



# **BCG03 General Construction Training Package**

**Volume 2 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 2 of 5 General Construction Training Package (Volume 2)**

This Training Package was endorsed by NTQC in 30 November 2003.

## BCG03 - General Construction Training Package

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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	<u>Four additional qualifications</u> 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	<u>Two additional qualifications</u> Certificate III in Formwork/Falsework BCG31506 Certificate III Wall & Ceiling Lining (Plasterboard) BCG31606 <u>Twenty-eight additional units of competency:</u> 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
		<p>products</p> <p>BCGPB3022A Use mechanical jointing equipment to finish joints</p> <p>BCGPB3023A Load and unload plaster and plaster related products</p> <p>BCGPB3024A Use manual handling equipment to manoeuvre plaster products</p> <p>BCGPB3025A Store plasterboard/products</p> <p>BCGPB3026A Erect and maintain trestle and plank systems</p> <p>BCGPB3027A Inspect equipment for serviceability</p> <p>BCGCM1006A Work safely at heights</p>
2	24/08/2006	Release of new volume to provide Certificate 4-6 qualifications
1	05/08/2004	<p>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</p> <p>Current entry BCGWC2004B Install cast plaster and paper faced cornices be amended to read BCGWC3004B Install cast plaster and paper faced cornices.</p>
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](http://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](mailto: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 selection 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.























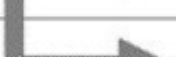






















*Distinguishing features of learning outcomes*

- 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.

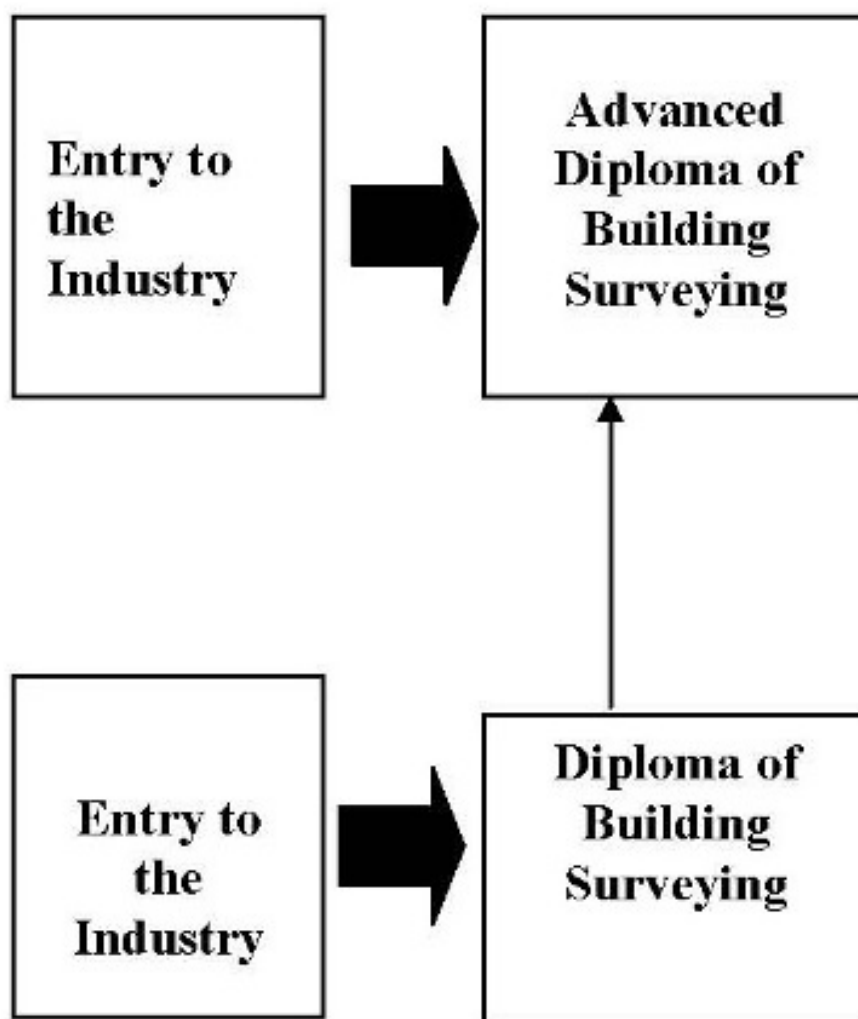
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## Training Pathways Outline

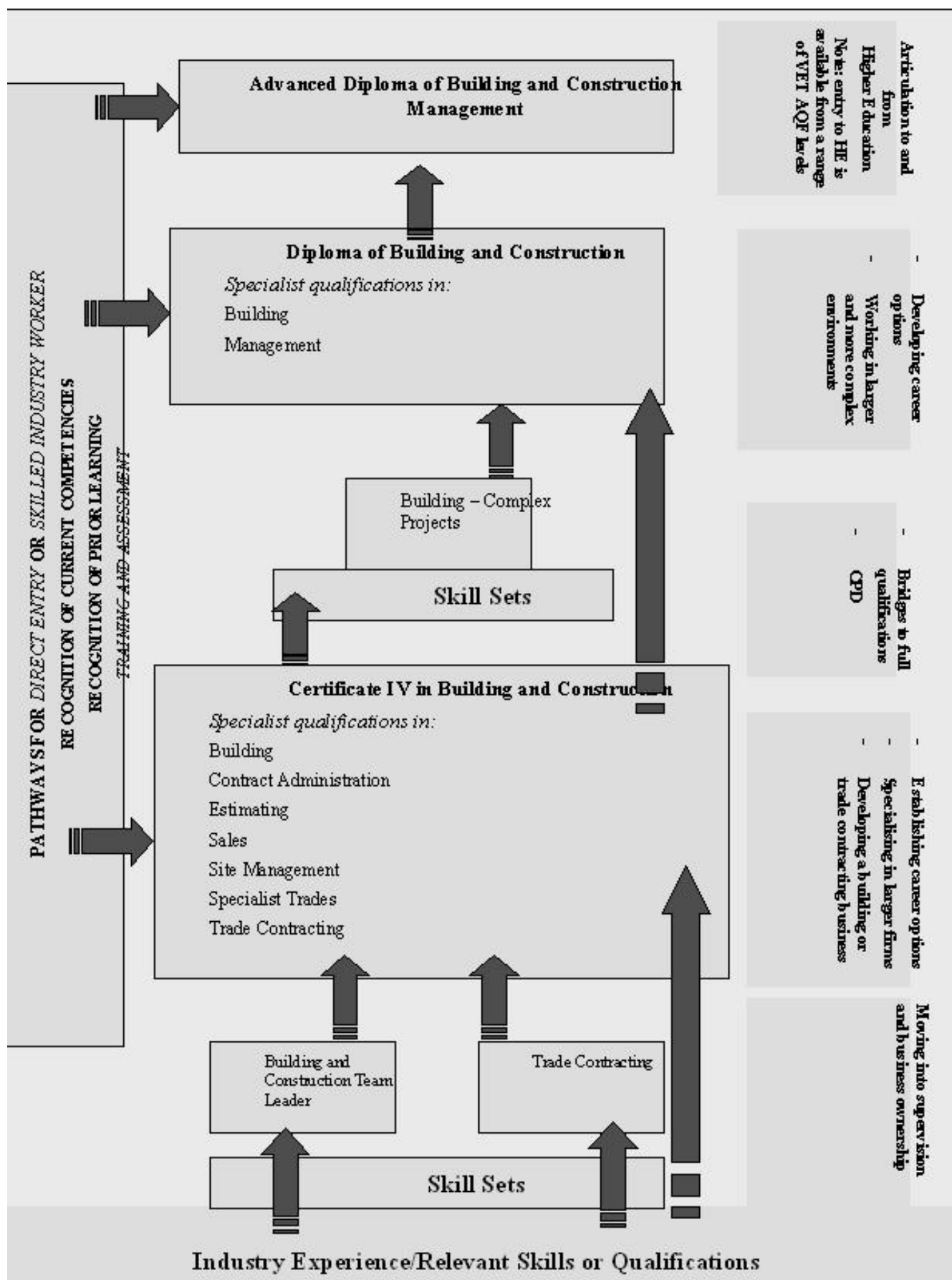
Entry levels and articulation are shown in the following diagrams:

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](http://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) Concrete placing boom	Australian Capital Territory	ACT WorkCover <a href="http://www.workcover.act.gov.au">www.workcover.act.gov.au</a>



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

<p>Scaffolding - intermediate</p> <p>Dogging</p> <p>Rigging - basic</p> <p>Rigging - intermediate</p> <p>Materials hoist</p> <p>Man and materials hoist</p> <p>Vehicle loading crane (including and over 10m tonne)</p> <p>Concrete placing boom</p>		
<p>Boom type elevating work platform (boom length 11m or more)</p> <p>Forklift truck</p> <p>Scaffolding - basic</p> <p>Scaffolding - intermediate</p> <p>Dogging</p> <p>Rigging - basic</p> <p>Rigging - intermediate</p> <p>Materials hoist</p> <p>Personnel and materials hoist</p> <p>Vehicle loading crane (including and over 10m tonne)</p> <p>Asbestos removal</p> <p>Concrete placing boom</p>	South Australia	South Australia Workcover Corporation <a href="http://www.workcover.com">www.workcover.com</a>
<p>Boom type elevating work platform (boom length 11m or more)</p> <p>Forklift truck</p> <p>Scaffolding - basic</p> <p>Scaffolding - intermediate</p> <p>Dogging</p> <p>Rigging - basic</p> <p>Rigging - intermediate</p> <p>Materials hoist</p> <p>Personnel and materials hoist</p> <p>Vehicle loading crane (including and over 10m tonne)</p> <p>Asbestos removal</p> <p>Concrete placing boom</p>	Tasmania	Workplace Standards Tasmania <a href="http://www.wst.tas.gov.au">www.wst.tas.gov.au</a>
<p>Boom type elevating work platform</p>	Victoria	Victorian WorkCover Authority

(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		<a href="http://www.workcover.vic.gov.au">www.workcover.vic.gov.au</a>
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) <a href="http://www.safetyline.wa.gov.au">www.safetyline.wa.gov.au</a>

## 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](http://www.planning.nsw.gov.au)

**Victoria** - Building Control Commission

PO Box 536E, Melbourne Vic 3000

**Queensland** - Building Services Authority

[www.bsa.qld.gov.au](http://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

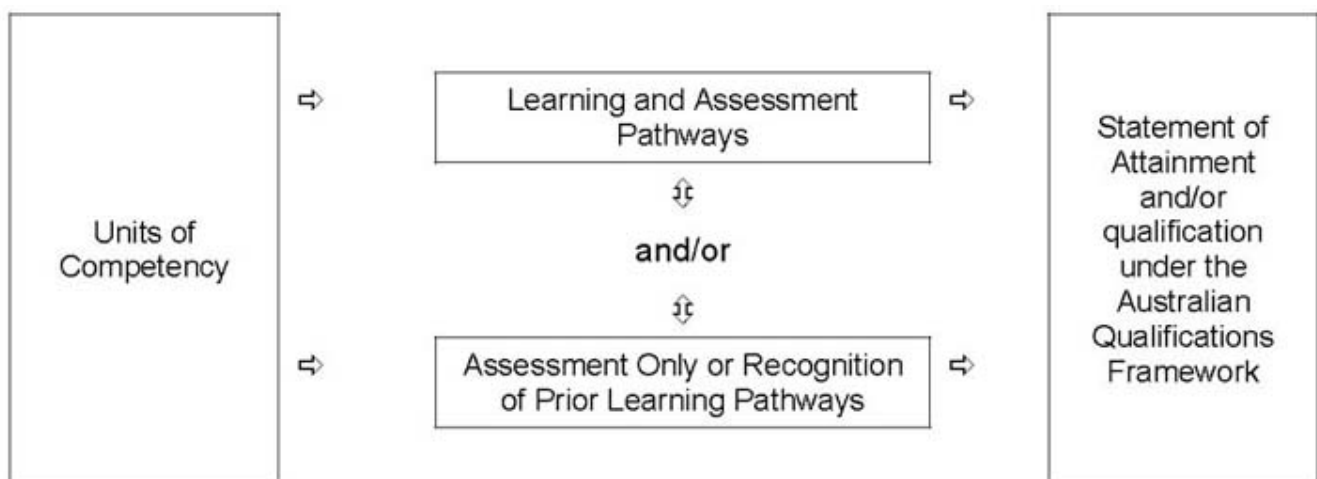
**Australian Capital Territory** - There is no statutory requirement for accreditation at present.

## 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	<b>a</b>	The RTO must ensure that assessments are conducted by a person who has:
		<ul style="list-style-type: none"><li>• the following competencies* from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:<ul style="list-style-type: none"><li>• TAAASS401A Plan and organise assessment;</li><li>• TAAASS402A Assess competence;</li><li>• TAAASS404A Participate in assessment validation;</li><li>• relevant vocational competencies, at least to the level being assessed.</li></ul></li></ul>
	<b>b</b>	However, if a person does not have all of the competencies in Standards 7.3 <b>a</b> (i) and the vocational competencies as defined in 7.3 <b>a</b> (ii), one person with the competencies listed in Standard 7.3 <b>a</b> (i), and one or more persons who have the competencies listed in Standard 7.3 <b>a</b> (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.

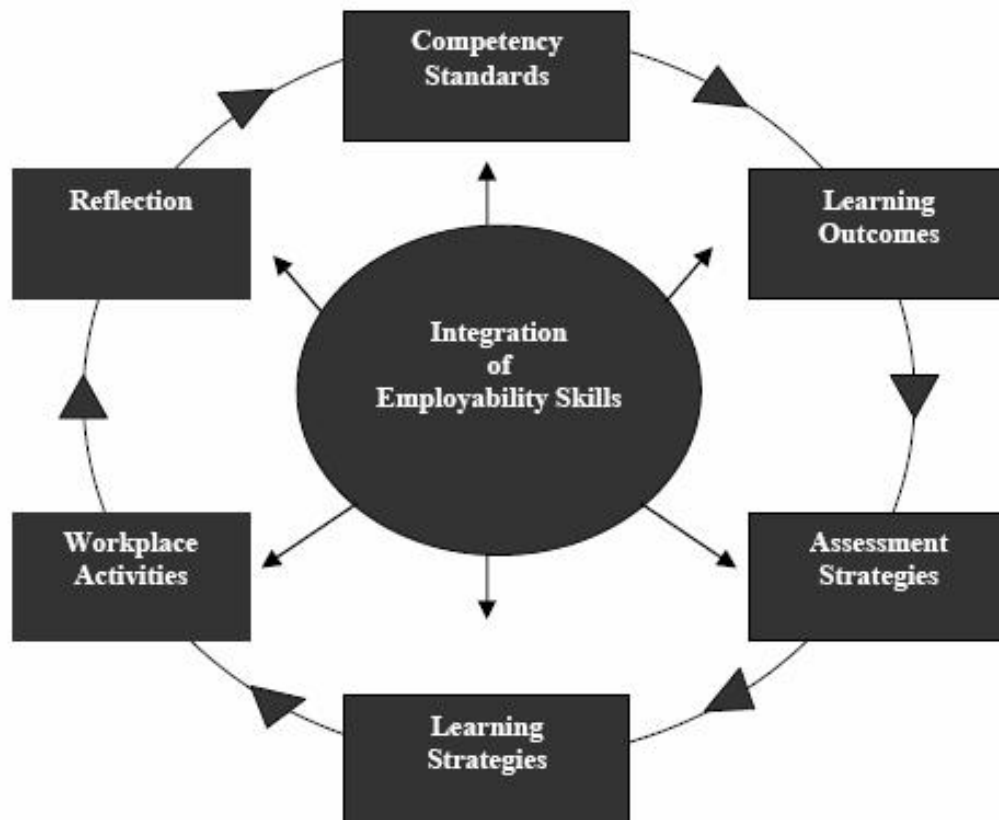
<b>8</b>		<b>RTO Assessments</b>
		The RTOs assessments meet the requirements of the endorsed components of Training Packages and the outcomes specified in accredited courses within the scope of its registration.
8.1		The RTO must ensure that assessments (including RPL):
	i.	comply with the assessment 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 individual's 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: <a href="mailto:douglasg@citab.com.au">douglasg@citab.com.au</a>
Queensland	Construction Training Queensland PO Box 28 SALISBURY QLD 4107	General Manager Tel (07) 3274 7999 Fax (07) 3276 7888 Email: <a href="mailto:info@ctq.com.au">info@ctq.com.au</a>
Northern Territory	Major Industries Training Advisory Council GPO Box 1610 DARWIN NT 0801	Executive Director Tel (08) 8981 0077 Fax (08) 8922 9699 Email: <a href="mailto:tim@mitac.com.au">tim@mitac.com.au</a>
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: <a href="mailto:bcticwa@bcticwa.com.au">bcticwa@bcticwa.com.au</a>
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: <a href="mailto:info@cpsisc.com.au">info@cpsisc.com.au</a>
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: <a href="mailto:email@tbcitb.com.au">email@tbcitb.com.au</a>
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: <a href="mailto:citc@iimetro.com.au">citc@iimetro.com.au</a>
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: <a href="mailto:info@cpsisc.com.au">info@cpsisc.com.au</a>

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Fax: (03) 9832 8199

Web: [www.atpl.net.au](http://www.atpl.net.au)

Email: [sales@atpl.net.au](mailto: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](mailto: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](http://aqf.edu.au)

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

Australian Quality Training Framework (AQTF) - for resources and information go to:  
[www.dest.gov.au](http://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](http://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](http://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](http://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](http://www.dest.gov.au). Go to [www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm](http://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.

**BCGCO2001B****Unit Descriptor****Handle concreting materials**

This unit specifies the competency required to safely manually handle, store and apply environmental management principles associated with concreting materials and components in preparation for concreting work to commence.

The unit includes the identification and safe handling of hazardous materials and waste in accordance with Materials Safety Data Sheets (MSDS).

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |  |   |
|--|---|
| 1. Plan and prepare                                  | 1.1 Work instructions and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Handle and sort concrete materials and components | 2.1 Concrete materials and components, on delivery to site, are identified and checked for conformity to material schedule, plans/specifications<br>2.2 Concrete materials are moved to specified location applying safe manual handling techniques<br>2.3 Concrete materials and components are stacked or stockpiled for ease of identification and retrieval for task sequence and job location in accordance with job specifications<br>2.4 Concrete materials and components are protected against physical and water damage and stored clear of access ways, for ease of identification, retrieval and distribution<br>2.5 Components are handled and positioned ready for installation in accordance with manufacturers' recommendations and plans/specifications  |

- 3. Handle and remove concrete materials and components on completion
  - 3.1 Materials are handled safely according to material safety data sheets and requirements of regulatory authorities
  - 3.2 Hazardous material is identified for separate handling
  - 3.3 Dust suppression procedures are used to minimise health risk to work personnel and others
  - 3.4 Protection of materials are provided in accordance with specific material needs
  - 3.5 Materials stored safely and effectively according to MSDS and requirements of regulatory authorities
- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Hazardous material is identified for separate handling
  - 4.3 Non-toxic materials are removed using correct procedures
  - 4.4 Dust suppression procedures are used to minimise health risk to work personnel and others
  - 4.5 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	-
Collecting analysing and organising information	-
Planning and organising activities	-
Working with others and in teams	-
Using mathematical ideas and techniques	-
Solving problems	-
Using technology	-

## 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 of the candidate, accessibility of the item, and local industry and regional contexts.

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Materials are to include but not be limited to cement, form release agents, sand, aggregates, water and may include oxides, curing compound and additives
- Concreting components are to include but not be limited to steel and timber formwork, bracing, reinforcement mesh, plastic membrane, bar chairs, spacers and may include scaffolding, push-pull props, tilt panels, decking, support props, reinforcement bars, bar steel and key joints
- Handling procedures are to include but not be limited to MSDS, calculation of quantities, stacking and storing of materials
- Manual handling is to include but not be limited to using pallets, carrying materials using correct lifting techniques and control of waste
- Hazardous materials may include cement and curing agents
- Non toxic materials include general concreting materials
- Dust suppression includes keeping dust in the air to a minimum and may include spraying with water, covering or use of a vacuum cleaner
- Material protection is to include correct handling and stacking techniques without damaging the material and may include protecting with covers



**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures are to include but may not be limited to extinguishing equipment fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to shovels, rakes, tarpaulins/covers, wheel barrows, brooms

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to handling concreting materials
- Regulatory/legislative requirements pertaining to handling concreting materials
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**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.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Safely handle the materials and components listed in the Unit Scope including the mandatory tasks

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Tools and equipment types, characteristics, uses and limitations
  - Concrete materials handling techniques
  - Concreting materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Hazardous materials
  - JSA's/Safe work method statements

**Specific key competencies, underpinning and employability skills required to achieve the performance criteria**

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 - relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 - relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? **The candidate will need to:**

**Collect, analyse and organise information**

Collect, organise, interpret and understand the information required for handling concreting materials, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions

Level 1

**Communicate ideas and information**

Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes

Level 1

**Plan and organise activities**

Conduct activities associated with handling concreting materials, including the coordination and use of equipment, materials and tools to avoid backtracking and rework

Level 1

**Work with others and in a team**

Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity

Level 1

**Solve problems**

Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage

Level 1

**Use mathematical ideas and techniques**

Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, calculate material requirements and establish quality checks

Level 1

**Use technology**

Use workplace technology related to handling concreting materials, including the use of calculators, the use of communication devices and the reporting/recording of results

Level 1

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to concrete handling activities
  - equipment, hand and power tools appropriate to handling concreting materials
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO2002B****Unit Descriptor****Use concreting tools and equipment**

This unit specifies the competency required to safely select and use concreting tools and equipment for the completion of all general concreting tasks.

The unit includes hand tools, power tools, small plant and equipment.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |   |  |
|---|--|
| 1. Plan and prepare                         | 1.1 Work instructions and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Identify and select hand and power tools | 2.1 Hand and power tools, their functions, operations and limitations are identified and selected<br>2.2 OH&S requirements for using hand and power tools are recognized and adhered to<br>2.3 Lubricants, hydraulic fluid and water are checked according to manufacturers' recommendations<br>2.4 Tools are selected consistent with job requirements<br>2.5 Tools, including leads and hoses, are checked for tags, serviceability and safety and any faults reported<br>2.6 Power tool guards, retaining bolts, couplings, gauges and controls are checked and maintained in accordance with manufacturers' recommendations<br>2.7 Equipment to hold or support material during operation is selected  |
| 3. Use tools                                | 3.1 Hand tools used are appropriate to the task, the materials and are in accordance with OH&S requirements<br>3.2 Power tools are safely and effectively used in accordance with manufacturers' recommendations and State or Territory OH&S requirements<br>3.3 Tools are sharpened and maintained  |

- 4. Identify, select and use plant and equipment
  - 4.1 Plant and equipment are checked for safety and faults reported
  - 4.2 Plant and equipment are selected and used consistent with OH&S requirements, manufacturers' specifications and the needs of the job
  - 4.3 Lubricants, hydraulic fluid and water are checked according to manufacturers' recommendations
  - 4.4 Plant and equipment are maintained in accordance with manufacturers' recommendations and standard work practices
- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for using concreting tools and equipment, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with using concreting tools and equipment, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to using concreting tools and equipment, including the use of calculators, power and levelling equipment, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Hand tools are to include but not be limited to setting out, marking out and levelling tools, digging, transporting, levering, cutting, shaping, fixing, fastening and percussion tools, material shifting, holding tools and finishing tools
- Power tools (portable and static) are to include but not be limited to electrical operated tools and leads
- Plant and equipment are to include but not be limited to generator, compressor, 240v power supplied, hand held or small single person operated equipment

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and Equipment	<ul style="list-style-type: none"><li>Tools and equipment are to include but not be limited to crow bars, pinch bars, hammers, nail bags, measuring tapes, sledge hammers, picks, long handled shovels, rakes, pliers, steel fixing reels, cutting knives, string lines, levelling equipment, bolt cutters, grinders, vibrators, screeds, edging tools, trowels, jointers, floats and kneel boards</li></ul>
Communications	<ul style="list-style-type: none"><li>Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>Safe work procedures related to using concreting tools and equipment</li><li>Regulatory/legislative requirements pertaining to using concreting tools and equipment</li><li>Manufacturers' specifications and instructions where specified</li><li>Organisation work specifications and requirements</li><li>Instructions issued by authorised organisational or external personnel</li><li>Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Identification and application of OH&S requirements for the safe use of at least floats, shovels, screeds and vibrating equipment

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concreting tool use techniques
  - Concreting materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Tools and equipment safety manuals and instructions
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to using concreting tools and equipment
  - hand and power tools, plant and equipment relevant to concreting
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO2003B****Unit Descriptor****Carry out concreting to simple forms**

This unit specifies the competency required to safely install formwork, reinforcement, place and finish concrete for the construction of minor slabs, pathways and other minor works to a specified design finish.

The unit includes positioning the truck, placement of concrete from truck to work area, spreading of concrete and site clean up.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                                    |  |
|------------------------------------|--|
| 1. Plan and prepare                | 1.1 Work instructions and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Erect and strip simple formwork | 2.1 Subgrade is prepared<br>2.2 Formwork design is identified from drawings<br>2.3 Formwork is erected safely on commencement<br>2.4 Form release agent is applied to erected formwork where specified<br>2.5 Timber components are de-nailed following stripping of formwork<br>2.6 Components are cleaned, stacked and stored for reuse or bundled for removal<br>2.7 Formwork components are removed from site  |
| 3. Place and tie reinforcement     | 3.1 Reinforcing components are handled and positioned safely<br>3.2 Reinforcing bars and mesh are positioned<br>3.3 Bar chairs and spacers are positioned, with minimum edge cover   |

- 4. Place concrete
  - 4.1 Formwork or excavation is cleaned of excess material and debris prior to concrete placement
  - 4.2 Concrete is safely transported by wheelbarrow
  - 4.3 Pump line/chute is controlled and concrete placed
  - 4.4 Concrete is placed in formwork to specified depth
  - 4.5 Concrete is screeded to the alignment of formwork and project specified datums
  - 4.6 Surface of concrete is finished in accordance with specifications
- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 relates to working effectively within set conditions and processes;

Level 2 relates to the management or facilitation of conditions or processes; and

Level 3 relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for concreting of simple forms, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with concreting of simple forms, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to concreting to simple forms, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Simple forms of concrete are to include but not be limited to slabs (not requiring internal beams and piers) and may include post holes, beam thickeners, pathways, simple concrete aprons, channels and garden edges
- Simple formwork is to include timber or steel edge form to a maximum of 100mm in depth
- Simple reinforcing is to include but not be limited to the use of fabric sheet mesh, bar chairs, spacers and may include reinforcing bars and trench mesh
- Form release agent may include but not be limited to oil or other non bonding agents
- Placing of concrete includes movement of concrete from the truck to the work and is to include but not be limited to wheel barrows, chutes and may include pump lines and kibbles
- Screeding is limited to include a hand screed
- Finishing of concrete may include but not be limited to broomed, trowelled, trowelling machine finish, stipple device finish, wood floated, sponged or other project specified finish
- Floating of the concrete may include but not be limited to hand or power floating



**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to shovels, wheel barrows, chutes, brooms, trowels, edging tools and may include trowelling machines, hand floats, bull floats, stipple devices, line pumps and kibbles

**Materials**

- Materials are to include but not be limited to edge form/boards, pegs, bracing, fabric sheet mesh, bar chairs, spacers and may include reinforcing bars

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to concreting
- Regulatory/legislative requirements pertaining to concreting
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Preparation of subgrade, erection of formwork, cut, place and tie reinforcement, place and hand screed concrete for a slab of at least 4sqm and a minimum depth of 100mm to the required finished level and job specification

**Relationship to other units**      0

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concreting techniques
  - Concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Levelling techniques
  - Simple formwork and reinforcing componentry
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to concreting
  - hand and power tools, plant and equipment appropriate to concreting
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO2004B****Unit Descriptor****Carry out concrete work**

This unit specifies the competency required to carry out concreting work on general construction projects for the construction of in-situ reinforced concrete structures such as slabs and other common concrete works.

This unit includes setting out, reinforcing, erecting and dismantling formwork, placing, finishing and curing concrete.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                                 |   |
|---------------------------------|---|
| 1. Plan and prepare             | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare concreting materials | 2.1 Location of steel reinforcement and formwork is determined from drawings and reinforcement schedule<br>2.2 Reinforcement is checked against reinforcement drawings and specifications<br>2.3 Formwork components/materials are selected consistent with job<br>2.4 Fixing/fasteners are selected and used consistent with requirements of the job   |
| 3. Set out for concrete work    | 3.1 String lines are set accurately from existing pegs<br>3.2 Grades are checked to ensure correct fall<br>3.3 Services are identified and protected to prevent damage  |

- |  |   |
|--|---|
| 4. Construct and install reinforcement | <p>4.1 Reinforcing fabric and bars are cut and bent as required to project drawings and specifications</p> <p>4.2 Fabric and bars are tied/fixed to configuration from project drawings and specifications</p> <p>4.3 Stiffening rods are attached to panels as required to facilitate handling</p> <p>4.4 Reinforcement material is located in formwork and placed on bar chairs/spacers as determined from drawings, noting clearance from formwork</p> <p>4.5 Cast-ins are located and secured</p>   |
| 5. Erect formwork                      | <p>5.1 Work area is cleared and surface prepared for safe erection of formwork</p> <p>5.2 Formwork is set out to requirements of drawings and specifications</p> <p>5.3 Formwork is assembled/erected to specifications</p> <p>5.4 Debris, sawdust and other waste material are safely removed from formwork</p> <p>5.5 Form release agent is applied to manufacturers' specifications</p>  |
| 6. Carry out concrete work             | <p>6.1 Concrete is transported correctly with wheelbarrow and discharged into formwork, using correct manual handling techniques</p> <p>6.2 Discharge of concrete from the concrete pump line and/or chute into the formwork is controlled correctly</p> <p>6.3 Concrete is placed correctly to instruction and screeded to specified levels and grades</p> <p>6.4 Concrete is compacted to specification using immersion vibrator or other specified method</p> <p>6.5 Concrete is finished and curing process applied to specifications</p> <p>6.6 Control joints are positioned and installed to specification and to current Australian Standard or codes</p> <p>6.7 Dowel joints are positioned to specification</p> <p>6.8 Concrete surface is adequately covered and protected</p> |
| 7. Strip formwork                      | <p>7.1 Edge boxing and braces are removed carefully, safely and sequentially</p> <p>7.2 Timber components are denailed, cleaned and stored or stacked</p> <p>7.3 Steel components are cleaned, oiled and stored or stacked</p> <p>7.4 Damaged formwork components are discarded after stripping</p> <p>7.5 Screens are safely cleaned before movement where applicable</p>  |
| 8. Clean up                            | <p>8.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification</p> <p>8.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</p>  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 relates to working effectively within set conditions and processes;

Level 2 relates to the management or facilitation of conditions or processes; and

Level 3 relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the preparation and application of concrete work, including work instructions, quality assurance procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Plan and organise activities associated with the preparation and application of concrete work, including the scheduling and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, complete measurements, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to determining requirements, the planning and application of concrete work, including the use of calculators, mechanical equipment and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Concreting work is to include but not be limited to footpaths, repairing of kerb and channel, footings, slabs on ground, suspended slabs, beams, columns, stairs, ramps, pads, walls, structural members and lintels
- Transporting of concrete may include but not be limited to pre-mix truck, crane and kibble, pumping equipment and wheelbarrow
- Placing methods of concrete includes but is not limited to wheelbarrows, pumping equipment, kibble, tremmie, truck placed, shovelling and includes vibrating
- Finishing techniques for concrete are to include but not be limited to steel trowel, mechanical trowelling machine, broom finished, wood float, bull float and brushed
- Curing is to include but not be limited to flooding, coating with a membrane, applied moisture, steam, curing compound or plastic sheeting
- Methods to avoid segregation are to include but not be limited to using a tremmie, through minimising the height of a vertical drop and using pumps with a flexible hose
- Reinforcement components are to include but not be limited to mesh, reinforcement bars/rods and ligatures
- Cast in items include services and fixtures tied to the reinforcement
- Formwork may include but not be limited to steel shutters, timber, plywood, fibreglass, masonry, expanded polystyrene and structural cardboard



**Safety (OH&S)**

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include protective clothing and 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 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Assurance**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment may include but not be limited to floats, trowels, edging tools, screeds, wheelbarrows, tremmie, chutes, vibrator, rakes, short handle shovels, rods, hammers, hoses, buckets, sponges, tarpaulins, curing agent applicator, kibble, nips, bolt cutters, reinforcement benders, mesh guillotine, steam generator, shutters and brushes

## Materials

- Materials are to include but not be limited to water, sand, premix concrete, concrete blend, cement, formwork components, curing compounds, form release agents, steel reinforcing, bar chairs, vapour barriers and membranes

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures or equivalent related to undertaking concreting
- Regulatory/legislative requirements pertaining to undertaking concreting
- Manufacturers' specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality assurance requirements
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others
- Completion of at least three concreting projects (each a minimum of two cubic metres of concrete), incorporating a minimum of two different finishes. At least one project must contain angled formwork and bent reinforcement. All to be completed to job specifications

**Relationship to other units**

- Pre-requisite units are:

BCGCM1001B Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Site and equipment safety requirements
  - Steel reinforcement characteristics
  - Concrete characteristics and properties
  - Concreting principles
  - Structural technology
  - Formwork
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Quality requirements
  - General Construction terminology
  - JSA's/Safe work method statements

**The context of 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

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to undertaking concreting work
  - hand and power tools, plant and equipment appropriate to undertaking concreting work
  - specifications and work instructions

**BCGCO3001B****Unit Descriptor****Place concrete**

This unit specifies the competency required to transport and place concrete into prepared formwork or foundations to establish a strong base for further building work to progress from.

The unit includes the moving of concrete from truck to pour location, concrete placement and screeding.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                                  |   |
|----------------------------------|---|
| 1. Plan and prepare              | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Receive and dispatch concrete | 2.1 Delivery advice is checked for accuracy to ordered material<br>2.2 Concrete delivery vehicle is directed to location of discharge<br>2.3 Concrete is discharged via chute into wheelbarrow, kibble, pump or hopper  |
| 3. Define and prepare work area  | 3.1 Location of concrete placement is determined from plans and specifications and check location for placement is free of debris and waste<br>3.2 Safe working area is maintained around pour location using barriers and signage consistent with OH&S regulations<br>3.3 Plant, tools and equipment is located to suit planned placement  |

- |                          |   |
|--------------------------|---|
| 4. Place concrete        | 4.1 Concrete is placed in horizontal layers into location to levels as indicated by markers, level pegs or lines  |
|                          | 4.2 Height of vertical drop of concrete is minimised to avoid segregation of concrete materials   |
|                          | 4.3 Poured concrete is consolidated during process using approved compaction or vibration method  |
|                          | 4.4 Finished levels are checked against datum using appropriate levelling device  |
| 5. Screed/level concrete | 5.1 Concrete is screeded to correct levels and/or grades using appropriate straight edged tool/formwork mounted screed                                    |
| 6. Clean up              | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|                          | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for placing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with placing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to placing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Transporting of concrete may include but not be limited to pre-mix truck, crane and kibble and wheelbarrow
- Placing methods of concrete includes but is not limited to wheelbarrows, pumping equipment, kibble, tremmie, truck placed, shovelling and includes vibrating
- Compaction or vibration methods include mechanical vibrators
- Screeding is to include but not be limited to a hand screed and may include a mechanical vibrating screed and magic screeds
- Finishing techniques for concrete are to include but not be limited to steel trowel, mechanical trowelling machine, broom finished, wood float, and brushed
- Methods to avoid segregation are to include but not be limited to using a tremmie, through minimising the height of a vertical drop (no greater than 2 metres high for 20MPA at 80 slump) and using pumps with a flexible hose

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation



Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to measuring tapes/rules, shovels, screed boards, chutes, trowels and may include wheel barrows, brooms, trowelling machines, stipple devices, line pumps, kibbles, rakes, compressors, vibrators, mechanised dumpers and concrete placing booms</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials are to include concrete</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to concreting</li><li>• Regulatory/legislative requirements pertaining to concreting</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Movement and placing of a minimum of 100sqm, screed to level and compact/vibrate to specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concreting techniques
  - Concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Levelling techniques
  - Segregation
  - Slump testing
  - Cold joints
  - Mix specifications
  - Compaction
  - Concrete reinforcement techniques
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package.
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies.
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge.
- 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, including those listed above.

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to concreting
  - hand and power tools, plant and equipment appropriate to concreting
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3002B****Unit Descriptor****Finish concrete**

This unit specifies the competency required to finish concrete surfaces which have been placed and screeded in domestic, commercial and civil applications to provide a finish for designated requirements.

The unit includes both manual and mechanical finishing techniques.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                     |   |
|---------------------|---|
| 1. Plan and prepare | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Finish concrete  | 2.1 Float and trowel are applied after initial screeding to assist in maintaining a level surface and remove screeding inaccuracies<br>2.2 Mechanical trowelling is applied to consolidate and densify the setting concrete surface<br>2.3 Control joints are installed, edges finished and concrete trowelled to specifications<br>2.4 Final trowel/finish applied to concrete surface to specifications   |
| 3. Clean up         | 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification<br>3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for finishing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with finishing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to finishing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- A level surface is a concrete surface which has been placed and screeded to the reduced level (RL) in accordance with the drawings and specifications
- Assistance in maintaining a level surface is to include assessing the curing process to allow manual and mechanical trowelling to commence and be applied
- Finishing techniques for concrete are to include but not be limited to steel trowel, mechanical trowelling machine, spraying and brushing to expose aggregate, broom finished, hand float (wooden, magnesium or composition), wood float, bull float, brushed and slip resistance
- Control joints are included in the concrete surface to control cracking according to engineers drawings and specifications
- Edge finishing types may include but not be limited to fine, rounded and straight edge

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to power trowels, wooden floats, steel trowels, magnesium trowels, bull floats and may include brooms, hoses, edging tools, stipple plates, step readers, kerb and channel trowels</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials are to include concrete and water</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to concreting</li><li>• Regulatory/legislative requirements pertaining to concreting</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of finishing using a hand trowel and power trowel finish to a minimum of 100sqm of concrete slab, to job specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete finishing techniques
  - Concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Levelling techniques
  - Curing times
  - Concrete placement
  - JSA's/Safe work method statements



**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to concreting
  - hand and power tools, plant and equipment appropriate to finishing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3003B****Unit Descriptor****Cure concrete**

This unit specifies the competency required to carry out the initial curing process to a nominated poured concrete section to control the moisture evaporation from finished concrete.

The unit includes using curing agents and curing techniques in accordance with engineering specifications.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                     |  |
|---------------------|--|
| 1. Plan and prepare | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Cure concrete    | 2.1 Concrete cured to project specifications<br>2.2 Run off devices installed and maintained<br>2.3 Curing compound/method is applied and maintained on concrete surface to project specifications<br>2.4 Concrete is protected during curing process by isolating and/or barricading the area   |
| 3. Clean up         | 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification<br>3.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for curing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with curing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to curing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Curing is a process to control moisture evaporation from finished concrete to minimise shrinkage, add to final strength and control cracking, it is undertaken to retain free mixing water within the concrete to ensure ongoing cement hydration to assist in minimising dry shrinkage and to improve properties such as potential compressive strength
- Run off devices may include but not be limited to preventative barriers to restrict curing agents from impacting upon environmental areas
- Concrete protection may include but not be limited to a plastic membrane
- Curing compounds may include but not be limited to water, silicate compounds, water based acrylic compounds, solvent based acrylic compounds, PVA compounds, wax based compounds, hydrocarbon compounds and chlorinated compounds
- Curing techniques/methods may include but not be limited to hosing, sprinklers, ponding, curing compounds, impervious plastic membranes, fogging, misting, steam and hessian overlays

## Safety (OH&amp;S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

## Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

## Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

## Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and equipment

- Tools and equipment may include but not be limited to hoses and sprinklers, tarpaulins/covers, rollers and spray applicators

## Materials

- Materials may include but not be limited to curing compounds, water, plastic film and steam

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to concreting
- Regulatory/legislative requirements pertaining to concreting
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Application of a curing compound/method to projects of a minimum of 100sqm of concrete according to project specifications using at least two of the compounds/methods specified in the Range Statement

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Tools and equipment types, characteristics, uses and limitations
  - Concrete curing techniques
  - Concrete curing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Curing duration and effect on ultimate strength
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package.
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies.
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge.
- 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, including those listed above.

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to concreting
  - equipment, hand and power tools appropriate to curing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



**BCGCO3004B****Unit Descriptor****Carry out decorative finishes to concrete**

This unit specifies the competency required to apply decorative finishes to concrete surfaces providing a distinct featured face finish for driveways, patios, paths, or other areas requiring a decorative finish.

The unit includes stamps, stencils, colours, exposed aggregate and textured finishes.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                               |   |
|-------------------------------|---|
| 1. Plan and prepare           | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Carry out stencil finishes | 2.1 Stencil for pattern finish is prepared so that any lapping will maintain alignment and bond<br>2.2 Stencil is laid carefully onto screeded surface to specifications ensuring alignment, bond and flat<br>2.3 Dry topping mix of colour, stone dust and cement is prepared and applied to specifications<br>2.4 Surface is finished with wood or steel float to a consistent texture in accordance with specifications<br>2.5 Stencil is lifted in accordance with setting time to manufacturers' recommendations<br>2.6 Control joints are inserted during placement and/or cut into applied finish after setting, to specifications   |

- |   |   |
|---|---|
| 3. Carry out stamp finishes             | 3.1 Method of applying pattern is determined in accordance with designed finish and specifications  |
|   | 3.2 Stamped pattern equipment is checked for cleanliness and serviceability   |
|   | 3.3 Design layout is planned and initial starting point determined to specifications and design   |
|   | 3.4 Base colour and topping dust is prepared and applied to specifications  |
|   | 3.5 Base colour is floated into surface to specifications   |
|   | 3.6 Colour(s) are randomly applied, where specified, onto surface at random locations to create decorative type colourings                                |
|   | 3.7 Release agent is prepared and applied to specifications   |
|   | 3.8 Stamp is used to create designed pattern and surface effect to specifications   |
|   | 3.9 Control joints are inserted during placement and/or cut into applied finish after setting, to specifications  |
| 4. Carry out exposed aggregate finishes | 4.1 Selected aggregates are incorporated in concrete mix to specifications  |
|   | 4.2 Surface matrix is removed to expose aggregate   |
|   | 4.3 Exposed aggregate is left clean and free to designed effect and specifications  |
|   | 4.4 Control joints are inserted during placement and/or cut into applied finish after setting, to specifications  |
| 5. Carry out textured finishes          | 5.1 Method of applying texture is determined in accordance with designed finish and specifications  |
|   | 5.2 Base colour and topping dust are prepared and applied to specifications   |
|   | 5.3 Base colour is floated into surface to specifications   |
|   | 5.4 Colour(s) are randomly applied, where specified, onto surface at random locations to create decorative type colourings                                |
|   | 5.5 Finish is applied with trowel to create designed pattern and surface effect to specifications   |
|   | 5.6 Control joints are inserted during placement and/or cut into applied finish after setting, to specifications  |
| 6. Clean up                             | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|   | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for decorative finishing of concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with decorative finishing of concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to decorative finishing of concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Stencil finishes are applied with a decorative designed pre-prepared and cut roll of material specified to customers requirements, floated into the surface of the concrete and includes the application of colour
- Stamped finishes are applied with individual specially designed rubber mats providing a slate look impression which are pressed into the concrete surface by even distribution of weight and includes the application of colour
- Exposed aggregate finishes are achieved by hosing off the top layer of cement slurry from the concrete which exposes the added naturally coloured stone finish determined by the customer
- Textured finishes may include but not be limited to a polished finish, a rough textured finish (non slip) applied with a trowel or stipple device and includes the application of colour
- Form release agents include powered release agents
- Control joints are cut using a hand held power saw or walk behind power saw

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to shovels, trowels, floats, hoses and hand tools and may include power trowels, brooms, stipple devices, rollers, wheel barrows, concrete mixers, spray bottles, stamps and spray attachments

**Materials**

- Materials may include but not be limited to stencils, colourants, release agents, mortar additives and river gravel aggregates

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to decorative concreting
- Regulatory/legislative requirements pertaining to decorative concreting
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of decorative finish projects to a minimum of 20sqm each of concrete utilising 2 out of 4 of the decorative techniques specified in the Range Statement to job specification

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete decorative finishing techniques
  - Decorative concrete finishing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Concrete placement, finishing and curing
  - Control joints
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to decorative finish concreting
  - hand and power tools, plant and equipment appropriate to decorative finishing of concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



**BCGCO3005B****Unit Descriptor****Resurface concrete**

This unit specifies the competency required to resurface existing concrete to repair, reface or decorate the surface of concrete components.

The unit includes abrasive blasting, grinding, polishing and scabbling preparation techniques and resurfacing.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                                     |   |
|-------------------------------------|---|
| 1. Plan and prepare                 | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare for concrete resurfacing | 2.1 Concrete is prepared for resurfacing technique to be applied<br>2.2 Resurfacing and preparation equipment is selected for the process<br>2.3 Retardant materials are prepared for application where specified<br>2.4 Preparation technique is performed using the selected application according to specifications<br>2.5 Existing control joints in the substrate are checked to ensure they are carried through and reflected in the proposed topping   |
| 3. Cure/seal concrete               | 3.1 Curing/sealing application is applied to concrete to specifications, following setting<br>3.2 Curing/sealing is maintained to period specified in accordance with specifications  |

- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for resurfacing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with resurfacing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to resurfacing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Preparation techniques may include but not be limited to abrasive blasting (sand or grit), grinding, scabbling, polishing and acid etching and chemical staining
- Resurfacing is to include placement of concrete and standard finishing techniques and may include decorative finishes
- Curing agents may include but not be limited to water, silicate compounds, water based compounds, acrylic copolymers and resin based compounds
- Curing techniques may include but not be limited to hosing, sprinklers, ponding, curing agents and plastic film

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to trowels, floats, brooms, hoses, shovels, wheel barrows, screeds and may include power trowels, rollers, concrete mixers, polishers, grinders and water blasters</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials are to include concrete and may include surface retardants, bonding agents, curing compounds, chemical stains and acid solutions for cleaning and etching</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to resurfacing concrete</li><li>• Regulatory/legislative requirements pertaining to resurfacing concrete</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of resurfacing using one of the preparation techniques to prepare, resurface and finish a minimum of 10sqm of existing concrete to specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete resurfacing techniques
  - Concrete resurfacing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Mortar mix composition and additives
  - Placing and finishing of concrete
  - Concrete structures
  - Control joints
  - JSA's/Safe work method statements
  - Chemical stains and acid solutions

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to resurfacing concrete
  - hand and power tools, plant and equipment appropriate to resurfacing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3006B****Unit Descriptor****Carry out repair and rectification of concrete**

This unit specifies the competency required to repair or rectify minor or major defects on concrete work to fix damaged areas.

The unit includes patching, refinishing, sealing and colouring concrete.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |  |   |
|--|---|
| 1. Plan and prepare  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Carry out minor repairs                                   | 2.1 Colour variations are repaired by the application of a concrete staining agent<br>2.2 The effects of dusting is repaired by the correct application of an appropriate surface hardener/dust inhibiting agent or removal of the weak top layer<br>2.3 Damaged or blistered concrete is repaired either by grinding or topping<br>2.4 Repair mortars and self levelling floor compounds are applied according to manufacturers' specification<br>2.5 Sealers and coloured paints are applied to concrete surfaces in accordance with manufacturers' specification   |
| 3. Carry out rectification of cracks and other major defects | 3.1 Root cause of the defect is determined and rectified<br>3.2 Concrete is prepared and flexible epoxy resins applied to manufacturers' specification<br>3.3 Toppings are applied to concrete using correct materials and techniques<br>3.4 Acid etching/cleaning is applied safely in accordance with manufacturers' requirements   |



- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for repairing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with repairing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to repairing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Repair work may include but not be limited to drilling, dowelling, patching, resurfacing, self levelling compounds, formwork and replacement of concrete
- Dusting is a fault where the concrete is too soft as a result of poor curing or where the surface is breaking up
- Types of surface which may require repair may include but not be limited to slabs, pathways, concrete aprons, columns, walls, beams, ramps and stairs
- Defects and minor repairs are to include but not be limited to dusting, blistering, blow holes, wavy or uneven surfaces, spalling, rain damage, stencilled concrete defects, stamped concrete defects
- Major repairs are to include but not be limited to cracks (wet, live, dormant), subsidence, non-compliant surfaces and the bonding of new to old interfaces
- General repairs may involve but not be limited to mortars, acid etching/cleaning, slippery surfaces, topping existing concrete, bonded toppings, un-bonded toppings and levelling compounds

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to trowels, floats, brooms, hoses, shovels, wheel barrows, screeds and may include power trowels, rollers, concrete mixers, polishers, grinders and water blasters

**Materials**

- Materials are to include concrete and may include retardants, bonding agents and curing compounds

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to repairing concrete
- Regulatory/legislative requirements pertaining to repairing concrete
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Removal of a section or whole defective area, cleaning and preparing of the effected area, applying the necessary bonding, identify and apply the correct rectification method and top coat to a minimum of 1sqm of effected area for 3 of the minor repairs and 1 major repair listed in the Range Statement

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete repairing techniques
  - Concrete repairing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Mortar mix composition and additives
  - Placing and finishing of concrete
  - Levelling techniques
  - Formwork and reinforcement
  - Concrete structures
  - Control joints
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to repairing concrete
  - hand and power tools, plant and equipment appropriate to repairing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3007B****Unit Descriptor****Cut and core concrete**

This unit specifies the competency required to plan, prepare, cut and core concrete for the provision of service holes, core samples, construction joints and joining new components.

The unit includes sawing and drilling equipment.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |                          |   |
|--------------------------|---|
| 1. Plan and prepare      | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Cut and core concrete | 2.1 Cutting/coring requirements are identified and assessed<br>2.2 Equipment for sawing/drilling is selected according to the task<br>2.3 Sawn joint is cut to specifications and job requirements<br>2.4 Sawn joint is cut in to penetrate to specified depth<br>2.5 Cored hole is drilled to specifications and job requirements<br>2.6 Cored hole is drilled clear through the concrete to the specified diameter  |
| 3. Clean up              | 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification<br>3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices   |



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for cutting and coring concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with cutting and coring concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances, and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to cutting and coring concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Cutting of concrete is to include but not be limited to construction joints/anti cracking joints/structural joints/control joints/articulation joints/expansion and contraction joints and to join new concrete components
- Coring of concrete is to include but not be limited to the provision of holes to accommodate services, for testing of core samples and to provide for fixtures
- Saw types are to include but not be limited to hand held and walk behind
- Drill types are to include but not be limited to diamond tip drills
- Cutting and coring activities may include but not be limited to being applicable to foundations, pits, slabs, columns, walls, plinths, kerbs, gutters, pathways, hardstands, driveways, residential and commercial buildings

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to concrete saws, concrete drilling equipment, coring equipment, diamond tip drill bits and may include nips, bolt cutters, measuring tapes and hoses</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials are to include water as a cooling agent and may include other specialist cooling agents</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to cutting and coring concrete</li><li>• Regulatory/legislative requirements pertaining to cutting and coring concrete</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of saw cutting a construction joint to a minimum of 3 metres straight or to the set line, to job specifications
- Core a hole in a designated surface, clear through a minimum of 100mm in depth, to job specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete cutting and coring techniques
  - Cooling drills and saws
  - Processes for the calculation of joint requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Substructure construction
  - Control joints
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to cutting and coring concrete
  - hand and power tools, plant and equipment appropriate to cutting and coring concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3008B****Unit Descriptor****Carry out tilt panel construction**

This unit specifies the competency required to work in a team to set up, pour and place concrete panels to form internal and external walls for building structures.

The unit includes on-site and prefabricated methods of panel construction.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |   |   |
|---|---|
| 1. Plan and prepare                                 | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Set out and prepare formwork for panel           | 2.1 Location and size of panel are set out to requirements of job drawings and specifications<br>2.2 Casting bed formwork is erected to specifications<br>2.3 Edge form work is prepared, placed and fixed with plumb and alignment to specification requirements and set out<br>2.4 Form release agent is applied to formwork with mop/brush and to specifications<br>2.5 Bond breaker is applied to casting bed face or casting form face of previous panel to induce ease of panel separation  |
| 3. Place and tie reinforcement and cast in fittings | 3.1 Reinforcement, accessories and cast-in fittings are checked for conformity with design and engineering specifications<br>3.2 Reinforcement and accessories are positioned to engineer's drawings and engineering specifications<br>3.3 Reinforcement is tied and/or welded in correct placement in accordance with engineer's drawings and specifications   |

- 4. Place, finish and cure concrete
  - 4.1 Concrete is evenly placed and consolidated to specification using approved vibration method
  - 4.2 Concrete surface is screeded and finished to specification ensuring cast-in fittings are clear
  - 4.3 Curing process is applied in accordance with specification
  - 4.4 Edge formwork is stripped carefully ensuring no damage to panel
- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for tilt panel construction, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with tilt panel construction, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to tilt panel construction, including the use of calculators, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Tilt panels are pre-produced panels constructed either on-site or in an off-site factory location
- Placing methods of concrete includes but is not limited to wheelbarrows, pumping equipment, kibble, tremmie, truck placed, shovelling and includes vibrating
- Finishing techniques for concrete are to include but not be limited to steel trowel, mechanical trowelling machine, broom finished, wood float, bull float and brushed
- Curing is to include but not be limited to flooding, coating with a membrane, applied moisture, steam, curing compound or plastic sheeting
- Reinforcement components are to include but not be limited to mesh, reinforcement bars/rods and ligatures
- Cast in items include services and fixtures tied to the reinforcement
- Formwork may include but not be limited to edge form timber and plywood
- Transporting of concrete for panel construction may include but not be limited to pre-mix truck, crane and kibble, wheelbarrow or on-site production

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to measuring tapes/rules, hammers, spirit levels, squares, formwork, spanners, power leads, shovels, trowels, power trowels, screed boards, vibrators, power drills, edging tools and may include saw stools, power saws, nail guns, air compressors and hoses, rakes, wheel barrows and mechanical screeds

**Materials**

- Materials are to include but not be limited to concrete, steel mesh, steel bars, lifters, ferrules, form release agents and bond breaker/curing compound

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to tilt panel construction
- Regulatory/legislative requirements pertaining to tilt panel construction
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Construction of at least one tilt panel to a minimum size of 20sqm complying with engineering specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Tilt panel construction techniques
  - Tilt panel construction materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Levelling techniques
  - Formwork and reinforcing componentry
  - Placing, finishing and curing concrete
  - Tensile strength of concrete panels
  - Tilt panel erection and propping
  - JSA's/Safe work method statements
  - Lifting inserts and ferules positioning

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to tilt panel construction
  - hand and power tools, plant and equipment appropriate to tilt panel construction
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3009B****Unit Descriptor****Apply and finish sprayed concrete**

This unit specifies the competency required to apply and finish concrete using dry or wet spray to a variety of surfaces to develop retaining structures where conventional concreting methods may not be applied.

The unit includes pumping of concrete at high velocity to a given structure.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |   |   |
|---|---|
| 1. Plan and prepare                           | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Apply concrete using dry/wet spray process | 2.1 Dry/wet pumping equipment is prepared for delivery of concrete mix to spray nozzle<br>2.2 Constituent materials for spraying are selected and prepared<br>2.3 Dry/wet spray mixture is applied to the surface within specified tolerances<br>2.4 Sprayed material is shaped and finished to the form required in accordance with specifications   |
| 3. Clean up                                   | 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification<br>3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for spray finishing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with spray finishing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to spray finishing concrete, including the use of calculators, spray finishing equipment, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Dry pumping and wet pumping differs in the level of rigidity and workability in respect of the project to be undertaken
- The wet spray method includes a pre-mix of cement and aggregate being delivered to the spray nozzle and then combined with a powerful stream of compressed air using a wet spray machine.
- Wet spray methods may include but not be limited to large scale projects and vertical sections devoid of formwork shuttering
- The dry spray method includes the cement and aggregate mix being delivered dry to the spray nozzle where water is then added and combined with a powerful stream of compressed air using a dry spray machine
- Dry spray methods may include but not be limited to overhead repairs, dense compact repairs, intricate work and allows stop start applications
- Concrete surfaces where spray methods may be applied include but are not limited to shell roofs and domes, retaining walls, piled wall facings, silo structures, barrel vaulting, diaphragm walls, caissons, tunnel linings, reservoirs, walls, swimming pools, water towers, canal linings, irrigation and drainage channels
- Sprayed concrete may be installed to formwork or non-rigid formwork such as hessian, expanded metal reinforcement or other backgrounds to maximise adhesion



**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to pumps, compressed air delivery systems, transport pipes, portable water supply, wood floats, steel floats and normal concreting tools

**Materials**

- Materials may include but not be limited to pre-bagged materials, site batching, ready mix materials, cements, aggregates, additives, curing compounds and fibres

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to spray finished concreting
- Regulatory/legislative requirements pertaining to spray finished concreting
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Application and finish of wet or dry spray concreting methods for a minimum of 10sqm to job specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Concrete spray finishing techniques
  - Sprayed concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Curing practices and durations
  - Concrete placement
  - Specified finishes
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource  
requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to sprayed finish concreting
  - hand and power tools, plant and equipment appropriate to spray finishing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3010B****Unit Descriptor****Carry out high performance concreting**

This unit specifies the competency required to plan, prepare and place high performance concrete to structures requiring high strength attributes and durability such as bridges, airport runways, dams, cooling towers, foundation supports for high rise facilities, roadways and tunnels.

The unit includes the placement and/or finish of high performance concrete.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

## 1. Plan and prepare

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied
- 1.2 Safety requirements are followed in accordance with safety plans and policies
- 1.3 Signage/barricade requirements are identified and implemented
- 1.4 Plant, 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 Material quantity requirements are calculated in accordance with plans and/or specifications
- 1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use
- 1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied

- 2. Place high performance concrete
  - 2.1 Concrete tests for each specified performance property are performed in accordance with specifications and associated testing standards
  - 2.2 High performance concrete is transported and discharged correctly into formwork, using correct mechanical or manual handling techniques and processes
  - 2.3 High performance concrete is placed by technique nominated in specifications to ensure timely placement and to avoid material segregation
  - 2.4 High performance concrete is to be placed , compacted and/ or screeded to the nominated criteria into designated formwork as per the specifications and supporting drawings
  - 2.5 High performance concrete is finished to specifications, to specified surface finish
  - 2.6 High performance concrete is finished to specified thickness and height
  - 2.7 High performance concrete curing regime is documented and applied as per specifications to include a selection of curing methods
  - 2.8 Concrete is to be protected from damage/ pollution during construction with the specified materials
- 3. Clean up
  - 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for high performance concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with high performance concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to high performance concrete, including the use of calculators, spray finishing equipment, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- High performance concrete is defined as a concrete which possesses strength grades greater than 50MPa or other high performance parameters as designated, nominating as required by the prefix 'S' for compressive strength grades, 'SF' for flexural strength grades and 'ST' for indirect-tensile strength grades
- High performance concrete may include but not be limited to applications such as bridges, airport runways, dams, cooling towers, foundation supports for high rise facilities, roadways, tunnels, foundations, pits, slabs, columns, walls, stairs, plinths, kerbs, gutters, pathways and hard stands
- Placing methods of concrete includes but is not limited to wheelbarrows, pumping equipment, kibble, tremmie, truck placed, shovelling and includes vibrating
- Compaction or vibration methods may include all forms of mechanical vibration, both internal and external
- Screeding is to include but not be limited to a hand screed and may include a mechanical vibrating screed and magic screeds
- Finishing techniques for concrete are to include but not be limited to steel trowel, mechanical trowelling machine, broom finished, wood float, bull float and brushed
- Concrete protection may include but not be limited to a plastic membrane



**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to power floats, steel trowels, composite floats, magnesium floats, screed boards, shovels, rakes, bull floats, immersion vibrators or vibrating screeds and may include nips, bolt cutters, measuring tapes, wooden floats, tarpaulins/covers, curing compounds applicators, wheel barrows, concrete kibbles, edging tools, brooms and tremmies

Materials	<ul style="list-style-type: none"> <li>Materials are to include but not be limited to high performance concrete and may include curing compounds and a range of specialist additives</li> </ul>
Communications	<ul style="list-style-type: none"> <li>Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li> <li>On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li> </ul>
Information	<ul style="list-style-type: none"> <li>Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li> <li>Safe work procedures related to high performance concreting</li> <li>Regulatory/legislative requirements pertaining to high performance concreting</li> <li>Manufacturers' specifications and instructions where specified</li> <li>Organisation work specifications and requirements</li> <li>Instructions issued by authorised organisational or external personnel</li> <li>Relevant Australian Standards</li> </ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of planning, preparation, placement, finishing and curing of 10sqm of high performance concrete to engineers specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - High performance concreting techniques
  - High performance concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Placement, finishing and curing
  - Strength and performance of concrete
  - Substructure construction
  - JSA's/Safe work method statements
  - Testing techniques

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to high performance concreting
  - hand and power tools, plant and equipment appropriate to high performance concreting
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3011B****Unit Descriptor****Off form vertical concrete**

This unit specifies the competency required to prepare and concrete to a slip or jump form structure for the erection of multi-storey buildings.

The unit includes the appropriate procedures to sequence, place and compact concrete in slip forms.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |   |   |
|---|---|
| 1. Plan and prepare                                 | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Set out and prepare slip/jump form location      | 2.1 Location and size of pour are set out to requirements of job drawings and specifications<br>2.2 Equipment associated with the installation of slip/jump concrete projects is prepared<br>2.3 Edge formwork is prepared, placed and fixed with plumb and alignment to specification requirements and set out<br>2.4 Form release agent is applied to slip/jump formwork with appliance/machine to specifications   |
| 3. Place and tie reinforcement and cast in fittings | 3.1 Reinforcement, accessories and cast-in fittings are checked for conformity with design and specifications<br>3.2 Reinforcement and accessories are positioned to engineer's drawings and specifications<br>3.3 Reinforcement is tied and/or welded in correct placement in accordance with engineer's drawings and specifications   |

- 4. Place, finish and cure concrete
  - 4.1 Sequencing of concrete placement is determined in accordance with specifications
  - 4.2 Concrete is evenly placed into formwork in layers and consolidated avoiding material segregation to specification using approved compaction method
  - 4.3 Concrete surface is screeded and finished to specification ensuring cast-in fittings are clear
  - 4.4 Curing process is applied in accordance with specification
  - 4.5 Slip/jump formwork is progressed by riggers and placement cycle continued avoiding cold joint
- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for off form concreting, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with off form concreting, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to off form concreting, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Slip/jump formwork is formwork which is initially erected and then continuously moved (slipped/jumped) up to its eventual completion point as a whole system
- Sequencing is to include the timing and placement of concrete, minimisation of cold joint and vibrating to specified compaction
- Placing methods of concrete includes but is not limited to pumping equipment, kibble, tremmie, truck placed, shovelling and includes vibrating
- Curing is to include but not be limited to flooding, coating with a membrane, applied moisture, steam, curing compounds or plastic sheeting
- Reinforcement components are to include but not be limited to mesh, reinforcement bars/rods and ligatures
- Cast in items include services and fixtures tied to the reinforcement
- Formwork may include but not be limited to steel or timber slip/jump construction
- Transporting of concrete for slip/jump form work may include but not be limited to pre-mix truck, crane and kibble or on-site production
- Slip/jump form concreting is conducted in conjunction with other team members involved in the slip/jump form process (including concreters, carpenters, riggers, steel fixers and electricians)



**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to measuring tapes/rules, spanners, shovels, vibrators, hydraulic accessories, slip/jump forms, nips, steel fixing reels and may include saw stools, power saws, nail guns, air compressors and hoses, rakes, wheel barrows, hammers, spirit levels, squares, power leads, power drills, screed boards and scaffolding

**Materials**

- Materials are to include but not be limited to concrete, steel mesh, release agents, cast in fittings and foam

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to off form vertical concreting
- Regulatory/legislative requirements pertaining to off form vertical concreting
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of planning, preparation, reinforcement placement, installation of block out, installation of cast in fittings, sequencing, placing, finishing and curing concrete minimising cold joint and undertaking compaction of concrete for one slip (or jump) of form to engineers specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Slip/jump form vertical concrete techniques
  - Slip/jump form vertical concrete materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Levelling techniques
  - Slip/jump formwork and reinforcing componentry
  - Placing, finishing and curing concrete
  - Sequencing and cold joints
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to slip/jump form concreting
  - hand and power tools, plant and equipment appropriate to slip/jump form concreting
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3012B****Unit Descriptor****Conduct concrete boom delivery operations**

This unit specifies the competency required to conduct concrete boom delivery operations, using a vehicle borne pumping system, in support of construction projects. It covers systems with a minimum of two boom stages.

The unit covers planning and preparation for work, the conduct of operational checks, the safe and effective operation of the truck and pumping system, the safe establishment, use and monitoring of the boom distribution system and the conduct of operator maintenance and work finalisation activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |  |   |
|--|---|
| 1. Plan and prepare                                    | 1.1 Work instructions and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Conduct boom delivery system pre-operational checks | 2.1 Pre-start, start up, park and shut down procedures are carried out on the vehicle and pump in accordance with manufacturers' and/or site specific requirements<br>2.2 Vehicle controls and functions, including steering, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported<br>2.3 Distribution system components, including boom components, lines, hoses and adaptors are checked before use<br>2.4 Hoppers are cleaned and serviced prior to use  |

- |   |   |
|---|---|
| 3. Operate concrete boom delivery truck | <ul style="list-style-type: none"><li>3.1 Site hazards associated with truck operations are identified and safe operating techniques are used to minimise risk</li><li>3.2 Engine power is managed to ensure efficiency of concrete pump truck platform movements and to minimise damage to the engine and gears</li><li>3.3 Engine power is coordinated with gear selection ensuring smooth transition and operation within torque range</li><li>3.4 Truck is operated to work instructions in accordance with company operating procedures</li><li>3.5 Road/traffic conditions are constantly monitored taking into account road standards, traffic flow, distance and load, ensuring no injury to people or damage to property, equipment, loads and facilities</li><li>3.6 Truck is brought to a halt smoothly, minimising the wear and tear on vehicle using the engine retarder, gears and brakes</li></ul>   |
| 4. Deliver concrete                     | <ul style="list-style-type: none"><li>4.1 Site hazards associated with the positioning of the boom delivery components are identified and analysed and safe operating techniques are used to minimise risk</li><li>4.2 Boom delivery truck is positioned at the site where it can best service the delivery task and provide access to concrete supply vehicles</li><li>4.3 Delivery platform stabilisers are prepared, deployed and checked to manufacturers' requirements for operation and safety</li><li>4.4 Delivery system components, including booms, lines and adaptors, are positioned securely and safely, in accordance with manufacturers' specifications, and checked prior to use</li><li>4.5 Pumping systems are test run and prepared for use in accordance with equipment specifications</li><li>4.6 Supply of bulk concrete to the hopper is coordinated safely with the supply vehicle operators</li><li>4.7 Boom delivery system is operated and the positioning varied to maintain the delivery of the concrete to the required destination</li><li>4.8 Boom delivery system is safely withdrawn at the completion of the delivery task</li></ul> |
| 5. Carry out operator maintenance       | <ul style="list-style-type: none"><li>5.1 Boom delivery truck is safely parked, prepared for maintenance and shut down as per manufacturers' manual and organisational requirements</li><li>5.2 Inspection and fault finding on the truck, pump and boom system components are conducted in accordance with manufactures' specifications and/or organisational requirements</li><li>5.3 Defective parts are removed and replaced safely and effectively according to manufacturers' manual and organisational requirements</li><li>5.4 Regular programmed maintenances tasks are carried out in accordance with manufacturers' and/or organisational requirements</li></ul>   |

- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with project environmental management plan
  - 6.2 Vehicle, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the conduct of concrete boom delivery operations, including work instructions, plans/sketches/diagrams, safety instructions, signage, gauges, labels, quality assurance procedures, manufacturers' instructions, and equipment instructions	1
Planning and organising activities	Conduct activities associated with the preparation of concrete boom delivery operations, including the coordination and use of materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team, particularly at multi-vehicle loading and discharge, by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, estimate load requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to concrete boom delivery operations, including the use of on board monitoring and management systems, the use of communication systems and the reporting/recording of results	2



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Concrete boom delivery trucks are purpose built vehicles which may vary in size, have 2 - 4 boom stages and have pumping systems which may have integral or independent power sources
- Boom delivery operations covered by this unit are to include systems with two or more boom stages
- Boom delivery systems are generally linked to a hopper which is in turn supplied from secondary delivery sources or vehicles
- National Licence Classes for trucks are:
  - MR (Medium rigid) - a vehicle (2 axle only) which is greater than 8t GVM, plus a trailer of not more than 9t GVM
  - HR (Heavy Rigid) - a vehicle (no axle limit) which is greater than 8t GVM, plus a trailer of not more than 9t GVM
  - HC (Heavy combination) - a heavy rigid vehicle with a trailer greater than 9t GVM or a prime mover and semi trailer
- Concrete delivery systems are to include boom mounted conveyors, lines and may include adaptors
- Concrete mixes may vary in water content which in order from wet to dry may include block-fill, pool-mix, topping, slab, footing and curb and guttering
- Delivery tasks may include those for slabs, footings, bridge decks and bridge beams
- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/ machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement
- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead services, bridges, buildings, excavations, traffic, embankments, structures and hazardous materials
- Emergency procedures are to include but may not be limited to extinguishing equipment fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include the hand tools and maintenance equipment associated with the particular concrete boom delivery truck system

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written instructions, signage, work schedules/plans/specifications, charts and hand drawings, memos, maps, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the operation of concrete boom delivery truck systems on construction sites
- Regulatory/legislative requirements pertaining to concrete boom delivery truck systems operations and the environment
- Manufacturers' specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of concrete boom delivery truck systems operations are to be performed over not less than three shifts at two different sites and are to include the tasks of:
  - The positioning of the vehicle
  - The preparation and positioning of the booms and lines
  - The preparation of the pump and hopper
  - The co-ordination of maintenance of hopper levels
  - The delivery of concrete to the required location on the worksite
  - The variation of the boom delivery system positioning to meet changing requirements
  - The withdrawal of the boom delivery system
- The application of emergency procedures
- The conduct of authorised operator maintenance
- Communication and working effectively and safely with others

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Overhead safety requirements related to boom operations
  - State/Territory regulatory requirements related to the boom delivery system operations
  - Site isolation and traffic control responsibilities and authorities
  - Concrete boom delivery truck systems, characteristics, technical capabilities and limitations
  - Pumps and pumping system operations
  - Boom and line establishment techniques
  - Site and equipment safety requirements
  - Safe operating techniques in all terrain
  - Construction activity sequences related to bulk concreting operations
  - Levelling techniques
  - Processes for interpreting engineering drawings and sketches
  - Operational, maintenance and basic diagnostic procedures
  - Materials Safety Data Sheets and materials handling methods
  - Quality requirements
  - General construction terminology
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- 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

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - an operational concrete boom delivery system
  - realistic tasks and loads covering the mandatory task requirements
  - maintenance materials appropriate to the concrete boom delivery equipment
  - specifications and work instructions

**BCGCO3013B****Unit Descriptor****Slump test concrete**

This unit specifies the competency required to conduct a slump test to concrete to ensure the mix is workable and complies with the delivery docket and specified order.

The unit includes sampling and slump testing to a set range or tolerance.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA****1. Plan and prepare**

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied
- 1.2 Safety requirements are followed in accordance with safety plans and policies
- 1.3 Signage/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 are identified for the project in accordance with environmental plans and regulatory obligations and applied

**2. Slump test concrete**

- 2.1 Standard slumping cone is cleaned in preparation for testing
- 2.2 Sample of concrete, using the correct sampling procedure, is taken directly from the delivery trucks initial discharge
- 2.3 Slumping cone is placed on a steel tray and cone filled to one third of its capacity
- 2.4 Concrete is compacted by rodding 25 times in an even pattern with a steel rod
- 2.5 Slumping cone is filled to two thirds its capacity and rodding 25 times applied to penetrate the previous layer
- 2.6 Slumping cone is filled to overflowing and rodding 25 times applied to penetrate the previous layer
- 2.7 Slumping cone is levelled off with the steel rod and surplus concrete cleared from steel plate and slumping cone
- 2.8 Slumping cone is raised without moving the sample
- 2.9 Sample is measured against height of the slumping cone for conformity
- 2.10 Collapsed or sheared samples are recorded

- 3. Clean up
  - 3.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 3.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices
  - 3.3 Work completion procedures are applied and relevant personnel notified that work is finished



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for slump testing concrete, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with slump testing concrete, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to slump testing concrete, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Sampling is to include but not be limited to that taken at initial discharge (after 0.2m<sup>3</sup> of the load has been placed) and may include routine samples taken at three places during the load
- A standard slumping cone is 200mm in diameter at the base, 100mm in diameter at the top and 300mm tall and include foot pieces for standing on while the sample is added and rodding occurs in the cone as well as handles for raising the cone when rodding is completed
- Rodding is to include pushing a steel rod in and out of the concrete to compact it into the slump cone, 25 times for each layer applied
- Measuring is to include a steel rule which is placed in the centre of the sample to which the conformity of the slump is tested
- A slump test is successful when the sample remains true and does not collapse or shear. If the initial test fails a second test must be undertaken, if it also fails the batch should be rejected

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and Equipment**

- Tools and equipment are to include standard slump cones, sampling scoops, bullet nosed rod (600mm long x 16mm diameter), steel rule, steel slump plate (500mm x 500mm) and may include trowels, steel trowels, wooden floats, buckets, sponges and brushes

**Materials**

- Materials are to include concrete

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to slump testing concrete
- Regulatory/legislative requirements pertaining to slump testing concrete
- Engineers design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Completion of three slump tests from different batches in accordance with specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Properties of concrete (strength, water content ratio, transportation, placement, compaction and curing)
  - Slump testing techniques
  - Slump testing tools and equipment types, characteristics, uses and limitations
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource  
requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - equipment and tools appropriate to slump testing concrete
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGCO3014B****Unit Descriptor****Conduct concrete agitator truck operations**

This unit specifies the competency required to conduct concrete agitator truck operations in support of construction projects.

The unit covers planning and preparation for work, the conduct of operational checks, the safe and effective operation of the concrete agitator truck and associated equipment for a range of mandatory tasks, and the conduct of operator maintenance and work finalisation activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Concreting

**ELEMENT****PERFORMANCE CRITERIA**

- |   |   |
|---|---|
| 1. Plan and prepare                       | 1.1 Work instructions and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Conduct machine pre-operational checks | 2.1 Pre-start, start up, park and shut down procedures are carried out in accordance with manufacturers' and/or site specific requirements<br>2.2 Vehicle controls and functions including steering, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported<br>2.3 Agitator controls and functions are checked for serviceability and any faults are rectified or reported  |

- |   |   |
|---|---|
| 3. Operate the agitator truck             | <ul style="list-style-type: none"><li>3.1 Site hazards associated with truck operations are identified and safe operating techniques are used to minimise risk</li><li>3.2 Engine power is managed to ensure efficiency of concrete agitator truck movements and to minimise damage to the engine and gears</li><li>3.3 Engine power is coordinated with gear selection ensuring smooth transition and operation within torque range</li><li>3.4 Truck is operated to work instructions in accordance with company operating procedures</li><li>3.5 Road/traffic conditions are constantly monitored taking into account of road standards, traffic flow, distance and load, ensuring no injury to people or damage to property, equipment, loads and facilities</li><li>3.6 Truck is brought to a halt smoothly, minimising the wear and tear on vehicle using the engine retarder, gears and brakes</li></ul> |
| 4. Load, transport and discharge concrete | <ul style="list-style-type: none"><li>4.1 Concrete agitator truck is positioned at load and discharge points with a minimum of manoeuvre</li><li>4.2 Concrete agitator truck is loaded to within the authorised carrying capacity and to suit the site and task conditions</li><li>4.3 Concrete agitator truck is moved from loading to the discharge point safely and smoothly avoiding surge and sway</li><li>4.4 Concrete is discharged in accordance with the task specifications</li><li>4.5 Discharge systems including chutes and adaptors are monitored and maintained throughout the operations</li></ul>  |
| 5. Carry out driver maintenance           | <ul style="list-style-type: none"><li>5.1 Concrete agitator truck is safely parked, prepared for maintenance and shut down as per manufacturers' manual and organisational requirements</li><li>5.2 Inspection and fault finding are conducted in accordance with manufactures' specifications and/or organisational requirements</li><li>5.3 Defective parts are removed and replaced safely and effectively according to manufacturers' manual and organisational requirements</li><li>5.4 Regular programmed maintenances tasks are carried out in accordance with manufacturers' and/or organisational requirements</li></ul>   |
| 6. Clean up                               | <ul style="list-style-type: none"><li>6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with project environmental management plan</li><li>6.2 Vehicle, bowl, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</li></ul>  |



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the conduct of concrete agitator truck operations, including work instructions, plans/sketches/diagrams, safety instructions, signage, gauges, labels, quality assurance procedures, manufacturers' instructions, and equipment instructions	1
Planning and organising activities	Conduct activities associated with the preparation of concrete agitator truck operations, including the coordination and use of materials and equipment to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team, particularly at multi-vehicle loading and discharge, by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, estimate load requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to concrete agitator truck operations, including the use of on board monitoring and management systems, the use of communication systems and the reporting/recording of results	2

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Concrete boom delivery trucks are purpose built vehicles which may vary in size, have 2 - 4 boom stages and have pumping systems which may have integral or independent power sources
- Concrete agitator truck functions are to include loading, transporting and discharging of concrete
- Concrete mixes may be relatively dry or increasingly wet. In order from wet to dry the mixes will include block-fill, pool mix, topping, slab, footing and kerb and guttering
- Agitator controls are related to speed, revolutions, forward and return and may be air, mechanical or electrically actuated
- National Licence Classes for trucks are:
  - MR (Medium rigid) - a vehicle (2 axle only) which is greater than 8t GVM, plus a trailer of not more than 9t GVM
  - HR (Heavy Rigid) - a vehicle (no axle limit) which is greater than 8t GVM, plus a trailer of not more than 9t GVM
  - HC (Heavy combination) - a heavy rigid vehicle with a trailer greater than 9t GVM or a prime mover and semi trailer
- Concrete pump truck loading tasks may include loading from a loading dock, conveyor, gravity overhead and weigh bins
- Discharging concrete means the movement of concrete from the agitator truck by mechanical/gravity feed through chutes and adaptors of varying sizes
- Discharging tasks are to include directly to site, into a wheel barrow and hopper and may include into a kibble
- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public
- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/ machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement
- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead services, bridges, buildings, excavations, traffic, embankments, structures and hazardous materials
- Emergency procedures are to include but may not be limited to extinguishing equipment fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, stormwater management and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include the hand tools and maintenance equipment associated with the particular concrete agitator truck

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, maps, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the operation of concrete agitator trucks on construction sites
- Regulatory/legislative requirements pertaining to concrete agitator truck operations and the environment
- Manufacturers' specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of concrete agitator truck operations are to be performed over not less than three shifts and two different sites and are to include the tasks of:
  - The positioning of the vehicle at the load point
  - The loading and transporting of concrete
  - Discharging of concrete at the worksite to specification
  - Discharging directly to site
  - Discharging to wheel barrow and hopper
- The application of emergency procedures
- The conduct of authorised operator maintenance
- Communication and working effectively and safely with others

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - State/Territory regulatory requirements related to the concrete agitator truck operations
  - Site isolation and traffic control responsibilities and authorities
  - Concrete agitator truck systems, characteristics, technical capabilities and limitations
  - Site and equipment safety requirements
  - Safe operating techniques in all terrain
  - Construction activity sequences related to concreting operations
  - Levelling techniques
  - Processes for interpreting engineering drawings and sketches
  - Operational, maintenance and basic diagnostic procedures
  - Materials Safety Data Sheets and materials handling methods
  - Quality requirements
  - General construction terminology
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- 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

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package.
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies.
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge.
- Assessment may be applied under project related conditions 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, including those listed above.

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - an operational concrete agitator truck
  - realistic tasks and loads covering the mandatory task requirements
  - maintenance materials appropriate to the concrete agitator truck equipment
  - specifications and work instructions

**BCGDE2001B****Unit Descriptor****Use demolition tools and equipment**

This unit specifies the competency required to work safely and effectively using demolition tools and equipment in the conduct of demolition activities.

This unit includes the identification, preparation and use of demolition tools and equipment.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Demolition

**ELEMENT****PERFORMANCE CRITERIA**

- |  |  |
|--|--|
| 1. Plan and prepare                        | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied   |
| 2. Identify demolition tools and equipment | 2.1 Types and functions of tools and equipment to be used in the demolition process are identified<br>2.2 The methods of operation of demolition tools and equipment are identified from specifications, standards and manufacturers' instructions<br>2.3 Specific OH&S requirements for the identified demolition tools and equipment are identified and applied  |
| 3. Use tools and equipment                 | 3.1 Identified tools and equipment consistent with the requirements of the job, including personal protective equipment, are selected and checked for serviceability, reporting/rectifying any faults<br>3.2 Work area is prepared for the use of demolition tools and equipment<br>3.3 Pre-operational checks, including lubricants, hydraulic fluid and water, are completed in accordance with manufacturers' recommendations<br>3.4 Tools and equipment are used for their intended purpose in the performance of demolition tasks in accordance with regulations, standards, codes of practice and workplace requirements<br>3.5 Tools and equipment are safely located when not in immediate use |
| 4. Clean up                                | 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification<br>4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the use of demolition tools and equipment, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the use of demolition tools and equipment, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the use of demolition tools and equipment, including the use of calculators, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- The unit requires the identification, selection, preparation and application of demolition tools and equipment for demolition tasks
- Demolition tasks may be performed on a new construction site or an existing structure being renovated or extended which involves the complete or partial removal of components
- Demolition tasks may be performed at height, at ground level, underground, over or under water and in a confined space
- Preparation of work areas may include, but is not limited to, the erection of scaffolding, provision for site safety, installation of supports and bracing, location of signage and barricades, identification of positions of hoses and cables clear of hazards and communication with those who may be affected by the demolition task
- Safety considerations are to include fall protection, identification of equipment guarding and cut-off switches, equipment tagging, the identification and preparation of access and egress points and traffic control for the site
- Types of demolition are manual and mechanical

### Safety (OH&S)

- OH&S 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, 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 overhead lines and cables, underground services and utilities, lighting, earth leakage boxes, working with dangerous materials, 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 emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, sedimentation control and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include, but not be limited to, bars(crow and pinch), bolt cutters, sledge hammers, spanners and wrenches, picks/mattocks, power drills and saws, pneumatic tools, concrete saws, quick cut saws, angle grinders, electric testers, shovels/spades, brooms, chisels, hacksaws, handsaws, hammers, pliers, signs, barricades and safety/fall prevention equipment</li><li>• Tools and equipment may include scaffolds</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to the use of demolition tools and equipment</li><li>• Regulatory/legislative requirements pertaining to the use of demolition tools and equipment</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Follow work instructions, operating procedures and inspection practices to safely and effectively use the listed demolition tools and equipment for their appropriate application, ensuring:
  - there is no damage to tools or equipment
  - all work is completed to specification
  - compliance with regulations, standards and organisational quality procedures and processes

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of:
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - The techniques associated with the use of demolition tools and equipment
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - The applications of portable power tools, hand tools and equipment applicable to demolition tasks
  - The method of operation and maintenance requirements of demolition tools and equipment
  - Hazards associated with the use of demolition tools and equipment
  - Measurement and calculation
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the use of demolition tools and equipment
  - appropriate demolition hand and power tools and equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDE2002B****Unit Descriptor****Carry out manual general demolition**

This unit specifies the competency required to remove components from buildings, structures and ancillary components using manual demolition techniques.

This unit includes the preparation of the site for the demolition process and the removal of components.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Demolition

**ELEMENT****PERFORMANCE CRITERIA**

- |                            |  |
|----------------------------|--|
| 1. Plan and prepare        | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are selected to carry out tasks that are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare demolition site | 2.1 The requirements of the site demolition plan are interpreted in accordance with workplace procedures<br>2.2 An audit of property/dilapidation survey is conducted to determine condition of worksite and surrounds prior to work commencing<br>2.3 Confirmation is obtained from supervisor/regulatory authorities that all existing services have been disconnected<br>2.4 Hazardous material is identified for separate handling in accordance with workplace requirements and instructions<br>2.5 Fall protection devices are installed in accordance with workplace requirements   |
| 3. Remove components       | 3.1 Components are removed in a directed sequence in accordance with site demolition plan/demolition method statement, standards and workplace procedures<br>3.2 Removed components are relocated to storage/disposal area in accordance with workplace requirements<br>3.3 Materials and building components parts are safely and effectively handled using selected material handling techniques<br>3.4 Materials and components identified for salvaging are handled, stored and stacked ready for transport in accordance with standard material handling practices and workplace procedures   |

- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the conduct of manual demolition processes, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the conduct of manual demolition processes, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the conduct of manual demolition processes, including the use of calculators, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- The unit requires the preparation for and the manual removal of building components from a demolition site in accordance with a site demolition plan
- Manual demolition processes includes the dismantling or demolishing and removing materials/component parts of a building using only hand tools and small plant and equipment
- The site demolition plan documents the demolition process and safe work practices
- Types of construction include brickwork, blockwork, brick veneer, concrete, timber framed and light steel framed structures
- Building components include, but are not limited to, internal sections of buildings (load bearing and non-load bearing partition walling, ceilings, flooring, cladding, built-in components and wet area components), external sections of buildings (non-load bearing walls, attached structures/carports/sheds, patios and decks), fixtures and fittings and concrete/masonry areas (slabs, pads, paths, edge strips and retaining walls and fences)
- Services may include electricity, gas, water, telephone and computer/communication
- Demolition tasks may be performed on a new construction site or an existing structure being renovated or extended which involves the complete or partial removal of components
- Demolition tasks may be performed at height, at ground level, underground, over or under water and in a confined space
- Preparation of work areas may include, but is not limited to, assessment of condition of property and surrounds, the identification of hazardous materials, the erection of scaffolding, provision for site safety, installation of supports and bracing, location of signage and barricades, identification of positions of hoses and cables clear of hazards and communication with those who may be affected by the demolition task

**Safety (OH&S)**

- OH&S 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, 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 overhead lines and cables, underground services and utilities, lighting, earth leakage boxes, working with dangerous/ hazardous materials, working in confined spaces, surrounding structures, 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 emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, sedimentation control and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include, but not be limited to, bars(crow and pinch), bolt cutters, sledge hammers, spanners and wrenches, picks/mattocks, power drills and saws, pneumatic tools, concrete saws, quick cut saws, angle grinders, compressors, electric testers, shovels/spades, brooms, chisels, wheelbarrows, hacksaws, handsaws, hammers, pliers, signs, barricades, elevated work platforms, water hoses and attachments and safety/fall prevention equipment
- Tools and equipment may include scaffolds

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the conduct of manual demolition processes
- Regulatory/legislative requirements pertaining to the conduct of manual demolition processes
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- As a minimum, given a site demolition plan and instructions, remove the fixtures and fittings, a pitched metal/tiled roof, trusses, ceiling, external and internal walls, floor and floor support system of a two storey house and clean up, disposing/salvaging materials, ensuring:
  - correct identification of requirement and conduct of the demolition
  - correct selection and use of appropriate processes, tools and equipment
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of:
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Types, characteristics, uses and limitations of tools and equipment involved in the conduct of manual demolition processes
  - The techniques associated with the conduct of manual demolition processes
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Manual demolition processes and techniques
  - The method of operation and maintenance requirements of demolition tools and equipment
  - Hazards associated with the conduct of manual demolition tasks
  - Measurement and calculation
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - appropriate demolition hand and power tools and equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDE3001B****Unit Descriptor****Carry out mechanical general demolition**

This unit specifies the competency required to demolish buildings, structures and ancillary components using mechanical demolition techniques.

This unit includes the preparation of the site for the demolition process and the removal of materials and debris.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Demolition

**ELEMENT****PERFORMANCE CRITERIA**

- |                            |  |
|----------------------------|--|
| 1. Plan and prepare        | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are selected to carry out tasks that are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied   |
| 2. Prepare demolition site | 2.1 The requirements of the site demolition plan are interpreted in accordance with workplace procedures<br>2.2 Structural engineering certificate for floor loadings is obtained and checked for plant/equipment use<br>2.3 An audit of property/dilapidation survey is conducted to determine condition of worksite and surrounds prior to work commencing<br>2.4 Confirmation is obtained from supervisor/regulatory authorities that all existing services have been disconnected<br>2.5 Hazardous material is identified for separate handling in accordance with workplace requirements and instructions<br>2.6 Fall protection devices are installed and anchored/secured in accordance with workplace requirements<br>2.7 Mechanical equipment/plant is positioned in operating locations and appropriate exclusion zone/traffic control is arranged |

- |                               |   |
|-------------------------------|---|
| 3. Demolish structure         | 3.1 Mechanical plant is operated in accordance with manufacturer's specifications, standards and workplace procedures to carry out demolition process                       |
|                               | 3.2 Direction and assistance is provided to plant operators in accordance with workplace procedures during the demolition process   |
|                               | 3.3 Measures are used to reduce dangerous and environmental hazards of fire, dust, noise and vibration in accordance with regulations, standards and workplace requirements |
| 4. Remove materials from site | 4.1 Materials and debris are removed from demolition area according to demolition method statement and workplace procedures   |
|                               | 4.2 Re-useable and recyclable materials are salvaged and stored in accordance with workplace procedures   |
| 5. Clean up                   | 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification                   |
|                               | 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices                    |



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the conduct of mechanical demolition processes, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturer's instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with the conduct of mechanical demolition processes, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to the conduct of mechanical demolition processes, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- The unit requires the preparation for and the mechanical demolition and removal of materials from a demolition site in accordance with a site demolition plan
- Mechanical demolition is performed by excavators and may be performed by backhoes and skidsteer loaders
- Plant may be fitted with, but not limited to, rock breakers, 4 in 1 buckets, grabs, buckets, pulverisers, shears, rippers and may include vibrating plates
- The site demolition plan documents the demolition process and safe work practices
- Types of construction include brickwork, blockwork, brick veneer, concrete, timber framed and light steel framed structures
- Services may include electricity, gas, water, telephone and computer/communication
- Demolition tasks may be performed on a new construction site or an existing structure being renovated or extended which involves the complete or partial removal of components
- Preparation of work areas may include, but is not limited to, determination of floor loadings, assessment of condition of property and surrounds, the identification of hazardous materials, the erection of scaffolding, provision for site safety, installation of supports and bracing, location of signage and barricades, identification of positions of hoses and cables clear of hazards and communication with those who may be affected by the demolition task

**Safety (OH&S)**

- OH&S 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, 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 overhead lines and cables, underground services and utilities, lighting, earth leakage boxes, 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 emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, sedimentation control and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include, but not be limited to, bars (crow and pinch), bolt cutters, sledge hammers, picks/mattocks, power drills and saws, pneumatic picks/rock breakers, concrete saws, quick cut saws, angle grinders, compressors, electric testers, shovels/spades, brooms, wheelbarrows, signs and barricades

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the conduct of mechanical demolition processes
- Regulatory/legislative requirements pertaining to the conduct of mechanical demolition processes
- Manufacturer's specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- As a minimum, given a site demolition plan and instructions, using an excavator and selected attachments, knock down a single storey building, relocating salvage on-site for later removal and dispose of debris and waste, ensuring:
  - correct identification of requirement and conduct of the demolition
  - correct selection and use of appropriate processes, plant and equipment
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria****A knowledge of:**

- Workplace and equipment safety requirements
- Quality requirements
- General Construction terminology
- Types, characteristics, uses and limitations of plant and equipment involved in the conduct of mechanical demolition processes
- The techniques associated with the conduct of mechanical demolition processes
- Material Safety Data Sheets
- Plans, drawings and specifications
- Materials handling, storage and environmentally friendly waste management
- The method of operation and maintenance requirements of demolition plant and equipment
- Hazards associated with the conduct of mechanical demolition tasks
- Measurement and calculation
- JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - appropriate demolition plant, tools and equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDE3002B****Unit Descriptor****Encapsulate and remove asbestos**

This unit specifies the competency required to remove asbestos from a building or demolition site.

This unit includes the planning, preparation and conduct of the removal and encapsulation process, including decontamination and refurbishing requirements.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Demolition

**ELEMENT****PERFORMANCE CRITERIA**

- |                                  |  |
|----------------------------------|--|
| 1. Plan and prepare              | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are selected to carry out tasks that are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare asbestos removal site | 2.1 Asbestos materials to be removed are identified in accordance with workplace procedures<br>2.2 Fall protection devices are installed in accordance with job requirements and workplace procedures<br>2.3 Decontamination chamber is positioned and assembled to manufacturers' requirements<br>2.4 Services are connected to the decontamination chamber to regulatory and codes of practice requirements<br>2.5 Decontamination procedure is tested in accordance with workplace procedures   |
| 3. Encapsulate asbestos area     | 3.1 Area of asbestos removal is encapsulated in accordance with the asbestos removal plan requirements<br>3.2 Negative air pressure is maintained to manufacturers' requirements<br>3.3 Encapsulated area is inspected and smoke tested for air tightness<br>3.4 Approval to proceed with asbestos removal is gained from appropriate authority  |
| 4. Remove asbestos material      | 4.1 Asbestos is removed from the structure in the appropriate manner in accordance with asbestos removal plan and regulatory requirements and codes of practice<br>4.2 Removed asbestos is placed into removal bags/bins, sealed, labelled and removed from site in accordance with regulatory requirements  |



- 5. Carry out decontamination process
  - 5.1 Decontamination chamber is used to manufacturers' and regulatory requirements and codes of practice
  - 5.2 Decontamination of all asbestos removal workers is carried out according to workplace procedures, in accordance with asbestos removal plan and regulatory requirements
  - 5.3 Approval to disassemble asbestos removal and decontamination equipment is gained in accordance with regulatory requirements and codes of practice
  - 5.4 Asbestos removal and decontamination equipment is removed from the area in accordance with asbestos removal plan and regulatory requirements
- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the encapsulating and removal of asbestos, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with the encapsulating and removal of asbestos, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to the encapsulating and removal of asbestos, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- The unit requires the identification, preparation for, encapsulation and removal of asbestos from a demolition work site in accordance with an asbestos removal plan
- Asbestos may be located in friable materials or non-friable products and may be sprayed, bonded or embedded
- Asbestos may be removed by water jet/spray or demolition of structure

### Safety (OH&S)

- OH&S 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, 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 overhead lines and cables, underground services and utilities, lighting, earth leakage boxes, 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 emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, sedimentation control and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include, but not be limited to, bars(crow and pinch), sledge hammers, hammers, shovels/spades, brooms, hoses and spray fittings, fall protection devices, signs and barricades, respirators, disposable coveralls, overshoes, gloves, scrapers, brushes, dustpans and brushes, approved vacuum cleaners and decontamination units/chambers</li><li>• Tools and equipment may include scaffolds</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials are to include approved plastic bags, duct tape, plastic sheeting and foam infill spray</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to the encapsulating and removal of asbestos</li><li>• Regulatory/legislative requirements pertaining to the encapsulating and removal of asbestos</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 encapsulating and removal of asbestos
- Communication and working effectively and safely with others
- As a minimum, given an asbestos removal plan and instructions, set up a decontamination chamber, encapsulate, remove and dispose of friable asbestos insulation from a demolition site, ensuring:
  - correct identification of requirement and conduct of the process
  - correct selection and use of appropriate procedures, plant and equipment
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of:
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Types, characteristics, uses and limitations of plant and equipment involved in the encapsulating and removal of asbestos
  - The techniques associated with the encapsulating and removal of asbestos
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly hazardous waste management
  - The method of operation and maintenance requirements of demolition plant and equipment
  - Hazards associated with the encapsulation and removal processes
  - Asbestos identification procedures
  - Handling requirements of differing types of asbestos materials
  - Risk assessment processes and contingency planning
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - appropriate plant, tools and equipment for the encapsulating and removal of asbestos
  - appropriate materials for the encapsulating and removal of asbestos
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDE3003B****Unit Descriptor****Operate crushing plant**

This unit specifies the competency required to operate a crushing plant to provide various size ranges of crushed materials.

This unit includes the preparation, inspection and maintenance, operation and shut down of crushing plant.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Demolition

**ELEMENT****PERFORMANCE CRITERIA**

- |                                    |  |
|------------------------------------|--|
| 1. Plan and prepare                | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are selected to carry out tasks that are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare for crushing operations | 2.1 Crushing plant daily schedule and the size and type of materials to be crushed are determined from work/supply schedule<br>2.2 Crushing plant is visually inspected for correct operational condition as per manufacturers' requirements<br>2.3 Daily/periodic maintenance is carried out in accordance with plant maintenance schedule and manufacturers' instructions<br>2.4 Faults are identified and corrected or reported to supervisor<br>2.5 Plant is prepared and set for initial size range of crushings  |
| 3. Operate crushing plant          | 3.1 Crushing plant and equipment is operated and tested for correct operation as per manufacturers' specifications<br>3.2 Uncrushed materials are directed into hopper and feed of uncrushed materials is maintained according to manufacturers' instructions<br>3.3 Crushing plant is stopped, cleared of blocked materials and restarted in accordance with manufacturers' instructions and site safety plan.<br>3.4 Crushing plant settings are maintained in accordance with manufacturers' instructions   |
| 4. Shut down plant                 | 4.1 Crushing plant is shut down in accordance with manufacturers' instructions and site safety/operation plan<br>4.2 Faults identified are reported to supervisor and plant tagged in accordance with workplace procedures   |



- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the operation of crushing plant, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the operation of crushing plant, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to the operation of crushing plant, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- The unit requires the preparation for and the operation and shutting down of crushing plant to crush demolition material to specified sizes
- Crushing plant may be stationary (fixed) or mobile
- Materials to be crushed may include, but is not limited to, in-situ demolition site materials, imported materials, rocks, gravels and recycled materials
- Types of demolished construction include brickwork, blockwork, brick veneer, concrete, timber framed and light steel framed structures
- Demolition tasks may be performed on a new construction site or an existing structure being renovated or extended which involves the complete or partial removal of components

### Safety (OH&S)

- OH&S 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, 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 overhead lines and cables, underground services and utilities, lighting, earth leakage boxes, working with dangerous/ hazardous materials, 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 emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration, sedimentation control and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials to be crushed may be bricks, concrete, blocks, stone and pavers</li></ul>
Plant and equipment	<ul style="list-style-type: none"><li>• Plant and equipment are to include crusher plants and excavators</li><li>• Equipment may include a conveyor belt</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to the operation of crushing plant</li><li>• Regulatory/legislative requirements pertaining to the operation of crushing plant</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Given a crushing schedule and instructions, crush, a minimum of 100 tonnes of demolition material into multiple grades of crushings, ensuring:
  - correct identification of requirement and operation of the plant
  - correct selection and use of appropriate processes, plant and equipment
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of:
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Types, characteristics, uses and limitations of plant and equipment involved in the conduct of crushing operations
  - The techniques associated with the conduct of crushing operations
  - Material Safety Data Sheets
  - Specifications and work schedules
  - Materials handling, storage and environmentally friendly waste management
  - The method of operation and maintenance requirements of crushing plant and equipment
  - Hazards associated with the conduct of crushing operations
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource  
requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - appropriate crushing plant, tools and equipment
  - appropriate demolition materials to be crushed
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDO2001B****Safely handle and use dogging tools and equipment****Unit Descriptor**

This unit specifies the competency required to safely move, locate and store dogging equipment and use of associated tools, to assist project planning and ensure OH&S requirements.

The unit includes delivery, selection, positioning and maintenance of dogging tools and equipment.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Dogging

**ELEMENT****PERFORMANCE CRITERIA**

- |  |  |
|--|--|
| 1. Plan and prepare  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Handle, sort and stack dogging equipment and associated tools | 2.1 Tools are safely and effectively used according to manufacturers' recommendations and state or territory OH&S requirements<br>2.2 Dogging equipment is identified and checked for conformity to the materials schedule, plans and specifications<br>2.3 Dogging equipment is moved to specified location applying safe manual handling techniques<br>2.4 Dogging equipment is sorted to suit material type and size, stacked for ease of identification and retrieval for task sequence and job location in accordance with job specifications<br>2.5 Dogging equipment and associated tools are protected against physical and water damage and stored clear of access ways, for ease of identification, retrieval and distribution   |



- 3. Prepare for mechanical handling of materials
  - 3.1 Dogging equipment is stacked/banded for mechanical handling in accordance with the type of material and plant/equipment to be used
  - 3.2 Dogging equipment is loaded, unloaded, moved or located at specified location assisting the forklift driver/rigger/dogman
  - 3.3 Dogging equipment and tools are safely handled with mechanical lifting devices
- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to::

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for handling and using dogging tools and equipment, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with handling and using dogging tools and equipment, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to handling and using dogging tools and equipment, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Handling methods for dogging equipment are to include manual handling, assisting the forklift driver/rigger/dogman, basic mechanical lifting devices and slings
- Preparation for mechanical lifting devices are to include but not be limited to forklifts and cranes
- Dogging equipment is to include but not be limited to single leg slings, four leg slings, chain slings, synthetic webbing slings, two leg sling, flexible steel wire rope, natural ropes, shackles and eye bolts, spreader beams, whistles, chocks and wedges, packers, rigging screws, turn buckles, personnel box, rubbish bins, brick cages, kibbles and may include cantilevered crane loading platforms, two way radios, perimeter safety screens/shutters and rescue boxes
- Stacking and storage is to include but not be limited to pallets, stillage and banding
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to handling and using dogging tools and equipment
- Regulatory/legislative requirements pertaining to handling and using dogging tools and equipment
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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, equipment
- Communication and working effectively and safely with others
- Safe handling of dogging equipment and all associated tools for all mandatory equipment and tools specified in the Range Statement, following OH&S regulations

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Dogging handling techniques
  - Dogging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations
  - Signalling methods
  - Safe working load tags
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to handling and using dogging tools and equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDO3001B****Unit Descriptor****Perform dogging**

This unit specifies the competency required to undertake basic dogging work, both in sight and out of sight of the crane operator, for the purpose of shifting loads mechanically.

The unit includes selecting sling types and sizes and maintaining the stability of the load.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Dogging

**ELEMENT****PERFORMANCE CRITERIA**

- |                             |  |
|-----------------------------|--|
| 1. Plan and prepare         | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Select dogging equipment | 2.1 Resources, materials and equipment are selected and inspected for compliance with job specifications<br>2.2 Job sequencing schedule is communicated with team members and others to ensure coordination<br>2.3 Load mass is calculated and confirmed using load charts and standard calculations<br>2.4 Load in slings and equipment are calculated to suit job requirements   |
| 3. Sling loads              | 3.1 Lifting devices are assembled/erected for the movement of load<br>3.2 Loads are slung to crane ready for lifting<br>3.3 Protective packing is applied to the load  |
| 4. Shift loads              | 4.1 Loads is shifted ensuring stability in compliance with work method statement<br>4.2 Load is directed to landing position using communications in compliance with Australian Standards and recognised work practices<br>4.3 Load is landed in required position on packing or bearers   |



- 5. Remove dogging equipment
  - 5.1 Load shifting equipment is dismantled and inspected for wear and log book and site records completed to company requirements
- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 6.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices
  - 6.3 Work completion procedures are applied and relevant personnel notified that work is finished

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing dogging, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing dogging, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to performing dogging, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, standard calculations, delivery dockets, load share, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain, flexible steel wire rope, natural or synthetic fibre
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Lifting devices are to include but not be limited to tags, lifting clutches, shackles, snatch blocks, eye bolts and may include equalizing sheaves, collared eye bolts, turn buckles, rigging screws and lifting lugs
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes and slewing cranes
- Materials are considered equipment and vice versa

## Safety (OH&amp;S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency stopping, extinguishing fires, organisational first aid requirements and evacuation

## Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, vibration and clean-up management

## Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

## Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and Equipment

- Tools and equipment are to include but not be limited to brick cages, personnel cages, kibbles, rubbish bins, spreader bars and beams and rescue cages

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing dogging
- Regulatory/legislative requirements pertaining to performing dogging
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

**EVIDENCE GUIDE**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- As a minimum, read tags, sling, load, direct and land loads in conjunction with a slewing mobile crane with a telescopic boom and a winch, out of sight for:
  - rigid heavy loads to two third capacity of the crane
  - luff movements, boom retract and boom extend, slew right and slew left, winch up and down in combination
  - a flexible load with a minimum of 3 lifting points
  - using hand signals and whistle from minimum radius to maximum radius

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Dogging techniques
  - Dogging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations and limitations
  - Signalling methods and communications
  - Safe working load tags
  - Log books
  - Weather and ground considerations
  - Safe working at heights and fall arrest
  - Elevated work platforms
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing dogging
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGDO3002B****Unit Descriptor****Perform crane scheduling**

This unit specifies the competency required to schedule dogging operations to ensure safe, efficient and effective use of the crane within the overall daily site plan and operations.

The unit includes coordinating and prioritizing of loads for the various construction elements of a project.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Dogging

**ELEMENT****PERFORMANCE CRITERIA**

- |                                  |  |
|----------------------------------|--|
| 1. Plan and prepare              | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Interact with crane crew      | 2.1 Job sequencing schedule is prepared so that it enhances the work method statement/job safety analysis<br>2.2 Job sequencing schedule is communicated with crane crew<br>2.3 Work is coordinated/modified as other on site activities progress or are modified<br>2.4 Crane driver is advised of changes to lifting schedule when a change is required or as requested by management<br>2.5 Changes to job sequencing schedule are recorded as per site requirements  |
| 3. Communicate with site members | 3.1 Team members and others are communicated with to ensure coordination requirements<br>3.2 Contingency plans are discussed among team members<br>3.3 Team members are advised of changes to lifting schedule when a change is required or as requested by management   |



- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices
  - 4.3 Work completion procedures are applied and relevant personnel notified that work is finished

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing crane scheduling, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	3
Planning and organising activities	Conduct activities associated with performing crane scheduling, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	3
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	3
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	3
Using technology	Use workplace technology related to performing crane scheduling, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Order of lifts are to include but not be limited to procedures with JSA's/Safe work method statements and building and construction procedures (e.g. concreting, steel fixing, carpentry, rigging)
- Traffic control signage may include but not be limited to highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, and traffic conditions signage
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes, non slewing cranes and gantry cranes
- Materials are considered equipment and vice versa

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, vibration and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and Equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to two-way radios</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to performing crane scheduling</li><li>• Regulatory/legislative requirements pertaining to performing crane scheduling</li><li>• Engineers' design specifications/manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Interpretation and estimation of load sizes (dimension and mass) and following of project drawings, scheduling the correct sequence of lifts for a project, for a minimum of three trades, to job specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Crane scheduling techniques
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations and limitations
  - Signalling methods and communications
  - Sequencing and order of lifts
  - Construction processes
  - Critical path analysis
  - Safe work method statements and JSA's

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing crane scheduling
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGRI3001B

### Unit Descriptor

## Operate personnel and materials hoists

This unit specifies the competency required to operate personnel and materials hoists for moving people and equipment to various heights in a multi-storey structure.

The unit includes pre-operational checks, operation, shut down and post operational checks.

### Prerequisite Unit(s)

BCGCM1001B Follow OH&S policies and procedures

### Unit Sector

Rigging

### ELEMENT

### PERFORMANCE CRITERIA

- |                               |   |
|-------------------------------|---|
| 1. Plan and prepare           | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Conduct daily safety check | 2.1 Hoisting details for the day are identified from proposed work schedule and hoist work program developed<br>2.2 Signalling system is confirmed with associated site personnel<br>2.3 Weather conditions for safe hoist operation are assessed<br>2.4 Equipment and site are checked for damage, structural weakness or interference<br>2.5 Mechanical, electrical and safety functions are checked in accordance with operators manual and checklist<br>2.6 Test run is conducted through full height of travel without a load checking operation and security of mast and wall bolting<br>2.7 Braking system checked and tested<br>2.8 Safety systems are checked and challenged   |
| 3. Record results             | 3.1 Results of checks and tests are recorded in hoist book to requirement of regulatory authority<br>3.2 Faults are reported in accordance with company policy  |

- 4. Operate hoist
  - 4.1 Loads are checked for conformity to safe load capacity of hoist
  - 4.2 Hoist is safely operated to requirements of operators manual and State/Territory regulatory authority
  - 4.3 Hoist is shut down, rendered safe and secured at end of work period in accordance with operators manual
  - 4.4 Post operational checks are conducted and recorded
- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices
  - 5.3 Work completion procedures are applied and relevant personnel notified that work is finished



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for operating personnel and materials hoists, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with operating personnel and materials hoists, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to operating personnel and materials hoists, including the use of calculators, hoisting equipment, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Personnel and materials hoists are to include but not be limited to rack and pinion and may include winch operated, self climbing and super hoist
- Safety systems are to include but not be limited to limit switches, manual lowering systems, emergency brakes and anemometer
- Types of hoist may include but not be limited to materials, bucket, cantilevered, car, platform, personnel and materials, multiple winch and tower
- Work completion details may include but not be limited to check sheets, equipment defect records, job cards, plant and maintenance records, safe work method statements and JSA's

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and Equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to personnel and materials hoists and all associated equipment</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to operating personnel and materials hoists</li><li>• Regulatory/legislative requirements pertaining to personnel and materials hoists</li><li>• Engineers' design specifications/manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of pre-operational check, raise and lower to four limits including a top and bottom, conduct manual lowering between floors, shut down and carry out post operational checks, finalise log book, all to manufacturers specifications and complying with OH&S legislation

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Hoist operation techniques
  - Personnel and materials hoist equipment
  - Processes for the calculation of load mass requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of hoisting equipment
  - Signalling methods and communications
  - Fault finding and identification
  - Working at heights
  - Emergency procedures (hoist specific)
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to operating personnel and materials hoists
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGRI3002B

### Unit Descriptor

## Perform rigging - basic

This unit specifies the competency required to erect or install permanent steel structures, dismantle structural steel and move or locate plant and equipment using a range of basic rigging and dogging techniques.

The unit includes load distribution and calculation.

**Prerequisite Unit(s)**  
**Unit Sector**

BCGCM1001B Follow OH&S policies and procedures  
Rigging

### ELEMENT

### PERFORMANCE CRITERIA

- |                      |   |
|----------------------|---|
| 1. Plan and prepare  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Select equipment  | 2.1 Resources, materials and equipment are selected and inspected for compliance with job specifications<br>2.2 Lifting equipment is inspected according to manufacturers' specifications<br>2.3 Lifting equipment which is identified as inconsistent with manufacturers' specifications is labelled, rejected and disposed of to prevent its use in any circumstance  |
| 3. Connect equipment | 3.1 Loads and slings are slung to protect the load and associated equipment<br>3.2 Whole or part loads are secured to prevent uncontrolled movement<br>3.3 Slings, or parts of slings, are attached to the load and positioned to ensure safe movement<br>3.4 Slings, or parts of slings, are attached to hook while the hoist wire is vertical<br>3.5 Tag lines are attached to the load where specified<br>3.6 Test lifts are performed to ensure safe and secure movement of the load where specified  |

- |                             |   |
|-----------------------------|---|
| 4. Move and position loads  | 4.1 Load destination is determined and the landing area prepared to accept the load   |
|                             | 4.2 Lifting or pulling device is assembled and erected where specified  |
|                             | 4.3 Load is safely moved to required destination and secured in position to clients specifications or job requirements                                    |
|                             | 4.4 Standard communication signals are used to coordinate safe movement of the load   |
| 5. Remove rigging equipment | 5.1 Lifting/moving equipment and packing is dismantled, lowered and inspected for wear and log book and site records completed to company requirements    |
| 6. Clean up                 | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|                             | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |
|                             | 6.3 Work completion procedures are applied and relevant personnel notified that work is finished  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing basic rigging, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing basic rigging, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to performing basic rigging, including the use of calculators, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, fleet angles, diverter sheaves, lead loads, head loads, load angle factors, multiple fall, load share, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain, flexible steel wire rope, natural or synthetic fibre
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Lifting devices are to include but not be limited to shackles, turn buckles, jacks, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, I bolts and may include rigging screws, lifting lugs, lifting clutches and snatch blocks
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes, non slewing cranes and gantry cranes
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and Equipment**

- Tools and equipment are to include but not be limited to shifting spanners, tape measures, hammers, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels, automatic levels and may include elevated work platforms, laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids, pneumatic tools and scaffolding

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing basic rigging
- Regulatory/legislative requirements pertaining to performing basic rigging
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of one of the following:
  - Install and use a fall arrest system, sling, receive, place and brace a module of structural steel to a minimum of 16m? in the correct sequence above a minimum of 5 metres high
  - Set up, place, install and brace perimeter safety screen and jump for two floors and a loading bay
  - Skid, locate and install heavy industrial equipment using winches, creeper skids for at least one tonne of plant

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGDO3041B Perform dogging
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Basic rigging techniques
  - Basic rigging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations and limitations
  - Signalling methods and communications
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing basic rigging
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGRI3003B

### Unit Descriptor

## Perform rigging - intermediate

This unit specifies the competency required to erect cranes and erect tilt up panels using intermediate rigging techniques.

The unit includes load distribution and calculation.

### Prerequisite Unit(s)

BCGRI3002B Perform rigging - basic

BCGCM1001B Follow OH&S policies and procedures

### Unit Sector

Rigging

### ELEMENT

### PERFORMANCE CRITERIA

#### 1. Plan and prepare

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied
- 1.2 Safety requirements are followed in accordance with safety plans and policies
- 1.3 Signage/barricade requirements are identified and implemented
- 1.4 Plant, 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 Material quantity requirements are calculated in accordance with plans and/or specifications
- 1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use
- 1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied

#### 2. Select equipment

- 2.1 Resources, materials and equipment are selected in accordance with load charts and inspected for compliance with job specifications
- 2.2 Lifting equipment is inspected according to manufacturers' specifications
- 2.3 Lifting and load shifting equipment which is identified as inconsistent with manufacturers' specifications is labelled, rejected and disposed of to prevent its use in any circumstance
- 2.4 Elevated work platforms and other means of mechanical access systems are determined and selected where specified
- 2.5 Fall arrest equipment, with ground level installation, is installed
- 2.6 Personal cartage systems are determined and selected

- |                             |   |
|-----------------------------|---|
| 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 Load steorage lines are attached and used to prevent unnecessary load movement  |
| 4. Move and position loads  | 4.1 Load lifting/shifting order is determined to minimise necessity of double lifts   |
|                             | 4.2 Lifting/shifting equipment is connected to the load   |
|                             | 4.3 Test lift/shift is performed to ensure lift suitability   |
|                             | 4.4 Load is safely moved to required destination and secured in position to clients specifications or job requirements                                    |
|                             | 4.5 Standard communication signals are used to coordinate safe movement of the load   |
| 5. Remove rigging equipment | 5.1 Lifting/shifting equipment and packing is dismantled, lowered and inspected for wear and log book and site records completed to company requirements  |
| 6. Clean up                 | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|                             | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |
|                             | 6.3 Work completion procedures are applied and relevant personnel notified that work is finished  |



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing intermediate rigging, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing intermediate rigging, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to performing intermediate rigging, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, fleet angles, diverter sheaves, lead loads, head loads, load angle factors, multiple fall, load share, load share distribution, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain, flexible steel wire rope, natural or synthetic fibre
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Lifting techniques are to include single and dual lifts
- Lifting devices are to include but not be limited to shackles, turn buckles, jacks, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, eye bolts and may include rigging screws, lifting lugs, lifting clutches and snatch blocks
- Load shifting equipment may include but not be limited to skates, hydraulic jacks, winches and rails
- Personal cartage systems may include but not be limited to man boxes and elevated work platforms
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes, non slewing cranes and gantry cranes
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and Equipment**

- Tools and equipment are to include but not be limited to shifting spanners, tape measures, hammers, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels, automatic levels plumbing/levelling equipment and may include elevated work platforms laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids and pneumatic tools

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing intermediate rigging
- Regulatory/legislative requirements pertaining to performing intermediate rigging
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Erection and dismantling of at least one lattice boom crane and fly with correct rigging and slinging techniques
- Erection of a multi point pre-cast tilt slab of at least 10 tonne with correct rigging, slinging and de-rigging techniques, including determination of lifting points, temporary supports and permanent fixing points from drawings
- Application of both single and dual lifting techniques

### **Relationship to other units?**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGRI3002B Perform rigging - basic
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Rigging techniques
  - Rigging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations and limitations
  - Signalling methods and communications
  - Tilt slab and pre-cast construction
  - JSA's/Safe work method statements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing intermediate rigging
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGRI3004B

### Unit Descriptor

## Perform advanced structural steel erection

This unit specifies the competency required to erect or install advanced permanent steel structures, coordinating the slinging, stability, lifting, moving and placement of loads in conjunction with the crane operator.

The unit includes equipment selection, load distribution and calculation.

### Prerequisite Unit(s)

BCGRI3002B Perform rigging - basic

BCGCM1001B Follow OH&S policies and procedures

### Unit Sector

Rigging

### ELEMENT

### PERFORMANCE CRITERIA

- |                     |   |
|---------------------|---|
| 1. Plan and prepare | <ul style="list-style-type: none"> <li>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied</li> <li>1.2 Safety requirements are followed in accordance with safety plans and policies</li> <li>1.3 Signage/barricade requirements are identified and implemented</li> <li>1.4 Plant, 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</li> <li>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications</li> <li>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use</li> <li>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied</li> </ul> |
| 2. Select equipment | <ul style="list-style-type: none"> <li>2.1 Resources, materials and equipment are selected in accordance with load charts and inspected for compliance with job specifications</li> <li>2.2 Lifting equipment is inspected according to manufacturers specifications</li> <li>2.3 Lifting and load shifting equipment which is identified as inconsistent with manufacturers specifications is labelled, rejected and disposed of to prevent its use in any circumstance</li> <li>2.4 Elevated work platforms and other means of mechanical access systems are determined and selected where specified</li> <li>2.5 Fall arrest equipment is installed</li> <li>2.6 Personnel cartage systems are identified and selected</li> </ul>  |



- |                             |   |
|-----------------------------|---|
| 3. Connect equipment        | 3.1 Loads are slung to protect the load and prevent damage to the slings  |
|                             | 3.2 Whole or part loads are secured to prevent uncontrolled movement  |
|                             | 3.3 Slings, or parts of slings, are attached to the load and positioned to ensure safe movement   |
|                             | 3.4 Slings, or parts of slings, are attached to hook while the hoist wire is vertical   |
|                             | 3.5 Tag lines are attached to the load where specified  |
|                             | 3.6 Test lifts are performed to ensure safe and secure movement of the load where specified   |
| 4. Move and position loads  | 4.1 Load destination is determined and the landing area prepared to accept the load   |
|                             | 4.2 Lifting or pulling device is assembled and erected where specified  |
|                             | 4.3 Load is safely moved to required destination and secured in position to clients specifications or job requirements                                    |
|                             | 4.4 Standard communication signals are used to coordinate safe movement of the load   |
| 5. Remove rigging equipment | 5.1 Lifting/moving equipment and packing is dismantled, lowered and inspected for wear and log book and site records completed to company requirements    |
| 6. Clean up                 | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|                             | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |
|                             | 6.3 Work completion procedures are applied and relevant personnel notified that work is finished  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing advanced structural steel erection, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturer's instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing advanced structural steel erection, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to performing advanced structural steel erection, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, fleet angles, diverter sheaves, lead loads, head loads, load angle factors, multiple fall, load share, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain and flexible steel wire rope
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes, non slewing cranes and gantry cranes
- Advanced lifting techniques are to include but not be limited to strongbacks and bowstrings
- Steel components are to include but not be limited to columns, beams, bracing, rafters, purlins, girts, bridging and fly bracing, trusses, freestanding structures and portal frame buildings
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and Equipment

- Tools and equipment are to include but not be limited to shackles, turn buckles, jacks, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, eye bolts, shifting spanners, tape measures, hammers, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels and automatic levels
- Tools and equipment may include rigging screws, lifting lugs, lifting clutches and snatch blocks, elevated work platforms, laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids, pneumatic tools and scaffolding

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing advanced structural steel erection
- Regulatory/legislative requirements pertaining to performing advanced structural steel erection
- Engineers design specifications/manufacturer's specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of the erection of a portal frame building including trusses, bracing, purlins and girts, incorporating at least one strongback lift and one bowstring lift, all in accordance with manufacturers and engineers specifications

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGRI3002B Perform rigging - basic
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Basic rigging techniques
  - Basic rigging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane operations and limitations
  - Signalling methods and communications
  - JSA's/Safe work method statements
  - Relevant Australian Standards

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing advanced structural steel erection
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGRI3005B

### Unit Descriptor

## Perform advanced tilt slab erection

This unit specifies the competency required to conduct advanced tilt up slab erections coordinating the slinging, stability, lifting, moving, placement and storage of slabs in conjunction with the crane operator.

The unit includes equipment selection, load distribution and calculation.

### Prerequisite Unit(s)

BCGRI3003B Perform rigging - intermediate

BCGCM1001B Follow OH&S policies and procedures

### Unit Sector

Rigging

### ELEMENT

### PERFORMANCE CRITERIA

- |                     |   |
|---------------------|---|
| 1. Plan and prepare | <ul style="list-style-type: none"> <li>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied</li> <li>1.2 Safety requirements are followed in accordance with safety plans and policies</li> <li>1.3 Signage/barricade requirements are identified and implemented</li> <li>1.4 Plant, 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</li> <li>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications</li> <li>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use</li> <li>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied</li> </ul> |
| 2. Select equipment | <ul style="list-style-type: none"> <li>2.1 Resources, materials and equipment are selected in accordance with load charts and inspected for compliance with job specifications</li> <li>2.2 Lifting equipment is inspected according to manufacturers specifications</li> <li>2.3 Lifting and load shifting equipment which is identified as inconsistent with manufacturers specifications is labelled, rejected and disposed of to prevent its use in any circumstance</li> <li>2.4 Elevated work platforms and other means of mechanical access systems are determined and selected where specified</li> <li>2.5 Fall arrest equipment is installed</li> <li>2.6 Personnel cartage systems are identified and selected</li> </ul>  |



- |                             |   |
|-----------------------------|---|
| 3. Erect tilt slabs         | <ul style="list-style-type: none"><li>3.1 Job sequencing schedule and documentation is identified and communicated to team members to ensure coordination</li><li>3.2 Load mass is calculated and confirmed</li><li>3.3 Erection sequence for tilt slab components is identified</li><li>3.4 Lifting or pulling devices are assembled and erected for the movement of loads</li><li>3.5 Load is slung</li><li>3.6 Load is shifted in accordance with JSA/Safe work method statement</li><li>3.7 Stability of load is maintained during lifting, tilting and transportation</li><li>3.8 Load is directed to landing position in accordance with engineers specifications</li></ul> |
| 4. Position and anchor      | <ul style="list-style-type: none"><li>4.1 Tilt slab components are positioned in accordance with engineers specifications</li><li>4.2 Shape of structure is achieved by checking dimensions and applying temporary bracing</li><li>4.3 Tilt slab components are anchored in accordance with manufacturers and engineers specifications</li></ul>  |
| 5. Remove rigging equipment | <ul style="list-style-type: none"><li>5.1 Lifting/shifting equipment and packing is dismantled, lowered and inspected for wear and log book and site records completed to company requirements</li></ul>  |
| 6. Clean up                 | <ul style="list-style-type: none"><li>6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification</li><li>6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</li><li>6.3 Work completion procedures are applied and relevant personnel notified that work is finished</li></ul>   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing advanced tilt slab erection, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturer's instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing advanced tilt slab erection, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to performing advanced tilt slab erection, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, fleet angles, diverter sheaves, lead loads, head loads, load angle factors, multiple fall, load share, load share distribution, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain and flexible steel wire rope
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Personal cartage systems may include but not be limited to personnel boxes and elevated work platforms
- Types of cranes may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes, non slewing cranes and gantry cranes
- Tilt slabs are to include but not be limited to prefabricated and cast in-situ tilt slabs and may include slabs with cast in lifting and/or bracing inserts
- Tilt slabs are to be erected following panel erection drawings and lift plans
- Bracing of tilt slabs is to include but not be limited to lateral bracing, end bracing, main bracing, knee bracing and may include deadman bracing
- Advanced lifting techniques are to include but not be limited to rotation (turning panel from one plane to another), standard lift from a truck and lift from flat on ground all to engineers specifications
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and Equipment

- Tools and equipment are to include but not be limited to shackles, turn buckles, jacks, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, eye bolts, shifting spanners, tape measures, hammers, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels and automatic levels plumbing/levelling equipment
- Tools and equipment and may include rigging screws, lifting lugs, lifting clutches and snatch blocks, skates, hydraulic jacks, winches and rails, elevated work platforms laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids and pneumatic tools

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing advanced tilt slab erection
- Regulatory/legislative requirements pertaining to performing advanced tilt slab erection
- Engineers design specifications/manufacturer's specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Erection of one multi point pre-cast tilt slab and one cast in-situ tilt slab each of at least 10 tonne with correct rigging, slinging and de-rigging techniques, including determination of lifting points, temporary supports and permanent fixing points from panel erection drawings and following the lift plan including:
  - positioning and bracing the slab
  - safe unloading from the truck
  - rotation of panel from one plane to another
  - incorporating at least two bracing techniques

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGRI3003B Perform rigging - intermediate
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Rigging techniques
  - Rigging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Crane types operations and limitations
  - Elevated work platforms
  - Signalling methods and communications
  - Tilt slab and pre-cast construction
  - JSA's/Safe work method statements
  - Tilt slab code of practice
  - Panel lifting point design
  - Cast in lifting and bracing inserts
  - Tilt slab storage
  - Documentation requirements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing advanced tilt slab erection
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



## BCGRI3006B

### Unit Descriptor

## Perform advanced tower crane erection

This unit specifies the competency required to conduct advanced tower crane erection coordinating the slinging, stability, lifting, moving and placement of tower cranes and tower crane sections in conjunction with the crane operator.

The unit includes equipment selection, load distribution and calculation.

### Prerequisite Unit(s)

BCGRI3003B Perform rigging - intermediate

BCGCM1001B Follow OH&S policies and procedures

### Unit Sector

Rigging

### ELEMENT

### PERFORMANCE CRITERIA

- |                        |   |
|------------------------|---|
| 1. Plan and prepare    | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Plan crane erection | 2.1 Crane erection, rigging and dismantling plan is identified and checked for conformity with manufacturers and engineers specifications<br>2.2 Hazard control measures are planned and implemented<br>2.3 Foundation to support crane base is checked for conformity and structural suitability in accordance with engineers' specifications  |

- |                                    |  |
|------------------------------------|--|
| 3. Select equipment                | <p>3.1 Resources, materials and equipment are selected in accordance with load charts and inspected for compliance with job specifications</p> <p>3.2 Lifting equipment is inspected according to regulatory requirements and manufacturers' specifications</p> <p>3.3 Lifting and load shifting equipment which is identified as inconsistent with manufacturers specifications is labelled, rejected and disposed of to prevent its use in any circumstance</p> <p>3.4 Elevated work platforms and other means of mechanical access systems are determined and selected where specified</p> <p>3.5 Fall arrest equipment is installed</p> <p>3.6 Personnel cartage systems are identified and selected</p>   |
| 4. Assemble and erect tower crane  | <p>4.1 Base of crane is located and positioned in accordance with manufacturers and engineers specifications</p> <p>4.2 Bottom tower and climbing frame/transition piece is erected and installed level and plumb to manufacturers and engineers specifications</p> <p>4.3 Tower braces or guys are installed and secured to support tower crane</p> <p>4.4 Mast, turntable, machine deck and power pack of crane are assembled, erected and installed in accordance with manufacturers specifications</p> <p>4.5 Main jib and counter jib are assembled and erected in accordance with manufacturers specifications</p> <p>4.6 Counter weights are lifted into cradles and secured in accordance with manufacturers specifications</p> <p>4.7 Wire ropes and the hook and block reeving are installed to manufacturers specifications</p> |
| 5. Climb (raise/lower) tower crane | <p>5.1 Drop ladder is removed, the monorail is placed and secured</p> <p>5.2 Crane is secured and placed at balance point ready for climbing</p> <p>5.3 Tower bolts to transition piece are removed, drifts fitted and rollers checked</p> <p>5.4 Tower section is moved into place in accordance with manufacturers specifications</p> <p>5.5 Crane is reconnected with bolts and a visual check of all components and connectors conducted</p>   |
| 6. Dismantle crane                 | <p>6.1 Electrical and hydraulic lines are safely disconnected</p> <p>6.2 Power pack, counterweights, climbing frame and crane deck are dismantled and safely lowered to the ground</p>   |
| 7. Clean up                        | <p>7.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification</p> <p>7.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</p> <p>7.3 Work completion procedures are applied and relevant personnel notified that work is finished</p>   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for performing advanced tower crane erection, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturer's instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with performing advanced tower crane erection, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to performing advanced tower crane erection, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Communications are to include hand signals, whistle signals and radio communications
- Calculations are to include but not be limited to load charts, fleet angles, diverter sheaves, lead loads, head loads, load angle factors, multiple fall, load share, load share distribution, pre-cast compliance charts and safe working loads
- Sling types are to include but not be limited to chain, flexible steel wire rope, natural or synthetic fibre
- Load slinging methods are to include but not be limited to straight sling, adjustable sling, reeved sling and inclined sling
- Personal cartage systems may include but not be limited to personnel boxes and elevated work platforms
- Types of cranes to be used in erection may include but not be limited to fixed cranes, tower cranes, hydraulic mobile cranes, lattice boom mobile cranes, slewing cranes
- Types of cranes to be erected are to include hammerhead tower cranes, luffing boom tower cranes and self erecting tower cranes
- Crane components to be erected are to include but not be limited to crane bases, bottom towers, tower sections, climbing frame/transition pieces, tower braces, guys, masts, turntables, machine decks, power packs, main jibs, counter jibs, counter weights, wire ropes, hook and block reeving and connecting bolts
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and Equipment

- Tools and equipment are to include shackles, turn buckles, jacks, pneumatic wrenches, torque multipliers, chain winches, hand operated creeper winches, chain blocks, pulley blocks, come alongs, air winches, trolleys, eye bolts, but not be limited to shifting spanners, tape measures, hammers, drifts, podgers spanners, wedges, sledge hammers, wrenches, spirit levels and automatic levels plumbing/levelling equipment
- Tools and equipment may include skates, hydraulic jacks, winches and rails rigging screws, lifting lugs, lifting clutches and snatch blocks, elevated work platforms laser levels, water levelling equipment, angle grinders, oxy-acetylene equipment, explosive power tools, skids and pneumatic tools

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to performing advanced tower crane erection
- Regulatory/legislative requirements pertaining to performing advanced tower crane erection
- Engineers design specifications/manufacturer's specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Full erection and rigging of one hammerhead tower crane and one luffing boom tower crane (including a jib for each) to manufacturers and engineers specifications
- Completion of the raising of one hammerhead tower crane and one luffing boom tower crane by installing at least two extra sections for each

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGRI3003B Perform rigging - intermediate
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Crane types, capabilities, operations and limitations
  - Crane erection, climbing and dismantling techniques
  - Rigging techniques
  - Rigging equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - Relevant acts, regulations and codes of practice
  - Designs and functions of lifting equipment
  - Signalling methods and communications
  - JSA's/Safe work method statements
  - Documentation requirements

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to performing advanced tower crane erection
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



**BCGSC2001B****Safely handle and use scaffolding tools and equipment****Unit Descriptor**

This unit specifies the competency required to safely move, locate, inspect, service and store scaffolding together with associated tools and equipment, to assist project planning and ensure OH&S requirements and manufacturers' specifications are met.

The unit includes delivery, selection, positioning and maintenance of scaffolding tools and equipment.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Scaffolding

**ELEMENT****PERFORMANCE CRITERIA**

- |  |   |
|--|---|
| 1. Plan and prepare  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Handle, sort and stack scaffolding equipment and associated tools | 2.1 Tools and equipment are safely and effectively used according to manufacturers' recommendations and state or territory OH&S requirements<br>2.2 Scaffolding equipment is moved to specified location applying safe manual and/or mechanical handling techniques<br>2.3 Scaffolding equipment is sorted to suit material type and size, stacked for ease of identification and retrieval for task sequence and job location in accordance with job specifications<br>2.4 Scaffolding equipment and associated tools are protected against physical, chemical, environmental and water damage and stored clear of access ways, for ease of identification, retrieval and distribution   |

- 3. Prepare for mechanical handling of materials
  - 3.1 Scaffolding equipment is stacked/banded for mechanical handling in accordance with the type of material and plant/equipment to be used
  - 3.2 Scaffolding equipment is loaded, unloaded, moved or located at specified location assisting the forklift driver/rigger/dogman
  - 3.3 Scaffolding equipment and tools is safely handled with mechanical lifting devices
- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for handling and using scaffolding tools and equipment, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with handling and using scaffolding tools and equipment, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to handling and using scaffolding tools and equipment, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Handling methods for scaffolding are to include manual handling, assisting the forklift driver/rigger/dogman, basic mechanical lifting devices and may include gin wheels
- Mechanical lifting devices are to include but not be limited to a pallet trolley and may include a forklift, barrow hoist or tele-porter
- Scaffolding equipment types are to include but not be limited to tubes, planks, sole boards, timber, metal, stairs, connectors/couplers, toe boards, bolts, frames, ledgers, transoms, bracing, clips/fittings, brick guards, standards, screw jacks and may include adjustable wheels, steel wire rope, fibre ropes, ladder beams, catch platforms, prefabricated tower scaffold, bracket scaffolds and ropes
- Stacking and storage is to include but not be limited to pallets, stillage and banding
- Materials are considered equipment and vice versa

### Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to planks (including laminated) pallet trolleys, spanners, hammers, spirit levels, tape measures, nips, ladders and may include shovels, materials hoists, forklifts, cutters, hammer drills, sledge hammers and wheel barrows</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to handling and using scaffolding tools and equipment</li><li>• Regulatory/legislative requirements pertaining to handling and using scaffolding tools and equipment</li><li>• Engineers' design specifications/manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Safe handling of scaffolding equipment and all associated tools for all mandatory equipment and tools specified in the Range Statement, following OH&S regulations

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Scaffolding handling techniques
  - Scaffolding equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statements
  - Relevant acts, regulations and codes of practice

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand and power tools, plant and equipment appropriate to handling and using scaffolding tools and equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSC2002B****Unit Descriptor****Erect and dismantle scaffolding - basic**

This unit specifies the competency required to erect and dismantle a range of modular scaffolding systems to provide work platforms for construction purposes.

The unit includes edge protection, access ways and falsework (scaffold support systems for formwork).

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Scaffolding

**ELEMENT****PERFORMANCE CRITERIA**

## 1. Plan and prepare

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied
- 1.2 Safety requirements are followed in accordance with safety plans and policies
- 1.3 Signage/barricade requirements are identified and implemented
- 1.4 Plant, 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 Material quantity requirements are calculated in accordance with plans and/or specifications
- 1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use
- 1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied

## 2. Whip, tie, splice and inspect ropes

- 2.1 Whipping cord and fibre rope is inspected for damage and or wear
- 2.2 Designated rope ends are whipped in accordance with regulations and project specifications
- 2.3 Designated rope ends are spliced in accordance with regulations and project specifications
- 2.4 Bends and hitches are applied and inspected in accordance with project specifications



- |  |   |
|--|---|
| 3. Erect scaffolding                             | 3.1 Purpose for scaffolding is confirmed and associated work tasks identified   |
|  | 3.2 Expected loading on scaffold and supporting structure is determined using load tables and from manufacturers' specifications                          |
|  | 3.3 Site access and egress routes are identified  |
|  | 3.4 Scaffolding and components are selected and inspected with damaged components labelled and rejected   |
|  | 3.5 Sole board/base plate is selected in accordance with regulations/legislation/codes of practice and manufacturers' specifications                      |
|  | 3.6 Scaffolding is set out and erected in accordance with regulatory requirements and manufacturers' requirements   |
|  | 3.7 Static lines are erected and installed where specified in accordance with regulatory requirements   |
|  | 3.8 Lifting device is assembled and erected where specified   |
| 4. Inspect, repair and alter erected scaffolding | 4.1 Erected modular scaffolding is inspected for damage, corrosion, wear and compatibility  |
|  | 4.2 Current use of scaffolding is checked against original design and is in accordance with regulations and specifications                                |
|  | 4.3 Scaffolding stability is inspected and confirmed  |
|  | 4.4 Alteration or repair carried out where specified  |
|  | 4.5 Inspection log and handover is completed and dated, ready for signing by a certificated scaffolder  |
| 5. Dismantle scaffolding                         | 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   |
| 6. Clean up                                      | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|  | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for erection and dismantling of modular scaffolding, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with erection and dismantling of modular scaffolding, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to erection and dismantling of modular scaffolding, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Erection of scaffolding is to include but not be limited to placement, sequencing, squaring, levelling, tying to structure, and the reverse for dismantling
- Purposes of scaffolding are to include but not be limited to provision of work platforms, edge protection, access ways, falsework and may include grandstands and covered walkways
- Lifting devices are to include but not be limited to cantilevered hoists and may include gin wheels
- Establishment of footings is to include review of JSA's/Safe work method statements to determine the bearing capacity of ground or working surfaces
- Whipping methods are to include common, west countryman, American and sail makers
- Splicing methods are to include end splice and eye splice
- Types of bends and hitches are to include clove hitch around a tube, rolling hitch around a tube, single bow line, timber hitch and half hitch around a plank, sheet bend to another rope
- Alteration and repair may be required due to storm damage, accidents, misuse and process changes
- Materials are considered equipment and vice versa

**Safety (OH&S)**

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

**Environmental Requirements**

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

**Quality Requirements**

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and equipment

- Tools and equipment are to include but not be limited to modular/prefabricated scaffolds, cantilevered hoists (materials only with maximum capacity of 500kg), bends and hitches, fibre ropes, bracket scaffolds (tank and formwork), stairs or ladders, steel and aluminium tubes, couplers and accessories, scaffolding planks, prefabricated components, stairs, box spanners, hammers, spirit levels, tape measures, guard rails, mid rails, braces, ledgers, scaffold belts, podgers hammers, transoms, standards, mesh guards, adjustable base plates, wire nips, wrenches, torpedo levels and may include shovels, spanners, safety nets, static lines and gin wheels

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to erecting and dismantling modular scaffolding
- Regulatory/legislative requirements pertaining to erecting and dismantling modular scaffolding
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of whipping, splicing, tying and inspecting of 5 fibre ropes in accordance with regulations
- Completion of planning, erection and dismantling of a modular scaffolding system, in accordance with JSA's/Safe work method statements and regulations, including a minimum of:
  - 5 bays with an internal and external return
  - 4 lifts including ties
  - ladder and stair access
  - fall/edge protection

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Scaffolding techniques
  - Scaffolding equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statements
  - Relevant acts, regulations and codes of practice
  - Lifting devices

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to erection and dismantling of modular scaffolding
  - hand and power tools, plant and equipment appropriate to erection and dismantling of modular scaffolding
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGSC3001B

## Erect and dismantle scaffolding - intermediate

### Unit Descriptor

This unit specifies the competency required to erect and dismantle all types of tube and coupler scaffolding systems to provide work platforms for construction purposes and all work associated with modular scaffolding systems.

The unit includes edge protection, access ways and falsework (scaffold support systems for formwork).

### Prerequisite Unit(s)

BCGCM1001B Follow OH&S policies and procedures  
BCGSC2002B Erect and dismantle scaffolding - basic

### Unit Sector

Scaffolding

### ELEMENT

### PERFORMANCE CRITERIA

#### 1. Plan and prepare

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied
- 1.2 Safety requirements are followed in accordance with safety plans and policies
- 1.3 Signage/barricade requirements are identified and implemented
- 1.4 Plant, 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 Material quantity requirements are calculated in accordance with plans and/or specifications
- 1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use
- 1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied



- |  |   |
|--|---|
| 2. Erect scaffolding                             | <ul style="list-style-type: none"><li>2.1 Purpose for scaffolding is confirmed and associated work tasks identified</li><li>2.2 Design loading on scaffold and supporting structure is determined using load tables in accordance with appropriate limits, standards and specifications</li><li>2.3 Site access and egress routes are identified</li><li>2.4 Scaffolding and components are selected and inspected with damaged components isolated, labelled, tagged and rejected</li><li>2.5 Sole board/base plate is selected in accordance with regulations/legislation/codes of practice and manufacturers' specifications</li><li>2.6 Scaffolding is set out and erected in accordance with regulatory requirements and manufacturers' requirements</li><li>2.7 Fall protection and static lines, where specified, are erected and installed in accordance with regulations and manufacturers' specifications</li><li>2.8 Lifting device is assembled and erected where specified</li></ul> |
| 3. Inspect, repair and alter erected scaffolding | <ul style="list-style-type: none"><li>3.1 Erected tube and coupler scaffolding is inspected for damage, corrosion, wear and compatibility prior to use</li><li>3.2 Faulty components are isolated, labeled, tagged, rejected or replaced immediately</li><li>3.3 Current use of scaffolding is checked against original design</li><li>3.4 Scaffolding stability is inspected and confirmed</li><li>3.5 Alteration or repair is carried out where specified or where required to ensure regulatory compliance</li><li>3.6 Inspection log and handover is completed and dated, ready for signing by a certificated scaffolder</li></ul>  |
| 4. Dismantle scaffolding                         | <ul style="list-style-type: none"><li>4.1 Scaffolding is isolated and appropriately signed and barricaded to ensure safe dismantling</li><li>4.2 Scaffolding is dismantled using reverse procedure as for erection</li></ul>  |
| 5. Clean up                                      | <ul style="list-style-type: none"><li>5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification</li><li>5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</li></ul>  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for erection and dismantling of intermediate scaffolding, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with erection and dismantling of intermediate scaffolding, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	3
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	2
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to erection and dismantling of intermediate scaffolding, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Intermediate scaffolding is to include but not be limited to planning, design, erection, alteration and dismantling of clip, tube and fitting scaffolding with mast climbers, cantilevers, barrow ramps, spurs, longitudinal and transverse braces, random planks, put logs and may include modular scaffolding
- Erection of scaffolding is to include but not be limited to set out, placement, sequencing, squaring, levelling, tying to structure, securing of planks against uplift or movement and the reverse for dismantling
- Purposes of scaffolding are to include but not be limited to provision of work platforms, edge protection, access ways, falsework and may include grandstands and covered walkways
- Lifting devices are to include but not be limited to mast climbers, cantilevered hoists and gin wheels
- Establishment of footings is to include review of JSA's/Safe work method statements to determine the bearing capacity of ground or working surfaces
- Alteration and repair may be required due to storm damage, accidents, misuse and process changes
- Materials are considered equipment and vice versa

## Safety (OH&S)

- OH&S 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, 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 power cables (including overhead service trays, cables and conduits), lighting, earth leakage boxes, trip hazards, working with dangerous materials, working in confined spaces, surrounding structures, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

## Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, vibration and clean-up management

## Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers' specifications where specified

## Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

## Tools and equipment

- Tools and equipment are to include but not be limited to clips, tube and fitting scaffolding with mast climbers, cantilevers, barrow ramps, spurs, gin wheels, cantilevered hoists (materials only with maximum capacity of 500kg), ropes, bracket scaffolds (tank and formwork), ladders, steel and aluminium tubes, couplers and accessories, scaffolding planks, prefabricated components, stairs, box spanners, hammers, spirit levels, tape measures, perimeter safety screens and shutters and may include shovels, spanners, static lines and modular scaffolding

## Communications

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

## Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to erecting and dismantling intermediate scaffolding
- Regulatory/legislative requirements pertaining to erecting and dismantling intermediate scaffolding
- Engineers' design specifications/manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Completion of planning, designing, erecting and dismantling of tube and coupler intermediate scaffolding, in accordance with JSA's/Safe work method statements and regulations, including a minimum of:
  - 3 bays and 2 lifts with an internal or external return
  - 1 barrow ramp
  - 1 spur
  - fall/edge protection

### Relationship to other units

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- BCGSC2002B Erect and dismantle scaffolding - basic
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

### Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - General Construction terminology
  - Plant, tools and equipment types, characteristics, uses and limitations
  - Scaffolding techniques
  - Scaffolding equipment
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statements
  - Relevant acts, regulations and codes of practice
  - Lifting devices
  - Log books
  - Signalling methods

### **The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

### **Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package and relevant NOHSC standards where they apply
- 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 must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

### **Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to erection and dismantling of intermediate scaffolding
  - hand and power tools, plant and equipment appropriate to erection and dismantling of intermediate scaffolding
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2001B****Unit Descriptor****Handle steelfixing materials**

This unit specifies the competency required to handle, sort and store steelfixing materials.

The unit includes the identification of a range of commonly used materials, the planning and preparation for work, the safe and effective handling, sorting and storage of steelfixing materials and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |   |  |
|---|--|
| 1. Plan and prepare   | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Tools and equipment are 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<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied   |
| 2. Handle, sort and stack materials and components manually | 2.1 Materials and components are identified and checked for conformity to material schedule, plans and specifications<br>2.2 Handling requirements of materials and components are identified and safe and effective handling techniques applied<br>2.3 Materials and components are sorted to suit material type and size and stacked for ease of identification and retrieval for task sequence<br>2.4 Materials and components are protected against physical damage and stacked/stored clear of trafficways<br>2.5 Signage and barricades are erected where applicable to isolate stored materials from workplace traffic or access<br>2.6 Dust suppression procedures are used to minimise health risk to work personnel and others |
| 3. Handle and remove waste safely                           | 3.1 Waste materials and components are handled correctly and safely according to MSDS and requirements of regulatory authorities<br>3.2 Hazardous material is identified for separate handling in accordance with regulatory requirements<br>3.3 Non toxic materials are removed using correct procedures  |



- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the safe handling of steelfixing materials, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the safe handling of steelfixing materials, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the safe handling of steelfixing materials, including the use of calculators, the use of basic levelling aids, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Steelfixing materials are to include wire ties, ligatures and spacers/spreaders assemblies, deformed bars, plain rods, bar chairs, mesh sheets of plain bars and mesh sheets of deformed bars and may include scaffolding components, pipe sections and structural steel sections
- Methods of protecting stacked/stored materials may include but not be limited to covering, tying or banding, barricades, signs and locking away (hazardous materials)
- Dust suppression procedures may include but not be limited to spraying with water and covering
- Waste material and debris includes but not be limited to banding straps, broken or damaged goods, cardboard, plastic, paper and loose materials

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting, grinding, welding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, stormwater protection and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include bolt cutters, wire nippers, tie wire reels, angle grinders, measuring tapes/rules, mesh guillotines and oxy acetylene sets and cutting attachments and may include reinforcement benders and range of general and hand power tools</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials may include labelling and specialist material handling gloves</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to handling steelfixing materials</li><li>• Regulatory/legislative requirements pertaining to handling steelfixing materials</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Individually, or as a part of a team, handle, sort and store the mandatory steelfixing materials listed in the range statement on a minimum of two occasions at two different sites
- Dispose of waste/excess materials

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing terminology
  - Types, uses, packaging arrangements and handling techniques for steelfixing materials
  - Steelfixing tools and equipment types, uses and limitations
  - Site traffic management and storage principles
  - Systems and techniques for the safe handling of materials
  - Mechanical lifting techniques
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the safe handling of steelfixing materials
  - hand and power tools and equipment appropriate to the safe handling of steelfixing materials
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2002B****Unit Descriptor****Use steelfixing tools and equipment**

This unit specifies the competency required to use steelfixing tools, plant and equipment.

The unit includes the identification, selection and safe use of a range of commonly used steelfixing tools, plant and equipment and the storage and user maintenance of these.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                                  |  |
|----------------------------------|--|
| 1. Plan and prepare              | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.5 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.6 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Identify hand and power tools | 2.1 Hand and power tools, their functions, operations and limitations are identified<br>2.2 OH&S requirements for using hand tools are recognised and adhered to<br>2.3 OH&S requirements for using power tools are recognised and adhered to  |
| 3. Select tools for project      | 3.1 Tools are selected consistent with job requirements<br>3.2 Tools, including leads and hoses, are checked for tags, serviceability and safety and any faults rectified or reported<br>3.3 Power tools guards, retaining bolts, couplings, gauges and controls are checked and maintained in accordance with manufacturers' recommendations<br>3.4 Equipment to hold or support material during operation is selected<br>3.5 Pre-operational checks including lubricants, hydraulic fluid and water are completed according to manufacturers' recommendations  |

- |                               |  |
|-------------------------------|--|
| 4. Use tools                  | 4.1 Power and/or compressed air supply is connected to the work area   |
|                               | 4.2 Start up and shut down procedures are followed   |
|                               | 4.3 Tools are safely and effectively used according to manufacturers' recommendations and OH&S requirements  |
|                               | 4.4 Tools are safely located when not in immediate use   |
| 5. Select plant and equipment | 5.1 Function and limitations of plant/equipment used in steelfixing are identified   |
|                               | 5.2 Plant and equipment are selected consistent with hazard minimization and needs of job  |
|                               | 5.3 Method of operation of plant/equipment is identified   |
|                               | 5.4 OH&S requirements for operating and using plant and equipment are recognised and adhered to  |
|                               | 5.5 Plant and equipment are checked for safety and faults are rectified or reported  |
| 6. Use plant and equipment    | 6.1 Plant and equipment are safely and effectively used  |
|                               | 6.2 Plant and equipment are safely located when not in immediate use   |
|                               | 6.3 Plant and equipment are cleaned, maintained and stored after use   |
| 7. Clean up                   | 7.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification    |
|                               | 7.2 Machinery, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices |



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the use of steelfixing tools and equipment including work instructions, plans/sketches/ diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the use of steelfixing tools and equipment to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the use of steelfixing materials, including the use of plant items, calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Tools and equipment are to include bolt cutters, wire nippers, tie wire reels, angle grinders, measuring tapes/rules, mesh guillotines and cutting attachments and may include reinforcement benders and general and hand power tools
- Plant and equipment is to include generators for angle grinders, guillotines and welding sets
- Steelfixing work may involve reinforcements for foundations, pits and slabs, columns, walls, stairs, plinths, kerbs, gutters, pathways and hardstandings

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting, grinding and welding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory  
Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Materials**

- Steelfixing materials are to include wire ties, ligatures and spacers/spreaders assemblies, deformed bars, plain rods, mesh sheets of plain bars and mesh sheets of deformed bars and may include scaffolding components, pipe sections and structural steel sections

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the use of steelfixing tools and equipment
- Regulatory/legislative requirements pertaining to steelfixing tools and equipment
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S legislation/regulations/codes of practice applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Communication and working effectively and safely with others
- The selection, use and maintenance of the hand and power tools and equipment listed in the range statement
- The selection, use and operator maintenance of the plant and equipment items listed in the range statement

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Steelfixing industry terminology
  - Types, characteristics, uses and limitations of steelfixing hand tools
  - Types, characteristics, uses and limitations of steelfixing power tools
  - Types, characteristics, uses and limitations of steelfixing plant and equipment
  - Systems and techniques for safe handling of materials
  - Types, characteristics, uses and limitations of steelfixing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - hand, power tools, plant appropriate to steelfixing
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2003B****Cut and bend materials using Oxy/LPG equipment****Unit Descriptor**

This unit specifies the competency required to heat, cut and bend construction materials using Oxy/LPG equipment.

The unit includes the planning and preparation for the work, the set up and testing of the equipment, the cutting of materials, the heating and bending of materials, the shut down of equipment and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                              |   |
|------------------------------|---|
| 1. Plan and prepare          | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Set up and test equipment | 2.1 Correct fire extinguisher is selected and located to be readily accessible prior to and during operations<br>2.2 Regulators are attached to Oxy and Acetylene bottles in accordance with manufacturers' specifications and OH&S regulations<br>2.3 Lines are purges to manufacturers' recommendations prior to lighting up<br>2.4 Equipment is tested for leaks and corrective action undertaken or faults reported<br>2.5 Correct pressures and cutting tips are selected in accordance with material to be cut and manufacturers' specifications  |

- |                           |   |
|---------------------------|---|
| 3. Cut material           | 3.1 Material is accurately marked and secured or clamped ready for cutting  |
|                           | 3.2 Torch is lit correctly and safely according to manufacturers' specifications  |
|                           | 3.3 Setting of flame is adjusted for cutting to manufacturers' recommendations  |
|                           | 3.4 Correct cutting position is adopted during cutting to set out mark  |
| 4. Heat and bend material | 4.1 Material is accurately marked and secured to clamped ready for cutting  |
|                           | 4.2 Torch is lit correctly and safely according to manufacturers' specifications  |
|                           | 4.3 Heat is applied to specified material and weakening effects of the heating process are minimised  |
|                           | 4.4 Material is bent to specification and correctly cooled  |
| 5. Shut down              | 5.1 Torch is switched off according to manufacturers' specifications  |
|                           | 5.2 Gas supply is shut off according to manufacturers' specifications   |
| 6. Clean up               | 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification |
|                           | 6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 relates to working effectively within set conditions and processes;

Level 2 relates to the management or facilitation of conditions or processes; and

Level 3 relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the cutting and bending of materials using Oxy/LPG equipment, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturer's instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the cutting and bending of materials using Oxy/LPG equipment, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the cutting and bending of materials using Oxy/LPG equipment, including the use of calculators, the use of heating and cutting equipment, the use of communication devices and the reporting/recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Equipment is to include cylinders, regulators, gas tubing, cutting blowpipes, flint lighters, measuring tapes/rules, clamps and support stands
- Cutting of steel may include cutting up of waste for salvage, cutting reinforcement steel and cutting holes in plate
- Bending is to include reinforcement steel
- All work is to conform with the requirements of relevant Australian Standards

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting, grinding and welding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Materials**

- Materials are to include deformed bars, plain rods, mesh sheets of plain bars and mesh sheets of deformed bars, cutting consumables and may include scaffolding components, pipe sections and structural steel sections

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to cut and bend materials using Oxy/LPG equipment
- Regulatory/legislative requirements pertaining to steelfixing tools and equipment
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- Use both Oxy Acetylene and LPG systems to cut to specification a range of bars up to and including 36 mm
- Heat and bend a minimum of three bars to specification including at least one 36 mm bar

**Relationship to other units**

- Pre-requisite units are:

BCGCM1001B Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing terminology
  - Oxy acetylene and LPG heating and cutting equipment types, characteristics, uses and limitations
  - Oxy acetylene and LPG heating and cutting equipment set-up and operating techniques
  - The types and properties of steelfixing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the cutting and bending of materials using Oxy/LPG equipment
  - hand and power tools, plant and equipment appropriate to the cutting and bending of materials using Oxy/LPG equipment
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2004B****Unit Descriptor****Place and fix reinforcement materials**

This unit specifies the competency required to place and fix reinforcement for concrete work as part of construction processes.

The unit includes the planning and preparation for the work, the final preparation for placement, the placing and fixing of reinforcement, the checking of the reinforcement and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |  |   |
|--|---|
| 1. Plan and prepare                    | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and equipment are 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<br>1.5 Stock of reinforcement is checked for correct type and quantities against reinforcement schedule and details in plans/specifications<br>1.6 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare for reinforcement placement | 2.1 Formwork is checked for completion and conformity to receive reinforcement<br>2.2 Reinforcement bars are cut and bent to required set out and plans/specifications<br>2.3 Bars are tied to designed configuration from plans/specifications<br>2.4 Reinforcement sheets are cut to required sizes<br>2.5 Stiffening rods are attached to panels as required to facilitate handling processes<br>2.6 Bar chairs/spacers are located to requirements of reinforcement schedule and plans/specifications   |

- |   |   |
|---|---|
| 3. Place and fix reinforcement                | <ul style="list-style-type: none"><li>3.1 Fabric reinforcement sheets are placed into position in accordance with engineer's drawings and specifications</li><li>3.2 Reinforcement bars are located and positioned in accordance with engineer's drawings and specifications</li><li>3.3 Reinforcement is located and placed using bar chairs, ligatures and spacers according to engineer's drawings and specifications</li><li>3.4 Reinforcement material is supported and secured into position in accordance with engineer's drawings and specifications</li><li>3.5 Cast-in items are secured to reinforcement in accordance with engineer's drawings and specifications</li><li>3.6 Ends of protruding reinforcement material are covered and protected in accordance with plans/specifications</li></ul> |
| 4. Check reinforcement prior to concrete pour | <ul style="list-style-type: none"><li>4.1 Location and position of reinforcement and fixing ties to reinforcement are checked for accuracy</li><li>4.2 Depth of coverage, clearance, spacing and overlap of reinforcement material are checked in accordance with engineer's drawings/job specification</li></ul>   |
| 5. Clean up                                   | <ul style="list-style-type: none"><li>5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification</li><li>5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices</li></ul>  |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 relates to working effectively within set conditions and processes;

Level 2 relates to the management or facilitation of conditions or processes; and

Level 3 relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the placement and fixing of reinforcement materials, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with the placement and fixing of reinforcement materials, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the placement and fixing of reinforcement materials, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

### Unit scope

- Reinforcement materials are to include wire ties, ligatures and spacers/spreaders assemblies, deformed bars, plain rods, bar chairs, mesh sheets of plain bars and mesh sheets of deformed bars and may include scaffolding components, pipe sections and structural steel sections
- Steelfixing may involve reinforcing concrete for foundations, pits and slabs, columns, walls, stairs, plinths, kerbs, gutters, pathways and hard standings

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting, grinding equipment and welding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust, stormwater protection and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified



**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment are to include but not be limited to bolt cutters, wire nippers, tie wire reels, measuring tapes/rules, reinforcement benders, mesh guillotines and may include a range of general hand and power tools, MMAW machines and oxy acetylene set and cutting attachments

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the placement and fixing of reinforcement materials
- Regulatory/legislative requirements pertaining to the placement and fixing of reinforcement materials
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- The placement and fixing of reinforcement materials to specification on a minimum of three different jobs and involving deformed bars, rods and mesh sheets

### **Relationship to other units**

- Pre-requisite units are:

BCGCM1001B Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

### **Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing terminology
  - Job specifications related to the layout of reinforcement materials
  - Reinforcement materials placement and fixing techniques
  - The types, properties, uses and limitations of reinforcement materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the placement and fixing of reinforcement materials
  - hand and power tools, plant and equipment appropriate to the placement and fixing of reinforcement materials
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2005B****Unit Descriptor****Arc weld reinforcement steel**

This unit specifies the competency required to arc weld reinforcement to non-load bearing structural components forming part of the construction process.

The unit includes the planning and preparation for the work, the set up for welding, the welding of the reinforcement, the checking of the reinforcement and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                                      |   |
|--------------------------------------|---|
| 1. Plan and prepare                  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Plant, tools and welding equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Prepare for welding reinforcement | 2.1 Appropriate welding method and material are identified and selected in relation to job and site specifications<br>2.2 Area is cleaned of flammable material and barriers are erected to eliminate potential hazards<br>2.3 Mill scale and loose residual debris are removed from reinforcement prior to welding   |
| 3. Weld reinforcement                | 3.1 Reinforcement is welded to specifications, instructions and job requirements<br>3.2 Tack welds are conducted to meet specifications relating to the diameter of the bar<br>3.3 Welding is conducted to the required distance from bends or re-bends of reinforcement bars   |
| 4. Check reinforcement prior to use  | 4.1 Location and position of reinforcement and fixing ties are checked for accuracy<br>4.2 Depth of coverage, clearance, spacing and overlap are checked before use   |

- 5. Clean up
  - 5.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the arc welding of reinforcement steel, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the arc welding of reinforcement steel, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the arc welding of reinforcement steel, including the use of calculators, the use of welders, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope	<ul style="list-style-type: none"> <li>• Welding is to be conducted using MMAW</li> <li>• Reinforcing material to be welded may include deformed bars, plain rods, mesh sheets of plain bars and mesh sheets of deformed bars</li> <li>• Welding is to conform with the relevant Australian Standard</li> </ul>
Safety (OH&S)	<ul style="list-style-type: none"> <li>• OH&amp;S 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, 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</li> <li>• Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices</li> <li>• Safe operating procedures are to include but not be limited to the conduct of operational risk assessment and treatments associated with manual handling, trip hazards, confined work areas, working at heights, lighting, hazardous materials, welding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li> <li>• Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires</li> </ul>
Environmental Requirements	<ul style="list-style-type: none"> <li>• Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management</li> </ul>
Quality Requirements	<ul style="list-style-type: none"> <li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li> </ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"> <li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li> </ul>

**Tools and equipment**

- Tools and equipment may include bolt cutters, angle grinders, wire nippers, tie wire reels, measuring tapes/rules, reinforcement benders and mesh guillotine

**Materials**

- Steelfixing materials are to include wire ties, ligatures and spacers/spreaders assemblies, deformed bars, plain rods, bar chairs, mesh sheets of plain bars and mesh sheets of deformed bars, welding consumables and may include scaffolding components, pipe sections and structural steel sections

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the arc welding of reinforcement steel
- Regulatory/legislative requirements pertaining to the arc welding of reinforcement steel
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards



## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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
- Communication and working effectively and safely with others
- For a minimum of five separate tasks, arc weld reinforcement steel materials, as listed in the Range Statement, to specification

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction arc welding terminology
  - MMAW equipment types, characteristics, uses and limitations
  - MMAW set-up, operating and welding sequence and techniques
  - The types and properties of materials to be welded
  - Mechanical lifting techniques
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the arc welding of reinforcement steel
  - hand and power tools, plant and equipment appropriate to the arc welding of reinforcement steel
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF2006B****Unit Descriptor****Machine cut reinforcement materials**

This unit specifies the competency required to the machine cutting of reinforcement material components which form part of the construction process.

The unit includes the preparation and planning for the work, the set up of the machine, the cutting of the reinforcing materials and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                            |   |
|----------------------------|---|
| 1. Plan and prepare        | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 The cutting machine, tools and equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Set up for cutting      | 2.1 Appropriate cutting method is identified and selected, in relation to the job specification and site conditions<br>2.2 Area is cleaned of flammable material and barriers erected to contain waste material from cutting process<br>2.3 Secure and safe work environment with stable base/platform is provided for the reinforcing material<br>2.4 Cutting machine is set up for operation in accordance with manufacturers' and job specifications   |
| 3. Cut reinforcement steel | 3.1 Cutting machine is operated safely in accordance with manufacturers' recommendations<br>3.2 Reinforcement steel is cut or docked to prescribed lengths and configurations as per job specifications<br>3.3 Fabric reinforcement is cut to ensure allowances for element penetrations<br>3.4 Cut lengths are stacked and bundled for inclusion to reinforcing layout<br>3.5 Area is cleaned of waste products to allow for next process as required  |

- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Machinery, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the machine cutting of reinforcement materials, including work instructions, plans/ sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with the machine cutting of reinforcement materials, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to the machine cutting of reinforcement materials, including the use of calculators, the use of cutting machines, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope	<ul style="list-style-type: none"><li>• Reinforcement material is to include deformed bars, plain rods and mesh sheets (plain bars/deformed bars)</li><li>• Cutting machines are to include guillotine shear/cropper and angle grinder and may include diamond tipped or carbide tipped radial saw, and friction disc saw (static bench fold or manual hand held grinding friction disc)</li></ul>
Safety (OH&S)	<ul style="list-style-type: none"><li>• OH&amp;S 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, 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</li><li>• Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices</li><li>• Safe operating procedures are to include but not be limited to the conduct of operational risk assessment and treatments associated with manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting and grinding equipment, working with metals under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li><li>• Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires</li></ul>
Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>

Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include but not be limited to bolt cutters, angle grinders, wire nippers, tie wire reels, measuring tapes/rules and may include a range of general hand and power tools</li></ul>
Materials	<ul style="list-style-type: none"><li>• Steelfixing materials are to include deformed bars, plain rods, mesh sheets of plain bars and mesh sheets of deformed bars, cutting consumables and may include scaffolding components, pipe sections and structural steel sections</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to the machine cutting of reinforcement materials</li><li>• Regulatory/legislative requirements pertaining to the machine cutting of reinforcement materials</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S legislation/regulations/codes of practice applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Safe and effective operational use of machinery, tools, plant and equipment
- Communication and working effectively and safely with others
- The machine cutting of a range of reinforcement steel materials using a guillotine shear/cropper and a minimum of one other mechanical device

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing terminology
  - Machine cutting equipment types, uses and limitations
  - Machine cutting equipment set-up and operating techniques
  - The types and properties of steelfixing materials
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement



**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to machine cutting of reinforcement materials
  - machinery, hand and power tools, plant and equipment appropriate to machine cutting of reinforcement materials
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

## BCGSF2007B Unit Descriptor

## Splice and anchor using mechanical methods

This unit specifies the competency required to mechanically splice and anchor for reinforcement in concrete.

The unit includes planning and preparation for the work, the splicing and anchoring and the completion of clean-up activities.

**Prerequisite Unit(s)**  
**Unit Sector**

BCGCM1001B Follow OH&S policies and procedures  
Steel Fixing

### ELEMENT

### PERFORMANCE CRITERIA

- |  |   |
|--|---|
| 1. Plan and prepare                            | <ul style="list-style-type: none"><li>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied</li><li>1.2 Safety requirements are followed in accordance with safety plans and policies</li><li>1.3 Signage/barricade requirements are identified and implemented</li><li>1.4 Plant, tools and equipment are 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</li><li>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications</li><li>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use</li><li>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied</li></ul> |
| 2. Carry out mechanical splicing and anchoring | <ul style="list-style-type: none"><li>2.1 Reinforcement bars are threaded as detailed in the job specification</li><li>2.2 Detail of splicing arrangement is configured as per job specifications</li><li>2.3 Splicing couplers are fitted and secured to reinforcing bar in accordance with manufacturers' handling instructions and job specifications</li><li>2.4 Reinforcement is secured in accordance with prescribed tolerances</li><li>2.5 All coupler connections and reinforcing bars are freed of mill scale and residual debris that may foul connections</li><li>2.6 Reinforcement is located and anchored as prescribed in engineers' details and job specifications</li></ul>  |
| 3. Check reinforcement prior to use            | <ul style="list-style-type: none"><li>3.1 Location and position of reinforcement and fixing ties to reinforcement are checked for accuracy</li><li>3.2 Depth of coverage, clearance, spacing and overlap of reinforcement material is checked for conformance with engineer's drawings and job specifications</li></ul>   |

- 4. Clean up
  - 4.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 4.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for mechanical splicing and anchoring, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	1
Planning and organising activities	Conduct activities associated with mechanical splicing and anchoring, including the coordination and use of equipment, materials and tools to avoid backtracking and rework	1
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to mechanical splicing and anchoring, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope	<ul style="list-style-type: none"><li>• Mechanical splicing and anchoring is used in reinforcement in foundations, pits and slabs, columns, walls, stairs, plinths, kerbs, gutters, pathways and hardstandings</li></ul>
Safety (OH&S)	<ul style="list-style-type: none"><li>• OH&amp;S 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, 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</li><li>• Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices</li><li>• Safe operating procedures are to include but not be limited to the conduct of operational risk assessment and treatments associated with manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting and grinding equipment, working with cables under stress, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li><li>• Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires</li></ul>
Environmental Requirements	<ul style="list-style-type: none"><li>• Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management</li></ul>
Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>

Tools and equipment	<ul style="list-style-type: none"><li>Tools and equipment are to include but not be limited to tool belts, nippers, bolt cutters, mechanical cutting equipment, couplers, measuring tapes and may include electric cold cut-off saw, oxy-acetylene equipment and MIG, TIG and MMA welding equipment</li></ul>
Materials	<ul style="list-style-type: none"><li>Materials may include labelling and specialist material handling gloves</li></ul>
Communications	<ul style="list-style-type: none"><li>Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>Safe work procedures related to splicing and anchoring using mechanical methods</li><li>Regulatory/legislative requirements pertaining to splicing and anchoring using mechanical methods</li><li>Manufacturers' specifications and instructions where specified</li><li>Organisation work specifications and requirements</li><li>Instructions issued by authorised organisational or external personnel</li><li>Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### **Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S legislation/regulations/codes of practice applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Safe and effective operational use of plant, tools and equipment
- Communication and working effectively and safely with others
- The completion of the full mechanical splicing and anchoring cycle on a minimum of three occasions covering foundations, a slab and one other structure

### **Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

### **Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing tensioning terminology
  - Basic theory related to mechanical splicing and anchoring as a reinforcement technology
  - Mechanical splicing systems, materials and techniques
  - Mechanical anchoring systems, materials and techniques
  - Factors affecting the concrete bonding, curing and strength
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to mechanical splicing and anchoring
  - hand and power tools, plant and equipment appropriate to mechanical splicing and anchoring
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



**BCGSF3001B****Unit Descriptor****Apply reinforcement schedule**

This unit specifies the competency required to interpret the reinforcement schedule and use it to confirm and locate materials to support construction activities.

The unit includes the planning and preparation for work, the reading and interpretation of the schedule, the use of the schedule to confirm materials, to locate materials for construction use and to provide information to others on site.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                                |  |
|--------------------------------|--|
| 1. Plan and prepare            | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Reinforced concrete construction schedule is identified from project schedule<br>1.3 Elements of structure are identified from project construction schedule and job drawings<br>1.4 Safety requirements are followed in accordance with safety plans and policies<br>1.5 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Read and interpret schedule | 2.1 Structural element to be constructed is confirmed from site and structural detail drawings<br>2.2 Reinforcement schedule is read to identify the appropriate reinforcement type for the structural element<br>2.3 The number of reinforcement pieces/sheets is identified from structural detail drawings<br>2.4 Reinforcement schedule is read to identify coding/ number related to labels<br>2.5 Discrepancies in coding and numbering are identified and situation reported to schedule contact for clarification  |
| 3. Check contents of bundle/s  | 3.1 Content of reinforcement material bundle/s are checked for conformity to schedule and proposed structural element<br>3.2 Discrepancies between the schedule and the actual materials quantities are investigated and resolved or reported<br>3.3 Discrepancies between the schedule and the actual material shape, sizes or length are investigated and resolved or reported<br>3.4 Cranked or bent items of reinforcement are identified, segregated and reported<br>3.5 Schedule is marked where content conforms to schedule and structural element's requirements    |

- |  |  |
|--|--|
| 4. Locate reinforcement for element construction | 4.1 Reinforcement is marked or placed and noted ready for transportation to element location                           |
|  | 4.2 Reinforcement is directed to structural location for placement and fixing  |
| 5. Communicate schedule information              | 5.1 Job sequencing schedule detail is communicated to steel fixers and team members to ensure efficient work practices |
|  | 5.2 Changes to job sequencing schedule are recorded as per site requirements   |
|  | 5.3 Work completion procedures are identified and relevant personnel notified when finished as per site requirements   |

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	2
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for the application of the reinforcement schedule, including work instructions, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Apply the reinforcement schedule in an accurate and timely manner which takes into account and allows for other activities at the site and avoids back tracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, estimate measurements, distances and levels, calculate material requirements and establish quality checks	1
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	2
Using technology	Use workplace technology related to the application of the reinforcement schedule, including the use of calculators, the use of communication devices and the reporting/recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Reinforcement schedule information is to include location for material, size and shape of bars, size of mesh, type of steel bars, cranks and bends, number of bars in a bundle, length of material, shape of formed bars, grade of steel reinforcing and surface markings
- Structural elements include footings, slabs, columns, beams and walls

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, traffic control, working at heights, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

### Quality Requirements

- Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified

### Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice

**Tools and equipment**

- Tools and equipment may include bolt cutters, wire nippers, tie wire reels, measuring tapes/rules and range of general and hand power tools

**Communications**

- Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals
- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches
- Safe work procedures related to the application of reinforcement schedules
- Regulatory/legislative requirements pertaining to the application of reinforcement schedules
- Manufacturers' specifications and instructions where specified
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- On a minimum of two different sites:
  - confirm the reinforcement material to the schedule
  - direct the location of the reinforcement materials for element construction, and
  - communicate schedule information and variations to steel fixers

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing terminology
  - The presentation and general content of typical construction schedules
  - The presentation and contents of reinforcement schedules
  - Conventional symbols, markings and numbering systems relevant to reinforcement schedules
  - Reinforcement material types, appearance standards, packaging and labelling arrangements
  - Construction site traffic control and signage arrangements
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - relevant construction and reinforcement schedules
  - tools appropriate to the function being performed
  - reinforcement materials in standard delivery packaging arrangements
  - realistic circumstances covering the mandatory task requirements

**BCGSF3002B****Unit Descriptor****Carry out monostrand post tensioning**

This unit specifies the competency required to carry out monostrand post tensioning in accordance with specifications.

The unit includes the planning and preparation for the work, the laying and fixing of anchorages and cables, the defining of the work area, the stressing of tendons, the finishing of the tensioning and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                                      |  |
|--------------------------------------|--|
| 1. Plan and prepare                  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Tools and equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Lay and fix anchorages and cables | 2.1 Tendons and recess formers are fixed in location according to job plans and drawings<br>2.2 Ducting profile is laid and specified number of strands pushed through and verified according to job drawings<br>2.3 Profile anchorages are positioned to specifications<br>2.4 Form head and anchorages are positioned in accordance with specifications<br>2.5 Installed cables are inspected in accordance with specifications and relevant standards<br>2.6 Grout tubes are fixed in accordance with manufacturers' and engineer's specifications<br>2.7 Grout tubes are monitored during concrete pour  |
| 3. Define the work area              | 3.1 Safe working area is defined according to safe working practice and OH&S regulations<br>3.2 Barricades and signage are erected where required to isolate safe working areas  |



- 4. Stress tendons
  - 4.1 Recess formers are removed
  - 4.2 Anchor blocks and wedges are set up to manufacturers' design
  - 4.3 Stressing operations are carried out to nominated loads and to engineer standards using authorised calibrated stressing equipment
  - 4.4 Extensions are measured and recorded on standard forms for approval by the engineer
- 5. Finish the tensioning
  - 5.1 Protruding strands are cut and sealed according to manufacturers' specifications
  - 5.2 Cement grout is mixed and pumped in accordance with the specifications and relevant standards
- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 6.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for monostrand post tensioning, including work instructions, specifications, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with monostrand post tensioning, including the coordination of safety requirements and the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, calculate measurements, distances and levels, determine calibration requirements, identify stress measurements, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to monostrand post tensioning, including the use of calculators and calibration aids, the use of communication devices and the reporting/ recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Monostrand post tensioning is designed to replace standard reinforcement materials with cables and, through tensioning, provide required strength in a reduced thickness of concrete
- Post tensioning plans will contain the position of cables, the height of chairs, cable specifications, number of strands per cable and the stressing loads
- Monostrand is a single cable with a standard seven wire strand with sizes ranging from 12.7 mm to 15.2 mm
- Tensioning is stipulated in the job specifications but is not to exceed 85% of the ultimate tensile strength of the cable
- Types of structural elements may include slabs, beams, columns and ground anchors
- Types of structures may include buildings, bridges, towers, tanks, silos, stayed structures, offshore platforms and underground and submerged structures
- Work is to conform with the relevant Australian Standard unless this is replaced by superior specifications

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting and grinding equipment, working with cables under stress, traffic control, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include angle grinders (power), grouting equipment, hacksaws, hammers, hydraulic power packs, measuring tapes/rules, monostrand jacks, nips, spanners, staple guns and steel fixing reels</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials may include labelling and specialist material handling gloves</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to monostrand post tensioning</li><li>• Regulatory/legislative requirements pertaining to monostrand post tensioning</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Carry out the full monostrand post tensioning cycle to specification covering:
  - five strand tendon
  - a minimum of thirty metres
  - standard tensioning, and
  - the completion of site tensioning documentation

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing tensioning terminology
  - Basic theory related to cable stressing as a reinforcement technology
  - Safe stressing procedures and monostrand techniques
  - Calibration procedures related to stressing techniques and equipment
  - Requirements and processes for recording stressing operations
  - Factors affecting the concrete bonding, curing and strength
  - Grouting equipment and procedures
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to monostrand post tensioning
  - hand and power tools and equipment appropriate to monostrand post tensioning
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF3003B****Unit Descriptor****Carry out multistrand post tensioning**

This unit specifies the competency required to carry out multistrand post tensioning in accordance with specifications.

The unit includes the planning and preparation for the work, the laying and fixing of anchorages and cables, the defining of the work area, the stressing of tendons, the finishing of the tensioning and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |                                      |  |
|--------------------------------------|--|
| 1. Plan and prepare                  | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Tools and equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Lay and fix anchorages and cables | 2.1 Tendons and recess formers are fixed in location according to job plans and drawings<br>2.2 Ducting profile is laid and specified number of strands pushed through and verified according to job drawings<br>2.3 Profile anchorages are positioned to specifications<br>2.4 Form head and anchorages are positioned in accordance with specifications<br>2.5 Installed cables are inspected in accordance with specifications and relevant standards<br>2.6 Grout tubes are fixed in accordance with manufacturers' and engineer's specifications<br>2.7 Grout tubes are monitored during concrete pour  |
| 3. Define the work area              | 3.1 Safe working area is defined according to safe working practice and OH&S regulations<br>3.2 Barricades and signage are erected where required to isolate safe working areas  |

- 4. Stress tendons
  - 4.1 Recess formers are removed
  - 4.2 Anchor blocks and wedges are set up to manufacturers' design
  - 4.3 Stressing operations are carried out to nominated loads and to engineer standards using authorised calibrated stressing equipment
  - 4.4 Extensions are measured and recorded on standard forms for approval by the engineer
- 5. Finish the tensioning
  - 5.1 Protruding strands are cut and sealed according to manufacturers' specifications
  - 5.2 Cement grout is mixed and pumped in accordance with the specifications and relevant standards
- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 6.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices



## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for multistrand post tensioning, including work instructions, specifications, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with multistrand post tensioning, including the coordination of safety requirements and the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, calculate measurements, distances and levels, determine calibration requirements, identify stress measurements, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to multistrand post tensioning, including the use of calculators and calibration aids, the use of communication devices and the reporting/ recording of results	1

## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Multistrand post tensioning is designed to replace standard reinforcement materials with cables and, through tensioning, provide required strength in a reduced thickness of concrete
- Post tensioning plans will contain the position of cables, the height of chairs, cable specifications, number of strands per cable and the stressing loads
- Multistrand cable contains at least fifteen wire strands with sizes ranging from 12.7 mm to 15.2 mm
- Tensioning is stipulated in the job specifications but is not to exceed 85% of the ultimate tensile strength of the cable
- Types of structural elements may include slabs, beams, columns and ground anchors
- Types of structures may include buildings, bridges, towers, tanks, silos, stayed structures, offshore platforms and underground and submerged structures
- Work is to conform with the relevant Australian Standard, unless this is replaced by superior specifications

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting and grinding equipment, working with cables under stress, traffic control, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include angle grinders (power), grouting equipment, hacksaws, hammers, hydraulic power packs, measuring tapes/rules, multistrand jacks, nips, spanners, staple guns and steel fixing reels</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials may include labelling and specialist material handling gloves</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to multistrand post tensioning</li><li>• Regulatory/legislative requirements pertaining to multistrand post tensioning</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Carry out the full multistrand post tensioning cycle to specification covering:
  - a multistrand cable of at least fifteen strands
  - a minimum of thirty metres
  - standard tensioning, and
  - the completion of site tensioning documentation

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing tensioning terminology
  - Basic theory related to cable stressing as a reinforcement technology
  - Safe stressing procedures and multistrand techniques
  - Calibration procedures related to stressing techniques and equipment
  - Requirements and processes for recording stressing operations
  - Factors affecting the concrete bonding, curing and strength
  - Grouting equipment and procedures
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to multistrand post tensioning
  - hand and power tools and equipment appropriate to multistrand post tensioning
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions

**BCGSF3004B****Unit Descriptor****Carry out stressbar post tensioning**

This unit specifies the competency required to carry out stressbar post tensioning in accordance with specifications.

The unit includes the planning and preparation for the work, the placement and inspection of bars, components and ducts, the defining of the work area, the stressing of bars, the finishing of the tensioning and the completion of clean-up activities.

**Prerequisite Unit(s)**

BCGCM1001B Follow OH&S policies and procedures

**Unit Sector**

Steel Fixing

**ELEMENT****PERFORMANCE CRITERIA**

- |   |  |
|---|--|
| 1. Plan and prepare                                     | 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied<br>1.2 Safety requirements are followed in accordance with safety plans and policies<br>1.3 Signage/barricade requirements are identified and implemented<br>1.4 Tools and equipment are 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<br>1.5 Material quantity requirements are calculated in accordance with plans and/or specifications<br>1.6 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use<br>1.7 Environmental protection requirements are identified for the project in accordance with environmental plans and regulatory obligations and applied |
| 2. Place and inspect bar, fit components and seal ducts | 2.1 Bar and components are placed and fitted according to manufacturers' specifications and job instructions<br>2.2 Bar layout is inspected for compliance with job specifications and relevant standards<br>2.3 Ducts are sealed in accordance with manufacturers' specifications   |
| 3. Define the work area                                 | 3.1 Safe working area is defined according to safe working practice and OH&S regulations<br>3.2 Barricades and signage are erected where required to isolate safe working areas  |
| 4. Stress bars  | 4.1 Stressing jack and accessories are placed and stressing is carried out in accordance with manufacturers' and engineer's specifications<br>4.2 Nuts are tightened and locked off during stressing procedure in accordance with normal stressing safety standards<br>4.3 Extensions are measured and recorded on standard quality assurance forms for approval by engineer   |

- 5. Finish the tensioning
  - 5.1 Anchorages are sealed to prevent grout loss
  - 5.2 Cement grout is mixed and pumped in accordance with the specifications and relevant standards
- 6. Clean up
  - 6.1 Work area is cleared and materials disposed of, reused or recycled in accordance with legislation/regulations/codes of practice and job specification
  - 6.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices

## KEY COMPETENCIES

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies, although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 -relates to working effectively within set conditions and processes;

Level 2 -relates to the management or facilitation of conditions or processes; and

Level 3 -relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate ideas and information orally and in writing, in simple English to enable confirmation of work requirements, passage of information and requests to other workers during operations and the reporting and recording of work outcomes	1
Collecting analysing and organising information	Collect, organise, interpret and understand the information required for stressbar post tensioning, including work instructions, specifications, plans/sketches/diagrams, safety instructions, signage, labels, quality procedures, manufacturers' instructions, material safety data sheets and equipment instructions	2
Planning and organising activities	Conduct activities associated with stressbar post tensioning, including the coordination of safety requirements and the coordination and use of equipment, materials and tools to avoid backtracking and rework	2
Working with others and in teams	Work with others and in a team by recognising dependencies and using co-operative approaches to optimise satisfaction and productivity	1
Using mathematical ideas and techniques	Use mathematical ideas and techniques to correctly calculate time to complete tasks, calculate measurements, distances and levels, determine calibration requirements, identify stress measurements, calculate material requirements and establish quality checks	2
Solving problems	Establish safe and effective work processes which anticipate likely problems and blockages and systematically work around these to avoid or minimise reworking and avoid wastage	1
Using technology	Use workplace technology related to stressbar post tensioning, including the use of calculators and calibration aids, the use of communication devices and the reporting/ recording of results	1



## RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

### Unit scope

- Stressbar post tensioning is designed to replace standard reinforcement materials with metal bars and, through tensioning, provide required strength in a reduced thickness of concrete
- Tensioning plans will contain the position of bars, the height of chairs, bar specifications, the coupling arrangements for bars and stressing loads
- Stressbar sizes range from 16.0 mm to 75.0 mm
- Tensioning is stipulated in the job specifications but is not to exceed 85% of the ultimate tensile strength of the bar
- Types of structural elements may include slabs, beams, columns, stay cable hangers, tension piles and caissons, stressed deck planks, ground anchors and soil nails
- Types of structures may include buildings, bridges, towers, tanks, silos, stayed structures, offshore platforms and underground and submerged structures
- Work is to conform with the relevant Australian Standard, unless this is replaced by superior specifications

### Safety (OH&S)

- OH&S 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, 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 manual handling, trip hazards, confined work areas, lighting, hazardous materials, cutting and grinding equipment, working with bars under stress, traffic control, working in proximity to others, worksite visitors and the public
- Emergency procedures related to this unit are to include but may not be limited to organisational first aid requirements, evacuation and extinguishing fires

### Environmental Requirements

- Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management

Quality Requirements	<ul style="list-style-type: none"><li>• Quality requirements are to include but not be limited to relevant regulations including Australian Standards, internal company quality policy and standards, workplace operations and procedures and manufacturers specifications where specified</li></ul>
Statutory/Regulatory Authorities	<ul style="list-style-type: none"><li>• Statutory/regulatory authorities may include Federal, State and Local Authorities administering the applicable acts, regulations and codes of practice</li></ul>
Tools and equipment	<ul style="list-style-type: none"><li>• Tools and equipment are to include angle grinders (power), couplers, grouting equipment, hacksaws, hammers, hydraulic power packs, measuring tapes/rules, bar jacks, nips, spanners, staple guns and steel fixing reels</li></ul>
Materials	<ul style="list-style-type: none"><li>• Materials may include labelling and specialist material handling gloves</li></ul>
Communications	<ul style="list-style-type: none"><li>• Communications are to include but not limited to verbal and visual instructions and fault reporting and may include mobile phone, site specific instructions, written instructions, plans or instructions related to job/task, two way radio and hand signals</li><li>• On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li></ul>
Information	<ul style="list-style-type: none"><li>• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches</li><li>• Safe work procedures related to stressbar post tensioning</li><li>• Regulatory/legislative requirements pertaining to stressbar post tensioning</li><li>• Manufacturers' specifications and instructions where specified</li><li>• Organisation work specifications and requirements</li><li>• Instructions issued by authorised organisational or external personnel</li><li>• Relevant Australian Standards</li></ul>

## EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan and OH&S 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 and equipment
- Communication and working effectively and safely with others
- Carry out a minimum of two stressbar post tensioning cycles to specification covering:
  - two different bar sizes
  - a minimum of thirty metres
  - standard tensioning, and
  - the completion of site tensioning documentation

**Relationship to other units**

- Pre-requisite units are:
- BCGCM1001B Follow OH&S policies and procedures
- Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

**Specific knowledge required to achieve the performance criteria**

- A knowledge of
  - Workplace and equipment safety requirements
  - Quality requirements
  - Construction and steelfixing tensioning terminology
  - Basic theory related to bar stressing as a reinforcement technology
  - Safe stressing procedures and stressbar techniques
  - Calibration procedures related to stressing techniques and equipment
  - Requirements and processes for recording stressing operations
  - Factors affecting the concrete bonding, curing and strength
  - Grouting equipment and procedures
  - Processes for the calculation of material requirements
  - Material Safety Data Sheets
  - Plans, drawings and specifications
  - Materials handling, storage and environmentally friendly waste management
  - JSA's/Safe work method statement

**The context of assessment**

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur using 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 requirements including specified Australian Standards

**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry's General Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- 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, including those listed above

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to stressbar post tensioning
  - hand and power tools and equipment appropriate to stressbar post tensioning
  - realistic activities covering the mandatory task requirements
  - specifications and work instructions



**Australian Government**  
**Department of Education,  
Science and Training**

# **BCG03 General Construction Training Package**

## **General Construction Training Package (Volume 2)**

**Volume 2 of 5**



**ISC** **INDUSTRY  
SKILLS  
COUNCILS**  
Creating Australia's Future



**Australian Government**  
**Department of Education,  
Science and Training**

# **BCG03 General Construction Training Package**

## **General Construction Training Package (Volume 2)**

**Volume 2 of 5**



**ISC** **INDUSTRY  
SKILLS  
COUNCILS**  
Creating Australia's Future