flat, in accordance with job specifications.
2. Lay brickwork.	2.1 Fire clay is applied to bricks to maintain joints at the specified thickness. 2.2 Bricks are in the ***required bond*** and set out, method and line, level and plumb in accordance with job specifications and drawings. 2.3 Bricks are cut to the correct length to maintain the required bond in accordance with manufacturer recommendations and job specifications. 2.4 Brickwork is completed with surplus fire clay removed to specification requirements.
3. Form a segmental arch.	3.1 The span and rise of the arch are identified and located in accordance with job plans and specifications. 3.2 ***Adjustable props*** are placed appropriately to support the timber arch centre, and ***adjusted*** as necessary. 3.3 The position of the central key brick is established and marked for easy identification.
4. Cut and lay bricks to position around the arch.	4.1 Bricks are cut and laid on the centre to form an arch to specifications. 4.2 The same sized ***wedge shape brick*** is maintained throughout the construction of the arch. 4.3 ***Measurements and placement*** of bricks are monitored and adjusted accordingly to ensure accurate application of job requirements.

5. Complete and review finished work.	5.1 Props and other support materials are removed. 5.2 Construction is finished and cleaned to meet job requirements and professional expectations. 5.3 The intrados of the arch is cleaned and repointed with mortar as necessary.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to use tools and equipment employed in refractory work
- attention to detail, including the ability to apply materials accurately and to required tolerances and specifications
- oral and written communication skills, including the ability to collate relevant information gathered from a variety of sources and the ability to record information in a way which will be readily understood by others
- organisation skills, including the ability to plan for and set out work
- mathematical and numerical skills to be able to calculate material quantities and measure accurately
- reading skills, including the ability to interpret plans, specifications, drawings and documentation from a variety of sources
- relevant application techniques specific to the laying and installation of refractory materials
- teamwork skills and the ability to work with others to ensure coordination and cooperation between self and others
- technical skills to be able to select and use relevant tools and equipment.

Required knowledge:

- Building Code of Australian and other relevant Australian standards relevant to the nature of work and materials being utilised
- characteristics and applications of different materials used in refractory brick work
- methods and processes relating to the use of refractory bricks and insulation materials for the construction of fire resistant structures
- organisational procedures for the acquisition and storage of materials
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Job specifications and drawings will include:	• general plans showing the entire structure to be constructed • detailed plans showing aspects and sections of the structure in greater detail than the general plan.

Required bond may include:	• header bond • stretch bond.
Adjustable props may include:	• timber toms • timber wedges • packers • metal props.
Supports are ***adjusted*** to ensure:	• the arch centre is level at right angles to the wall face and level across the springing line.
The ***wedge shape brick*** may be one of a range of different sizes, including the following common sizes:	• 51mm • 63mm • 69mm.
Accurate ***measurements and placement of bricks*** may include ensuring:	• accurate positioning and maintenance of the centreline of the key brick is through the vertical centre line of the arch • even joint thickness around the extrados • all bricks are cut and laid to maintain even joints.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by undertaking to construct a fire brick wall and arch. Suggested work may include the following dimensions - a 230mm fire brick wall to incorporate an opening (600mm x 600mm) with a segmental arch above, a minimum of 1.5m long and 1.2m high to the top of the arch.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - demonstrated understanding of the purpose and application of refractory bricklaying
  - compliance with OHS regulations applicable to workplace operations
  - safe and effective procedures to handle hazardous materials
  - application of organisational quality procedures and processes within context of constructing or repairing structures employing refractory materials
  - sound ability to read and interpret two dimensional refractory plans and specifications
  - ability to select and use processes, tools and equipment appropriate to the job requirements
  - ability to prepare materials and samples in accordance with job requirements
  - identification of typical faults and problems with materials and equipment that occur and necessary action taken to rectify
  - effective communication with others to ensure safe worksite operations.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - materials appropriate to application activities
  - plant, tools and equipment relevant to activity processes
  - where applicable, physical resources should include equipment modified for people with disabilities
  - access must be provided to appropriate learning and/or assessment support when required
  - assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC4043A Operate a self erecting tower crane

Unit Descriptor

This unit specifies the outcomes required to operate a self-erecting tower crane, including planning and preparation for work, the conduct of operational checks, the safe and effective operation of the self-erecting tower crane for a range of tasks including lifting and moving loads, monitoring and shut down in accordance with designated Australian standards.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit may have application in a range of industries including Automotive, Defence, Forests, Maritime, Metals and Engineering, Mining, Transport and Distribution in addition to General Construction.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operation.	1.1 Applicable ***OHS, licensing, legislative*** and ***organisational*** requirements relevant to operating a self-erecting tower crane are verified and complied with. 1.2 ***Work order*** is reviewed, confirmed and clarified with ***appropriate personnel***. 1.3 Type of operations to be conducted with a ***self-erecting tower crane*** are assessed and prepared. 1.4 ***Equipment*** is selected appropriate to work requirements and checked for operational effectiveness in accordance with manufacturer recommendations. 1.5 Self-erecting tower crane operations are planned in accordance with site procedures. 1.6 ***Environmental protection measures*** are adhered to in accordance with environmental plans and regulations. 1.7 ***Communication*** with others is established and maintained in accordance with OHS requirements.
2. Inspect and test self-erecting tower crane.	2.1 Self-erecting tower crane is visually inspected prior to operation for any evidence of damage, structural weakness or interference according to pre-operational safety check procedures and service log book inspection. 2.2 ***Pre start-up checks*** are carried out on equipment in accordance with manufacturer recommendations and specifications. 2.3 Self-erecting tower crane controls and functions, including manoeuvrability, emergency functions, gear and accessories are checked for serviceability and any faults are rectified or reported. 2.4 Tower functions are checked after start up and monitored throughout operation. 2.5 Site ***hazards*** associated with self-erecting tower crane operations are detected and documented, risks assessed and safe operating techniques used to eliminate or control risks.

3. Prepare for erection.	3.1 Self-erecting tower crane is positioned in accordance with work instructions, manufacturer specifications and statutory regulations. 3.2 Ground or base is assessed to ensure it will withstand crane operation without subsidence in accordance with engineer specifications. 3.3 ***Barriers and signage*** are utilised to isolate the work area in accordance with safe working practice, load shifting requirements and the work plan. 3.4 Self-erecting tower crane is positioned to ensure a level operating platform in accordance with manufacturer instructions and statutory regulations. 3.5 Activities are coordinated with ***riggers, doggers*** and other crane operators. 3.6 Self-erection system is activated to achieve the required height of operation in accordance with manufacturer specifications. 3.7 Rig is handed over to riggers to complete erection and ***stability*** procedures.
4. Operate self-erecting tower crane.	4.1 Self-erecting tower crane is operated with ***groundcontrols*** to work instructions in accordance with company operating procedures and manufacturer specifications. 4.2 Communication practices associated with lifting and moving loads are conducted in accordance with work site procedures and confirmed between parties. 4.3 Start up and shut down procedures are performed in accordance with manufacturer specifications and site requirements. 4.4 ***Weight of load*** is confirmed as being within the lifting capacity, the operating radius of the crane and in accordance with the crane load chart. 4.5 ***Lifting gear*** is selected, inspected, attached and used in accordance with working load limits and OHS legislation. 4.6 Crane movements are checked for safe operation and load is prepared for lifting in accordance with crane, dogging and rigging requirements. 4.7 Load is manoeuvred to position using the control systems to manufacturer specifications, continually monitored throughout its travel and ***tasks*** completed effectively. 4.8 Load is lifted and moved in accordance with the agreed crane schedule and conventional hand and audible signals that meet OHS legislation and work site procedures. 4.9 Load is constantly monitored to ensure safety to personnel, load and structural stability with monitoring systems and alarms immediately acted upon in accordance with site requirements.

5. Shut down and stow self-erecting tower crane.	5.1 Self-erecting tower crane is shut down and stowed using the correct sequence of procedures in accordance with manufacturer recommendations and specifications. 5.2 Routine post operational checks are carried out in accordance with manufacturer specifications. 5.3 Self-erection system is lowered by activating the recoil procedure or ram in accordance with manufacturer specifications. 5.4 Self-erecting tower crane operations and faults are ***recorded and reported*** to the appropriate personnel.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for conducting self-erecting tower crane operations
- use and maintenance requirements of relevant tools, machinery and equipment
- verify problems and equipment faults and demonstrate appropriate response procedures
- use appropriate communication and interpersonal techniques with colleagues and others
- inspect work plans (job safety analyses or safe work method statements) in accordance with legislation
- record and maintain information relating to conducting self-erecting tower crane operations
- efficiently and safely conduct self-erecting tower crane operations.

Required knowledge:

- federal, and state or territory OHS legislation, regulations, standards and codes of practice relevant to the full range of processes for conducting self-erecting tower crane operations
- organisational and site standards, requirements, policies and procedures for conducting self-erecting tower crane operations
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols in the workplace
- typical routine problems encountered in the process and with equipment and adjustments required for correction
- types of tools and equipment and procedures for their use, operation and maintenance
- self-erecting tower crane operations and operating techniques
- self-erecting tower crane capabilities and gear
- remote control operations and indicators
- techniques for calculating rated capacity, working load limits and load charts
- material safety data sheets and material handling methods
- job safety analyses or safe work method statements
- risk assessment and management
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Safety (occupational health and safety [OHS]) may include:

- is to be in accordance with federal, and state or territory legislation and regulations, organisational safety policies and procedures and may include use of personal protective equipment and clothing, use of safety equipment, fatigue management, risk assessment and management, hazard and risk control, manual handling including lifting and carrying, housekeeping, use of fire fighting equipment, use of first aid equipment, signage and barricades, hazard control and elimination of hazardous materials and substances
- is to include personal protective equipment that is prescribed under legislation, regulation and workplace policies and procedures
- is to include safe operating procedures which include recognising and preventing hazards associated with underground or overhead services, other machines, restricted access barriers, traffic control, working at heights, working in proximity to personnel, worksite visitors and the public, safe parking, obstructions, recently filled trenches, secure from unauthorised access or movement, uneven or unstable surfaces or terrain, fires, man made structures, traffic and hazardous materials.

Licensing is to include:

- relevant recognition, permit, license or permission to operate within any state or territory issued by the government regulatory authority of that jurisdiction.

Legislative requirements may include:

- relevant legislation from all levels of government that affect business operation, award and enterprise agreements and relevant industrial arrangements, confidentiality and privacy requirements, occupational health and safety issues, environmental issues, equal opportunity, industrial relations and anti-discrimination, and relevant industry codes of practice.

Organisational requirements may include:	• legal, organisational and site policy or guidelines, policies and procedures relating to own role and responsibility, quality assurance or procedures manuals, quality and continuous improvement processes and standards, OHS policies, procedures and programs, emergency and evacuation procedures, ethical standards, recording and reporting procedures, access and equity principles and practice, consultative processes, equipment maintenance and storage procedures.
Work order is to include:	• organisational work specifications and instructions issued by authorised personnel for the operation of a self-erecting tower crane and its respective tasks.
Appropriate personnel may include:	• supervisors, suppliers, clients, colleagues and managers.
Self-erecting tower crane:	• may include self-erecting tower cranes predominantly with bales mounted in a triangular or nested configuration for transport - an operator presses a button to activate the self-erection resulting in the bales unwinding their ladder like coiled structure, driven by electric or hydraulic mechanical systems • self-erecting cranes can also be of the telescopic ram type • is to include the involvement of riggers to stabilise the self-erecting tower crane with the use of plates and packing under the footplates to adequately distribute the load, ensuring the bearing capacity of the crane standing is not exceeded - riggers will also conduct the other erection activities including the boom and counterweights • may include self-erecting systems with ramps, outriggers, stabilisers, remote control, braking systems, automatic locking mechanisms, self levelling systems and operator cabins designed to ascend and descend the erected tower.
Equipment is to include:	• self-erecting tower cranes, lifting gear, workboxes and relevant maintenance equipment and may include remote control devices (pendant control and radio control) • procedures for equipment lock out protecting operators and co-workers from accidental injury by isolating the equipment, emergency shut down and stopping, extinguishing fires, organisational first aid requirements and evacuation.
Environmental protection measures are to include:	• organisational and project requirements including waste management, noise, vibration, dust and clean up management.

Communication:	• may include verbal and non-verbal language, signage, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language • is to include on-site meetings, verbal instructions and fault reporting and may include two way radios, hand signals, mobile phones, site specific instructions, written instructions or instructions related to a job or task.
Pre start-up checks are conducted:	• to ensure the equipment has been set up correctly, gear is fitted accurately and plant is operating to optimum performance and to manufacturer specifications.
Hazards may include:	• movement of equipment, goods or material, uneven or unstable surface or terrain, fires, underground or overhead services, buildings, traffic, structures, chemicals and hazardous materials.
Barriers and signage may include:	• barrier tape or netting, fencing, temporary boundaries and specified safety signage.
Rigging is to include:	• process of fitting and removing booms, cables, spars and counterweights to ensure the self-erecting tower cranes structural stability and load capacity.
Dogging is to include:	• provision of directional signals to the crane operator on the position and security of the load.
Stability is to ensure:	• self-erecting tower crane is positioned and secured so as not to topple over during operations.
Ground controls are to include:	• either pendant controls or remote control devices.
Weight of load is to include:	• that prescribed by the manufacturer as not exceeding the allowable capacity of the self-erecting tower crane.
Lifting gear may include:	• grabs, chains, flexible steel wire rope slings, spreader beams or other slinging equipment.

Tasks may include:

- operations, including telescope in and out, slew left and right, operate outriggers, luff movements, trolley in and trolley out, winch up and down in combination, boom up and boom down and operation of attachments
- service operations which provide for lighting, telecommunications and raised platforms for numerous applications (sports, entertainment, law enforcement, fire fighting, search and rescue, oil and gas exploration, airports, mining, harbours, road construction and more).

Records and reports may include:

- may include but not be limited to self-erecting tower crane operations and maintenance of equipment, difficulties or issues faced, environmental issues, recommendations for future work, results, costs, hazards, incidents or injuries, dangerous occurrences or equipment malfunctions using log books, pro formas, production reports, conclusions, recommendations and maintenance records.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently conduct self-erecting tower crane operations according to organisational and regulatory requirements.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Compliance with organisational and site policies and procedures including quality requirements and state or territory legislation applicable to workplace operations.
- Compliance with OHS and environmental regulations, policies and procedures.
- Effectively communicate and work safely with others in the work area.
- Effectively conduct risk assessment and management procedures.
- Effectively complete the raising and lowering of the coil structure or ram
- Effectively conduct the operation of a self-erecting tower crane including all functions to their maximum extension and travel in the lifting and moving of at least three differing load types (including different sizes, shapes, weights and materials) to different locations on the site.
- Effectively conduct pre and post operational checks of the self-erecting tower crane.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian Standards requirements.
- The following resources should be made available:
  - workplace location or simulated workplace
  - materials and equipment relevant to self-erecting tower crane operations.
- Specifications and work instructions.

Method of assessment

- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency.

BCGBC4044A Operate a tower crane

Unit Descriptor

This unit of competency specifies the outcomes required to operate a tower crane, including planning and preparation for work, the conduct of operational checks, the safe and effective operation of the tower crane for a range of tasks including lifting and moving loads, monitoring and shut down in accordance with designated Australian standards.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the application in a range of industries including Automotive, Defence, Forests, Maritime, Metals and Engineering, Mining, Transport and Distribution in addition to General Construction.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operation.	1.1 Applicable ***OHS, licensing, legislative*** and ***organisational*** requirements relevant to operating a tower crane are verified and complied with. 1.2 ***Work order*** is reviewed, confirmed and clarified with ***appropriate personnel***. 1.3 Type of operations to be conducted with a ***tower crane*** are assessed and prepared. 1.4 ***Equipment*** is selected appropriate to work requirements and checked for operational effectiveness in accordance with manufacturer recommendations. 1.5 Tower crane operations are planned in accordance with site procedures. 1.6 ***Environmental protection measures*** are adhered to in accordance with environmental plans and regulations. 1.7 ***Communication*** with others is established and maintained in accordance with OHS requirements.
2. Inspect and test tower crane.	2.1 Tower crane is visually inspected prior to operation for any evidence of damage, structural weakness or interference according to pre-operational safety check procedures. 2.2 ***Pre start-up checks*** are carried out on equipment in accordance with manufacturer recommendations and specifications. 2.3 Tower crane controls and functions, including manoeuvrability, emergency functions, gear and accessories are checked for serviceability and any faults are rectified or reported. 2.4 Tower functions are checked after start up and monitored throughout operation. 2.5 Site ***hazards*** associated with tower crane operations are detected, risks assessed and safe operating techniques used to eliminate or control risks.

3. Operate tower crane.	3.1	***Barriers and signage*** are utilised to isolate the work area in accordance with safe working practice and load shifting requirements.
	3.2	Tower crane is operated to work instructions in accordance with company operating procedures and manufacturer specifications.
	3.3	Communication practices associated with lifting and moving loads are conducted in accordance with work site procedures and confirmed between parties.
	3.4	Crane is climbed in accordance with manufacturer specifications and safety regulations.
	3.5	Start up and shut down procedures are performed in accordance with manufacturer specifications and site requirements.
	3.6	***Weight of load*** is confirmed as being within the lifting capacity and operating radius of the crane.
	3.7	***Lifting gear*** is selected, attached and used in accordance with working load limits and OHS legislation.
	3.8	Crane movements are checked for safe operation and load is prepared for lifting in accordance with crane, ***dogging*** and ***rigging*** requirements.
	3.9	Load is manoeuvred to position using the control systems to manufacturer specifications, continually monitored throughout its travel and ***tasks*** completed effectively.
	3.10	Load is lifted and moved in accordance with the agreed crane schedule and conventional hand and audible signals that meet OHS legislation and work site procedures.
	3.11	Load is constantly monitored to ensure safety to personnel, load and structural stability with monitoring systems and alarms immediately acted upon in accordance with site requirements.
4. Shut down tower crane.	4.1	Tower crane is shut down using the correct sequence of procedures in accordance with manufacturer recommendations and specifications.
	4.2	Routine post operational checks are carried out in accordance with manufacturer specifications.
	4.3	Tower crane operations and faults are ***recorded and reported*** to the appropriate personnel.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for conducting tower crane operations
- use and maintenance requirements of relevant tools, machinery and equipment
- verify problems and equipment faults and demonstrate appropriate response procedures
- use appropriate communication and interpersonal techniques with colleagues and others
- accurately record and maintain information relating to conducting tower crane operations
- efficiently and safely conduct tower crane operations.

Required knowledge:

- federal, and state or territory OHS legislation, regulations, standards and codes of practice relevant to the full range of processes for conducting tower crane operations
- organisational and site standards, requirements, policies and procedures for conducting tower crane operations
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols in the workplace
- typical routine problems encountered in the process and with equipment and adjustments required for correction
- types of tools and equipment and procedures for their use, operation and maintenance
- tower crane operations and operating techniques
- tower crane capabilities and gear
- remote control operations and indicators
- techniques for calculating rated capacity, working load limits and load charts
- material safety data sheets and material handling methods
- job safety analyses or safe work method statements
- risk assessment and management
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Safety (occupational health and safety [OHS]) may include:

- is to be in accordance with federal, and state or territory legislation and regulations, organisational safety policies and procedures and may include use of personal protective equipment and clothing, use of safety equipment, fatigue management, risk assessment and management, hazard and risk control, manual handling including lifting and carrying, housekeeping, use of fire fighting equipment, use of first aid equipment, signage and barricades, hazard control and elimination of hazardous materials and substances
- is to include personal protective equipment that is prescribed under legislation, regulation and workplace policies and procedures
- is to include safe operating procedures which include recognising and preventing hazards associated with underground or overhead services, other machines, restricted access barriers, traffic control, working at heights, working in proximity to personnel, worksite visitors and the public, safe parking, obstructions, recently filled trenches, secure from unauthorised access or movement, uneven or unstable surfaces or terrain, fires, man made structures, traffic and hazardous materials.

Licensing is to include:

- relevant recognition, permit, license or permission to operate within any State or Territory issued by the government regulatory authority of that jurisdiction.

Organisational requirements may include:

- legal, organisational and site policy or guidelines, policies and procedures relating to own role and responsibility, quality assurance or procedures manuals, quality and continuous improvement processes and standards, OHS policies, procedures and programs, emergency and evacuation procedures, ethical standards, recording and reporting procedures, access and equity principles and practice, consultative processes, equipment maintenance and storage procedures.

Legislative requirements may include:	• relevant legislation from all levels of government that affect business operation, award and enterprise agreements and relevant industrial arrangements, confidentiality and privacy requirements, occupational health and safety issues, environmental issues, equal opportunity, industrial relations and anti-discrimination, and relevant industry codes of practice.
Work order is to include:	• organisational work specifications and instructions issued by authorised personnel for the operation of a tower crane and its respective tasks.
Appropriate personnel may include:	• supervisors, suppliers, clients, colleagues and managers.
Environmental protection measures are to include:	• organisational and project requirements including waste management, noise, vibration, dust and clean up management.
Tower crane:	• are to include a boom or jib crane mounted on a tower structure that is demountable or permanent and includes horizontal and luffing jib types, they may include ram luffers, rope luffers and hammerheads (trolley in - trolley out) and range considerably in their load capacity, height and jib extension • are generally pre-erected by riggers with use of mobile cranes.
Equipment is to include:	• tower cranes, lifting gear, workboxes and relevant maintenance equipment and may include remote control devices (pendant control and radio control) • procedures for equipment lock out protecting operators and co-workers from accidental injury by isolating the equipment, emergency shut down and stopping, extinguishing fires, organisational first aid requirements and evacuation.
Communication:	• may include verbal and non-verbal language, signage, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language • is to include on-site meetings, verbal instructions and fault reporting and may include two way radios, hand signals, mobile phones, site specific instructions, written instructions or instructions related to a job or task.

Pre start-up checks are conducted:	• to ensure the equipment has been set up correctly, gear is fitted accurately and plant is operating to optimum performance.
Hazards may include:	• movement of equipment, goods or material, uneven or unstable surface or terrain, fires, underground or overhead services, buildings, traffic, structures, chemicals and hazardous materials.
Barriers and signage may include:	• barrier tape or netting, fencing, temporary boundaries and specified safety signage.
Weight of load is to include:	• that prescribed by the manufacturer as not exceeding the allowable capacity of the tower crane.
Lifting gear may include:	• grabs, chains or slinging equipment.
Dogging is to include:	• provision of directional signals to the crane operator on the position and security of the load.
Rigging is to include:	• process of fitting and removing cables and spars to ensure the tower cranes structural stability and load capacity.
Tasks may include:	• operations, including telescope in and out, slew left and right, operate outriggers, luff movements, trolley in and trolley out, winch up and down in combination, boom up and boom down and operation of attachments.
Records and reports may include:	• tower crane operations and maintenance of equipment, difficulties or issues faced, environmental issues, recommendations for future work, results, costs, hazards, incidents or injuries, dangerous occurrences or equipment malfunctions using log books, pro formas, production reports, conclusions, recommendations and maintenance records.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently conduct tower crane operations according to organisational and regulatory requirements.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Compliance with organisational and site policies and procedures including quality requirements and State or Territory legislation applicable to workplace operations.
- Compliance with OHS and environmental regulations, policies and procedures.
- Effectively communicate and work safely with others in the work area.
- Effectively conduct risk assessment and management procedures.
- Effectively operate a tower crane including all functions (including a multiple lift) to their maximum extension and travel in the lifting and moving of at least three differing load types and sizes to different locations on the site.
- Effectively conduct pre and post operational checks of the tower crane.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian standards requirements.
- The following resources should be made available:
  - workplace location or simulated workplace
  - materials and equipment relevant to tower crane operations.
- Specifications and work instructions.

Method of assessment

- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency.

BCGBC4045A Perform rigging - advanced

Unit Descriptor

This unit specifies the outcomes required to perform advanced rigging, including planning and preparation for work, the conduct of operational checks, the safe and effective performing of advanced rigging activities for a range of tasks including the erection and dismantling of lifting devices, the placing and securing hung prefabricated scaffolds, the fixing and securing of permanent guys, demolition activities, load distribution and calculation in accordance with designated Australian standards.

It is a prerequisite for this unit to hold a Certificate of Competency/licence in Intermediate Rigging issued by a State or Territory OH&S Authority.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency may have application in a range of industries including Civil Construction, Defence, Electro Technology, Entertainment, Maritime, Mining in addition to General Construction.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operation.	1.1 Applicable ***OHS, licensing, legislative*** and ***organisational*** requirements relevant to performing advanced rigging are verified and complied with. 1.2 ***Work order*** is reviewed, confirmed and clarified with ***appropriate personnel***. 1.3 Type of operations to be conducted for ***advanced rigging*** are assessed and prepared. 1.4 ***Equipment*** is selected appropriate to work requirements and checked for operational effectiveness in accordance with manufacturer recommendations. 1.5 Advanced rigging operations are planned in accordance with site procedures. 1.6 ***Environmental protection measures*** are adhered to in accordance with environmental plans and regulations. 1.7 ***Communication*** with others is established and maintained in accordance with OHS requirements.

2. Select advanced rigging equipment.	2.1 Advanced rigging equipment, resources and material are visually inspected prior to operation for any evidence of damage, structural weakness or interference according to pre-operational safety check procedures. 2.2 ***Lifting equipment*** is inspected in accordance with manufacturer recommendations and specifications. 2.3 Lifting equipment which is verified as inconsistent with manufacturer specifications is labelled, rejected and disposed of to prevent its use in any circumstance. 2.4 ***Lifting devices*** are specified and selected in accordance with job requirements. 2.5 ***Hung prefabricated scaffolding*** is specified and selected in accordance with job requirements. 2.6 ***Permanent guys*** are specified and selected in accordance with job requirements. 2.7 Site ***hazards*** associated with dogging operations are detected, risks assessed and safe operating techniques used to eliminate or control risks.
3. Connect equipment.	3.1 Loads are slung to ensure ***encapsulation*** of the whole of load. 3.2 Part loads are slung to ensure full encapsulation of the part load. 3.3 Whole or part loads are slung to protect loads and secured to prevent uncontrolled movement. 3.4 ***Tag lines*** are attached and used to prevent unnecessary load movement.
4. Move or remove, place and secure loads.	4.1 Load lifting or shifting order is specified to minimise necessity of double lifts. 4.2 Lifting or ***shifting equipment*** is connected to the load. 4.3 Test lift or shift is performed in conjunction with the ***crane operator*** to ensure lift suitability. 4.4 Load is safely moved or removed to the required destination, placed and secured in position to client specifications or job requirements and ***tasks*** completed effectively. 4.5 Load is constantly monitored to ensure safety to personnel, load and structural stability with monitoring systems and alarms immediately acted upon in accordance with site requirements. 4.6 Load is directed and safe movement coordinated using communications in compliance with recognised work practices.

5. Remove advanced rigging equipment and clean up.	5.1 Lifting or shifting equipment and packing is dismantled, lowered and inspected for wear and log book and site records completed to company requirements. 5.2 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specifications. 5.3 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices. 5.4 Work completion procedures are applied and appropriate personnel notified that work is finished. 5.5 Advanced rigging operations and faults are ***recorded and reported*** to the appropriate personnel.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for performing advanced rigging operations
- use and maintenance requirements of relevant tools, machinery and equipment
- verify problems and equipment faults and demonstrate appropriate response procedures
- use appropriate communication and interpersonal techniques with colleagues and others
- accurately record and maintain information relating to performing advanced rigging operations
- efficiently and safely perform advanced rigging operations.

Required knowledge:

- federal, and state or territory OHS legislation, regulations, standards and codes of practice relevant to the full range of processes for performing advanced rigging operations
- organisational and site standards, requirements, policies and procedures for performing advanced rigging operations
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols in the workplace
- typical routine problems encountered in the process and with equipment and adjustments required for correction
- types of tools and equipment and procedures for their use, operation and maintenance
- advanced rigging operations and operating techniques
- advanced rigging capabilities and gear
- techniques for calculating rated capacity and working load limits
- designs and functions of lifting equipment
- crane operations and limitations
- rated capacity and working load limit tags
- weather and ground considerations
- safe working at heights and fall arrest
- material safety data sheets and material handling methods
- job safety analyses or safe work method statements
- risk assessment and management
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Safety (occupational health and safety [OHS]) may include:

- is to be in accordance with federal, and state or territory legislation and regulations, organisational safety policies and procedures and may include use of personal protective equipment and clothing, use of safety equipment, fatigue management, risk assessment and management, hazard and risk control, manual handling including lifting and carrying, housekeeping, use of fire fighting equipment, use of first aid equipment, signage and barricades, hazard control and elimination of hazardous materials and substances
- is to include personal protective equipment that is prescribed under legislation, regulation and workplace policies and procedures
- is to include safe operating procedures which include recognising and preventing hazards associated with underground or overhead services, other machines, restricted access barriers, traffic control, working at heights, working in proximity to personnel, worksite visitors and the public, safe parking, obstructions, recently filled trenches, secure from unauthorised access or movement, uneven or unstable surfaces or terrain, fires, man made structures, traffic and hazardous materials.

Licensing is to include:

- relevant recognition, permit, license or permission to operate within any State or Territory issued by the government regulatory authority of that jurisdiction.

Legislative requirements may include:

- relevant legislation from all levels of government that affect business operation, award and enterprise agreements and relevant industrial arrangements, confidentiality and privacy requirements, occupational health and safety issues, environmental issues, equal opportunity, industrial relations and anti-discrimination, and relevant industry codes of practice.

Organisational requirements may include:	• legal, organisational and site policy or guidelines, policies and procedures relating to own role and responsibility, quality assurance or procedures manuals, quality and continuous improvement processes and standards, OHS policies, procedures and programs, emergency and evacuation procedures, ethical standards, recording and reporting procedures, access and equity principles and practice, consultative processes, equipment maintenance and storage procedures.
Work order is to include:	• organisational work specifications and instructions issued by authorised personnel for the performing of advanced rigging and its respective tasks.
Appropriate personnel may include:	• supervisors, suppliers, clients, colleagues and managers.
Advanced rigging is to include:	• work involving the use of mechanical load shifting equipment and associated gear to move, place or secure a load using plant, equipment or members of a building or structure, and to ensure the stability of those members and for the setting up, dismantling of cranes and hoists and demolition activities.
Equipment is to include:	• advanced rigging lifting gear, including chains, flexible steel wire rope, natural or synthetic fibre, shifting spanners, tape measures, hammers, rattle guns, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels, automatic levels, elevated work platforms, laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids, pneumatic tools and relevant maintenance equipment • procedures for equipment lock out protecting operators and co-workers from accidental injury by isolating the equipment, emergency shut down and stopping, extinguishing fires, organisational first aid requirements and evacuation.
Environmental protection measures are to include:	• organisational and project requirements including waste management, noise, dust and clean up management.

Communication:	• may include verbal and non-verbal language, signage, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language • is to include on-site meetings, verbal instructions and fault reporting and may include whistles, two way radios, hand signals, mobile phones, site specific instructions, written instructions or instructions related to a job or task.
Lifting equipment are to include:	• shackles, turn buckles, jacks, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, I bolts and may include electric chain motors, rigging screws, lifting lugs, lifting clutches and snatch blocks.
Lifting devices may include:	• hoists, mast climbers and cantilevered crane loading platforms.
Hung prefabricated scaffolding are to include:	• sections or componentry of hung prefabricated scaffolding and suspended scaffolds.
Hazards may include:	• movement of equipment, goods or material, uneven or unstable surface or terrain, fires, underground or overhead services, buildings, traffic, structures, chemicals and hazardous materials.
Permanent guys are to include:	• guyed derricks, gin poles, shear legs, flying foxes and cable ways.
Encapsulation is to:	• ensure that the part load or whole load is fully contained within the slinging equipment.
Tag lines is to include:	• lines to assist the directional guidance of the load.
Shifting equipment may include:	• skates, hydraulic jacks, winches and rails.
Cranes may include:	• fixed cranes, tower cranes, self-erecting tower cranes, city cranes, lattice boom mobile cranes, hydraulic mobile cranes, slewing cranes, non slewing cranes, derrick cranes, portal cranes, bridge and gantry cranes.

Tasks may include:

- erection and dismantling of lifting devices, the placing and securing of hung scaffolds and prefabricated suspended scaffolds, the fixing and securing of permanent guys, demolition activities, load distribution and calculation of loads.

Records and reports may include:

- advanced rigging operations and maintenance of equipment, difficulties or issues faced, environmental issues, recommendations for future work, results, costs, hazards, incidents or injuries, dangerous occurrences or equipment malfunctions using log books, pro formas, production reports, conclusions, recommendations and maintenance records.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently perform advanced rigging according to organisational and regulatory requirements.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- Compliance with organisational and site policies and procedures including quality requirements and state or territory legislation applicable to workplace operations.
- Compliance with OHS and environmental regulations, policies and procedures.
- Effectively communicate and work safely with others in the work area.
- Effectively conduct risk assessment and management procedures.
- Effectively erect and dismantle at least one lattice boom crane and fly with correct rigging and slinging techniques.
- Effectively set up, erect, test, operate and dismantle a hoist, flying fox, a gin pole and a hung prefabricated scaffold.
- Effectively conduct advanced rigging operations for a demolition project including the deconstruction of major construction components.
- Effectively apply both single and dual lifting techniques
- Effectively conduct pre and post operational checks of advanced rigging equipment.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian standards requirements.
- The following resources should be made available:
  - workplace location or simulated workplace
  - materials and equipment relevant to performing advanced rigging.
- Specifications and work instructions.

Method of assessment

- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency.

BCGBC4046A Erect and dismantle scaffolding - advanced

Unit Descriptor

This unit specifies the outcomes required to erect and dismantle advanced scaffolding, including planning and preparation for work, the conduct of operational checks, the safe and effective erection and dismantling of advanced scaffolding activities for a range of tasks including the erecting and dismantling of hung scaffolds, suspended scaffolds, tube and coupler scaffolding systems to provide work platforms, edge protection and access ways in accordance with designated Australian standards.

It is a prerequisite for this unit to hold a Certificate of Competency/licence in Intermediate Scaffolding issued by a State or Territory OH&S Authority.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit may have application in a range of industries including Civil Construction, Defence, Electro Technology, Entertainment, Maritime, Mining in addition to General Construction.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operation.	1.1 Applicable ***OHS, licensing, legislative*** and ***organisational*** requirements relevant to erect and dismantle advanced scaffolding are verified and complied with. 1.2 ***Work order*** is reviewed, confirmed and clarified with ***appropriate personnel***. 1.3 Type of operations to be conducted for ***advanced scaffolding*** are assessed and prepared. 1.4 ***Equipment*** is selected appropriate to work requirements and checked for operational effectiveness in accordance with manufacturer recommendations. 1.5 Advanced scaffolding operations are planned in accordance with site procedures. 1.6 ***Environmental protection measures*** are adhered to in accordance with environmental plans and regulations. 1.7 ***Communication*** with others is established and maintained in accordance with OHS requirements.

2.	Erect scaffolding.	2.1 Purpose for scaffolding is confirmed and associated work ***tasks*** specified. 2.2 Design loading on scaffold and supporting structure is verified using load tables in accordance with appropriate limits, standards and specifications. 2.3 Site access and egress routes are verified. 2.4 Scaffolding and components are selected and inspected with damaged components isolated, labelled, tagged and rejected. 2.5 ***Footings*** are prepared in accordance with regulations, legislation, codes of practice, manufacturer specifications and engineer's instructions. 2.6 Scaffolding is set out and ***erected*** in accordance with regulatory requirements and manufacturer specifications. 2.7 ***Lifting devices*** are assembled and erected in accordance with manufacturer specifications and regulatory requirements. 2.8 Site ***hazards*** associated with scaffolding operations are detected, risks assessed and safe operating techniques used to eliminate or control risks.
3.	Erect ancillary scaffolding equipment.	3.1 ***Fall protection*** are erected and installed in accordance with job specifications and regulatory requirements. 3.2 ***Cantilevered hoist***, with a working load limit not exceeding 500kg, is erected and checked for serviceability.
4.	Inspect, repair and alter erected scaffolding.	4.1 Erected hung or suspended scaffolding and tube and coupler scaffolding is inspected for damage, corrosion, wear and compatibility prior to use. 4.2 Faulty components are isolated, labeled, tagged, rejected or replaced immediately. 4.3 Existing use of scaffolding is checked against original design to be in accordance with regulations and specifications. 4.4 Scaffolding stability is inspected and confirmed in accordance with OHS regulations. 4.5 ***Alterations and repairs*** are carried out on specified equipment or where faults are discovered to ensure regulatory compliance. 4.6 Inspection log and ***handover*** is completed and dated.

5. Dismantle scaffolding and clean up.	5.1 Scaffolding is isolated and appropriately signed and barricaded to ensure safe dismantling. 5.2 Scaffolding is dismantled using reverse procedure as for erection. 5.3 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specifications. 5.4 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices. 5.5 Work completion procedures are applied and appropriate personnel notified that work is finished. 5.6 Advanced scaffolding operations and faults are ***recorded and reported*** to the appropriate personnel.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for erecting and dismantling advanced scaffolding
- use and maintenance requirements of relevant tools, machinery and equipment
- verify problems and equipment faults and demonstrate appropriate response procedures
- use appropriate communication and interpersonal techniques with colleagues and others
- accurately record and maintain information relating to erecting and dismantling advanced scaffolding
- efficiently and safely erect and dismantle advanced scaffolding.

Required knowledge:

- federal, and state or territory OHS legislation, regulations, standards and codes of practice relevant to the full range of processes for erecting and dismantling advanced scaffolding
- organisational and site standards, requirements, policies and procedures for erecting and dismantling advanced scaffolding
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols in the workplace
- typical routine problems encountered in the process and with equipment and adjustments required for correction
- types of tools and equipment and procedures for their use, operation and maintenance
- advanced scaffolding capabilities and gear
- lifting devices and capabilities
- techniques for calculating rated capacity and working load limits
- designs and functions of equipment
- rated capacity and working load limit tags
- weather considerations
- safe working at heights and fall arrest
- material safety data sheets and material handling methods
- job safety analyses or safe work method statements
- risk assessment and management
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Safety (occupational health and safety [OHS]) may include:

- is to be in accordance with federal, and state or territory legislation and regulations, organisational safety policies and procedures and may include use of personal protective equipment and clothing, use of safety equipment, fatigue management, risk assessment and management, hazard and risk control, manual handling including lifting and carrying, housekeeping, use of fire fighting equipment, use of first aid equipment, signage and barricades, hazard control and elimination of hazardous materials and substances
- is to include personal protective equipment that is prescribed under legislation, regulation and workplace policies and procedures
- is to include safe operating procedures which include recognising and preventing hazards associated with underground or overhead services, trip hazards, working in confined spaces, machines, restricted access barriers, traffic control, working at heights, working in proximity to personnel, worksite visitors and the public, obstructions, secure from unauthorised access or movement, uneven or unstable surfaces or terrain, fires, traffic and hazardous materials.

Legislative requirements may include:

- relevant legislation from all levels of government that affect business operation, award and enterprise agreements and relevant industrial arrangements, confidentiality and privacy requirements, occupational health and safety issues, environmental issues, equal opportunity, industrial relations and anti-discrimination, and relevant industry codes of practice.

Organisational requirements may include:

- legal, organisational and site policy or guidelines, policies and procedures relating to own role and responsibility, quality assurance or procedures manuals, quality and continuous improvement processes and standards, OHS policies, procedures and programs, emergency and evacuation procedures, ethical standards, recording and reporting procedures, access and equity principles and practice, consultative processes, equipment maintenance and storage procedures.

Work order is to include:	• organisational work specifications and instructions issued by authorised personnel for the erecting and dismantling of advanced scaffolding and respective tasks.
Appropriate personnel may include:	• supervisors, suppliers, clients, colleagues and managers.
Advanced scaffolding is to include:	• hung scaffolds (scaffold hanging from tubes, wire ropes and chains), suspended scaffolds (swing stages, boatswain chairs, multiple layer, single layer and articulated layer supported by wire ropes and may include maintenance units), cantilevered and spurred scaffolding, sloping platforms, cantilevered crane loading platforms, coupler, tube and fitting scaffolding systems with mast climbers, cantilevers, barrow ramps, spurs, longitudinal and transverse braces, random planks, putlogs and may include modular scaffolding.
Equipment:	• is to include hung scaffolds, suspended scaffolds, modular stages (aluminium or steel), manual and/or motorised winches, coupler, tube and fitting scaffolding, cantilevered hoists (materials only with maximum working load limit not exceeding 500kg), fibre ropes, bracket scaffolds (tank and formwork) safety nets, static lines and gin wheels • may include mast climbers, stairs or ladders, steel and aluminium tubes, couplers and accessories, scaffolding planks (including laminated), perimeter safety screens and shutters, prefabricated components, stairs, guard rails, mid rails, braces, ledgers, transoms, standards, mesh guards, adjustable base plates • may include pallet trolleys, box spanners, hammers, spirit levels, tape measures, scaffold belts, podgers hammers, wire nips, wrenches, torpedo levels and may include shovels, spanners, materials hoists, forklifts, cutters, hammer drills, sledge hammers, wheel barrows and relevant maintenance equipment.
Environmental protection measures are to include:	• organisational and project requirements including waste management, noise, dust and clean up management.

Communication	• may include verbal and non-verbal language, signage, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language • is to include on-site meetings, verbal instructions and fault reporting and may include whistles, two way radios, hand signals, mobile phones, site specific instructions, written instructions or instructions related to a job or task.
Tasks may include:	• provision of work platforms, edge protection, access ways and may include falsework, grandstands, stages and covered walkways.
Footings	• are to include review of job safety analyses or safe work method statements to determine the bearing capacity of ground or working surfaces • may include components including sole boards or base plates.
Erection is to include:	• placement, sequencing, squaring, levelling, tying to a structure, and the reverse for dismantling.
Hazards may include:	• movement of equipment, goods or material, uneven or unstable surface or terrain, fires, underground or overhead services, buildings, traffic, structures, chemicals and hazardous materials.
Fall protection is to include:	• a full body rescue harness connected to a fall line and working platform edge protection while the scaffold is erected.
Static lines:	• are to include static lines that can sometimes be used to form part of a travel restraint system • are horizontal lines, generally constructed from steel wire rope, to which lanyards are usually connected • may be used as part of a travel restraint system where access is required close to an unprotected edge, or on a sloping or slippery surface.
Cantilevered hoist are to include:	• hoists with a working load limit not exceeding 500kg and which only move materials and are erected subsequent to the scaffold.
Lifting devices are to include:	• manual or motorised winches, mast climbers cantilevered hoists and gin wheels.

Alterations and repairs may be required due to:	• storm damage, accidents, misuse and process changes.
Handover is to include:	• signing of the handover certificate which demonstrates the scaffold is ready for service and complies with Australian standards in its entirety.
Records and reports may include:	• advanced scaffolding operations and maintenance of equipment, difficulties or issues faced, environmental issues, recommendations for future work, results, costs, hazards, incidents or injuries, dangerous occurrences or equipment malfunctions using log books, pro formas, production reports and maintenance records.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently erect and dismantle advanced scaffolding according to organisational and regulatory requirements.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Compliance with organisational and site policies and procedures including quality requirements and state or territory legislation applicable to workplace operations.
	• Compliance with OHS and environmental regulations, policies and procedures.
	• Effectively communicate and work safely with others in the work area.
	• Effectively conduct risk assessment and management procedures.
	• Effectively complete the planning, erection and dismantling of suspended and hung scaffold system, in accordance with job safety analyses or safe work method statements and regulations, including a minimum of:
	  • 2 bays hung
	  • support suspension system for a single stage
	  • edge protection.
	• Effectively conduct pre and post operational checks of advanced scaffolding.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian standards requirements.
- The following resources should be made available:
  - workplace location or simulated workplace
  - materials and equipment relevant to erecting and dismantling advanced scaffolding.
- Specifications and work instructions.

Method of assessment

- Assessment methods must confirm consistency and accuracy of erect and performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency.

BCGBC4047A Quality assure fire rated lining systems

Unit Descriptor

This unit specifies the outcomes required to quality assure fire-rated lining systems, including walls, ceilings, structures, openings and penetrations. The unit covers planning and preparation for the work, the identification of authorised installation requirements and the inspection and certification that all materials and installation techniques comply with authorised standards.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of experienced tradespeople with a responsibility for certifying that lining systems including walls, ceilings, structures, openings and penetrations comply with authorised standards.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for work.	1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied. 1.2 ***OHS requirements*** are followed in accordance with safety plans and policies. 1.3 Signage and barricade requirements are identified and implemented. 1.4 ***Tools and equipment*** selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5 ***Environmental protection requirements*** for the project are identified and applied in accordance with environmental plans and regulatory obligations.
2. Identify authorised installation materials and techniques.	2.1 ***Authorised materials*** and installation techniques for walls, partitions, ceilings, openings and penetrations are identified and confirmed from the plan, ***relevant codes and standards*** and manufacturer specifications. 2.2 Authorised materials and installation techniques for air handling, structural encasement and fire escape systems are identified and confirmed from the plan, ***relevant codes and standards*** and manufacturer specifications. 2.3 The system selected is the most suitable to meet the job specifications.

3. Inspect for compliance with authorised standards.	3.1 The installation is progressively inspected to confirm that materials and work comply with the authorised plan and standards and rigidly follow the test and/ or sponsored investigation documents. 3.2 Fire rating, including resistance levels and resistance to incipient spread of fire, are confirmed. 3.3 At each stage of installation, ***walls, ceilings, openings, penetrations*** and ***other special needs*** are inspected and confirmed as being compliant. 3.4 Steel componentry and ***fastener*** loadings are inspected and confirmed as being compliant.
4. Record and report the results of inspections.	4.1 The results of inspections, including certification, are completed in accordance with authorised procedures. 4.2 Inspection findings, including non-conformance sheets, are completed and reported to the ***appropriate authority***. 4.3 Feedback and advice is provided at the work site in accordance with authorised procedures and industry practice.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- oral and written communication skills, including the ability to confirm job specifications and client requirements
- organisation skills, including the ability to plan for and set out work
- mathematical and numerical skills to be able to apply measurements and calculations
- reading skills, including the ability to read and interpret drawings, specifications and documentation from a variety of sources.

Required knowledge:

- a range of the materials commonly used in the installation of fire-rated lining systems
- building code and Australian standards related to fire-rated lining systems
- fire technology, combustion theory and terminology relevant to the inspection of fire-rated systems
- methods for ensuring compliance with incipient spread of flame requirements
- quality systems, including inspection, compliance and reporting/recording requirements
- regulatory/legislative requirements pertaining to the installation of fire-rated systems
- safe work procedures related to the inspection of fire-rated systems
- types, specifications and installation techniques for fire-rated ceiling systems related to direct fix, furred, suspended, and spanning types
- types, specifications and installation techniques for fire-rated wall systems related to steel stud and timber stud walls, shaft walls and timber joists
- types, specifications and installation techniques for openings, penetrations, air handling, structural encasement and fire escape systems.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Context of fire rated systems include:

- all fire systems are to be certified in a NATA approved laboratory
- quality assurance of fire-rated lining systems covers walls, ceilings, openings, penetrations, air handling, structural encasement, escape systems, mechanical service shafts and relief joints
- quality assurance processes are to include detail of responsibilities, the types of certification and the essential aspects of inspection, recording and reporting procedures
- worksheets are to include work area sheets, inspection plans and non-conformance sheets or equivalent
- fire technology includes:
  - the fire triangle
  - flash over
  - the effect and movement of smoke and combustion products
  - fire resistance levels criterion and resistance to incipient spread of fire
  - char factors (timber framing)
- Fire Resistance Level (FRL) covers the grading period in minutes determined in accordance with the specification for structural adequacy, integrity and insulation
- Resistance to Incipient Spread of Fire (RISF). The ability of a ceiling membrane to insulate the space between the ceiling and the roof, or ceiling and floor above, to limit the temperature rise of combustibles in this space during the Standard Fire Test to 180C above the initial temperature expressed in terms of 30, 60, 90 or 120 minutes resistance.

OHS requirements include:

- legislation, regulations and codes of practice
- organisational safety policies and procedures
- project safety plans, including protective clothing and equipment, use of tools and equipment, workplace environment and safety and organisational first aid
- personal protective equipment, including that prescribed under legislation/regulation/codes of practice and workplace policies and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with manual handling, trip hazards, lighting, power sources and leads, working at heights, working in proximity to others, emergency procedures worksite visitors and the public.

Tools and equipment include:

- measuring equipment
- inspection support tools.

Environmental protection requirements include:

- acoustic conformance
- waste management.

Authorised materials include:

- fire grade plasterboard sheeting
- fire grade metal studs and track
- fire compliant steel furring channel and suspension components
- fire sealants
  - vermiculite or equivalent product
  - base compound coats
  - finishing coats
  - perforated paper tapes.

Relevant codes and standards include:

- Building Code of Australia
- Australian standards AS1530, 1684 and 2785
- these documents detail the responsibilities and authorities in relation to design, installation and supervision of fire-rated lining systems. They define and explain fire-rated protection, the principles of compartmentation, fire resistance levels, standard fire tests and the dangers of incompatible mix and match solutions.

Walls include:

- load and non-load bearing timber and steel types and related acoustic systems and components
- fire rated wall systems may include:
  - partition walls
  - staggered stud partitions
  - chase walls
  - D Stud walls
  - shaft walls
  - exterior walls
- partitions and components are to include:
  - inter-enancy
  - exterior
  - shaft
  - column and beam
  - high performance walls
- acoustic capabilities are to include:
  - RW Weighted Sound Reduction Index (RW)
  - flanking
  - staggered stud
  - double wall advantages for impact sound resistance
  - impact of live and/or dead slab
  - loads deflection
  - thermal expansion of stud in fire rated partitions.

Ceilings include:

- direct fix, furred and suspended ceilings
- methods of ensuring compliance with incipient spread of fire requirements
- impact of excessive moisture on fire rated ceiling materials.

Openings include:

- fire doors (steel and timber framed)
- local strengthening of walls
- treatment of door heads
- rating and fitting of windows hatches and appropriate glass
- types of fire-rated glass may include glaze, borosilicate drawn and heat-treated, clear ceramic and wire glass
- types of hatches may include those tested for vertical or horizontal positioning
- types of fire doors may include single hinged, double hinged and sliding.

Penetrations include:

- services are to include metal and PVC plumbing in groups or singles, power outlets, ducts for power and heating/cooling systems
- types of service penetrations are to include fire rated box, baffles, springs, encasement/enclosures and blocking systems
- system integrity maintenance is to include the use of tested and approved intumescent seals, pillows, collars, mortar, board, mastic and impregnated foams.

Other special needs include:

- fire-rated air handling systems, including fire dampers, direct protection and insulation
- fire-rated structural member encasement may be timber, steel or concrete and may be void or require filling
- fire escape systems, including escalators, fire tunnels and stairways.

Fasteners include:

- 30 mm 'S' type screws
- 30 mm and 45 mm 'W' type screws
- 30 mm and 40 mm 'L' type screws
- 'D' type screws 30mm, 40 mm or 50 mm
- 8 30 mm, 40 mm, 50 mm or 60 mm plasterboard nails
- wafer head screws
- metal masonry anchors.

Appropriate authority includes:

- statutory/regulatory authorities, including federal, state and local authorities administering the applicable acts, regulations and codes of practice.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by inspecting a total fire-rated system and compiling a detailed report, or by selecting a total fire-rated system which complies with all codes and standards.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - location, interpretation and application of relevant information, standards and specifications
  - compliance with site safety plan and OHS legislation/regulations/codes of practice applicable to workplace operations
  - compliance with organisational policies and procedures, including quality requirements
  - the inspection and reporting on, or the selection of a total fire-rated system which complies with all codes and standards and covers, at a minimum, a commercial multi-floor site involving compartmentation, plant rooms, access ladders, escalator(s), lifts, shafts, columns and beams
  - communication and working effectively and safely with others.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - workplace location or simulated workplace
  - materials relevant to the quality assurance of fire-rated lining systems
  - tools and equipment appropriate to the quality assurance of fire-rated lining systems
  - realistic activities covering the mandatory task requirements
  - specifications, plans, Building Codes, Australian standards and work instructions.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5001A Apply building codes and standards to the construction process for medium-rise building projects

Unit Descriptor

This unit specifies the outcomes required to access, interpret and apply relevant building codes and standards applicable to the construction processes of medium-rise commercial and wide span buildings (medium-rise licensing classification with reference to Class 1 and 10 construction; Class 2 and 3 to a maximum of 3 storeys; Class 4 to 9 to a maximum of 3 storeys, not including Type A construction). To successfully construct medium-rise buildings requires a thorough knowledge of the purpose and content of the Building Code of Australia (BCA) coupled with the ability to interpret other codes and standards related to a specific building.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for ensuring compliance with building codes and standards in the building and construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Access and interpret relevant code and standard requirements.	1.1 The relevant performance requirements from the BCA that apply to individual projects (classified as ***medium-rise***) are identified. 1.2 The requirements of relevant BCA Deemed-to-Satisfy (DTS) provisions are determined. 1.3 The requirements of relevant Australian standards referenced in the BCA are accessed and interpreted appropriately.
2. Classify buildings.	2.1 The nature of a building according to use and arrangement is determined. 2.2 BCA criteria to determine the defined classification are applied. 2.3 The BCA requirements for multiple classifications are identified and interpreted.

3. Analyse and apply a range of solutions to a construction problem for compliance with the BCA.	3.1 The range of criteria that will ensure construction methods comply with the performance requirements of the BCA is determined. 3.2 Alternative solutions to a design or construction problem that will comply with the requirements of the BCA are discussed and proposed in accordance with company policies and procedures. 3.3 Performance-based solutions are identified and documented in accordance with the requirements of the BCA. 3.4 ***Assessment methods*** referenced in the BCA to determine whether a building solution complies with ***performance requirements*** or Deemed-to-Satisfy (DTS) Provision of the BCA are analysed and applied. 3.5 The relevant documentation is identified and completed in accordance with the requirements of the BCA.
4. Apply fire protection requirements.	4.1 Passive and active fire control elements required by the BCA and other legislation are identified. 4.2 The level of fire resistance required for the construction of various medium-rise buildings is determined. 4.3 BCA requirements with respect to passive and active fire protection to medium-rise buildings are identified and applied. 4.4 A check of existing buildings for compliance with passive and active fire protection requirements is carried out in accordance with BCA requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and interpretation skills relating to documentation from a wide range of sources including BCA and referenced documents
- application of design concepts and principles in accordance with BCA, namely:
- Medium-rise:
- Class 1 and 10
- Class 2 and 3 to a maximum of 3 storeys
- Classes 4 to 9 to a maximum of 3 storeys, not including Type A construction
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- reading skills, including the interpretation of drawings and specifications
- technological skills to facilitate use of the organisation's software and office equipment
- written and verbal communication skills.

Required knowledge:

- basic design principles and the behaviour of structures under stress, strain, compression, bending or combined actions
- BCA performance hierarchy
- definitions and common technical terms or usage specified under general provisions of BCA
- general nature of materials and the effects of performance
- interpretation and analysis of working drawings and specifications
- relevance of Australian standards
- relevant legislative and OHS requirements, codes and practices
- relevant licensing arrangements applicable
- thorough understanding of the BCA, namely:
- Medium-rise:
  - Class 1 and 10
  - Class 2 and 3 to a maximum of 3 storeys
  - Classes 4 to 9 to a maximum of 3 storeys, not including Type A construction.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Medium-rise is described as falling within the BCA classes of:

- Class 1 and 10
- Class 2 and 3 to a maximum of three storeys
- Classes 4 to 9 to a maximum of three storeys, not including Type A construction.

Assessment methods include:

- evidence of suitability as described in the BCA
- verification method as defined in the BCA
- comparison with BCA DTS provisions
- expert judgement as defined in the BCA.

Performance requirements include:

- the performance requirements of the BCA determined to be relevant to a specific project
- performance requirements contained within other legislation applicable to a specific project
- performance-based contractual requirements that must be fulfilled by any party.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of design principles and solutions specified in BCA performance requirements or deem to satisfy provisions applicable to a particular building project. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of BCA performance requirements relating to design and construction of a building
  - demonstrated understanding of some Assessment Methods available to determine compliance with the BCA
  - identification of typical faults and problems and proposed action to rectify.

Context of and specific resources for assessment

- Resource requirements for assessment include:
  - access to BCA and relevant documents referenced in the BCA
  - access to relevant legislation
  - project documentation, including design brief design drawings, specifications, construction schedules and other supporting documents
  - research resources, including product information and data
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5002A Monitor building or construction costing systems on medium-rise building and construction projects

Unit Descriptor

This unit specifies the outcomes required to monitor building or construction costing systems. The processes and practices involved in supervising and monitoring costing systems result in the ongoing maintenance of cost control, the production of expenditure schedules and other arrangements which ensure contracts or projects to remain on budget. In order to achieve the outcomes for this unit, knowledge of relevant legislation, codes and standards, industry estimating and costing systems and financial principles are required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, senior managers in building and construction firms and other construction industry personnel who have responsibility for monitoring building or construction costing systems for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Supervise the identification and classification of project costs.	1.1 Staff members are supervised in their identification of building or construction costs and accurate estimates are made from project schedules. 1.2 Definitive cost estimates are accurately translated into the correct cost centres appropriate to contract requirements. 1.3 Cost centres are correctly identified and incorporated into a planned project cost network. 1.4 Risk assessment is undertaken and estimated cost is compared with estimated risk. 1.5 All planning ensures there is compliance with relevant codes of practice, standards and legislative requirements.
2. Manage the preparation of a schedule of project expenditure.	2.1 Draft ***schedules of project expenditure*** are prepared with critical points identified. 2.2 Expenditure schedules are prepared using organisational processes and hardcopies are produced. 2.3 Critical financial phases of the project are identified and cash flows are matched to expenditure.
3. Prepare curves showing projected cash flow and payments.	3.1 Interim payment claims and rise and fall calculations are prepared for the contractor and subcontractors. 3.2 The projected 'S' curve is prepared to show cash flow and resource control. 3.3 Cash flows using 'time risk' and 'cost risk' are prepared and compared. 3.4 Cash flows using 'early start' and 'late finish' for pessimistic or optimistic outcomes are compared. 3.5 Pessimistic overdraft requirements are calculated.

4. Maintain continuous checks on expenditure and evaluate outcomes.	4.1 Cash flow and creditor payments are monitored daily. 4.2 The budget cost on the network is compared to actual costs in the tender calculations. 4.3 Rise and fall clause calculations are undertaken and variations are advised to the financial controller. 4.4 Reasons for any cost variations are analysed and identified. 4.5 Remedial action is taken and recorded as necessary to retain contract financial compliance.
5. Prepare final cost report.	5.1 Actual costs are compared with estimates at the completion of the job and a report is compiled detailing future actions. 5.2 The organisational rates are adjusted as required, based on the ***final cost report*** and current movements in prices and rates.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- account keeping skills to identify cost centres and monitor cash flows
- analysis and interpretation skills to undertake financial risk assessments
- management skills, including the ability to supervise staff
- numerical skills, including the ability to perform complex financial calculations
- preparation of schedules of expenditure and expenditure projections.

Required knowledge:

- estimating and costing systems used in the Building and Construction industry
- expenditure evaluation methods
- financial principles and cash flows
- project financial processes and timelines
- relevant licensing arrangements applicable
- relevant standards, codes of practice and legislation
- variations in rates occurring through 'rise and fall' clauses and their effects.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Identification and classification of project costs include:

- all human resource costs, including direct employees' and subcontractors' rates
- overhead costs, including administration support, power, lighting, accommodation and rent
- plant and equipment purchase/lease and operating costs
- materials such as sand, aggregate, bitumen, concrete, bricks, roofing and reinforcing
- temporary accommodation and shelter, including sheds, site offices and toilets
- site services such as temporary power, lighting and water
- specialist services such as surveying, architectural, testing and legal
- relevant codes, standards and legislation.

Schedules of project expenditure include:

- labour hours consumed against estimates
- labour costs against estimated costs
- materials purchases
- consumables such as fuel and lubricants, electric power and water
- supplies such as timber and building materials
- costs of precast and on-site production of concrete components.

Projected cash flow and payments include:

- progress payments in for work completed
- progress payments out for work undertaken
- progress payments for supplies and materials
- penalties
- wages and salaries
- insurances, including workers' compensation premiums.

The ***final cost report*** includes:

- detailed summaries of actual costs against estimates
- details of cost over-runs and savings on labour and contracting out
- cost/benefit analyses of overtime payments
- details of savings or under-expenditure on materials or supplies
- equipment performance information and efficiencies.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the effective monitoring of a building or construction costing system.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • monitoring and supervision of staff who develop and consolidate costing data for class 2-9 Type A building and construction projects
	  • the extent and effectiveness of the comparison of actual versus estimated costs and the production of schedules of expenditure
	  • efficient and punctual production of financial data in the form required by the organisation
	  • planning and continuous revision of the schedules of payments and cash flows to match contract performance and efficiency.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that would support building or construction costing systems for a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the monitoring process
  - copies of appropriate awards and workplace agreements.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5003A Supervise the planning of on-site medium-rise building or construction work

Unit Descriptor

This unit specifies the outcomes required to supervise the planning process and the organisation of on-site building or construction work projects up to and including medium-rise commercial and wide span buildings (medium-rise licensing classification with reference to Class 1 and 10 construction; Class 2 and 3 to a maximum of 3 storeys; Class 4 to 9 to a maximum of 3 storeys, not including Type A construction). Successful supervision of planning and organisation requires effective interpretation of contractual and planning requirements and development of strategies for utilising human and physical resources effectively in order to comply with contractual obligations. In order to achieve the outcomes for this unit, knowledge of relevant building and construction planning practices, state/territory building and construction codes, standards and regulations and human resource principles and practices are required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, related construction industry professionals and senior managers within building and construction firms who have responsibility for supervising the planning of on-site building or construction work for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Appraise the contractual documentation and delegate the planning of operational requirements as necessary.	1.1 Copies of building approvals and conditions relating to the medium-rise building or construction project are obtained. 1.2 ***Contracts*** are reviewed to determine any unusual aspects of construction, use of materials or penalty provisions. 1.3 Possible design problems are identified and brought to the attention of the project consultants. 1.4 The availability of subcontractors and their suitability to meet job requirements specific to medium-rise projects is reviewed. 1.5 The availability of materials and conditions of purchase and authorised purchases is reviewed. 1.6 Access to the site is established within requirements and on-site accommodation is located in an appropriate location. 1.7 Contact is established and maintained with relevant statutory authorities controlling construction work.

2. Initiate strategies and delegate the implementation of medium-rise construction operations, as necessary.	2.1 A ***resources*** supply system for controlling and recording materials entering and leaving the site is instituted and maintained. 2.2 Procedures for recording and paying for the hire of plant equipment and authorising payment are managed. 2.3 The establishment of OHS and rehabilitation procedures including hazard and risk management is undertaken. 2.4 Procedures for the removal of existing services and hazardous materials are planned and implemented in accordance with regulatory requirements. 2.5 Procedures required for the control of multiple projects are established.
3. Supervise the preparation of project schedules.	3.1 Construction operations are planned and executed in sequence. 3.2 Entering of operations data into an appropriate scheduling system for analysis is managed. 3.3 The project's 'critical path' is established and the revision of the ***project schedule*** is managed with new projects incorporated and documented as required. 3.4 Strategies for avoiding and overcoming project delays are developed. 3.5 Management is advised of the cost benefits and implications of providing overtime payments.
4. Ensure the provision of all the resources required for the project.	4.1 Adjustments to the project timeframe to take account of anticipated delays are facilitated. 4.2 ***Temporary services*** and site accommodation needs are identified and arranged as required. 4.3 Plant requirements, site location and installation dates are confirmed. 4.4 On-site personnel and labour requirements are determined and documented.
5. Review existing onsite buildings or structures.	5.1 The condition of existing buildings, or structures to be retained and structures on adjacent site boundaries, is reviewed and recorded. 5.2 Copies of reports are submitted to adjacent building owners prior to commencing construction work.
6. Supervise staff and maintain an effective work environment.	6.1 An overview of the project site or sites is maintained and staff resources are allocated according to organisational, regulatory and project needs. 6.2 The activities of contract planning personnel are monitored and an effective work environment is maintained. 6.3 Effective human resource practices and policies which maximise performance and productivity are employed.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- evaluation skills to review and evaluate documentation and processes and recommend changes or improvements
- management skills, including the ability to delegate tasks and supervise staff to achieve planning outcomes
- planning skills to enable the effective planning of projects, processes and strategies which maximise the efficiency and cost effectiveness of building or construction contracts and which effectively organise and utilise available resources on construction sites
- written and verbal communication skills to enable effective communications with individuals inside and external to the organisation.

Required knowledge:

- building and construction industry contracts
- building and construction industry subcontracting system
- building or construction practices in on- and off-site management
- construction planning process
- contract documentation, quantities establishment, rates and costs related to payments and claims
- human resource principles and practices
- relevant licensing arrangements applicable
- relevant state or territory building and construction codes, standards and government regulations
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Contracts may include:

- individual organisational contracts
- JCC Suite
- SBW2 Lump Sum
- CIC Suite
- MBA and HIA contracts
- Australian standard contracts, including the AS2124 and AS4000 series
- SBW series contracts.

Resources may include:

- temporary accommodation
- on-site facilities
- raw materials
- plant and equipment
- pre-cut or pre-cast components
- human resources (both organisational and subcontract)
- power, water, telephone and other resources.

Project schedule includes:

- labour supply and availability information
- materials supply and availability information
- critical events and milestones
- subcontractor requirements and availability
- plant and equipment availability information
- services provision.

Temporary services may include:

- power poles
- offices and crib rooms
- toilets
- portable generators and lighting
- on-site communications.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the demonstration of effective supervision of planning on-site building or construction work.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - effective translation of contract requirements into construction plans and processes
  - appropriate delegation of planning tasks
  - appropriate construction planning processes which effect the desired outcomes
  - development of strategies which effectively maximise resource utilisation
  - establishment and maintenance of a workplace environment which is representative of good management practice.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5004A Supervise and apply quality standards to the selection of building and construction materials

Unit Descriptor

This unit specifies the outcomes required to supervise the systems through which materials are selected, acquired and stored on site for building or construction work up to and including medium-rise projects. It ensures the delivery to the site of materials which meet contract specifications and service requirements for commercial projects. To achieve the outcomes for this unit, knowledge of relevant building construction materials and technologies, environmental effects on materials and testing procedures is required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, related construction industry professionals and senior managers within building and construction firms who have the responsibility for supervising and applying quality standards to the selection of construction materials for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and describe the properties of building materials.	1.1 The suitability of ***materials*** commonly used in the region is identified for a given building system. 1.2 Properties of materials, their standards of quality and the compatibility and non-compatibility of different materials are identified. 1.3 The environmental impacts of different materials are identified. 1.4 The impact of allowable tolerances on the conversion of naturally occurring materials is identified. 1.5 The tolerances for installing and assembling materials are identified and checked in regard to the nature of the work being performed and the requirements of the Australian standards.
2. Ensure suitable building materials are selected for application.	2.1 The ***selection of building materials*** is conducted with reference to structural requirements and suitability for the building system specified in the contract. 2.2 Materials are selected for their safety, required fire resistance rating, serviceability and cost effectiveness. 2.3 Short and long-term degradation of materials is considered in relation to the proposed life cycle of the building. 2.4 Alternative materials are selected if specified materials are unavailable or unsuitable.

3. Supervise the acceptance, safe handling and storage of materials on site.	3.1 Organisational procedures for the ***acceptance, safe handling and storage of materials*** on site are identified and communicated. 3.2 Limitations and effects of transportation on materials and components are determined and action is taken in the case of potentially damaging circumstances. 3.3 Materials are handled correctly and safely on site using appropriate equipment and safe working practices. 3.4 Materials are stored in accordance with manufacturer specifications and in compliance with the relevant Australian standards. 3.5 Systems are implemented for inspecting all materials delivered on-site for naturally occurring and/or manufactured defects before installation. 3.6 Personnel are aware of actions to be taken in the case of defects caused by incorrect installation, application or placement. 3.7 Timber is preserved and ferrous and non-ferrous metals which are used in the construction process are protected using established methods.
4. Supervise testing of materials on site for suitability and fitness for purpose.	4.1 ***Testing of materials***, including soil, filling, compacting, surfacing, concreting and welding, is carried out to specifications and results are analysed on-site before and during installation. 4.2 Samples of materials taken during placement or installation are accurately identified and sent for laboratory testing. 4.3 Materials are given visual checks for suitability before building in, with materials sent off-site for testing if required. 4.4 Processes to ensure defective materials are identified and remedial action is recorded.
5. Establish records of materials testing and report on testing process conformance or otherwise.	5.1 ***Records of tests and testing procedures*** are established and maintained by the organisation in accordance with its quality management obligations. 5.2 Test results and reports are periodically evaluated to maintain integrity of organisational quality standards. 5.3 Non-conformant on-site materials tests are immediately notified to the appropriate company officer for further action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- materials testing skills to enable materials to be tested according to the relevant Australian standards or the ability to arrange for testing to be carried out independently
- reporting skills to report on difficulties with either supply or standards of materials
- supervisory skills to ensure the correct selection and installation of materials on site and secure storage of materials onsite
- systems development skills to ensure systems are developed which ensure correct materials, meeting appropriate standards are delivered and used on site.

Required knowledge:

- alternative materials
- building and construction materials and technologies
- construction/contracting equipment and its use
- the construction supply processes
- environmental effects on various building and construction materials
- relevant licensing arrangements applicable
- relevant state or territory building and construction codes, standards and regulations
- testing procedures
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Materials may include, but are not limited to:

- timber and timber structures
- brick or concrete structures, including:
  - cavity brick
  - core filled concrete blocks
  - single skin clay block
  - tilt-up concrete panels
- floor systems, including:
  - brick bases
  - bearers and joists
  - platform floor construction
  - fitted (cut-in) floors
  - engineered floor Joists
  - sheet flooring
  - tongue and groove flooring
  - compressed sheet wet area flooring
  - concrete slab floors, including slabs on ground and suspended slabs
- cladding, including:
  - weatherboards
  - brick veneer
  - fibre cement or compressed wood panelling
  - stuccoed stud walls
  - colourbond/zincalume sheeting.

Selection of building materials includes:

- identifying materials from specifications and drawings
- identifying specifications and standards described in the contract documents
- selecting and ordering materials which meet those requirements
- arranging for expert advice as necessary to confirm or refute materials options.

Acceptance, safe handling and storage of materials on site includes:

- ensuring the correct materials are being delivered to the correct site
- undertaking quality checks within the competence of the individual
- confirming products or materials are as ordered and signing off delivery documentation
- allocation of space for on-site storage of materials
- ensuring safe unloading and handling of construction materials
- providing for adequate on-site security of materials.

Testing of materials includes:	• arranging on-site quality and fit for purpose tests for products to be used in construction • arranging external quality tests or inspections and provision of results as necessary • completing appropriate organisational records • refusing acceptance of substandard or out of specification materials.
Records of tests and testing procedures include:	• obtaining appropriate records and reports for review and analysis • distributing copies in accordance with organisational policy • proving advice and information to regulatory authorities as authorised by the organisation • following up reports that indicate departures from quality or manufacturing requirements • taking appropriate remedial action within the scope of the individual's authority.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by the effective supervision and application of quality standards to the selection of specified construction materials.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• A person who demonstrates competency in this unit must be able to provide evidence of:
	  • identification of building and construction materials specified in the project or contract documentation
	  • effective verbal and written communication with manufacturers and suppliers of materials
	  • effective and efficient testing of the materials to maintain quality standards onsite
	  • effective sampling and record keeping processes
	  • safe handling and storage of materials
	  • compliance with organisational and legislative requirements.

Context of and specific resources for assessment

- The following resources should be made available as appropriate:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5005A Select and manage building and construction contractors

Unit Descriptor

This unit specifies the outcomes required to select and manage building and construction contractors. It covers the processes and practices involved in supervising the systems through which the selection and management of subcontract resources occurs within the organisation, and through which subcontracting needs are identified and quantified. In order to achieve the outcomes for this unit, knowledge of relevant industry legislation, standards and codes, the subcontracting system and industrial relations processes is required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders and senior managers within building and construction firms and other construction industry personnel who have responsibility for selecting and managing building and construction contractors for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Manage the determination of subcontractor requirements.	1.1 Subcontractor resource requirements are assessed on the basis of expected operations and reference to the business plan. 1.2 ***Subcontractor requirements*** are managed, prioritised and documented on the basis of expected work sequence and volume. 1.3 Task analyses are conducted and managed and competences are identified from the nature of the work to be done and organisational structure. 1.4 Type and number of subcontractors are determined and a formal subcontractor structure is developed for the project. 1.5 Industrial legislation and contract legal matters which impact on operations are researched to clarify workplace obligations and the rights of subcontractors.
2. Manage the review of subcontractor performance.	2.1 Existing subcontractor areas of expertise are identified or reviewed to build an operational profile for each subcontractor. 2.2 Information is gathered concerning previous performance of existing subcontractors or their profiles and history are examined. 2.3 ***Reviewing subcontractor performance*** for the purpose of identifying strengths and weaknesses is undertaken. 2.4 A management plan is developed for each subcontractor to enhance their ability to meet contractual obligations.

3. Establish terms and conditions for subcontractor engagement.	3.1 Subcontractor terms of engagement and scope of operations under the contract are developed or reviewed to ensure contract obligations can be met. 3.2 Conditions to be met under the terms of engagement for subcontractors are reviewed and periodically reinforced with the subcontractors.
4. Manage the selection and engagement of subcontractors.	4.1 Subcontractor engagement strategies and processes are developed and facilitated to meet organisational timelines and contract dates. 4.2 The processes for ***selection and engagement of subcontractors*** are managed to ensure that equal opportunity principles apply to all applicants. 4.3 Subcontractor short-listing and qualification checking is managed to enable the selection and engagement of the most appropriate subcontractor. 4.4 Successful and unsuccessful tenderers are notified about the outcomes of the selection process. 4.5 Processes for the commencement, induction and any required pre-engagement training are managed and implemented.
5. Evaluate subcontractor performance and conformance to contract requirements.	5.1 Systems which evaluate ***subcontractor performance and conformance to contract requirements*** are developed and managed. 5.2 The gathering of strategic information about subcontractor performance is managed under terms of confidentiality and security but within known collection parameters. 5.3 Performance review outcomes are discussed with subcontractors on a confidential and equitable basis. 5.4 Feedback and appeal systems are introduced and managed to ensure that subcontractors have the opportunity to challenge review outcomes. 5.5 Remedial or disciplinary action is undertaken against the subcontractor in accordance with organisational policy and operational guidelines where appropriate.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- developing and managing subcontract tender and selection processes
- evaluation skills to be able to undertake and manage subcontractor evaluations for the organisation and review subcontractor performance
- managing subcontractor resources in an equitable and non-discriminatory manner
- organisation and management skills to manage the development of job profiles and competency statements for subcontractor appointments.

Required knowledge:

- contracts and workplace agreements
- industrial relations structures and processes
- industry subcontracting system and the industry benchmarks for subcontract personnel
- relevant licensing arrangements applicable
- subcontractor administration and performance management systems.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Subcontractor requirements include:

- identifying the work sequence and nature of job roles
- calculating the quantum of hours required to perform the work
- determining the total hours required for each function and stage of work
- estimating the project time frame from start to finish
- calculating the number of subcontractors required by the hours within the timeframe.

Reviewing subcontractor performance includes:

- using subcontractor performance records from previous associations
- anecdotal evidence, including input from project managers and administrators
- examination of data provided by the subcontractor
- observation of the subcontractor on other project sites
- input about subcontractor performance from other organisations.

Selection and engagement of subcontractors includes:

- providing invitations to tender for subcontract opportunities
- reviewing tender responses and checking referees
- arranging credit checks to determine subcontractor financial viability
- ensuring selection interviews with subcontractors meet the criteria
- advising interviewees of the outcome of the selection process
- undertaking contractual arrangements between the organisation and the successful subcontractors.

Subcontractor performance and conformance to contract requirements includes:

- establishment of performance benchmarks within subcontracts
- performance monitoring against project timelines and objectives
- performance management where performance is sub-standard or inappropriate
- regular communication with subcontractors
- participation by subcontractors in project meetings and provision of progress reports.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective selection and management of building and construction contractors for medium-rise projects against projected organisational activities and the business plan.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - identification of the subcontractor needs of the organisation based on an evaluation of the organisation's projected work load and forward contractual commitments
  - the extent of effective systems introduced to review subcontractor performance and competency
  - an effective and efficient appointments process
  - effective and efficient management of the system of subcontractor appointments to meet project timeframes
  - remedial or disciplinary action for below standard subcontractor performance and management of the modification.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to this process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.

Context of assessment

- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5006A Apply site surveys and set out procedures to medium-rise building projects

Unit Descriptor

This unit specifies the necessary outcomes required for applying site surveys and set out procedures to mediumrise building and construction projects. It addresses the skills and practices required to measure, record and interpret data using measuring and levelling equipment and to set out building projects. The ability to operate specific surveying equipment and apply calculations and knowledge of the BCA and Australian standards are essential.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, surveyors and related construction industry professionals who have responsibility for conducting site surveys in preparation for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Set out a T-shaped or L-shaped building on a selected site with minimal profiles.	1.1 Site information and dimensions are identified from site plan and checked against plan drawings. 1.2 Survey pegs are measured to ensure correct identification occurred before pilot pegs are positioned. 1.3 Profiles pegs set-up on site at a working distance from pilot pegs and parallel to pilot line. 1.4 Marks to indicate outside of building or other structural members are made.
2. Prepare and test levelling devices.	2.1 The various components of levelling devices are identified. 2.2 Basic tests on levelling device accuracy are performed according to manufacturer specifications. 2.3 The effects of maladjustment in levelling devices according to standard operating procedures are identified and recorded.
3. Operate levelling devices.	3.1 Temporary adjustments to 'set up' ***levelling equipment*** are carried out in accordance with standard operating procedures. 3.2 Horizontal and vertical angles are determined using levelling devices. 3.3 Site is set out to specifications using levelling device.
4. Identify specialised levelling and surveying equipment available on large building projects for various set out and checking procedures.	4.1 The differences between the various types of specialised surveying equipment are researched and recorded. 4.2 A survey of each level checked for vertical accuracy of 10mm using two levelling devices is carried out.

5. Compute coordinates, and bearings, and distances related to grids and general set out work on large building sites.	5.1 The angular relationship between different bearings (whole circle) is demonstrated. 5.2 The bearing and distance between coordinates are calculated. 5.3 The coordinates of a point given the bearing and distance from a point with known coordinates are calculated. 5.4 Offsets from a coordinated point given the bearing and distance from a point with known coordinates are determined. 5.5 The information necessary to set out a structure, using a site plan is determined.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of design concepts and principles to survey and site set out
- application of measurements and calculations to survey and site set out
- attention to detail and accuracy
- communication skills to effectively perform survey/levelling procedures with others
- interpretation skills to be able to understand documentation from a wide range of sources, including State Regulatory Authority requirements
- reading skills, including the ability to interpret drawings and specifications

Required knowledge:

- application of design principles
- BCA and Australian standards and manufacturer specifications.
- building systems and application to survey and site set out
- level and grade checking used to perform survey control to accuracy criteria
- OHS measures as identified by equipment manufacturers, Australian standards
- relevant legislative requirements, codes and practices
- survey and levelling devices and effect of performance on site
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Levelling equipment includes:	• pegs methods • laser • theodolite • EDM equipment • optical plummets.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by applying survey and site set out procedures and selection and use of two (2) levelling devices to survey and set out building projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - accurate application of survey and levelling principles relating to performance of site set out
  - compliance with OHS and organisational quality procedures and processes
  - application and interpretation of relevant documentation, codes and legislation
  - application of principles relating to performance of survey and site set out procedures and principles of selection
  - use of levelling devices to survey and set out building projects
  - identification of typical faults and problems and necessary action taken to rectify
  - identification of hazard categories according to Australian standards, BCA and specifications.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including systems information and data
  - access to relevant legislation, regulations and codes of practice.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5007A Administer the legal obligations of a building or construction contract

Unit Descriptor

This unit specifies the outcomes required to administer the legal obligations of a building or construction contract. It is concerned with licensing and/or builders' registration and other legislative matters as appropriate, and administering the systems through which the obligations of complying with legislation are fulfilled. In order to achieve the outcomes for this unit, knowledge of relevant industry legislation, codes, standards, regulations, licensing, employee awards, agreements, OHS, taxation and insurance is required.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, senior managers within building and construction firms and other construction industry personnel who have responsibility for administering the legal obligations of a building or construction contract for medium-rise projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Comply with the laws relating to establishing and licensing a building or construction contractor.	1.1 Business registration of the organisation is secured in accordance with owner/operator preferences and legal requirements. 1.2 Approval of the ***licensing*** and/or registration as a contractor/supervisor is sought from the appropriate government agency. 1.3 The responsibilities of operating a construction business in accordance with legislation are complied with by the contractor. 1.4 Legal documents and records are kept and carefully maintained.
2. Engage personnel for the project.	2.1 Relevant industrial awards are identified for the hiring of staff or labour. 2.2 Contracts of employment are determined on a case-by-case basis and the principles and legalities of workplace agreements are implemented. 2.3 Equal opportunity principles are applied in all aspects of recruitment and selection. 2.4 Procedures for employment termination and redundancy are explained and followed. 2.5 Dispute resolution processes are established, documented and implemented where necessary.

3. Administer the regulations relating to OHS, welfare, workers compensation, noise abatement and working hours.	3.1 OHS and Welfare Act provisions are identified and complied with, on and off the site. 3.2 The OHS Authority is contacted to determine the necessary approvals or permits prior to work commencing. 3.3 The provisions of the Workers Compensation Act are complied with and the rights and responsibilities of workers are observed to ensure a safe workplace. 3.4 Regulations relating to noise abatement and working hours are adhered to.
4. Implement rehabilitation arrangements for employees returning to work.	4.1 ***Rehabilitation arrangements*** for employees returning from injury or illness are facilitated and implemented. 4.2 Workers returning to work after injury or illness are assisted to regain full employment status as soon as practicable.
5. Comply with taxation and insurance requirements of state, territory and federal legislation.	5.1 ***Taxation*** payments are recorded, collected and made in compliance with Australian Taxation Office requirements including obligations under the GST. 5.2 ***Insurance*** policies are identified to provide appropriate cover for personnel, property and the project works. 5.3 Mandatory superannuation provisions are made for employees.
6. Administer all obligations in a conscientious manner and observe Fair Trading Practice.	6.1 Fair Trading Practice responsibilities are maintained effectively and efficiently. 6.2 The best interests of clients are promoted and undertaken conscientiously in accordance with the agreed contract.
7. Comply with environmental legislation and its intent.	7.1 The use of renewable materials are preferred over non-renewable materials. 7.2 Low energy materials are used in preference to high energy materials, where practical. 7.3 Processes to ensure compliance with ***environmental protection legislation*** are implemented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- attention to detail to manage compliance with a variety of legal obligations and administer various awards and agreements
- managerial skills to effectively manage personnel
- negotiation and communication skills to enable successful resolution of business and human resource disputes.

Required knowledge:

- awards and agreements applying to employees and subcontractors
- OHS and rehabilitation requirements
- legislative requirements including taxation and insurance requirements, Fair Trading legislation and environmental legislation
- licensing and builders' registration requirements
- local authority regulations
- relevant licensing arrangements applicable.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Laws relating to establishing and ***licensing*** of a building or construction contractor include:	• State laws such as:
	  • the Builders Registration Act 1939
	  • the Home Building Contracts Act 1991 in Western Australia
	  • the Home Building Act and Regulations 1989 in New South Wales.

Laws and regulations relating to ***OHS, welfare and workers compensation, noise abatement and working hours*** include:	• state laws such as:
	  • Occupational Health and Safety Act 1984 in Western Australia
	  • Occupational Health and Safety Act 1983 in New South Wales
	  • Occupational Health and Safety Act 1985 in Victoria
	  • Occupational Health and Safety Act 1986 in South Australia
	  • WorkCover Queensland Act 1996
	• state regulations such as the Occupational Health and Safety Regulations 1996 in Western Australia
	• state laws such as:
	  • Workplace Injury Management and Compensation Act 1998 in New South Wales
	  • Workers Compensation and Rehabilitation Act 1981 in Western Australia
	• state codes of practice applicable to the various regulations
	• various federal, and state or territory industrial relations Acts and regulations.

Rehabilitation arrangements for employees returning to work include:	• light duties • normal duties under shorter working hours • suitable alternative duties • cooperation with rehabilitation agencies.
Taxation and ***insurance*** requirements of state, territory and federal legislation include:	• Insurance Contracts Act 1984 • Income tax Assessment Act 1987 • Goods and Services Tax Act 1999 • Fringe Benefits Tax Act 1986 • pay as you go taxes • stamp duty • payroll tax • workers compensation • appropriate business and project insurances.
Environmental protection legislation includes:	• various federal, and state or territory environmental legislation and regulations applicable to the building and construction industry.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective administration of legal obligations of a building or construction contract.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - conforming to the legal and financial obligations of the organisation
  - establishing and maintaining good human relations within the contractual arrangements with employees, sub contractors and other stakeholders
  - managing organisational taxation and insurance obligations successfully
  - effectively advising appropriate authorities and gaining the necessary approvals or responses
  - promoting and working in the best interest of clients.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - copies of appropriate awards and workplace agreements
  - office equipment, including calculators, photocopiers and telephone systems
  - a suitable work area appropriate to the process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5008A Apply structural principles to the construction of medium-rise buildings

Unit Descriptor

This unit specifies the outcomes required to apply structural principles to the building of medium-rise buildings. The design and construction of medium-rise buildings requires the input of a range of skilled professionals, including architects and engineers. The building and construction professional plays a significant role within this project team and requires the ability to communicate effectively with building design professionals, and develop sound and safe practices in relation to structural procedures on site.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for ensuring the structural integrity of materials and building and construction work so that site safety and quality control measures are maintained during residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply structural principles to the planning of the erection and/or demolition of a structure.	1.1 The main ***structural principles*** that apply to the erection of ***medium-rise*** structures are identified. 1.2 The performance characteristics of the structural elements, including ***materials*** identified in the building's plan, are identified, analysed and applied to the planning of the construction work. 1.3 The demolition of existing structures is undertaken in accordance with legislative and planning requirements and safe work practices.
2. Coordinate and manage the site and job setup assessment.	2.1 Processes are put in place to analyse the stability of soils and capacity of the site to support the construction loads. 2.2 The structural requirements for retaining walls are identified in conjunction with related industry professionals and applied to the planning process. 2.3 The structural function and requirements for ***temporarystructuralelements*** are analysed and applied to the planning process.

3. Coordinate and manage the construction of footing systems.	3.1 The set-out of the building is checked for compliance with the documented building plans. 3.2 The structural performance of the footings specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 3.3 Footings, as specified in the building plan, are laid and checked for conformance with standards and accepted industry construction principles. 3.4 Damp coursing and the provision of termite barriers and other relevant techniques are planned, implemented and checked in accordance with codes, standards and industry practice.
4. Coordinate and manage the structural elements of the construction process.	4.1 The technical construction principles and performance characteristics of the construction materials are identified and analysed in the planning of the project. 4.2 Processes for the construction of all structural elements are identified and confirmed as compliant with relevant Australian standards and codes, and manufacturer specifications, with reference to specialists as required, and then implemented. 4.3 The building plans and relevant codes and standards are identified and implemented to ensure appropriate allowances have been made for plumbing, electrical conduits and other services to be installed.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of design concepts and principles
- application of measurements and calculations
- attention to detail
- communication skills
- interpret documentation from a wide range of sources
- reading skills, including the ability to read and interpret drawings and specifications.

Required knowledge:

- applications of structural principles in buildings
- BCA and Australian standards
- design principles, behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- interpretation and analysis of work drawings and specifications
- the nature of materials and the effect of performance
- OHS and organisational quality procedures and processes.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Structural principles relate to factors including:

- dead and live load calculations and characteristics
- impact of wind, snow, ground water, earthquake, liquid pressure, rainwater, earth pressure actions
- impact of time dependent effects including creep and shrinkage
- impact of thermal effects
- structural resistance of materials
- fire resistance of materials
- structural resistance of forms of construction.

Medium-rise buildings as described within the BCA are:

- Class 1 and 10
- Class 2 and 3 to a maximum of 3 storeys
- Classes 4 to 9 to a maximum of 3 storeys, not including Type A construction.

Materials include:

- masonry
- concrete, including reinforced, pre-stressed concrete and tilt-up panels
- steel, including cold-formed steel
- composite steel and concrete
- aluminium.

Temporary structural elements include:

- shoring collar sets
- soldier sets
- close sheeting
- shields
- formwork props
- ties
- pressure resistant formwork
- scaffolding sole plates
- bracing.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of structural design principles to a medium-rise building and construction project, including demolition of existing buildings and communication of the selection, positioning and sizing of all structural members that form fixed or temporary building structures for the project.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - planning and implementing the erection of demolition of buildings in compliance with all relevant legislation
  - interpreting and applying relevant documentation and codes
  - applying design principles relating to performance accurately
  - identifying typical faults and problems and the necessary action required to rectify such faults.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including timber product information and samples
  - access to relevant legislation of regulations and codes of practice - BCA
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5009A Identify services layout and connection methods to medium-rise construction projects

Unit Descriptor

This unit specifies the outcomes required for identifying services drawings, specifications and service requirements for a range of medium-rise and wide span commercial projects. It requires an ability to identify and evaluate differing methods and services in accordance with building regulations and standards.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for identifying and evaluating service requirements in various medium-rise construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Evaluate commonly used methods of water storage supply and layouts.	1.1 ***Water supply***, connection and layout is sketched for a residence connected to a town supply or a tank storage supply in accordance with relevant building regulations and standards. 1.2 The use of pumps to maintain water levels in storage tanks is documented for single and two stage pumping. 1.3 Any limitations of water storage tanks connected for multi-function and single- function services are identified and addressed.
2. Evaluate methods of sewerage and drainage disposal and their layouts.	2.1 ***Sewerage connection and layout*** is sketched in accordance with relevant building regulations and standards. 2.2 Different stack types are assessed with reference to the number of fixtures and the building(s) type. 2.3 'Fixture units' are identified. 2.4 Methods used to connect main drains to local authority sewers are assessed against relevant building standards. 2.5 Disposal of sewerage from fixtures situated below the level of the local authority sewer is assessed in accordance with relevant building regulations and standards. 2.6 Collection, treatment and disposal of prohibited discharges is monitored for non-domestic buildings.
3. Assess commonly used methods for mechanical ventilation, air distribution and their layout.	3.1 ***Methods of mechanical ventilation*** and air distribution are identified and sketched.
4. Evaluate the range of hot water systems.	4.1 Operating principles of various types of hot water systems are evaluated. 4.2 A suitable ***hot water system*** is selected according to accepted and agreed requirements and specifications.

5. Evaluate effective natural lighting for a range of situations.	5.1 Methods of roof construction used for daylight transmission are identified and outlined in accordance with relevant building regulations and standards. 5.2 Methods used in artificial ***lighting*** are compared for various service situations in accordance with relevant building regulations and standards.
6. Ensure fire protection standards are met.	6.1 The authorities involved in plan perusal and site inspection for the various building classifications are identified. 6.2 Requirements for sprinkler systems and fire hoses for the various building classifications are identified according to the legal and regulatory standards. 6.3 Fire detector and alarm systems, and the application of fire doors are addressed according to the legal and regulatory standards. 6.4 Extinguishing agents and their applications are identified.
7. Outline the requirements for general electrical and electronic service installation.	7.1 Electrical supply authorities and the procedures for connection to site are identified and complied with. 7.2 Electrical design and provision for services are implemented in accordance with regulations and Australian standards. 7.3 ***Electronic cabling***, type of service, categories of cabling, layout of equipment, safe guards, access for maintenance, repair and extensions are identified and outlined in accordance with regulations and Australian standards.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of design concepts and principles relating to service installations
- numerical skills to apply measurements and calculations relating to service installations
- reading skills, including the ability to interpret service installation drawings and specifications and State Regulatory Authority requirements relating to service installations
- written and verbal communication skills in order to communicate with a variety of people from diverse backgrounds.

Required knowledge:

- Australian standards and manufacturer specifications
- design concepts and principles relating to service installations
- hazards in relation to devices and systems used according to Australian standards and other codes or standard operating procedures
- installation methods
- nature of materials and effect on performance relating to service installations
- relevant licensing arrangements applicable
- service installation terminology and definitions
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Water supply may include:

- a town supply
- a tank storage supply relative to the public water supply and reservoir heights
- single and two stage pumping for multi function and single function.

Sewerage connection and layout may include:

- a local authority sewerage drainage system
- a septic or bio-chemical treatment unit
- graded or vertical discharge pipes
- inspection shafts and ORGs.

Methods of mechanical ventilation and air-conditioning may include:

- mechanical ventilation
- air distribution, including mechanical ventilation requirements for enclosed car parks
- air conditioning applications
- air filtration, including, air filters, ducting, main filter types.

Hot water system*details* may include:

- type of system
- height of installation
- area to be serviced
- type of occupancy
- number of outlets
- energy sources available.

Lighting for varying situations may include:

- natural and artificial lighting
- emergency lighting.

Electrical and ***electronic cabling*** may include

- type of service
- categories of cabling - data, telecommunications lift controls, power supplies
- layout of equipment - telephones, computers
- safe guards
- access for maintenance, repair and extension.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective performance and application of principles relating to services drawings, specifications and methods of determining requirements for services to a range of medium-rise and wide span commercial constructions.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with OHS and organisational quality procedures and processes within the context of this unit of competency
  - application and interpretation of relevant documentation/codes/legislation relating to performance of service installations
  - accurate application of principles relating to performance of service installations
  - identification of typical faults and problems and necessary action taken to rectify
  - identification of service installations and hazard categories according to Australian standards, BCA and job specifications.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including systems information and data
  - access to relevant legislation of regulations and codes of practice.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5010A Manage construction work/projects

Unit Descriptor

This unit specifies the outcomes required to manage construction work and/or projects. Work or projects may involve fulfilling single- or multi-site commercial contractual obligations. To successfully manage construction projects requires knowledge of relevant industry legislation, codes, standards, methods, procedures and practices as well as the ability to communicate effectively with others.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, related construction industry professionals and senior managers within building and construction firms who have responsibility for managing medium-rise construction work and/or projects for commercial building projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Establish site communication processes.	1.1 ***Site communication*** processes are established and managed to comply with organisational quality management requirements. 1.2 Dates and times of site meetings are organised and relevant personnel are notified.
2. Establish and review OHS, welfare and risk management procedures.	2.1 Organisational requirements for on-site first aid facilities are identified, established and reviewed in accordance with relevant ***OHS, welfare and risk management*** legislation and regulations. 2.2 Plant and equipment usage policy and practices which require certificated operators are established and managed to comply with risk management procedures. 2.3 Hazard management procedures are established and implemented and precautionary measures instigated. 2.4 The responsibilities for safe handling of materials are addressed through organisational policy procedures. 2.5 Construction safety procedures are established and managed in accordance with OHS, welfare and risk management requirements and key personnel are identified. 2.6 Safety induction procedures are established and managed in the event of dangerous incidents, injuries and accidents. 2.7 Safety reporting processes and documentation are developed and implemented in accordance with organisational and legislative requirements.
3. Manage the supply of materials and installation of equipment.	3.1 The process for placing orders for materials is established and managed to ensure the timely and cost effective ***supply of materials and installation of equipment***. 3.2 Procedures are established, managed and monitored for equipment hire and maintenance.

4. Manage on-site operations.	4.1 ***On-site operations*** are managed to implement and maintain a safe and cost effective work environment in accordance with appropriate schedules and the contract. 4.2 Subcontractor operations are managed and coordinated to ensure compliance with company obligations. 4.3 A system to deal with problems and delays affecting performance is established and managed. 4.4 Processes to manage industrial relations are established in accordance with company policy and regulatory guidelines. 4.5 Revisions are made to project schedule(s) when required and variations are documented to comply with quality management procedures. 4.6 Project quality management is effectively implemented to provide for a continuous improvement environment in which safety procedures are monitored continuously, reports analysed and procedures reviewed as required. 4.7 Contact with statutory authorities and parties to the contract is facilitated when variations are made to approved contract drawings and specifications. 4.8 Multi-site management plans are implemented in accordance with organisational policy and site conditions.
5. Manage the processing of progress claims/payments.	5.1 Progress claims are managed and approved in accordance with the requirements of the contract. 5.2 Project expenditures are managed and claims against scheduled projected costs are checked for accuracy.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills to enable effective communication with subcontractors, staff, and clients as well as and local or regulatory authorities on matters relating to site conditions or approvals
- establishing, implementing and maintaining a safe working environment
- financial management skills relevant to the extent that progress payments are made on time and on the basis of work successfully completed
- managerial skills in order to manage personnel and resources to effectively achieve contract or project objectives
- negotiation skills to enable effective negotiation industrial relations issues
- problem solving skills to effectively resolve problems relating to construction methodologies or practices.

Required knowledge:

- hazard management processes
- nature and style of building and construction industry contracts
- OHS frameworks and obligations under federal and state or territory legislation and regulations
- quality management processes and procedures as they apply to the building and construction industry
- relevant licensing arrangements applicable
- relevant state or territory building and construction codes, standards and regulations
- risk management processes and practices and the planning required to develop those plans
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Site communication includes:

- written reports and memoranda
- emails and faxes
- face-to-face verbal communications
- mobile and fixed telephone contact
- site diaries.

OHS, welfare and risk management include:

- conformance with federal and state or territory legislation and regulatory requirements
- adherence to organisational policies and procedures for:
  - hazard identification and rectification
  - safe working practices
  - duty of care
- safe handling of materials and equipment
- rehabilitation of injured workers.

Supply of materials and installation of equipment includes:

- raw construction materials such as sand, aggregate, timber and cement
- concrete and preformed concrete
- sarking, insulation, air-condition ducting and roofing
- fire suppression systems, plumbing and gas piping and waste water disposal systems
- electrical cabling
- temporary lighting and power outlets
- lifting equipment.

On-site operations include:

- communication with regulatory authorities and conformance with their requirements
- maintenance of environmental controls and obligations
- allocation and management of human resources
- dispute resolution
- dispersal and programming of heavy equipment, including wheeled and tracked earthmoving vehicles
- placing orders for supplies or equipment
- managing expenditures.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the effective management of construction work or projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an ability to effectively and efficiently procure resources
  - the extent of effective verbal and written communications with suppliers and subcontractors
  - the completion of documentation to organisational standards
  - effective processes for maintaining site safety and management of risks
  - an ability to deal with variations to contracts.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5011A Manage building or construction, environmental management practices and processes

Unit Descriptor

This unit specifies the outcomes required to manage building or construction, environmental management practices and processes as part of the organisation's overall management system. To successfully manage practices and processes requires a knowledge of current trends in environmental practices and methodologies, statistical analysis and legislative requirements.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, senior managers and other construction industry professional who have responsibility for managing environmental practices and processes for medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Prepare an environmental management plan for the organisation.	1.1 Current shifts in environmental legislation or regulation are analysed in relation to their potential impact on the organisation. 1.2 ***Best practice and benchmarking methods*** are used to determine current environmental management performance. 1.3 Project environmental obligations and management requirements are analysed. 1.4 An ***environmental management plan*** is prepared on the basis of the available information. 1.5 Senior management advice is sought, as required, concerning the implementation of the plan.
2. Manage the implementation of an environmental plan.	2.1 Staff and contractors are informed of their obligations in implementing the environmental planning process and monitored for compliance. 2.2 ***Environmental data gathering systems*** are evaluated, changes are made as necessary and the system is managed for maximum efficiency and accuracy. 2.3 New projects are evaluated to determine their impact on existing environmental planning obligations. 2.4 Local authorities and/or regulatory bodies are contacted concerning those areas of the plan where there is on-going monitoring or external overseeing. 2.5 Information concerning updates to the environmental management plan is communicated to staff and stakeholders. 2.6 An environmental management plan evaluation strategy is developed and managed to ensure that the organisation remains on track in the event of changing circumstances.

3. Monitor the environmental management plan to ensure that it meets organisational legal obligations.	3.1 Organisational ***feedback systems*** are implemented and managed to assist the conformance and management of the plan. 3.2 Regular feedback is obtained concerning the operations of the environmental management plan to assist the organisation to meet its legal obligations. 3.3 Where necessary, legally required auditing practices to ensure probity and accountability to legislative requirements are managed and maintained. 3.4 Contractor contact is maintained and their conformance with environmental management requirements is monitored. 3.5 Emergency and remediation response strategies are implemented as necessary to assist conformance with the environmental management plan.
4. Evaluate and recommend changes to the environmental management plan.	4.1 The environmental management plan is reviewed to identify areas which need improvements and action is taken. 4.2 Measures are introduced to assist staff to suggest more efficient procedures and innovations to improve the performance of the environmental management plan. 4.3 Plans are redrafted to include improvements or address deficiencies which are found during the monitoring. 4.4 Revised plans are submitted for endorsement by senior management and procedures are changed accordingly.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analytical skills, including the ability to assess variations in environmental management performance and identifying reasons for those variations
- evaluation skills to evaluate previous environmental management performance and identify strengths and weaknesses of the process
- managerial skills, including the ability to develop and implement environmental management plans which improve organisational conformance with environmental obligations and responsibilities
- problem solving skills, including the ability to identify environmental management issues and address these before they become contentious or dangerous
- staff management skills in order to effectively manage personnel in the administration of organisational environmental management systems.

Required knowledge:

- benchmarking and the establishment of environmental goals
- current trends in environmental management and controls
- environmental management practices and methodologies
- legal and regulatory obligations implicit in environmental requirements
- penalties for various breaches of environmental obligations and conformance requirements
- relevant licensing arrangements applicable
- statistical analysis methodologies.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Best practice and benchmarking methods include:

- formally or informally prepared performance indicators against environmental management objectives
- specific environmental targets, including emissions, noise, dust, waste disposal, storm and ground water disposal, waste segregation and hazardous materials
- performance measurements against industry, local authority, regulatory or world standards
- statistical record-keeping, using 'at start', ongoing and 'at conclusion' measurements
- strategic comparisons of 'resources in' and ' residuals out'
- costs associated with environmental conformance
- comparisons of current, previously established and external environmental management plans.

Environmental management plan includes:

- formally or informally gathered information concerning environmental issues and requirements
- timeframes and key environmental benchmarks to be achieved
- environmental prohibitions or restrictions to be applied within specific projects
- key people to be consulted or included in decision making
- specific forms of activity to be pursued or which are subject to monitoring or evaluation.

Environmental data gathering systems include:

- formal and informal reports from employees and staff
- scheduled environmental management meetings and briefings
- conformance reporting on achievement of milestones or performance targets
- statistical and analytical data in support of environmental management objectives.

feedback systems include:

- specifically documented processes using formal reporting arrangements
- spot checks on aspects of the environmental management process
- formal and informal information gathering from employees and contractors
- feedback from regulatory authorities.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective management of building or construction environmental management practices and processes on medium-rise building or construction projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - successful development of effective environmental management action plans and strategies
  - the extent of effective environmental management advice provided to the organisation
  - the effect and efficiency of the environmental management recording and reporting systems and preparation of documentation to organisational standards
  - assessment of variations in environmental management performance
  - an effective process to manage improvements to organisational environmental management practices and to reduce the risk of non-conformance
  - conformance with relevant legislative and regulatory requirements
  - research of relevant current trends in environmental management and controls.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5012A Manage the application and monitoring of energy conservation and management practices and processes

Unit Descriptor

This unit specifies the outcomes required to manage the application and monitoring of energy conservation and management practices and processes within the building and construction industry. Successful application of the unit requires a knowledge of energy management practices and methodologies, statistical analysis, current trends and factors in energy conservation, legislative and regulatory requirements.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, senior managers within building and construction firms and other industry professionals who have responsibility for managing energy conservation and management practices and processes on medium-rise building and construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Prepare an energy conservation and management plan for the organisation.	1.1 The organisational policy and operational guidelines for energy conservation and management are reviewed. 1.2 ***Best practice and benchmarking methods*** are used to determine current energy conservation and management performance. 1.3 Opportunities for energy conservation and savings are identified within the immediate work area and on project sites. 1.4 Staff and employees are asked for ideas and suggestions concerning organisational energy conservation. 1.5 An ***energy conservation and management plan*** is prepared on the basis of the available information. 1.6 Advice is sought from senior management, as required, concerning implementation of the plan.

2. Manage the energy conservation and management plan.	2.1 Staff and contractors are informed of their obligations in implementing the energy conservation and management plan and monitored for compliance. 2.2 ***Energy data gathering systems*** are evaluated, changes are made as necessary and the system is managed for maximum efficiency and accuracy. 2.3 New projects are evaluated to determine their impact on existing energy conservation planning obligations. 2.4 Participation by contractors in the achievement of the plan's objectives is encouraged and monitored. 2.5 Difficulties, obstructions or factors which impact on the achievement of the energy conservation plan are identified and measures are taken to address them. 2.6 Information concerning updates to the plan is communicated to staff and stakeholders. 2.7 An environmental management plan evaluation strategy is developed and managed to ensure that organisational objectives are achieved.
3. Monitor the energy conservation and management plan to ensure organisational objectives are being met.	3.1 Organisational ***feedback systems*** are implemented and managed to assist with the conformance and management of the plan. 3.2 Regular feedback is obtained from staff and employees concerning the efficiency of the operations of the energy conservation and management plan. 3.3 Energy savings are identified and promoted throughout the organisation. 3.4 Energy wastage is reported and strategies are implemented as necessary to assist with the conformance of the energy management plan.
4. Evaluate and recommend changes to the energy conservation and management plan.	4.1 The energy conservation and management plan is reviewed to identify areas which need improvements and action is taken. 4.2 Measures are introduced to encourage staff to suggest more efficient procedures and innovations to improve the performance of the energy management plan. 4.3 Plans are redrafted to include improvements or address deficiencies which were identified during monitoring. 4.4 Revised plans are submitted for endorsement by senior management and procedures are amended accordingly.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analytical skills, including the ability to assess variations in energy management performance and identifying reasons for those variations
- evaluation skills to evaluate previous energy conservation and management performance and identifying the strengths and weaknesses of the process
- managerial skills, including the ability to develop and implement energy management plans which improve organisational achievements in regard to its energy saving objectives
- problem solving skills, including the ability to identify energy conservation and management issues and address these before they become contentious
- staff management skills in order to effectively manage personnel in the administration of organisational energy conservation and management systems.

Required knowledge:

- benchmarking and the establishment of energy conservation goals
- current trends and factors in energy conservation and management
- energy management practices and methodologies
- organisation policies and practices supporting energy conservation and management
- relevant legislative and regulatory requirements and standards
- relevant licensing arrangements applicable
- statistical analysis methodologies.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Best practice and benchmarking methods include:

- formally or informally prepared performance indicators against energy management objectives
- specific energy targets, including electrical power usage and fuel usage, heat loss and thermal efficiency
- performance measurements against industry, local authority, regulatory or world standards
- statistical record keeping, using 'at start', ongoing and 'at conclusion' measurements
- costs associated with optimum environmental conformance
- comparisons of current, previously established and external energy conservation and management plans.

Energy conservation and management plan includes:

- formally or informally gathered information concerning energy issues and requirements
- timeframes and key energy conservation benchmarks to be achieved
- key people to be consulted or included in decision making
- specific forms of activity to be pursued or which are subject to monitoring or evaluation.

Energy data gathering systems include:

- formal and informal reports from employees and staff
- reports from supply organisations
- scheduled energy conservation management meetings and briefings
- conformance reporting on achievement of milestones or performance targets
- statistical and analytical data in support of energy management objectives.

Feedback systems include:

- specifically documented processes using formal reporting arrangements
- spot checks on aspects of the energy management process
- formal and informal information gathering from employees and contractors
- feedback from supply authorities.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective management of the application and monitoring of energy conservation and management practices and processes on medium-rise building and construction projects, in an organisation.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - successful development of effective energy conservation and management action plans and strategies
  - the extent of effective energy management advice provided to the organisation
  - the effect and efficiency of the energy conservation and management recording and reporting systems and preparation of documentation to organisational standards
  - an effective processes to manage improvements to organisational energy conservation and management practices and reduce the non-conforming practices
  - research of current trends in energy conservation and management
  - conformance with relevant legislative, regulatory and organisational requirements.

Context of and specific resources for assessment

- Resources implications for assessment include:
  - documentation that should normally be available in a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC5013A Develop professional technical and legal reports on building and construction projects

Unit Descriptor

This unit specifies the outcomes required to develop professional technical and legal reports on buildings or commercial construction projects. The unit requires a knowledge of relevant legislation, codes, standards and regulations, contract documentation and construction planning and practices as well as he ability to communicate effectively.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders, senior managers, building consultants and other construction industry personnel who have responsibility for developing professional technical and legal reports on building or commercial construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Perform pre-purchase property inspections and assessments.	1.1 The building is inspected and ***defects*** are identified and documented in the agreed level of detail requested by the client. 1.2 Engineers' certificates are obtained according to the state of repair or number and type of defects. 1.3 Rectification costs are estimated to the degree of accuracy required or recommendations are made to demolish the structure. 1.4 At the direction of government agencies, financial institutions or investment houses ***feasibility studies*** are conducted.
2. Advise and coordinate the design process and planning approval.	2.1 The project brief is prepared on behalf of client. 2.2 Site conditions and the structure are assessed. 2.3 Preliminary design drawings are produced or obtained and probable costs are estimated. 2.4 The process through which the final design documentation will be completed and approved by the client is coordinated. 2.5 Documentation is submitted to obtain authorised ***planning approval*** for the project. 2.6 Planning appeals are prepared and presented to the authority if necessary.
3. Review building or construction works.	3.1 The contract documentation is checked to ensure client interests are protected. 3.2 ***Building or construction works*** are regularly monitored and reports are provided on the progress and quality of work. 3.3 Variations are checked and referred back to contractors as required. 3.4 Progress claims are checked and approved.

4. Provide advice on dispute resolution.	4.1 Disputes are negotiated on behalf of the client. 4.2 Impartial advice is provided to the parties involved in a building related dispute for equitable settlement. 4.3 Referrals are provided for expert legal interpretation of contractual matters. 4.4 Expert testimony and evidence is provided in the event of disputes going to court.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills, including the ability to communicate effectively with individuals inside and external to the organisation
- evaluation skills, including the ability to review and evaluate documentation and processes and recommend changes or improvements
- planning skills to ensure effective planning of projects, processes and strategies which maximise the efficiency and cost effectiveness of building or construction contracts
- supervisor skills to ensure staff achieve planning outcomes.

Required knowledge:

- building and construction industry contracts
- building and construction industry subcontracting system
- building and construction practices in on- and off-site management
- construction planning process
- contract documentation, quantities establishment, rates and costs related to payments and claims
- human resource principles and practices
- relevant licensing arrangements applicable
- relevant state or territory building and construction codes, standards and regulations
- workplace safety requirements.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Defects are identified through property inspections that include:	• on-site inspections of buildings, structures or features • topographical and geological surveys • confirmation of boundaries • site access and egress • adjoining properties.

Feasibility studies include information relating to:

- environmental factors or constraints
- availability of services and conditions governing service provision
- encumbrances or caveats on property
- special conditions which may apply to developments
- confirmation of ownership
- availability and quantum of finance
- architectural or engineering practicalities.

Feasibility studies may be conducted on:

- existing buildings/structures for a given purpose
- change of use for existing buildings
- refurbishment costs of buildings/structures
- development on vacant land
- most cost effective method of building for a given site/location.

Planning approval includes:

- final design or specification client approvals
- finance approvals by lending bodies
- engineering approvals by architectural or design consultants
- environmental approvals by EPA or local authorities
- zoning and conformance to laws and by-laws by local authorities.

Building or construction works include:

- demolition of existing structures
- erection of new structures
- refurbishment of existing structures
- renovations and extensions
- construction of roads and pathways
- site levelling or contouring
- installation of underground cabling
- stormwater disposal and site drainage.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective development of technical and legal reports of construction projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - effective translation of contract requirements into feasibility studies and advice on building, site use, plans and processes
  - quality construction planning processes and effective outputs
  - development of strategies which maximise the effectiveness of resources
  - the ability to advise and coordinate the design process and obtain planning approval
  - the ability to oversee building or construction works to effect contractual outcomes.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturer's product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6001A Apply building codes and standards to the construction process for large building projects

Unit Descriptor

This unit specifies the outcomes required to access, interpret and apply relevant building codes and standards applicable to the construction processes of large, high rise and complex buildings (open' licensing classification with special reference to Type A buildings). To successfully comply with relevant codes and standards in large constructions requires a thorough knowledge of the purpose of the Building Code of Australia (BCA) coupled with the ability to interpret specific standards in relation to the design and specifications of building projects.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for ensuring compliance with building codes and standards in the residential and commercial construction industry.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Access and interpret relevant code and standard requirements.	1.1 The relevant clauses from the BCA that apply to individual projects (classified as ***open***) are identified. 1.2 The prescriptive requirements of relevant BCA clauses are determined. 1.3 The requirements of relevant Australian standards referenced in the BCA are accessed and interpreted appropriately.
2. Classify buildings.	2.1 The nature of a building according to use and arrangement is determined. 2.2 BCA criteria to determine the defined classification are applied. 2.3 The BCA requirements for multiple classifications are identified and interpreted.

3. Analyse and apply a range of solutions to a construction problem for compliance with the BCA.	3.1 The range of criteria that will ensure construction methods comply with the intent of the BCA is determined. 3.2 Alternative solutions to a construction problem that will comply with the requirements of the BCA are discussed and proposed in accordance with company policies and procedures. 3.3 Performance based solutions are identified and documented in accordance with the requirements of the BCA. 3.4 ***Assessment methods*** used by authorities to determine whether a building solution complies with ***performance requirements*** or Deemed-to-Satisfy (DTS) Provision of the BCA are analysed and applied. 3.5 The BCA Assessment Methods are identified as appropriate to meet the DTS Provisions of BCA. 3.6 The relevant documentation is identified and completed in accordance with the performance requirements of the BCA.
4. Apply fire protection requirements.	4.1 Passive and active fire control elements provided by the BCA and other legislation are identified. 4.2 The fire resistance required for the construction of all classes and types of buildings is determined. 4.3 BCA requirements with respect to passive and active fire protection to all classes and types of buildings are identified and applied. 4.4 Check of the existing buildings for compliance with passive and active fire protection requirements is carried out in accordance with BCA requirements.
5. Implement strategy to manage compliance with BCA for large, complex and high rise buildings.	5.1 Processes are established and implemented to coordinate the work of the professionals involved in the development and management of the building process. 5.2 Effective design solutions for buildings of more than three storeys are sought to meet the needs of clients and ensure compliance with the BCA. 5.3 Quality assurance processes are designed and implemented to ensure effective and compliant management of the construction process.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and interpretation skills relating to documentation from a wide range of sources, including BCA and Australian standards
- application of design concepts and principles in accordance with Australian standards
- application of design concepts and principles in accordance with BCA, namely:
  - Low-rise:
    - Class 1 and 10
    - Class 2-9 with a gross floor area not exceeding 2000metres square, not including Type A or Type B construction
  - Medium-rise:
    - Class 1 and 10
    - Class 2-9 to a maximum of 3 storeys, not including Type A construction
  - Open:
    - All classes of building and types of construction
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- reading skills, including the interpretation of drawings and specifications
- written and verbal communication skills.

Required knowledge:

- application of BCA, namely:
  - Low-rise:
    - Class 1 and 10
    - Class 2-9 with a gross floor area not exceeding 2000m2, not including Type A or Type B construction
  - Medium-rise:
    - Class 1 and 10
    - Class 2-9 to a maximum of 3 storeys, not including Type A construction
  - Open:
    - All classes of building and types of construction
- application of relevant Australian standards
- BCA performance hierarchy
- definitions and common technical terms or usage specified under general provisions of BCA
- design principles and the behaviour of structures under stress, strain, compression, bending or combined actions
- nature of materials and the effects of performance
- relevant legislative and OHS requirements, codes and practices
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Open is classified as:

- All classes of building and types of construction within the Building Code of Australia with special reference to the construction of building of more than 3 storeys.

Assessment methods include:

- evidence of suitability
- verification method
- comparison with the DTS provisions
- expert judgement.

Performance requirements include:

- detail relating to materials and quality of work
- quality assurance
- nominated subcontractors
- provision of site access/facilities
- cost
- standards of work
- work schedules
- standard procedures
- milestones.

Standard construction includes:

- Building Code of Australia
- Australian standards relative to the scope and context of this application.

Standard specifications include:

- preliminary/outline specs
- developed specifications
- detailed specifications will address specific components, e.g. mechanical, structural, electrical or other requirements.

Scope of work includes:

- type of product/service
- quantities
- characteristics
- sizes
- patterns
- dimensions
- location
- surfaces
- compatibility.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of design principles and solutions specified in the 'deemed to satisfy' and 'performance-based' concept of BCA criteria applied to building project. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of BCA codes and standards relating to performance and compliance of building project work
  - demonstrated understanding of the Assessment Methods available to determine whether a building solution complies with Performance Requirements or Deemed to Satisfy (DTS) Provisions of BCA
  - identification of typical faults and problems and necessary action taken to rectify.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - BCA, Class 2-9 buildings and Guide to BCA
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including product information and data
  - access to relevant legislation, regulations and codes of practice; like BCA, National Timber Framing Code, AS1684, AS4055 and other Australian standards required to meet the purpose of intended use
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6002A Generate and direct the development of new projects

Unit Descriptor

This unit specifies the outcomes required to generate and direct the development of new projects in a building and construction organisation involved in either residential or commercial projects. It supports the establishment of a soundly based commercial building or construction system necessary to produce accurate and successful project outcomes in accordance with organisational guidelines and objectives.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify potential new projects.	1.1 The organisation's project history is examined to identify projects with successful or above average outcomes for characteristic evaluation. 1.2 The property and construction market is reviewed for available sites and buildings with development potential. 1.3 New trends in development and construction are monitored. 1.4 Available statistical data on possible areas of project development is analysed. 1.5 Network contacts are used to source businesses requiring new or upgraded facilities. 1.6 Most promising ***projects*** are short listed and preliminary costings and returns are prepared.
2. Formulate development proposals and feasibility studies.	2.1 Short listed projects are reviewed to facilitate selection of preferred options for detailed design work. 2.2 Project briefs are developed. 2.3 The environmental impact of project(s) is reviewed and any existing Environmental Impact Statement is assessed. 2.4 ***Feasibility studies*** are carried out on the project(s) commercial viability and the capacity to generate income through the various alternatives is ascertained. 2.5 Accurate costings are generated for each proposal. 2.6 Discussions are held with potential clients and investors and the benefits and risks of each project are explained. 2.7 A decision to proceed is taken once the client and the investor agreement is obtained.
3. Negotiate project approvals.	3.1 Project plans are submitted to relevant authorities to seek their reaction to project and any impediments to approval. 3.2 The project plan is revised to comply with authorities' directives. 3.3 Plans are resubmitted for formal planning approval as necessary.

4. Obtain project finance.	4.1 Finance institutions or investors are approached for financial support. 4.2 A suitable finance package is obtained for the project from institutions or investors. 4.3 Possible joint partners for the project are identified, approached and interest determined.
5. Manage the commissioning of a project.	5.1 Project consultants are appointed and retained. 5.2 Documentation for proposed project is prepared, checked against the brief and sent for formal building approval. 5.3 Detailed costing of approved documentation is completed. 5.4 Modifications are made to the project to bring it within or under budget if required. 5.5 Final decision made to proceed with the project or defer to a future date is made.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation of unique solutions to complex problems and situations
- facilitation skills to develop new projects
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the new project development process
- supervisory skills to monitor and oversee the performance of the project development systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- industry's industrial relations climate and practices
- legislative, regulatory, and administrative obligations incumbent on the building and construction industry for occupational health, safety and rehabilitation (OHS&R), environmental, employment and financial practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Projects include:

- residential construction
- commercial construction
- high and low-rise structures
- earthworks
- provision of electrical, plumbing and gas, waste disposal, environmental clean-up and other services.

Feasibility studies include:

- detailed analyses of markets and opportunities
- socio economic and urban studies
- gathering data from government or private sector publications
- personal investigation of opportunities
- examination of possible extensions to existing projects.

Project finance includes:

- speculative funds provided for investment
- bank or finance company loans
- customer or client funding
- personal venture capital
- overdrafts.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the generation of new project developments and the effective direction of new projects. Competency includes the ability to ensure ongoing positive organisation and customer relationships which result in increased contractual success.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - generating a variety of new projects for which to tender and construct
  - utilising effective project development procedures and frameworks supported and directed by strong and decisive leadership
  - the ability to select and deploy correct human and physical resources which enable new projects to be developed
  - project management practices which result in a high level of staff productivity
  - the ability to effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with senior management, employees, clients, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6003A Establish, maintain and review contract administration procedures and frameworks

Unit Descriptor

This unit of competency specifies the outcomes required to manage the establishment, maintenance and review of the contract administration procedures and frameworks of a building or civil work contract in an organisation involved in either residential or commercial projects. It supports the establishment of a soundly based contract management system necessary to produce accurate and successful project outcomes in accordance with organisational guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Establish and implement contract administration procedures and frameworks.	1.1 A contracts administration team is established which comprises persons of wide experience and knowledge in the building or construction industry. 1.2 An overview of the organisation's current legal and administrative climate is developed and communicated to the contracts administration team. 1.3 A strategic plan is developed for the administration of ***construction contracts***. 1.4 Information gathering mechanisms which draw strategic performance advice from all parts of the organisation are established. 1.5 ***Quality assurance measures*** are developed and implemented as part of the contracts administration process. 1.6 Reporting and feedback structures through which advice and action instructions can be conveyed to employees and subcontractors is developed and established. 1.7 Benchmarks for contract performance are established and a management framework introduced for achieving, maintaining and exceeding those parameters. 1.8 Measures are developed and introduced through which contract defaulters can be managed back into contract compliance.

2. Maintain contract administration procedures and frameworks.	2.1 Policy and administrative guideline documentation is introduced which supports the contract administration process. 2.2 Evaluation and review methods to ensure administration procedures and frameworks are effective are developed and implemented. 2.3 Internal feedback systems and methods are initiated to ensure that difficulties with the administration of contracts is achieved within organisational guidelines. 2.4 ***Measures which ensure the safety and security of contract administration documentation*** are introduced. 2.5 The overall corporate contract administration framework comprising employees, subcontractors, client and management is maintained.
3. Review contract administration procedures.	3.1 A review, recording and evaluation system is developed, implemented and managed to ensure the probity and effectiveness of the contract administration system. 3.2 Regular scheduled and unscheduled reviews of contract administration procedures are implemented and managed. 3.3 A formal evaluation of the contract and administration system is undertaken regularly in consultation with the organisation's legal advisors. 3.4 Operating procedures are reviewed and clarified. 3.5 Contract documentation processes are reviewed and feedback is provided to those preparing contracts.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation and envisaging of unique solutions to complex problems and situations
- facilitation skills to implement new and modified contract administration systems
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the contracts administration process
- supervisory skills to monitor and oversee the performance of the contract administration systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- legislative, regulatory, and administrative obligations incumbent on the building and construction industry for occupational health, safety and rehabilitation (OHS&R), environmental, employment and financial practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Contract administration procedures and frameworks include:

- organisation administration models
- staff roles and organisation procedures
- document and contract distribution
- internal and external communication models
- in-house rules about document preparation, completion and handling
- response times
- authorised courses of action
- dispute resolution procedures
- progress and contract performance reviews.

Forms of ***contracts*** include:	• individual organisational contracts • JCC Suite • SBW2 Lump Sum • CIC Suite • MBA and HIA contracts • Australian standard contracts, including the AS2124 and AS4000 series • SBW series contracts.
Quality assurance measures include:	• obtaining adequate feedback from clients, subcontractors and suppliers • monitoring internal expenditures and funding allocations • maintaining a quality dialogue with all parties to the construction process • establishing performance benchmarks for the system • distribution of information • providing feedback and developing remediation procedures • managing within organisational policy • responding to external legislation and regulation requirements.
Measures which ensure the safety and security of contract administration documentation include:	• confidentially in contract handling • security in contract and document filing and storage • limitations on contract circulation • limitations on contract access • documentation security identification • limitations on document distribution.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	• This unit of competency could be assessed by demonstration of the effective establishment, maintenance and review of the organisations contract administration procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the ability to implement effective contract administration procedures and frameworks supported and directed by strong and decisive leadership
  - management practices which result in a high level of staff productivity
  - ability to effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with senior management, and employees, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6004A Manage the processes for legal obligations of a building or construction contract

Unit Descriptor

This unit specifies the outcomes required to manage the processes for and the legal obligations of a building or construction contract in an organisation involved in either residential or commercial contracting projects. It supports the establishment of a soundly based contract management system necessary to produce accurate and successful project outcomes in accordance with organisational guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing residential or commercial building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Manage compliance with the laws relating to establishing and licensing of a building contractor.	1.1 Company employees are aware of and comply with all requirements concerning building or construction licensing. 1.2 The company takes the necessary steps to obtain for itself the necessary building or construction licenses. 1.3 Changes to licensing arrangements are identified and responded to in a timely manner. 1.4 Staff are advised of the consequences of non-compliance with relevant legal obligations.
2. Manage relationships on legal matters.	2.1 Processes are introduced and managed which enable the company to obtain such legal advice as may be required in relation to particular contracts. 2.2 Systems are introduced and managed through which legal interpretations of contract clauses or clauses within tender documents may be obtained before submission of the tender. 2.3 Mechanisms for dialogue are established and managed between the company and the client to improve communication and facilitate conciliation rather than arbitration processes in times of dispute.
3. Manage the administration of regulations relating to OHS and welfare and workers compensation, noise abatement and working hours.	3.1 Administration systems which facilitate the organisation conforming with its obligations under OHS and welfare, workers compensation, noise abatement and working hours regulations are developed and managed. 3.2 Records which demonstrate organisational compliance with legal obligations is maintained and managed. 3.3 Administrative guidelines and facilities for the proper and secure storage of organisational legal documentation are established and managed.

4. Manage company compliance with taxation and insurance requirements of federal and state or territory legislation.	4.1 Systems which support and maintain organisational capacity to meet legal obligations with regard to insurance and taxation are instigated and managed. 4.2 Personnel receive appropriate training and instruction in matters relating to insurance and taxation and are made aware of their responsibilities.
5. Manage organisational obligations and observe Fair Trading Practice.	5.1 Practices and policies are developed and implemented which facilitate the organisation meeting its obligations to its clients, subcontractors and employees. 5.2 Codes of conduct are established and enforced for all employees and subcontractors. 5.3 Remedial action is taken where evidence of non-compliance with fair trading principles is identified.
6. Manage compliance with environmental legislation.	6.1 Mechanisms to gather information in relation to the organisational environmental management plan are established and managed. 6.2 Subcontract works and materials supply and removal are managed and subject to constant scrutiny to ensure compliance with environmental standards. 6.3 Changes to legislation or environmental requirements are recorded and organisational activities and systems altered to ensure ongoing compliance.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation and envisaging of unique solutions to complex problems and situations
- facilitation skills to implement new and modified contract management systems
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the contracts management process
- supervisory skills to monitor and oversee the performance of the contract management systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- legislative, regulatory, and administrative obligations incumbent on the building and construction industry for occupational health, safety and rehabilitation (OHS&R), environmental, employment and financial practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Laws relating to establishing and licensing of a building contractor include:

- State laws such as:
  - the Builders Registration Act 1939 and the Home Building Contracts Act 1991 in Western Australia
  - the Home Building Act and Regulations 1989 in New South Wales.

Laws and ***regulations*** relating to the building and construction industry may include:

- federal, and state or territory environmental protection legislation
- state OHS&R legislation and regulations
- state and federal industrial relations legislation
- state laws such as the Workers Compensation and Rehabilitation Act 1981 in Western Australia
- state codes of practice applicable to the various regulations
- local government Acts and the by-laws derived from them.

Taxation and insurance requirements include:

- Insurance Contracts Act 1984
- Income Tax Assessment Act 1987
- Goods and Services Tax Act 1999
- Fringe Benefits Tax Act 1986
- pay as you go taxes
- stamp duty
- payroll tax
- workers compensation
- appropriate business and project insurances.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the demonstration of the development and implementation of policies, practices and administrative measures which ensure the organisation meets its legal obligations in a timely manner.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an effective contract management and monitoring system supported and directed by strong and decisive leadership
  - management practices which result in a high level of staff productivity
  - ability to effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with owners, senior management, and employees, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation normally available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6005A Manage tender developments for major projects

Unit Descriptor

This unit specifies the outcomes required to manage tender developments for major projects. It covers the facilitation, implementation and management of the tender development system in a building and construction organisation involved in residential and/or commercial projects. It supports the production of tenders which are based on sound economic, business and human and physical resource data in accordance with the necessary organisational guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders and senior managers in building, construction and services, typically working in larger organisations and managing more complex projects and processes, who have responsibility for managing tender developments for major residential and commercial projects. It is essential that competence is demonstrated in relevant aspects of management of the ongoing tender development process, extensive background data provision, risk analysis and comprehensive evaluation of the tender prior to submission by the organisation. Knowledge of financial and business administration principles, human resource practices, industrial relations and legislative and regulatory requirements is essential.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Evaluate contract risk.	1.1 The invitation to tender is reviewed and analysed. 1.2 Contract documents pertinent to the project are obtained and examined in detail. 1.3 The ***conditions of contract*** are examined and confirmed in accordance with legislative and organisational requirements. 1.4 The organisation's current work load is verified to determine the capacity to meet contract timelines. 1.5 A ***risk analysis*** is conducted and the degree of risk in the project is investigated and established. 1.6 The management team is consulted in relation to likely construction approach and resources. 1.7 The client is advised of the intention or otherwise to submit a tender response.
2. Manage the tender process.	2.1 Staff are allocated to the tender preparation process. 2.2 Contact made by staff with subcontractors and suppliers to obtain quotations for services or physical resources is supervised. 2.3 Development of the pre-tender construction or project schedule is managed and supervised.

3. Manage the development of human and physical resource costs.	3.1 Determining current equipment and materials charge-out rates is monitored. 3.2 The establishment of labour rates for elements of work is monitored and managed. 3.3 Project elements are analysed to ensure they conform to organisational contracting processes. 3.4 Rates to be applied to elements of the work are arbitrated on, to ensure these are compared to relevant existing records of costs. 3.5 Staff are supervised to ensure appropriate rates are applied to the Bill of Quantities. 3.6 Extensions of costs are reviewed and monitored to ensure their accurate translation into the estimate summary. 3.7 Staff are monitored as they calculate and extend values for preliminaries and overheads. 3.8 Staff are monitored to ensure they are calculating and including all supplementary costs.
4. Prepare complete tender documentation and operating margins.	4.1 Conditions of contract are reviewed and assessed to ensure there are no variations to the tender. 4.2 Subcontractor quotes are reviewed and assessed to ensure there are no variations to the tender. 4.3 Availability of plant and equipment is checked and confirmed. 4.4 Delivery schedules are confirmed and materials suppliers are followed up.
5. Evaluate tender documentation prior to submission.	5.1 Staff preparation of the schedules which detail the sequence of work is supervised and managed. 5.2 Progress of the tender development is monitored for timeliness and accuracy. 5.3 Documentation is reviewed to ensure the tender is finalised in standard industry format for the client. 5.4 Final ***tender documentation*** is appraised for completeness and allocation of critical rates and allowances prior to its submission.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualising and envisaging unique solutions to complex problems and situations
- delegating tasks within specific functional guidelines
- directing the activities of personnel involved in the tender development process
- facilitating the implementation of new and more appropriate information systems
- interpreting strategic and often ambiguous information and reaching logical and practical decisions
- monitoring and overseeing the performance of systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- relevant state or territory building and construction codes, standards and regulations
- socio-economic and political factors which determine the climate in that sector of the building and construction industry.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Conditions of contract include:

- parties' obligations under contracts
- general conditions of contract
- contract clauses and intentions
- liabilities
- dispute resolution
- legislative and regulatory requirements.

Risk analysis includes:

- critical incident analysis and reporting
- risk management practices
- scheduling and planning for contingencies
- analysis and revision of data
- proposing solutions and recovery scenarios.

Development of human and physical resource costs includes:

- establishing methods for calculation of standards times
- management of material costs and information concerning availability
- evaluation of work practices and industrial relations arrangements
- development of subcontracting and organisational contracting arrangements
- developing and introducing costing methods and systems.

Human resource processes include:

- establishing personnel review and evaluation processes
- selection and training of personnel to deal with the tender function
- performance appraisal
- management of work practices and staff discipline
- maintaining accuracy and legitimacy of the tender process
- legislative and regulatory requirements.

Tender documentation includes:

- head and sub contracts
- pre-contract documentation
- form of tender
- tendering codes of practice and standards
- drawings and specifications.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective management of tender developments for major projects.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the development of tenders which comprehensively address the requirements of the project
  - management practices which result in a high level of strategic input and accuracy
  - effective management of data acquisition from inside and outside the organisation
  - conceptual and strategic problem solving and organisation of resources
  - the extent of effective verbal and written communication processes with owners, senior management, and employees
  - compliance with legislative and regulatory requirements, standards and codes of practice.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building or construction office to comply with legislation and organisation policies
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction to support underpinning knowledge and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the tendering process
  - client file for information and review.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect

the requirements of the competency and the work being performed.

BCGBC6006A Manage the procurement and acquisition of resources for building or construction projects

Unit Descriptor

This unit specifies the outcomes required to establish and strategically manage the resources procurement process. It includes the evaluation and moderation of those practices, and results in the resources of the organisation being channelled into generating appropriate information and activities to support and maintain the timely provision of supplies, equipment and people to residential and/or commercial projects.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Direct the resource acquisition process.	1.1 Organisational strategic resource procurement and acquisition processes are managed in accordance with company policies and procedures. 1.2 Staff responsible for procurement and acquisition of resources are informed of organisational resource requirements. 1.3 ***Financial and business principles*** are applied to the resource acquisition process.
2. Maintain financial and administrative control over the resource acquisition process.	2.1 The administration system through which resources are procured and acquired is monitored for its effectiveness. 2.2 Financial and corporate responsibility is exercised over the procurement and acquisition system and its maintenance. 2.3 Procurement reports are evaluated in preparation for management team meetings. 2.4 Schedules of staff duties are prepared for the setting up of each site. 2.5 Staff are allocated to specific tasks within the procurement process. 2.6 Regular meetings are facilitated and conducted between team members and the client to report on progress.
3. Manage industrial relations matters related to the procurement and acquisition of resources.	3.1 ***Industrial relations*** practices within the building and construction industry are monitored to ensure compliance. 3.2 Industrial relations disputes emanating from either the supply or delivery of physical resources are addressed and resolved according to company policy. 3.3 Industrial relationships between the organisation's personnel and subcontractors are maintained.

4. Initiate and supervise the evaluation and moderation of the resource procurement and acquisition process.	4.1 Procurement process evaluation and moderation systems are developed and managed in accordance with company policy. 4.2 Evaluations of the resource procurement system and related processes are initiated and monitored to identify possible system improvements. 4.3 Strategic information relating to the procurement or acquisition of resources is gathered and evaluated. 4.4 Reports on trends in costs and quality of the resources provided to organisational work sites by suppliers are evaluated. 4.5 Orders for resources using approved company documentation and procedures are scrutinised and evaluated to ensure compliance.
5. Administer the provision and withdrawal of resources from the site.	5.1 A system for the effective supply and withdrawal of resources from the site(s) is established and maintained. 5.2 Strategic information on the usage and movement of resources on site is managed. 5.3 ***Communications principles and policies*** between on-site personnel and providers of physical resources are established and maintained. 5.4 Feedback from the site(s) is obtained and monitored at commencement, during and on completion of the project.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation skills to envisage unique solutions to complex problems and situations
- facilitation skills to implement new and modified systems
- interpreting strategic and often ambiguous information and reaching logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the procurement and acquisition of resources
- supervisory skills to monitor and oversee the performance of systems and individuals involved in the process
- technological skills to enable effective administration and monitoring of the procurement system and processes.

Required knowledge:

- building and construction industry contracts
- factors which contribute to the provision of physical and human resources in a construction environment
- financial and business principles as they apply to the Building and Construction industry
- human resource and industrial relations practices within the Building and Construction industry
- organisational strategic and operational activities and the mechanisms through which they are addressed
- relevant building and construction codes, standards and regulations.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Financial and business principles include:

- probity and honest dealing
- accurate and timely development and maintenance of financial records
- accountability and integrity
- transparency of financial processes
- compliance with all legal financial obligations.

Financial and administrative control over the procurement process include:

- agreements with subcontractors and materials suppliers
- generation of procurement documentation
- authorising payment for services provided
- managing the raising of purchase orders.

Industrial relations within the procurement process include:

- associations and industrial relationships between the organisation and subcontractors
- associations and industrial relationships between the organisation and materials suppliers
- dispute resolution involving disagreements between the organisation and subcontractors
- pro-active communication and incident avoidance
- engaging on-site labour
- negotiating payments under awards, agreements and workplace agreements
- dispute resolution between on-site personnel involved in the procurement process.

Communications principles and policies include:

- timeliness of responses
- quality and veracity of responses
- responsibilities for follow-up action
- form of responses to meet circumstantial requirements
- status or level of respondents
- recording of communication details and action taken.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by establishing and conducting a review and evaluation of processes which ensure the ongoing effectiveness of the procurement system.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - strategic focus to the procurement process and the ability for the system to handle activities on more than one site
  - ability to overcome obstacles to procurement of human and physical resources
  - ability to effectively deal with delays
  - capacity to evaluate the system and to recommend and implement remedial or improvement based changes
  - ability to develop resource supply schedules and to prioritise events allowing for possible contingencies
  - communications which include OHS regulations applicable to work place.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6007A Develop, plan and implement appropriate building or construction, environmental management practices

Unit Descriptor

This unit specifies the outcomes required to develop, plan and implement systems designed to manage environmental practices and processes on either residential or commercial projects. It supports the establishment of a soundly based environmental management system necessary to produce project outcomes which meet legislative requirements of statutory authorities.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Quantify and qualify the factors to be included in the organisational environmental management system.	1.1 ***Strategic factors*** impacting on organisational conformance with environmental obligations are identified and quantified. 1.2 The range and scope of activities being undertaken by the organisation within environmental guidelines and obligations are quantified. 1.3 Government and local government publications and information are monitored to identify and maintain knowledge of environmental issues. 1.4 The ***strategic and operational factors*** impinging on organisational environmental management process are qualified and measured.
2. Establish and implement the organisational environmental management plan and system.	2.1 The design and development of the organisational environmental planning system is directed and managed. 2.2 Criteria for implementing and maintaining systems concerned with managing the environmental requirements of construction sites are developed. 2.3 Methods are developed to gather and monitor environmental management information essential to the construction process. 2.4 The environmental management process is regularly evaluated to ensure accuracy and conformance to policy.

3. Establish and implement an environment management control system.	3.1 ***Environment control system*** quality is managed in accordance with sound management principles and practices. 3.2 Methods for determining the effectiveness of the major elements of the environmental management system are introduced. 3.3 Staff are trained and managed to ensure that quality assurance practices are applied to the environmental management process on a daily basis. 3.4 Routine monitoring of environmental benchmarks is conducted.
4. Facilitate the introduction of systems to manage the organisational environmental policies and practices.	4.1 Organisational policies and procedures for environmental management are developed and introduced. 4.2 Policies and routines are documented for future reference. 4.3 Policy guidelines and obligations are circulated within the organisation and sign-off by staff, employees and/or contractors is obtained. 4.4 Compliance of all staff with environmental policy is monitored.
5. Implement an environmental conformance feedback system.	5.1 Processes to monitor and report on environmental issues and procedures are developed and introduced. 5.2 ***Feedback systems*** are developed, circulated and maintained to ensure all stakeholders can support the environment management process.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- conceptualisation of unique solutions to complex problems and situations
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the environmental management and review process
- ability to facilitate the implementation of new and modified environmental management and review systems
- supervisory skills to monitor and oversee the performance of the management and review systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- environmental issues which impact on the organisation and its practices
- financial and business administration principles commensurate with the needs of the organisation
- factors to be considered in assessing the environmental risk inherent in different types of building and site utilisation projects
- key factors which influence decisions on environmental issues and decision making.
- the legislative, regulatory, and administrative obligations incumbent on the building and construction industry for environmental practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Strategic factors impinging on the organisational environmental obligations include:

- federal and state or territory environmental legislation
- local authority by-laws, Acts or regulations concerning environmental issues
- types of licences and/or permits held or needing to be held by the organisation
- scope of operations and/or activities of the organisation
- location and nature of the construction activity.

Strategic and operational factors impinging on the organisational environmental management process include:

- organisation policy and operating guidelines
- risk management strategies and policies
- public liabilities and exposure to risk
- management commitment to the environmental management process
- structure of the management team and apportionment of responsibilities.

Environment control system quality principles and practices include:

- organisational conformance with appropriate legislation and regulations
- maintenance of agreed expenditures for environmental management compliance
- ensuring availability of appropriately qualified personnel to deal with environmental issues
- obtaining timely and relevant expert advice as required by the project
- preventative maintenance of environmental management practices and processes
- periodic review of environmental management practices and processes.

Feedback systems include:

- verbal, electronic and hard copy information communications systems
- formal meetings between staff, employees and/or contractors on a regular basis
- programmed appraisals of conformance to environmental policy involving organisation staff, employees and contractors
- emergency or process breakdown advisory channels
- programmed reporting and environmental conformance statements and timetables.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by demonstration of the development, implementation and maintenance of an environmental management system within the organisation. Such management should include exploration of options or strategies for the project site or sites as applicable.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an effective environmental conformance strategy
  - identifiable roles and responsibilities for organisation personnel involved in that strategy
  - management practices which result in a high level of conformance to environmental obligation by the organisation
  - ability to strategically plan to meet environmental obligations and effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with senior management, employees, owners, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate environmental legislation and Regulations
  - strategic building and construction market information
  - a technical reference library with current publications on design, building construction and manufactures product literature
  - suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues

that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6008A Develop and implement an appropriate estimating and tendering system

Unit Descriptor

This unit specifies the outcomes required to develop and implement an appropriate estimating and tendering system. It covers the facilitation, implementation and maintenance of an estimating and tendering system in a building and construction organisation involved in residential and/or commercial projects. It supports the establishment of the human resources and facilities necessary to produce accurate and successful tenders in accordance with the contractual guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders and senior managers within building, construction and services firms, typically working in larger organisations and managing more complex projects and processes, who have responsibility for developing and implementing estimating and tendering systems for residential or commercial projects. Knowledge of financial and business administration principles, and factors which determine the risks inherent in the organisation's range of construction types, is required. Ability to identify and interpret strategic information which could affect the organisation's financial viability and direct personnel effectively is essential.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Quantify and qualify the factors to be included in the organisational tendering system.	1.1 Strategic economic and social factors impacting on the organisation are quantified and qualified. 1.2 The range and scope of activities to be undertaken by the organisation and their impact is strategically quantified and qualified. 1.3 Strategic operational and financial structures within the organisation are reviewed and qualified regarding their information needs.
2. Establish and implement the tendering system in the organisation.	2.1 Design and development of the organisational estimating and ***tendering system*** is facilitated and implemented in accordance with legislative and organisational requirements. 2.2 ***Strategic criteria for personnel and processes concerned with estimating and tendering*** are established and disseminated. 2.3 The endorsement of senior management for implementation of the system is obtained. 2.4 Staff with the necessary expertise and industry knowledge to excel at the tasks involved are appointed.

3. Establish and implement a tendering quality control system.	3.1 Appropriate ***financial structures which underpin the tendering process*** are identified and applied. 3.2 A ***review and feedback system*** using company project records and performance criteria is facilitated and implemented.
4. Develop and implement a client feedback system.	4.1 A ***communication system*** to enable effective contact with clients is established and implemented. 4.2 A client feedback system based on price, performance, progress and other strategic factors is planned and strategically implemented.
5. Establish a recording and evaluation system.	5.1 A tender recording system which meets organisational needs for ongoing evaluation of tender performance is designed and implemented. 5.2 Strategic balances and checks which enable the ongoing maintenance of quality of the estimating and tendering system are developed and implemented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualising and envisaging unique solutions to complex problems and situations
- delegating tasks within specific functional guidelines
- directing the activities of personnel involved in the estimating and tendering process
- facilitating the implementation of new and modified systems
- interpreting strategic and often ambiguous information and reaching logical and practical decisions
- monitoring and overseeing the performance of systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- the appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- relevant state or territory building and construction codes, standards and regulations
- socio-economic and political factors which determine the climate in that sector of the building and construction industry.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Factors to be included in the organisational ***tendering system*** include:

- standard organisational documentation
- tendering methods, processes and timeframes
- range of contracts employed by the organisation
- materials and labour cost determination
- timeframes and scheduling arrangements
- market rates, trends and technological improvements/variations
- legislative and regulatory requirements and codes of practice.

Strategic criteria for personnel and processes concerned with estimating and tendering include:

- critical incident analysis and reporting
- risk management
- scheduling and planning for contingencies
- analysis and revision of data.

Financial structures which underpin the tendering process include:

- calculation and apportioning of overheads and margins
- subcontracting and organisational contracting rates
- accounting methods and systems.

A review and feedback system includes:

- personnel and system review and evaluation processes
- internal and external client review and feedback systems
- feedback loops
- programmed and critical incident evaluation meetings
- critical path development and analysis.

Communication system include:

- phone, facsimile and email systems
- hand written and word-processed reports and briefing notes
- internal and external memoranda
- face to face communication.

Recording and evaluation system include:

- day logs and diaries
- manual and computer based data systems
- financial, labour and materials recording and inventory systems.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective development and implementation of an estimating and tendering system for an organisation.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - an effective estimating and tendering system, supported and directed by strong and decisive leadership
  - conceptual and strategic problem solving and systems development
  - management practices which result in high level staff productivity
  - effective interaction with personnel inside and outside the organisation
  - the extent of effective verbal and written communication with owners, senior management and employees
  - compliance with legislative and regulatory requirements and codes of practice.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - suitable project work applicable to the building and construction process
  - appropriate equipment, materials and documentation to comply with OHS legislation and other organisational policies
  - related learning resources are provided in support of the underpinning knowledge and skills acquisition required by this unit of competency.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6009A Develop, plan and implement an appropriate building or construction planning process

Unit Descriptor

This unit specifies the outcomes required to develop, plan and implement an appropriate building or construction planning process. It applies to the strategic development and implementation of an organisation's project and organisational planning. The unit applies to the management and review systems of an organisation involved in residential and/or commercial projects of significant size and complexity. It supports the establishment of a soundly based contract planning service necessary to produce accurate and successful project outcomes in accordance with organisational guidelines and conformity with legislation, codes and standards governing project completion.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the needs of builders and senior managers within building, construction and services firms, typically working in larger organisations and managing more complex projects and processes, who have responsibility for developing, planning and implementing an appropriate building or construction planning process. The competency requires facilitating implementation of new and modified systems and monitoring and overseeing the performance of systems and personnel. Knowledge of industry contracts, human resources, and industrial relations practices, socio-economic factors which influence the industry and the organisational strategic and operational activities, is essential.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Quantify and qualify the factors to be included in the organisational onsite planning system.	1.1 Strategic factors impacting on the planning process are identified and quantified in accordance with ***legislative, codes, standards*** and organisational requirements. 1.2 The range and scope of activities to be undertaken by the organisation are quantified. 1.3 Strategic and operational planning structures within the organisation are reviewed and qualified regarding their information needs.
2. Establish and implement the organisational onsite planning system.	2.1 The design and development of the organisational project planning system is facilitated. 2.2 The ***criteria for personnel and processes*** concerned with construction planning are established. 2.3 Endorsement of senior management is facilitated and obtained for implementation of the system. 2.4 Senior project staff are selected and appointed to meet organisational needs.

3. Establish and implement a planning quality control system.	3.1 Construction methodologies applicable to the type of construction project are identified and applied to the planning process. 3.2 Implementation of a review and feedback system using company project records and performance criteria is facilitated and directed.
4. Develop and implement an organisational feedback system.	4.1 A means of effectively communicating planning information within the strategic and operational sectors of the organisation is established and implemented. 4.2 An organisational feedback system based on performance, progress and project outcomes and other strategic factors is developed and strategically implemented.
5. Establish a recording and evaluation system.	5.1 A documentation and recording system which meets organisational needs for on-going evaluation of the planning process is instituted and managed. 5.2 Strategic balances and checks which enable the ongoing maintenance of the quality of the planning system are developed and applied.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualising and envisaging unique solutions to complex problems and situations
- delegating tasks within specific functional guidelines
- directing the activities of personnel involved in the construction planning process
- facilitating the implementation of new and modified systems
- interpreting strategic and often ambiguous information and reaching logical and practical decisions
- monitoring and overseeing the performance of systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- financial and business principles as they apply to the building and construction industry
- human resource and industrial relations practices within the building and construction industry
- organisational strategic and operational activities and the mechanisms through which they are addressed
- the socio-economic and political factors which impact on the building and construction industry
- the type, breadth and scope of building and construction industry contracts
- relevant state or territory building and construction codes, standards and regulations.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Factors to be included in the organisational on-site planning system include:

- market focus and structure of the organisation
- strategic organisational objectives
- type of work being undertaken
- logistics and location of personnel
- location of projects
- organisation information needs and timelines
- clients and client needs
- relevant legislative requirements, codes and standards.

legislative, codes, standards that must be addressed include:

- application of the Building Code of Australia related to the size and complexity of the project and the class of building being constructed
- relevant state or territory licensing arrangements
- Council and other relevant planning approval processes
- OHS and other workplace standards.

Criteria for personnel and processes includes:

- appropriate experience and qualifications of participants
- suitability of work habits and timeliness of personnel
- correct and timely selection of key project supervisors and administrators
- effective lines and methods of communication
- suitability and timing of communication
- suitability of documentation and reporting methods.

Planning quality control includes:

- evaluation and review methods and practices
- establishment of performance benchmarks
- documentation and graphical representation of data
- personal and system information gathering and insert points
- feedback loops and information extraction
- project review meetings and project progress reporting.

Recording and evaluation includes:

- manual and electronic data recording processes
- 'key point' data availability and crisis ' flagging'
- performance data entry and responsibility
- programmed and crisis evaluation strategies
- maintenance and redevelopment of information recording systems.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by effective development, planning and implementation of an appropriate building or construction planning process.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - strategic focus on the mechanisms implemented to enable the construction planning process to develop effectively
  - interpretation of organisational information and reporting requirements which results in the establishment of mechanisms which demonstrate those needs are being met
  - the implementation and maintenance of mechanisms and systems which enable demonstrable improvements to occur within the organisational construction planning process
  - effective delegation and overseeing of tasks
  - the extent of effective verbal and written communication processes with owners, senior management, and employees.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in a building or construction office to comply with legislation and the organisation policies
  - relevant codes, standards and regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs, record and print copies
  - a technical reference library with current publications on measurement, design, building construction to support underpinning knowledge and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the planning process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect

the requirements of the competency and the work being performed.

BCGBC6010A Plan, develop and implement building or construction, energy conservation and management practices and processes

Unit Descriptor

This unit specifies the outcomes required to develop, plan and implement practices and processes concerning energy conservation and management in the management of organisations involved in either residential or commercial projects. It supports the establishment of a management philosophy which is focused on reducing energy waste through greater awareness; and the implementation of practices which result in savings both within and outside the organisation.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Develop energy conservation and management philosophies and strategies.	1.1 The factors to be included in the organisational energy conservation and management system are quantified and qualified. 1.2 ***Strategic factors*** that impact on the organisational ability to improve energy conservation and management practices and processes are evaluated. 1.3 The range and scope of activities being undertaken by the organisation in regard to energy conservation and management is quantified. 1.4 Previous policy and ***operational factors*** contributing to energy conservation and management are evaluated. 1.5 An organisational energy conservation and management policy and strategy is developed assesses savings and benefits to be derived.
2. Scope the introduction and management of energy conservation and management principles and processes.	2.1 The Board and/or senior management is consulted concerning the introduction and implementation of the policy and strategy. 2.2 Organisational policy and management guidelines are developed covering energy conservation and management inside and outside the organisation. 2.3 A strategic plan for the introduction of the policy and strategy is developed and documented. 2.4 Staff are briefed on the criteria for implementing and maintaining systems concerned with energy conservation and management. 2.5 Methods are developed to gather and monitor energy conservation and management information essential to the management process. 2.6 Methods are developed to translate the policy into practice in the organisation and on-site.

3. Implement the energy conservation and management system.	3.1 Energy conservation and management instructions are built into organisational operating procedures. 3.2 A staff training program is introduced to ensure that energy conservation and management practices are applied to organisation activities on a daily basis. 3.3 Methods for determining the effectiveness of the energy conservation and management system are introduced. 3.4 Routine monitoring of energy benchmarks is established and maintained.
4. Manage the organisational energy conservation processes.	4.1 Energy conservation and management issues are added to the process agenda at all levels of the organisation. 4.2 Contractors and employees are advised of and monitored within the framework. 4.3 Policy guidelines and obligations are circulated within the organisation and sign-off by staff, employees and contractors is obtained. 4.4 Staff compliance with energy conservation and management policy is monitored.
5. Implement an energy management feedback system.	5.1 Processes to monitor and report on energy conservation and management achievements are developed and introduced. 5.2 ***Feedback systems*** are developed, circulated and maintained to ensure all stakeholders can support the energy conservation and management process.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation of unique solutions to complex problems and situations
- ability to facilitate the implementation of new and modified energy conservation and management systems
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the energy conservation and management review process
- supervisory skills to monitor and oversee the performance of the management and review systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- energy conservation and management issues which impact on the organisation and its practices
- factors to be considered in assessing the energy conservation and management requirements inherent in different types of building and site utilisation projects
- financial and business administration principles commensurate with the needs of the organisation
- key factors which influence decisions on energy conservation and management issues and decision making
- the legislative, regulatory, and administrative obligations incumbent on the building and construction industry for energy conservation and management practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Strategic factors impinging on the organisational energy conservation and management process obligations include:

- organisation policy and management practices
- scope of operations and/or activities of the organisation
- location and nature of the construction activity
- extent and types of equipment being operated
- types, age and construction of buildings in which the organisation operates.

Operational factors impinging on the organisational energy conservation and management proc ***ess*** include:

- organisation policy and operating guidelines
- risk management strategies and policies
- public liabilities and exposure to risk
- management commitment to the energy conservation and management process
- structure of the management team and apportionment of responsibilities
- types of materials and consumables being employed in the process
- skills and experience of organisational personnel
- timing of activities and project deadlines.

Energy conservation and management system quality principles and practices include:

- organisational conformance with appropriate legislation and regulations
- maintenance of agreed expenditures for energy management compliance
- ensuring availability of appropriately qualified personnel to deal with energy issues
- obtaining timely and relevant expert advice as required by the organisation/project
- preventative maintenance of energy conservation and management practices and processes
- periodic review of energy conservation and management practices and processes.

Feedback systems include:

- verbal, electronic and hard copy information communications systems
- formal meetings between staff, employees and/or contractors on a regular basis
- programmed appraisals of conformance to energy policy involving organisation staff, employees and contractors
- emergency or process breakdown advisory channels
- programmed reporting and energy management conformance statements and timetables.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by demonstration of having developed, implemented and maintained the energy conservation and management system for the organisation. Management of the system should include exploration of options or strategies for a project site or sites as applicable.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the presence of an effective energy conservation and management strategy
  - establishing identifiable roles and responsibilities for organisation personnel involved in that strategy
  - management practices which result in a high level of conformance to energy management guidelines and organisation policy
  - the ability to strategically plan to meet energy management obligations and effectively
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with senior management, employees, owners, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate environmental legislation and regulations
  - strategic building and construction market information
  - a technical reference library with current publications on design, building construction and manufactures product literature
  - suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues

that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6011A Establish systems for the development and monitoring of building and construction costs

Unit Descriptor

This unit specifies the outcomes required to facilitate, implement and maintain a construction costing system in a building and construction organisation which is involved in either residential or commercial projects. It supports the establishment of the human resources and facilities necessary to produce accurate and successful costing information providing a basis for accurate estimating and tendering processes in accordance with organisational guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing residential and commercial building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Quantify and qualify the factors to be included in the organisation costing system.	1.1 ***Strategic factors impacting on the construction costing process*** are identified and quantified. 1.2 The range and scope of activities being undertaken by the organisation under the contract is quantified. 1.3 The strategic and operational factors impinging on organisation costing process(es) are qualified, and measures are introduced to capture cost data.
2. Establish and implement the organisational costing system.	2.1 The design and development of the organisational project planning system is directed and managed. 2.2 ***Criteria for implementing and maintaining systems concerned with costing the construction process*** are developed and formulated into active practice. 2.3 Methods are developed to gather and monitor actual cost information essential to the construction costing process. 2.4 Approval of the costing process is obtained from senior management. 2.5 The costing process is regularly evaluated to ensure accuracy and conformance to policy.
3. Establish and implement a costing quality control system.	3.1 The ***quality control*** procedures are based on sound financial principles and practices. 3.2 Staff are trained to ensure that quality assurance practices are applied to the costing process on a daily basis. 3.3 A system is developed which allows reconciliation of invoices for progress payments against work completed or due for completion prior to payments being approved.

4. Develop and implement a costing feedback system.	4.1 A means of effectively and quickly communicating financial information concerning construction costs within the organisation is established and implemented. 4.2 A review and feedback system is developed and maintained using company project records and performance criteria to identify cost over-runs or savings within the contract. 4.3 A subcontractor feedback system based on performance, progress and other strategic factors is planned and strategically implemented.
5. Establish a recording and costing evaluation system.	5.1 A documentation and ***recording system*** is instituted which meets organisational needs for an ongoing evaluation of the costing process. 5.2 Strategic balances and checks are applied which enable the ongoing maintenance of quality of the costing system.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation of unique solutions to complex problems and situations
- facilitation skills to implement new and modified systems
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the estimating and tendering process
- supervisory skills to monitor and oversee the performance of systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- the appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of Building and Construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- socio-economic and political factors which determine the climate in that sector of the building and construction industry.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Strategic factors impacting on the construction costing process include:

- margins, allowances, rates and penalties
- construction methodologies and practices
- awards, agreements and work practices
- plant, equipment and provision of services
- availability of materials and suppliers costs
- extent of information and anticipated degree of risk
- availability and accessibility of historical records
- organisation performance data.

Factors to be considered in the organisational costing system include:

- ability to gather specific information concerning actual vs estimated costs
- establishment of internal and external performance management systems
- relationships with the organisations financial management and construction management systems.

Criteria for implementing and maintaining systems concerned with costing the construction process includes:

- establishing and maintaining accurate estimating practices
- gathering and classifying appropriate strategic and performance information
- utilising the services of well trained and experienced personnel in the costing process.

Maintaining costing ***quality control*** includes:

- obtaining adequate feedback from clients, subcontractors and suppliers includes:
  - monitoring internal expenditures and funding allocations
  - maintaining a quality dialogue with all parties to the construction process
  - establishing performance benchmarks for the system.

Recording system and costingsystem evaluation includes:

- establishing and maintaining comprehensive records of bids
- programmed and spontaneous reviews of success rates
- providing secure and safe accommodation for costing information
- maintaining appropriate manual or electronic data bases to assist performance comparisons.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed on evidence of the development and implementation of the organisational construction costing system. This should include relevant aspects of the monitoring process, to ensure the continued financial viability of the organisation.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - effective cost development and monitoring system
  - application of management practices which result in a high level of staff productivity
  - an ability to effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communications with owners, senior management, and employees.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - a suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6012A Manage and administer development of documentation for building or construction projects

Unit Descriptor

This unit specifies the outcomes required to manage and administer the development of documentation for either residential or commercial construction projects. It supports the establishment of a soundly based contract management system necessary to produce accurate and successful project outcomes in accordance with organisational guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for coordinating and managing building or construction projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Quantify and qualify the factors to be included in organisational documentation processes.	1.1 Organisational administrative and operational structures and processes are identified and quantified. 1.2 Legal and financial obligations which must be reflected in and conformed to in the development of documentation for building and/or construction ***projects*** are identified. 1.3 The range and scope of activities to be undertaken by the organisation and the types of documentation required to support building or construction projects is quantified. 1.4 Strategic operational and project structures within and external to the organisation are reviewed and qualified as to their documentation requirements.
2. Implement and manage the organisational construction documentation system.	2.1 The design and development of the organisational construction and project documentation system is facilitated and managed. 2.2 Operational criteria for personnel and processes concerned with construction and project documentation are established. 2.3 Endorsement from senior management for implementation of the system is obtained. 2.4 Staff with the necessary expertise and industry knowledge to excel at the work involved are appointed.

3. Establish and implement a construction documentation quality control system.	3.1 Appropriate corporate guidelines which underpin the development and maintenance of construction or project documentation are identified or developed. 3.2 House rules are established and managed for the accurate and timely completion of construction and project documentation. 3.3 Documentation impinging on or requiring adherence to Acts, regulations or local authority requirements meets the necessary legal and/or financial obligations. 3.4 A review and feedback system using internal and external advice about the useability of company documentation is implemented and facilitated.
4. Establish a recording and evaluation system.	4.1 A ***documentation recording system*** which fosters ongoing evaluation of construction or project performance is instituted. 4.2 Strategic balances and checks which enable the ongoing maintenance of the quality of construction and project documentation are applied.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- conceptualisation of unique solutions to complex problems and situations
- facilitation skills to implement new and modified documentation administration systems
- interpretation of strategic and often ambiguous information to ensure logical and practical decisions
- management skills, including the ability to delegate tasks within specific functional guidelines and direct the activities of personnel involved in the documentation administration process
- supervisory skills to monitor and oversee the performance of the documentation administration systems and individuals involved in the process
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- the appropriate sector of the building and construction industry and the nature of the contracts upon which its activities are based
- factors to be considered in assessing the risk inherent in different types of building and construction projects
- financial and business administration principles commensurate with the needs of the organisation
- human resource practices and the industry's industrial relations climate and practices
- the legislative, regulatory, and administrative obligations incumbent on the building and construction industry for occupational health, safety and rehabilitation (OHS&R), environmental, employment and financial practices.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Projects include:

- residential construction
- commercial construction
- high and low-rise structures
- earthworks
- civil contracting projects
- provision of electrical, plumbing and gas, waste disposal, environmental clean-up and other services.

Documentation processes include:

- development of documentation relating to the construction process such as tenders, offers, contracts, drawings, specifications, schedules, materials lists, variations
- transmission of documentation within and external to the organisation
- review and evaluation of amendments to documentation
- recording, tracking, secure storage and security of documentation.

Construction documentation quality control system include:

- development by experienced personnel
- confidentiality in document handling
- security in document filing, storage and identification
- limitations on document circulation, access and distribution.

Documentation recording system and evaluation systems include:

- electronic or manual transcription of information into document form
- establishing and maintaining accurate document records
- programmed and spontaneous reviews of active documents
- providing secure and safe accommodation for documented information in electronic or hard copy form
- document reviews for appropriate structure, content, quality and relevance.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed through the demonstration of efficient and effective contract documentation management and administration, including the production of contracts, specifications and drawings which contribute to the organisation operating in an efficient and productive project environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - effective document administration procedures and frameworks supported and directed by strong and decisive leadership
  - management practices which result in a high level of staff productivity
  - ability to effectively interact with personnel both inside and outside the organisation
  - conceptual and strategic problem solving and systems development
  - effective verbal and written communication processes with senior management, employees, clients, regulatory authorities and legal representatives.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation that should normally be available in either a building or construction office
  - relevant codes, standards, regulations
  - office equipment, including calculators, photocopiers and telephone systems
  - computers with appropriate software to view 2-D CAD drawings, run costing programs and print copies
  - a technical reference library with current publications on measurement, design, building construction and manufacturers' product literature
  - copies of appropriate awards and workplace agreements
  - strategic building and construction market information
  - a technical reference library with current publications on design, building construction and manufactures product literature
  - suitable work area appropriate to the construction process.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues

that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6013A Evaluate materials for multi-storey buildings

Unit Descriptor

This unit specifies the outcomes required to evaluate and select appropriate materials for use in the construction of multi-storey buildings. It considers a range of factors vital to the evaluation of materials, including the performance of concrete, the ability of materials to withstand fire and the environmental impact of certain materials in the building process.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for ensuring the integrity of materials used in the construction of multi-storey buildings whether for commercial or residential purposes.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Assess the nature and performance of concrete for use in multi-storey buildings and other building types.	1.1 Plastic and hardened concrete properties are identified and recorded. 1.2 Sources of aggregate are listed and properties of each described. 1.3 Effects of impurities are described and recorded. 1.4 Manufacture and testing of concrete is conducted in accordance with relevant Australian standards.
2. Assess the application of concrete used in multi-storey buildings.	2.1 Selection and distribution methods of concrete are determined following analysis of site access. 2.2 Correct distribution and placement methods of concrete are demonstrated and maintained. 2.3 Reasons and effects of compaction on both plastic and hardened concrete are identified. 2.4 Immersion, surface and form vibration are compared. 2.5 Accurate records relating to the application of concrete are maintained. 2.6 ***Types of curing methods*** and detrimental effects of poor or no curing are identified and recorded.
3. Evaluate the methods undertaken to repair concrete.	3.1 Live and dormant cracks are identified. 3.2 Repair methods and causes of cracked concrete and concrete cancer are described and recorded in accordance with organisational procedures. 3.3 Faults in concrete are diagnosed and recorded in accordance with organisational procedures.
4. Evaluate the effects of fire and heat on concrete used in multi-storey buildings.	4.1 ***Reinforced concrete*** is tested for effects of fire and heat. 4.2 Methods of fire protection for concrete elements are identified and applied.

5. Monitor the environmental impacts of building materials used.	5.1 Concrete used in buildings complies with organisation sustainability policies. 5.2 New technologies in concrete are monitored and applied in the construction of multi-storey buildings in accordance with organisational policies and guidelines. 5.3 The ***performance requirements*** of concrete in fire resistance construction are identified and applied in accordance with acceptable ***standard construction practice***. 5.4 The cost effectiveness of using recycled materials is identified in accordance with acceptable standard construction practice.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of attention to detail
- application of design concepts and principles
- application of measurements and calculations
- communication skills
- interpretation skills, including the ability to interpret documentation from a wide range of sources
- reading skills, including the ability to interpret drawings and specifications
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- application of BCA and Australian standards
- applications of structural principles in buildings
- design principles, behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- the grading process and grade markings used to categorise timber and timber products
- OHS requirements, legislative codes and practices
- types and nature of materials and the effect of their performance including the properties and uses of cement and the types of hydraulic cement
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Building types include:

- buildings with concrete skeleton and slabs
- slab on ground floor
- concrete column or wall 10 metres high
- bridge/pier construction.

Records maintainedinclude details regarding:

- causes of surface defects during concrete placement
- compaction of concrete
- finishing processes and surface treatments to slab concrete.

Types of curing methods include:

- impermeable membrane curing
- continuously wetting concrete
- accelerated curing.

Reinforced concrete includes:

- principles of reinforced concrete utilising steel, wire and fibres and the like
- methods of pre-stressed concrete.

Performance requirements include:

- detail relating to materials
- quality of work
- quality assurance
- nominated subcontractors
- provision of site access/facilities
- cost
- standards of work
- work schedules
- standard procedures
- milestones
- characteristics, uses, maintenance and selection of materials and systems in terms of their:
  - manufacture
  - testing
  - installation
  - alternate uses
  - cost effectiveness
  - environmental safety
  - recycling
  - new technologies
  - scaffold systems
  - rubbish removal
  - dangerous materials
  - transport problems/restrictions
  - cranes and hoists
  - evaluation and assessment (for new materials).

Standard construction practice includes:

- Building Code of Australia, including AS1684.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of and the demonstrated understanding of materials choice relating to the selection, positioning and sizing of all structural components that form a complex building project. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with OHS and organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of design principles relating to performance
  - identification of typical faults and problems and the necessary action taken to rectify such faults.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including timber product information and samples
  - access to relevant legislation of regulations and codes of practice - BCA, National Timber Framing Code and AS1684, AS4055
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6014A Apply structural principles to the construction of large, high rise and complex buildings

Unit Descriptor

This unit specifies the outcomes required to apply structural principles to the building of large, high-rise and complex buildings. The design and construction of large buildings requires the input of a range of skilled professionals, including architects and engineers. The building and construction professional plays a significant role within this project team and requires the ability to communicate effectively with building design professionals, and to develop sound and safe practices in relation to structural procedures on site.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for ensuring the structural integrity of materials and building and construction work so that site safety and quality control measures are maintained during residential and commercial projects.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Apply structural principles to the planning of the erection and/or demolition of a structure.	1.1 Main ***structural principles*** that apply to the erection of large, high-rise and complex structures are identified. 1.2 Performance characteristics of the structural elements, including ***materials*** identified in the building plan, are identified, analysed and applied to the planning of the construction work. 1.3 Demolition of existing structures is undertaken in accordance with legislative and planning requirements and safe work practices.
2. Coordinate and manage the site assessment and job setup.	2.1 Processes are put in place to analyse the stability of soils and the capacity of the site to support the construction loads. 2.2 Requirements for retaining walls are identified in conjunction with related industry professionals and applied to the planning process. 2.3 Structural function and requirements for ***temporary structural elements*** are analysed and applied to the planning process.

3. Coordinate and manage the construction of footing systems.	3.1 Coordination of the set out of the building is undertaken in accordance with the documented building plans, following the full assessment of the site. 3.2 Structural performance of the footings specified in the building plan is assessed for compliance with relevant codes and accepted industry construction principles. 3.3 Footings, as specified in the building plan, are laid and checked for conformance with standards and accepted industry construction principles. 3.4 Damp coursing and the provision of termite barriers and other relevant techniques are planned, implemented and checked in accordance with codes, standards and industry practice.
4. Coordinate and manage the structural elements of the construction process.	4.1 Technical construction principles and performance characteristics of the construction materials are identified and analysed in the planning of the project. 4.2 Processes for the construction of all structural elements are identified, implemented and checked for conformance with relevant Australian standards and codes, and manufacturer specifications. 4.3 Building plans and relevant codes and standards are identified and implemented to ensure appropriate allowances have been made for plumbing, electrical conduits and other services to be installed.
5. Analyse and plan for structural integrity of buildings.	5.1 Relevant industry professionals are consulted to provide advice regarding the structural integrity of the proposed building. 5.2 The ***structural requirements and loads*** of the building design are assessed. 5.3 Analysis is conducted on the effects of force and movements on structural elements. 5.4 Analysis of the ***properties and behaviours of structural materials*** is conducted. 5.5 Analysis of the section properties of structural elements is conducted using standard industry formulae and performance comparisons. 5.6 ***Performance characteristics of columns*** are evaluated using standard industry techniques. 5.7 Methods used for stress distribution in connections between structural elements are assessed. 5.8 Impact of ***various loads*** on the building structure is assessed. 5.9 Design impact of ***high performance structural elements*** is considered.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of design concepts and principles
- application of measurements and calculations
- attention to detail
- communication skills
- interpret documentation from a wide range of sources
- reading skills, including the ability to read and interpret drawings and specifications.

Required knowledge:

- applications of structural principles in buildings
- BCA and Australian standards
- design principles, behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- interpretation and analysis of work drawings and specifications
- the nature of materials and the effect of performance.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Structural principles relate to factors including:

- dead and live load calculations and characteristics
- impact of wind, snow, ground water, earthquake, liquid pressure, rainwater, earth pressure actions
- impact of time dependent effects, including creep and shrinkage
- impact of thermal effects
- structural resistance of materials
- fire resistance of materials
- structural resistance of forms of construction.

Materials include:

- masonry
- concrete, including reinforced and prestressed concrete
- steel, including cold-formed steel
- composite steel and concrete
- aluminium.

Temporary structural elements include:

- shoring collar sets
- soldier sets
- close sheeting
- shields
- formwork props
- ties
- pressure resistant formwork
- scaffolding sole plates
- bracing.

Structural requirements and loads relate to building:

- equilibrium
- stability
- strength
- functionality
- economy
- aesthetics.

Properties and behaviours of structural materials include consideration of the:

- effect of force on materials in tension, compression, stress, strain and elasticity
- structural properties of common materials.

Analysis of ***the performance characteristics of columns*** requires consideration of:

- load spanning elements for bending moments, shear forces, deflection and torsion
- bending behaviour and performance of loaded support beams
- the effect of the Slenderness Ratio
- eccentric and axial load affect
- the effect of connections
- the effect of slab behaviour in relation to spans and stress distribution.

Types of ***various loads*** include:

- live load
- dead load
- wind load
- earthquake load.

High performance structural elements include:

- trusses
- laminated beams
- fire resistance
- connections
- castellated beams
- prestressed beams
- slabs
- waffle slabs
- use of steel to reinforce concrete.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of structural design principles and communication of the selection, positioning and sizing of all structural members that form fixed or temporary building structures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - the coordination of professional input to evaluate the structural integrity of large and complex building
  - the clear analysis of the structural impact of design decisions
  - compliance with OHS and organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of design principles relating to performance
  - identification of typical faults and problems and the necessary action taken to rectify such faults.

Context of and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including timber product information and samples
  - access to relevant legislation of regulations and codes of practice - BCA,
  - relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6015A Apply building surveying procedures

Unit Descriptor

This unit specifies the outcomes required to conduct assessments of medium-rise buildings for compliance with relevant building and land-use standards. It requires a detailed understanding of building codes and standards, design principles and building survey practices.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports builders, project managers and related construction industry professionals who have responsibility for ensuring plans and building specifications comply with relevant legislation and codes for residential and commercial projects. The unit relates specifically to the assessment of medium-rise buildings, being up to 25m in height, with a total floor area less than 2,000 square metres.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Review documents submitted for building and landuse approval for compliance with relevant legislation and codes.	1.1 Plans, ***specifications*** and engineering drawings for medium-rise buildings are accessed and interpreted. 1.2 Legislative requirements are interpreted and applied to various building projects. 1.3 Common faults with medium-rise buildings are identified and recorded.
2. Inspect building work.	2.1 Progress of building work is monitored for compliance in accordance with organisational quality assurance procedures. 2.2 Work that does not comply with standards is recorded and remedial action required is documented and communicated to appropriate personnel. 2.3 Ongoing communication with appropriate personnel is maintained to assist in monitoring progress of building work.
3. Prepare reports on various building types.	3.1 Advice with respect to work on medium-rise buildings is prepared and reported. 3.2 Report on the suitability of existing buildings prior to purchase inspections is documented. 3.3 Records of building safety inspections conducted on existing buildings are documented. 3.4 Reports on construction work prior to occupancy inspection are documented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- application of building survey procedures to the assessment of building systems
- application of design concepts and principles
- application of measurements and calculations
- attention to detail
- communication skills
- interpretation skills, including the ability to interpret documentation from a wide range of sources
- reading skills, including the ability to interpret drawings and specifications
- technological skills to facilitate use of the organisation's software and office equipment.

Required knowledge:

- applications of structural principles in buildings
- building survey practices
- design principles, behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- the nature of materials and effect of performance
- relevant legislation, codes and practices including BCA, Australian standards and OHS requirements
- work drawings and specifications.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Specifications include:

- industry standard specifications
- preliminary/outline specs
- developed specs
- detailed specs will address specific components, e.g. construction, mechanical, structural, services or other requirements.

Standard construction practice includes:

- Building Code of Australia, including relevant Australian standards.

Performance requirements include:

- detail relating to materials
- quality of work
- quality assurance
- nominated subcontractors
- provision of site access/facilities
- cost
- standards of work
- work schedules
- standard procedures
- milestones.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by the application of Building Survey Procedures to assessment of all structural components that form a building project. Assessment may be carried out in the workplace or a simulated environment.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
  - compliance with OHS and organisational quality procedures and processes
  - application and interpretation of relevant documentation and codes
  - accurate application of design principles relating to performance of the building system
  - identification of typical faults and problems and the necessary action taken to rectify such faults.

Context and specific resources for assessment

- Resource implications for assessment include:
  - documentation, including design brief drawings, specifications, codes, design concepts, construction schedules and other necessary supporting documents
  - research resources, including timber product information and samples
  - access to relevant legislation, regulations and codes of practice - BCA, relevant computer software package and suitable hardware.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- Validity and sufficiency of evidence requires that:
  - competency must be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
  - where the assessment is part of a structured learning experience, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence taken only at the point when the assessor has complete confidence in the person's competence
  - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
  - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
  - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6016A Assess construction faults in large building projects

Unit Descriptor

This unit specifies the competency required to identify construction faults in large, highrise and complex buildings (open' licensing classification with special reference to Type A buildings). It includes the identification and evaluation of construction problems and determination of alternate methods in accordance with legislative requirements. The competency recognises that builders and other related construction industry professionals for whom this unit is relevant, while exercising personal judgement based on their knowledge, skills and experience, must also coordinate the input and expertise of a range of professionals in order to assess construction faults and determine appropriate responses.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, project managers and related construction industry professionals who have responsibility for assessing construction faults in large building projects, assembling the input of related professionals and determining appropriate responses.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Identify and analyse the construction faults in large building projects.	1.1 Information is collected relating to the specific ***construction faults***. 1.2 The original specifications for the construction are analysed to identify potential causes of the construction problem. 1.3 The construction problem is documented and communicated to relevant personnel in accordance with standard work practices. 1.4 Expert analysis and opinions are gathered as required from project team members and external professionals. 1.5 Problem solving techniques are used and typical faults and problems are identified and the action to rectify is deemed to be in accordance with the Building Code of Australia ***(Open classification)***.
2. Analyse construction techniques, methods and materials.	2.1 Building terminology is used accurately in the communication of issues. 2.2 Working drawings and specifications and identifying existing or designed construction problems are evaluated. 2.3 Alternative methods and materials to meet construction aims and objectives are prepared to specification nominated in relevant legislation in the BCA (Open classification) and ***Australian standards***.

3. Evaluate alternative construction solutions.	3.1 Commonly occurring on-site problems with building materials and their causes are considered and evaluated. 3.2 Project working drawings and specifications, identifying existing or designed construction problems are evaluated. 3.3 A report identifying the available alternative methods and/or materials available to meet the construction aims and objectives is prepared to specification. 3.4 Detailed sketches of available alternative methods and/or materials available to meet the construction aims and objectives are prepared to specification.
4. Resolve construction faults using alternative construction methods.	4.1 Suitable methods from the available alternative solutions are evaluated and recommended to resolve the problem, in accordance with the project aims and objectives and using standard organisational processes. 4.2 Selected methods are integrated into the project in order to resolve the construction problems in accordance with project aims. 4.3 Evaluation of the available alternative forms of construction are carried out in accordance with project aims.
5. Communicate the preferred solution to the construction problem.	5.1 The technical resolution to the identified problem is documented in accordance with project and organisational requirements. 5.2 The appropriate documentation is lodged with and communicated to appropriate project and other personnel. 5.3 Strategies are determined and put in place to monitor the implementation of the corrective procedures.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysis and interpretation skills relating to documentation from a wide range of sources, including BCA and Australian standards
- application of design concepts and principles in accordance with Australian standards
- application of structural principles to the construction process
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- problem solving skills
- reading skills, including the interpretation of drawings and specifications
- written and verbal communication skills.

Required knowledge:

- design and construction principles of buildings
- nature of materials and effect on performance
- processes for the administration and preparation of documentation
- processes for the interpretation of reports, working drawings and specifications
- relevant national, state or territory legislation and local government policy and procedures
- research methods
- terminology, definitions and hazard identification.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Construction faults may include but are not limited to those occurring in:

- initial constructions
- refurbishments
- restorations
- renovations
- installations.

Open classification within the BCA refers to:

- all classes of building and types of construction.

Australian standards may include but are not limited to:

- AS3660 protection of buildings from subterranean termites
- AS3700 masonry
- AS1684 residential timber framed construction
- AS3600 concrete structures
- AS2050 fixing of roof tiles
- AS2180 metal rainwater goods, selection and installation
- AS1288 installation of glass in buildings
- AS2208 safety glazing materials for use in buildings
- AS3740 waterproofing of wet areas in residential buildings
- AS3500 national plumbing
- AS4349 inspection of buildings.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- This unit of competency could be assessed by undertaking a real or realistically simulated situation.
- Assessment of this competency is most likely to be project related, under real or simulated conditions, and require portfolios or other forms of indirect evidence of process. Direct evidence may include certification of compliance on the final outcome or authorisation for commencement by a competent authority.
- Assessment must confirm the inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment should reinforce the integration of the key competencies.

Critical Aspects for assessment and evidence required to demonstrate competency in this unit

- Compliance with occupational health and safety regulations applicable to workplace operations.
- Application of organisational management policies and procedures, including quality assurance requirements where appropriate.
- Assessment of construction faults in buildings, determination of a rectification strategy and consideration of alternative construction methods, the associated reporting of data, findings, recommendations and strategies for at least one (1) residential building project and one (1) commercial building project or equivalent in compliance with relevant legislation.
- Provision of reports to appropriate body/individual as determined by the project brief.
- Application of strategic plans, workplace policies and procedures.

Context of and specific resources for assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the evidence guide and within the scope defined by the range statement.
- Assessment must take account of the endorsed Assessment Guidelines in the General Construction Training Package.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

BCGBC6017A Evaluate services layout and connection methods for the planning of large building projects

Unit Descriptor

This unit specifies the competency required to evaluate the layout of services and connection methods for in large, high rise and complex buildings (open' licensing classification with special reference to Type A buildings). It includes the evaluation of cold and hot water supply, sewerage layout, electric and electronic installation requirements, smoke and fire preventative systems. It requires compliance with relevant legislation, Australian standards and the Building Code of Australia (BCA). The competency recognises that builders and other related construction industry professionals for whom this unit is relevant must coordinate the input and expertise of a range of professionals in order to evaluate services layout and connection methods, while also exercising personal judgement based on their knowledge, skills and experience.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the builders, related construction industry professionals and senior managers within building and construction firms who have responsibility for managing the evaluation of services layout and connection methods.

Unit Sector

Building and Construction

ELEMENT	PERFORMANCE CRITERIA
1. Evaluate layouts of water supply for general and fire fighting use.	1.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of the ***water supply*** for general and ***firefighting*** use. 1.2 The water supply, connection and layout specified in the building and construction plans are identified, evaluated and recorded as part of the building and construction planning process and in accordance with BCA, relevant legislation and Australian standards. 1.3 Installation of water services supplying fire hydrants, fire hose reels and fire sprinkler systems are identified, evaluated and recorded in accordance with BCA, relevant legislation and Australian standards. 1.4 Interconnection of water tanks for fire services is emulated in the intent of non-return to original tanks and the results evaluated.

2. Evaluate sewerage and drainage disposal methods and their layouts.	2.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of sewerage and drainage disposal methods and their layouts. 2.2 ***Sewerage connection*** and layout is identified, evaluated and recorded in accordance with the BCA, relevant legislation and Australian standards. 2.3 Connection methods of main drains to local authority sewers for open ground and within buildings taking up the whole site are identified, evaluated and recorded. 2.4 Disposal of sewerage from fixtures situated below the level of the local authority sewer for both domestic and commercial buildings are evaluated in accordance with BCA, relevant legislation and Australian standards. 2.5 Methods for disposing of ***stormwater*** drainage systems are evaluated and documented in accordance with the BCA, relevant legislation and Australian standards. 2.6 Design and installation of stormwater drainage systems are evaluated and documented in accordance with BCA, relevant legislation and Australian standards.
3. Evaluate smoke hazard management, mechanical ventilation and airconditioning and methods of air filtration and its layout.	3.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of smoke hazard management, ***mechanical ventilation and air-conditioning*** and methods of air filtration and its layout. 3.2 Terms used in mechanical ventilation are clearly recorded stating how ventilation, volume, velocity and content may be controlled. 3.3 Methods of mechanical ventilation, air distribution and smoke hazard management are identified, evaluated and recorded in accordance with BCA, relevant legislation and Australian standards. 3.4 Air conditioning and mechanical ventilation and basic elements air conditioning are identified, evaluated and documented, including the function of air conditioning and applications for various types of occupancy in buildings.
4. Evaluate hot water systems and factors affecting selection.	4.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of ***hot water systems***. 4.2 Hot water systems are identified and evaluated according to design factors, types of system, height of installation, area to be serviced, number of outlets and energy sources available. 4.3 Operating principles of various types of hot water systems are evaluated and documented.

5. Identify natural lighting for varying situations and evaluate suitable lighting fixtures for a range of operations.	5.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of natural and artificial ***lighting systems***. 5.2 Natural lighting and general aims of design are identified in accordance with authorities and governing regulation requirements. 5.3 Artificial lighting and types of light sources are compared to recommended service luminance for various service situations in accordance with BCA, relevant legislation and Australian standards.
6. Evaluate fire fighting and fire detection services.	6.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for the provision of fire fighting and fire detection services. 6.2 Authorities involved in the perusal of plans and site inspection for the various building classifications and their roles and functions are identified. 6.3 Requirements for sprinkler systems, fire hydrants and fire hoses for the various building classifications are identified and evaluated in accordance with BCA, relevant legislation and Australian standards. 6.4 Fire detection and alarm systems are identified and evaluated in accordance with BCA, relevant legislation and Australian standards.
7. Determine the requirements for general electrical and electronic service installation.	7.1 Relevant professional expertise is sought to analyse the technical robustness of the planned solution for ***general electrical and electronic service*** installation. 7.2 Electrical supply authorities and the relevant legislation are identified and recorded. 7.3 Procedure for electrical supply and connection to site are documented electrical design and provision for services and electronic cabling are identified, evaluated and recorded. 7.4 Design and installation of emergency warning systems, emergency lighting and exit signage systems are evaluated and recorded in accordance with the BCA and relevant Australian standards.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- ability to evaluate the impact of the requirement for services layout and connection methods on the construction process
- analysis and interpretation skills relating to documentation from a wide range of sources, including BCA and Australian standards
- application of design concepts and principles in accordance with Australian standards
- attention to detail in applying building codes and standards
- numerical skills, including the ability to perform and apply measurements and calculations
- problem solving skills
- reading skills, including the interpretation of drawings and specifications
- written and verbal communication skills.

Required knowledge:

- design concepts and principles in relation to service installations
- general services installation terminology, definitions, installation methods and hazards
- nature of materials and effect of performance
- processes for the interpretation of working drawings and specifications
- relevant federal and state or territory legislation and local government policy and procedures
- research methods
- processes for the preparation of documentation
- terminology and methods of roof construction used for daylight transmission
- terminology and methods used in artificial lighting
- terminology with reference to items and services that may be used in plumbing, sewerage and drainage systems
- terminology with reference to vertical transportation.

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Water supply includes consideration of:

- town supply
- tank storage supply relative to the public water supply and reservoir heights
- single and two stage pumping for multi-function and single function connected services.

Services for ***fire fightinguse*** include consideration of:

- sprinkler systems (BCA - Deemed To Satisfy [DTS] provisions)
- fire hydrants
- fire hose reels and fire extinguishers
- installation of fire stopping and fire collars
- fire and smoke detection and alarm systems (BCA - DTS provisions).

Sewerage connection includes consideration of:

- a local authority sewerage drainage system
- septic or bio-chemical treatment unit
- graded or vertical discharge pipes
- inspection shafts and ORGs (Overflow Relief Gullies).

Stormwater includes consideration of:

- design, installation and disposal
- connection to local government water drains
- use of soakage pits and on-site water detection systems
- size, location and construction requirements for eaves and box gutters
- downpipes and unground/concealed piping.

Mechanical ventilation and air-conditioning include:

- warm water and cooling towers
- smoke control and exhaust systems
- fire dampers
- installation of fire stopping
- fume discharge systems
- air intake systems
- air distribution, including mechanical ventilation requirements for enclosed car parks
- air conditioning applications
- air filtration, including air filters, ducting and main filter types.

Hot water systems include consideration of:

- type of system
- height of installation
- area to be serviced
- type of occupancy
- number of outlets
- energy sources available.

Lighting systems include consideration of:

- natural and artificial lighting
- emergency and exit signage systems
- terms such as:
  - control of glare
  - reflections
  - brightness
  - locations for installation
  - intensity
  - lifespan
  - installation of fire stopping.

General electrical and electronic service systems include consideration of:

- electrical supply authorities connection to site and distribution facilities (switch room and sub-stations)
- type of service (emergency power and alternative power sources)
- categories of cabling:
  - data
  - telecommunications
  - lift controls
  - power supplies
  - telecommunications connection to site and distribution facilities
- layout of equipment for:
  - telephones
  - computers
  - lift controls
  - power supplies
- service system safeguards
- service systems access for maintenance, repair and extension
- emergency lighting and exit signage systems
- emergency warning and intercommunication systems
- fire stopping.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- Competency requires the demonstration of research, design, analysis, evaluation and reporting skills. In assessing the services layout and connection methods for large and complex residential and commercial buildings. Competency must be demonstrated within the context of relevant legislation, the Building Code of Australia and Australian standards.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- The coordination and assessment of input received from technical experts.
- Compliance with occupational health and safety regulations applicable to workplace operations.
- Application of organisational management policies and procedures, including quality assurance requirements where applicable.
- Evaluation of the services layout, connection methods and rectification actions for at least one (1) residential and one (1) commercial building project or equivalent, which includes advice on hot and cold water supply, sewerage layout, electrical and electronic installation lighting systems, vertical transportation requirements and smoke and fire detection and prevention systems.
- Provision of reports to appropriate body/individual as determined by the project brief.
- Application of strategic plans, workplace policies and procedures.

Context of and specific resources for assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the evidence guide and within the scope defined by the range statement.
- Assessment must take account of the endorsed assessment guidelines in the General Construction Training Package.
- A situation, real or realistically simulated, requiring assessment of service layout and connection method requirements for residential and commercial buildings.
- The learner and trainer should have access to appropriate documentation and resources normally used in the workplace.
- Assessment of this competency is most likely to be project related under real or simulated conditions and require portfolios or other forms of indirect evidence of process. Direct evidence may include certification of compliance on the final outcome or authorisation for commencement by a competent authority.
- Assessment must confirm the inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment should reinforce the integration of the key competencies.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the oracy, language and literacy levels of the operator, and to any cultural issues that may affect responses to the questions, and reflect the requirements of the competency and the work being performed.

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