



Construction Training
A U S T R A L I A

Training Package for the Building and Construction Industry

Off-Site Construction

Endorsed Component

Competency Standards

Assessment Guidelines

Qualifications

BCF10100	Certificate I in Construction (Off-Site)
BCF20100	Certificate II in Off-Site Construction
BCF30100	Certificate III in Off-Site Construction (Shopfitting)
BCF30200	Certificate III in Off-Site Construction (Joinery - Timber/Aluminium/Glass)
BCF30300	Certificate III in Off-Site Construction (Stairs)
BCF30400	Certificate III in Off-Site Construction (Pre-fabrication)
BCF30500	Certificate III in Off-Site Construction (Machining)
BCF30600	Certificate III in Stonemasonry (Monumental/Installation)
BCF30700	Certificate III in Off-Site Construction (Sign Writing/Computer Operations)
BCF30800	Certificate III in Off-Site Construction (Sign Manufacture)
BCF30900	Certificate III in Off-Site Construction (Neon Manufacture)

BCF00



Australian National Training Authority

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TRAINING PACKAGE FOR THE OFF-SITE CONSTRUCTION SKILLS STREAM OF THE BUILDING AND CONSTRUCTION INDUSTRY

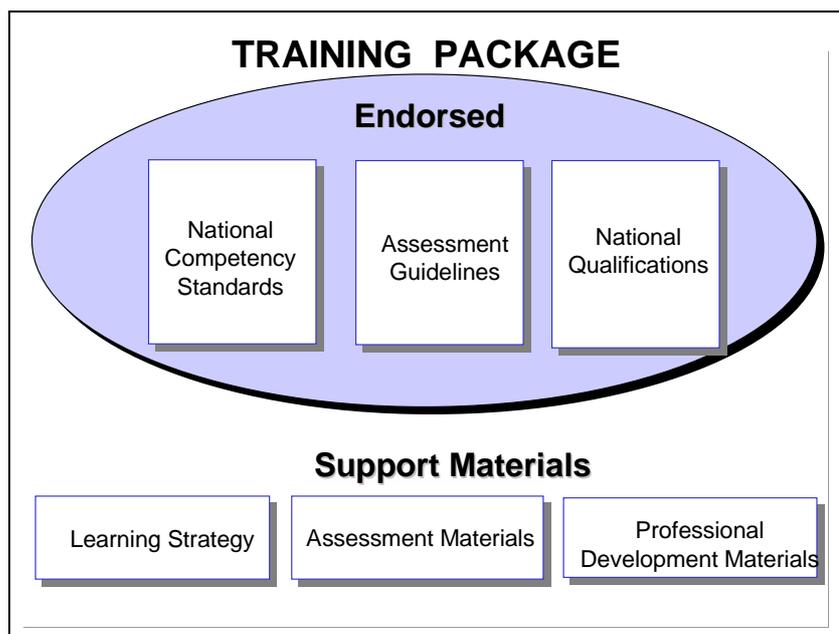
Training Packages provides the basic building blocks for Vocational Education and Training programs. They bring together through a national industry managed process standards, qualifications and assessment, creating a comprehensive toolkit for learning and assessment leading to nationally recognised qualifications.

Training Packages support a new and expanded range of New Apprenticeship opportunities with most qualifications in the Off-Site Construction Training Package incorporating flexible pathways.

All Training Packages consist of two components – endorsed and support materials. The endorsed component includes

- **Industry competency standards** which are the competencies the building and construction industry needs its workers to have
- The eleven Off-Site Construction national **qualifications** a person can receive when they are assessed as competent against the standards
- **Assessment guidelines** for assessing competence in the industry.

The support materials component includes a range of resources to support learning and assessment, and the professional development of teachers and trainers.



THE ENDORSED COMPONENT

What are Competency Standards

Industry competency standards are nationally agreed, industry developed statements that describe the knowledge and skill necessary to perform the standard required in the workplace.

Each competency standard is made up of

Unit Title:	The title of a general area of competency		
Unit Descriptor:	Short statement that assists clarifying the unit title.		
Elements:	Describe the outcome which contribute to a unit	Performance Criteria:	Specify the required level of performance
Range Statement:	Which expands and gives context to performance criteria and elements		
Evidence Guide:	Assists the interpretation and assessment of unit. Indicates resource implications, Key Competencies, context for assessments etc. It provides more information for assessors.		

Customisation of Competency Standards

Building and construction industry has the most mobile workforce in the country. Due to the nature of the industry building and construction workers are employed on project basis for a limited period of time. Building and construction workers move from one project to another, often changing their employer.

Mobility is the key word for employment within the building and construction industry. In this working environment portability of skills is extremely important for both employers and employees.

Therefore, customisation arrangements for competency standards and their packaging have been developed so that the original intent and the integrity of the standards are maintained to ensure portability of skills.

National competency standards for the building and construction industry included in the Training Packages have been developed in such a way that flexibility required for different enterprises or industry/sector users has been provided in the range of variables. The enterprises or other industry/sector users may select what is relevant to them from the range of variables.

Evidence guides for competency standards with a broad range of variables indicate the minimum range to be selected to demonstrate competence in a Competency Standard. This provides flexibility for different users to select what is relevant to them from the range of variables and demonstrate competence in what is relevant only.

Elements of competency standards and performance criteria given in the competency standards indicate the performance levels acceptable to the industry for those units to be nationally consistent and portable across the industry. Therefore, any changes to the elements of competency or the performance criteria

will change the intent and the integrity of the competency standard. Hence, modifications to elements of competency or performance criteria of the competency standards, included in the Training Package, are not allowed.

OFF-SITE CONSTRUCTION QUALIFICATIONS

As stated previously, by its very nature, the building and construction industry is project based. Therefore, the workers in the building and construction industry are employed to work on projects for a limited period of time.

Consequently, the workers in this industry have to move from one project to another, often changing the employer. In this context, mobility is the key word for employment in the industry.

In view of the above, for employment purposes, the importance of having a substantial core of portable skills cannot be over emphasised.

The nature of the industry and the extreme importance of portability of skills served as the backdrop for packaging of competency standards into qualifications aligned to AQF levels.

Competency standards in the Off-Site Construction stream have been packaged into 11 qualifications covering AQF levels 1 – 3. The qualifications under the Off-Site Construction Training Package are:

BCF10100	Certificate I in Construction (Off-Site)
BCF20100	Certificate II in Off-Site Construction
BCF30100	Certificate III in Off-Site Construction (Shopfitting)
BCF30200	Certificate III in Off-Site Construction (Joinery - Timber/Aluminium/Glass)
BCF30300	Certificate III in Off-Site Construction (Stairs)
BCF30400	Certificate III in Off-Site Construction (Pre-fabrication)
BCF30500	Certificate III in Off-Site Construction (Machining)
BCF30600	Certificate III in Stonemasonry (Monumental/Installation)
BCF30700	Certificate III in Off-Site Construction (Sign Writing/Computer Operations)
BCF30800	Certificate III in Off-Site Construction (Sign Manufacture)
BCF30900	Certificate III in Off-Site Construction (Neon Manufacture)

Certificate I was developed mainly to assist transition from schools to VET. Certificate I is common across Certificate II and all Certificate III qualifications.

Certificate II is common for the majority of Certificate III qualifications. However, the mix of core and elective competencies may vary according to the occupational outcome at Certificate III.

Although most of the Certificate III qualifications listed above are straight forward, there are some qualifications such as Certificate III in Stonemasonry, Joinery -

Timber/Aluminium/Glass and Sign Writing/Computer Operations which have more than one pathway within one qualification.

For an example, within the Stonemasonry qualification one can select the pathway to be a Monumental or Installation Stonemason. Once they have achieved the core competencies, they can select the required electives depending on the pathway (Monumental or Installation) they intend to follow.

Similarly those apprentices following Certificate III (Sign Writing/Computer Operations) can select the pathway that suits them best.

Components of Qualifications

The building and construction industry has decided to include core and elective competency standards in packaging standards into qualifications aligned to AQF. The industry has decided to have a core in each qualification to ensure all-important portability of skills to promote employability.

CTA on behalf of the building and construction industry is confident that this approach will provide national consistency and the portability required by the industry, whilst providing flexibility required by enterprises and apprentices/trainees.

This approach will also maximise the potential for choice through electives within the boundaries agreed for each qualification for competent performance.

The packaging will also include incorporation of cross-industry standards, especially in the areas of small business management and office management, including computer skills. These cross-industry standards, which will be included in the packaging as elective standards have not been identified yet.

Once those standards are developed by other National ITABs, relevant standards would be identified and the NTFC will be advised on inclusion of them as elective standards within individual qualifications of the Training Package for Off-Site Construction.

CTA has recently had discussions with the National Bathroom and Kitchen Association with regard to the inclusion of Flat panelling in the Off-Site Construction Training Package.

As the Training Package was completed before representation was made to CTA, CTA will seek to develop 2 or 3 new competency standards in the flat panelling area and include them as electives in the appropriate qualification(s) to address the needs of the flat panelling industry.

Core	All core competency standards listed within a qualification must be achieved. The core competency standards will provide national consistency and portability of skills required.
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Electives	The electives will allow enterprises and participants to choose units that suit them. The employers and apprentices/trainees can draw electives from other Training Packages subject to the customisation arrangements described previously.
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Customisation of Qualifications

In general, opportunity for customisation has been provided through core and elective competency standards included in the package of competency standards for each qualification level. The core units of competency will provide national consistency of qualifications whilst the elective units of competency will provide the flexibility required by different enterprises and/or apprentices/trainees.

Users of Off-Site Construction Package can incorporate additional units of competency from other Training Packages as electives. However, all users of Off-Site Construction Package should complete the entire core and the minimum number of electives as stipulated in one qualification package before drawing additional units of competency from another qualification package.

For an example, let us imagine that a user of the Training Package for Certificate III in Off-Site Construction (Stairs) wants to incorporate additional units of competency from Certificate III in Off-Site Construction (Machining). In this case the person should draw additional units of competency from those listed under Machining in addition to the core and the minimum of 6 electives as stipulated for Stairs. Any user who does not complete the core and the minimum number of elective stipulated for a particular qualification title will not be entitled to have the particular qualification title.

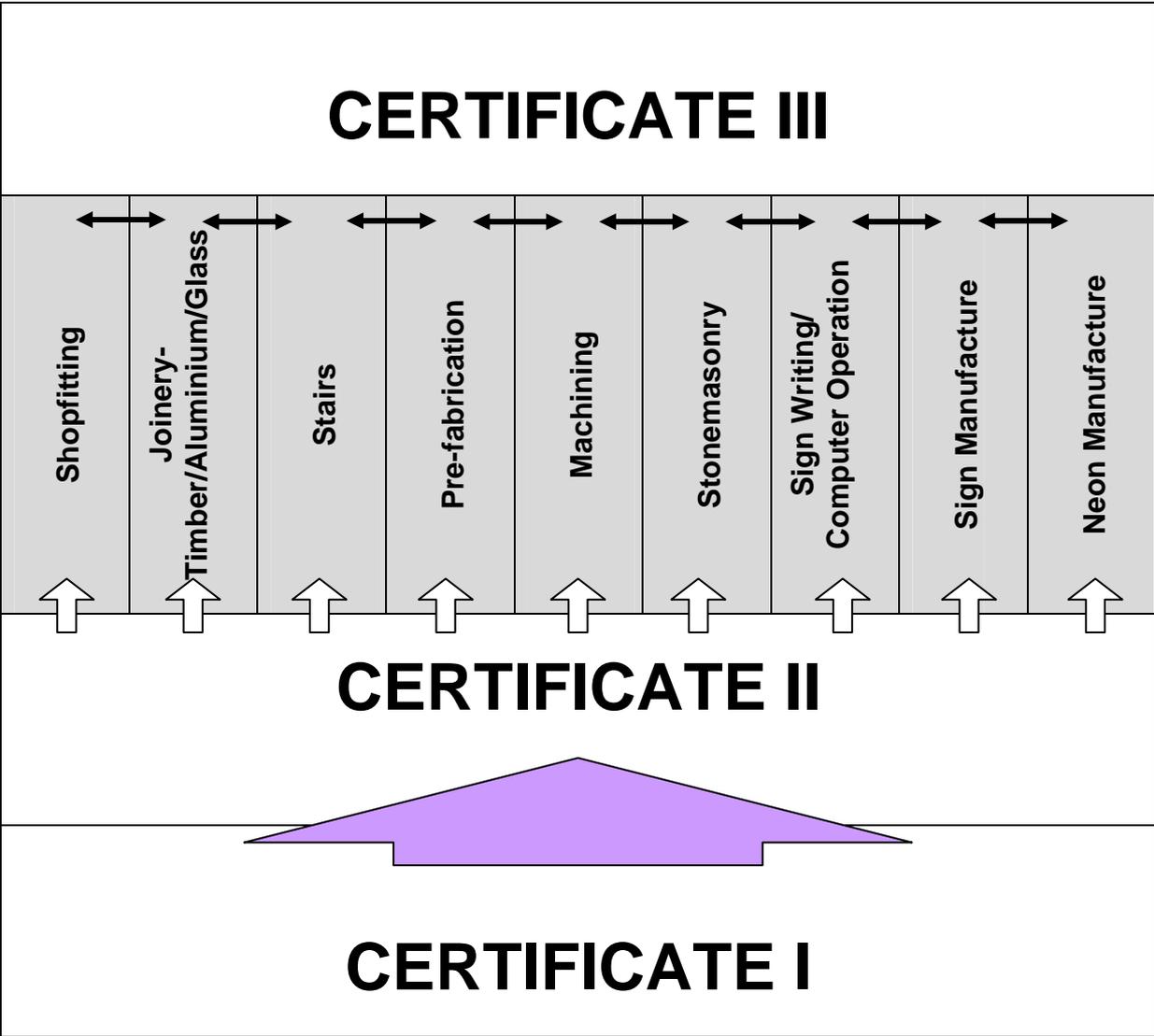
Construction Training Australia will undertake discussions with developers of Training Packages on office, computer and small business management skills and will identify appropriate units of competency that users of Off-Site Construction Package could incorporate as additional units of competency.

Competency standards from other industries

The Off-Site Construction training package includes standards taken from the Metal & Engineering Training Package MEM 98 and from TDT97 Transport and Distribution Training Package.

- MEM5.17A Weld using gas metal arc welding process (GMAW)
- MEM5.21A Weld using oxy-acetylene welding (OAW)
- MEM2.5C11A Measure using graduated devices
- MEM5.15AA Weld using manual metal arch welding process (MMAW)
- MEM5.10AA Undertake fabrication, forming, bending and shaping
- TDT109A Operate a forklift

Following is a diagram of the qualification pathways available within the Off-Site Construction Training Package. All qualifications are potentially available through New Apprenticeships.



OFF-SITE CONSTRUCTION TRAINING PACKAGE

Qualifications Packaging

BCF10100 Certificate I in Construction (Off-Site)

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core

To achieve this qualification under Vocational Education Training in schools program, all nine core competency standards must be achieved

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Elective
BCG1010A	Carry out concreting to simple forms	Elective
BCF1000A	Prepare for construction process (stonemasonry)	Elective
BCG1016A	Prepare for construction process (carpentry)	Elective
BCG1018A	Prepare for construction process (steelwork)	Elective
BCG1019A	Prepare for construction process (painting & decorating)	Elective
BCF2012A	Package manufactured products for transport	Core
BCF2013A	Assemble components	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCG2000A	Assemble simple partition frames	Elective
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG2010A	Remove/replace door and window furniture	Elective
MEM2.5C11A	Measure with graduated devices	Elective
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2010A	Maintain inventory and control stock	Elective
BCF2011A	Use computers	Elective
BCF2015A	Use aluminium sections for fabrication	Elective
BCF2018A	Apply and install sealant and sealant devices	Elective
BCF2002A	Move sheet glass by hand	Elective
TDT1097A	Operate a forklift	Elective
BCG3041A	Undertake dogging	Elective
BCF3044A	Tack weld fabricated components	Elective

Three pathways are available in this certificate – Assembly, Machining and Materials Handling. To achieve Certificate II in Off-Site, all core competencies plus four electives shall be selected, with a maximum of 1 being taken from the 1000 series.

BCF30100**Certificate III in Off Site Construction
(Shopfitting)**

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Elective
BCG1010A	Carry out concreting to simple forms	Elective
BCG1016A	Prepare for construction process (carpentry)	Elective
BCG1019A	Prepare for construction process (painting & decorating)	Elective
BCG2000A	Assemble simple partition frames	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
BCG2010A	Remove/replace door and window furniture	Core
BCG2012A	Make set outs	Core
MEM2.5C11A	Measure with graduated devices	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2013A	Assemble components	Core
BCF2014A	Manually cut glass to simple shapes	Core
BCF2015A	Use aluminium sections for fabrication	Core
BCF2018A	Apply and install sealant and sealant devices	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG2007A	Operate elevated work platforms	Elective
BCG2008A	Use explosive power tools	Elective
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2011A	Use computers	Elective
BCF3000A	Maintain static machinery	Core
BCF3001A	Set up static machinery	Core
BCF3012A	Setting out cabinets, showcases, wall units, counters and work stations	Core
BCF3013A	Assemble cabinets, showcases, wall units, counters and work stations	Core
BCF3016A	Set out shopfronts, commercial entries, bulkheads and component fittings	Core
BCF3017A	Fabricate shopfronts, commercial entries, bulkheads, including component fittings	Core
BCF3018A	Assemble/install shopfront, commercial entries, bulkheads and components	Core
BCF3023A	Apply finishes	Core
BCF3036A	Shift materials manually	Core
BCF3037A	Set out and level	Core
BCF3038A	Apply and trim decorative finishes	Core
BCF3041A	Cut and install glass	Core

Unit Number	Unit Title	Core/Elective
BCF3042A	Mark off/out	Core
BCG3012A	Construct and erect timber wall framing	Elective
BCG3016A	Install sub floor framing	Elective
BCG3045A	Apply paint by spray	Elective
MEM5.15AA	Weld with manual metal arch welding process (MMAW)	Elective
BCG3071A	Assemble fabricated components	Elective
BCG3084A	Install framed ceiling (sheet and boards)	Elective
BCG3096A	Apply paint by brush/roller	Elective
BCG3104A	Install curtain walling	Elective
BCF3002A	Use computer controlled machinery	Elective
BCF3003A	Identify stair construction and the factors governing stair design	Elective
BCF3004A	Set out stairs	Elective
BCF3005A	Manufacture stair components - straight flighted stairs	Elective
BCF3006A	Assemble and install stairs	Elective
BCF3008A	Identify window and door construction	Elective
BCF3009A	Setting out of windows and doors	Elective
BCF3010A	Manufacture components for door and window frames, doors and sashes	Elective
BCF3011A	Assemble (door/windows)	Elective
BCF3014A	Prepare aluminium for assembly	Elective
BCF3015A	Assemble aluminium framework	Elective
BCF3024A	Install internal lining	Elective
BCF3049A	Manufacture aluminium grills and louvres	Elective

To achieve Certificate III in Off-Site Construction (Shopfitting), all core competencies plus 8 electives shall be chosen, with a maximum of 1 from the 1000 series and a maximum of 2 from the 2000 series.

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Elective
BCG1010A	Carry out concreting to simple forms	Elective
BCG1016A	Prepare for construction process (carpentry)	Elective
BCG1019A	Prepare for construction process (painting & decorating)	Elective
BCG2000A	Assemble simple partition frames	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
BCG2010A	Remove/replace door and window furniture	Core
BCG2012A	Make set outs	Core
MEM2.5C11	Measure with graduated devices	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2013A	Assemble components	Core
BCF2014A	Manually cut glass to simple shapes	Core
BCF2018A	Apply and install sealants and sealant devices	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG2007A	Operate elevated work platforms	Elective
BCG2008A	Use explosive power tools	Elective
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2011A	Use computers	Elective
BCF2015A	Use aluminium sections for fabrication	Elective
BCF3000A	Maintain static machinery	Core
BCF3001A	Set up static machinery	Core
BCF3008A	Identify window and door construction	Core
BCF3009A	Setting out of windows and doors	Core
BCF3010A	Manufacture components for door and window frames, doors and sashes	Core
BCF3011A	Assemble (door/windows)	Core
BCF3024A	Install internal lining	Core
BCF3036A	Shift materials manually	Core
BCF3037A	Set out and level	Core
BCF3038A	Apply and trim decorative finishes	Core
BCF3041A	Cut and install glass	Core
BCF3042A	Mark off/out	Core
BCF3045A	Manufacture joinery unit components	Core

Unit Number	Unit Title	Core/Elective
BCG3012A	Construct and erect timber wall framing	Elective
BCG3016A	Install sub floor framing	Elective
BCG3045A	Apply paint by spray	Elective
MEM5.15AA	Weld using manual metal arch welding process (MMAW)	Elective
BCG3071A	Assemble fabricated components	Elective
BCG3096A	Apply paint by brush/roller	Elective
BCG3104A	Install curtain walling	Elective
BCF3002A	Use computer controlled machinery	Elective
BCF3003A	Identify stair construction and the factors governing stair design	Elective
BCF3004A	Set out stairs	Elective
BCF3005A	Manufacture stair components - straight flighted stairs	Elective
BCF3006A	Assemble and install stairs	Elective
BCF3007A	Manufacture and install continuous handrailing and special stair components	Elective
BCF3014A	Prepare aluminium for assembly	Elective
BCF3015A	Assemble aluminium framework	Elective
BCF3023A	Apply finishes	Elective
BCF3049A	Manufacture aluminium grills and louvres	Elective

To achieve Certificate III in Off-Site Construction (Joinery – Timber/Aluminium/Glass), all core competencies plus 8 electives shall be chosen, with a maximum of 1 from the 1000 series and a maximum of 2 from the 2000 series.

BCF30300**Certificate III in Off Site Construction (Stairs)**

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Elective
BCG1010A	Carry out concreting to simple forms	Elective
BCG1016A	Prepare for construction process (carpentry)	Elective
BCG1019A	Prepare for construction process (painting & decorating)	Elective
BCG2000A	Assemble simple partition frames	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
BCG2012A	Make set outs	Core
MEM2.5C11	Measure with graduated devices	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2013A	Assemble components	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG2008A	Use explosive power tools	Elective
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2011A	Use computers	Elective
BCF2014A	Manually cut glass to simple shapes	Elective
BCF2015A	Use aluminium sections for fabrication	Elective
BCF2018A	Apply and install sealant and sealant devices	Elective
BCF3000A	Maintain static machinery	Core
BCF3001A	Set up static machinery	Core
BCF3003A	Identify stair construction and the factors governing stair design	Core
BCF3004A	Set out stairs	Core
BCF3005A	Manufacture stair components - straight flighted stairs	Core
BCF3006A	Assemble and install stairs	Core
BCF3007A	Manufacture and install continuous hand-railing and special stair components	Core
BCF3036A	Shift materials manually	Core
BCF3037A	Set out and level	Core
BCF3039A	Manufacture stair components – curved and geometric stairs	Core
BCF3042A	Mark off/out	Core
BCG3045A	Apply paint by spray	Elective
MEM5.15AA	Weld using manual metal arch welding process (MMAW)	Elective
BCG3071A	Assemble fabricated components	Elective
BCG3096A	Apply paint by brush/roller	Elective
BCF3002A	Use computer controlled machinery	Elective
BCF3014A	Prepare aluminium for assembly	Elective
BCF3015A	Assemble aluminium framework	Elective
BCF3023A	Apply finishes	Elective

Unit Number	Unit Title	Core/Elective
BCF3024A	Install internal lining	Elective
BCF3038A	Apply and trim decorative finishes	Elective
BCF3041A	Cut and install glass	Elective

To achieve Certificate III in Off-Site Construction (Stairs), all core competencies plus 6 electives shall be chosen, with a maximum of 1 from the 1000 series and a maximum of 2 from the 2000 series.

BCF30400 Certificate III in Off Site Construction (Pre-fabrication)

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Elective
BCG1010A	Carry out concreting to simple forms	Elective
BCG1016A	Prepare for construction process (carpentry)	Elective
BCG2000A	Assemble simple partition frames	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
BCG2010A	Remove/replace door and window furniture	Core
BCG2012A	Make set outs	Core
MEM2.5C11	Measure with graduated devices	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2013A	Assemble components	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG2008A	Use explosive power tools	Elective
BCG2009A	Carry out concrete work	Elective
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2011A	Use computers	Elective
BCF2014A	Manually cut glass to simple shapes	Elective
BCF2015A	Use aluminium sections for fabrication	Elective
BCF3024A	Install internal lining	Core
BCF3036A	Shift materials manually	Core
BCF3037A	Set out and level	Core
BCF3038A	Apply and trim decorative finishes	Core
BCF3042A	Mark off/out	Core
BCF3046A	Manufacture re-locatable buildings - framing	Core
BCF3047A	Manufacture re-locatable buildings - finishing	Core
BCF3051A	Cut material manually	Core
BCG3011A	Carry out basic setting out	Elective
BCG3071A	Assemble fabricated components	Elective
TDT1097A	Operate a forklift	Elective
BCG3045A	Apply paint by spray	Elective
MEM5.15AA	Weld using manual metal arch welding process (MMAW)	Elective
BCF3000A	Maintain static machinery	Elective
BCF3001A	Set up static machinery	Elective
BCF3002A	Use computer controlled machinery	Elective
BCF3006A	Assemble and install stairs	Elective
BCF3008A	Identify window and door construction	Elective

Unit Number	Unit Title	Core/Elective
BCF3009A	Setting out of windows and doors	Elective
BCF3010A	Manufacture components for door and window frames, doors and sashes	Elective
BCF3011A	Assemble (door/windows)	Elective
BCF3014A	Prepare aluminium for assembly	Elective
BCF3015A	Assemble aluminium framework	Elective
BCF3023A	Apply finishes	Elective
BCF3041A	Cut and install glass	Elective
BCF3044A	Tack weld fabricated components	Elective
BCF3048A	Construct cooling towers	Elective
BCF3049A	Manufacture aluminium grills and louvres	Elective
BCF3050A	Construct cold rooms	Elective
BCF3068A	Construct fabricated stairs	Elective
MEM5.21AA	Weld using oxy acetylene welding process (OAW) fuel gas welding	Elective
MEM5.17AA	Weld using gas metal arc welding (GMAW)	Elective

To achieve Certificate III in Off-Site Construction (Prefabrication), all core competencies plus 6 electives shall be chosen, with a maximum of 1 from the 1000 series and a maximum of 2 from the 2000 series.

BCF30500**Certificate III in Off Site Construction (Machining)**

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG2001A	Prepare surfaces	Core
BCG2012A	Make set outs	Core
MEM2.5C11	Measure with graduated devices	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2016A	Prepare for off-site manufacturing process	Core
BCF2001A	Use static machines	Core
BCF2009A	Carry out load slinging of off-site materials	Elective
BCF2011A	Use computers	Elective
BCF2013A	Assemble components	Elective
BCF2015A	Use aluminium sections for fabrication	Elective
BCF3000A	Maintain static machinery	Core
BCF3001A	Set up static machinery	Core
BCF3002A	Use computer controlled machinery	Core
BCF3010A	Manufacture components for door and window frames, doors and sashes	Core
BCF3036A	Shift materials manually	Core
BCF3042A	Mark off/out	Core
BCF3005A	Manufacture stair components - straight flighted stairs	Elective
BCF3011A	Assemble (door/windows)	Elective
BCF3013A	Assemble cabinets, showcases, wall units, counters and work stations	Elective
BCF3014A	Prepare aluminium for assembly	Elective
BCF3015A	Assemble aluminium framework	Elective
BCF3017A	Fabricate shopfronts, commercial entries, bulkheads, including component fittings	Elective
BCF3038A	Apply and trim decorative finishes	Elective

To achieve Certificate III in Off-Site Construction (Machining) all core competencies and 5 electives shall be chosen.

BCF30600**Certificate III in Stonemasonry
(Monumental/Installation)**

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Core
BCG1008A	Use simple levelling devices	Core
BCG1009A	Carry out excavation and install support	Core
BCG1010A	Carry out concreting to simple forms	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCF1000A	Prepare for construction process (stonemasonry)	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
BCG2012A	Make set outs	Core
BCF2000A	Identify and use stone products	Core
BCF2003A	Finish stone	Core
BCF2009A	Carry out load slinging of off-site materials	Core
BCF2010A	Maintain inventory and control stock	Core
BCF2012A	Package manufactured products for transport	Core
BCF2017A	Lay stone	Core
BCF2001A	Use static machines	Core
BCG2003A	Carry out general demolition	Elective
BCG2007A	Operate elevated work platforms	Elective
BCG2008A	Use explosive power tools	Elective
BCG2009A	Carry out concrete work	Elective
BCF2011A	Use computers	Elective
BCG3011A	Carry out basic setting out	Core
BCF3043A	Shape solid stone	Core
BCG3074A	Carry out profile work	Core
BCG3075A	Machine stone	Core
BCF3035A	Dress and mould stone	Core
BCF3036A	Shift materials manually	Core
BCF3066A	Split stone manually	Core
BCF3067A	Dress stone manually	Core
BCF3069A	Styles of architecture	Core
BCG3050A	Renovate and restore stone work	Elective
BCG3053A	Produce reconstituted stone	Elective
BCG3056A	Construct stone arches	Elective
BCG3068A	Construct battered masonry surfaces	Elective
BCG3069A	Construct fire places and chimneys	Elective
BCG3081A	Apply/install waterproofing and damproofing	Elective
BCG3083A	Apply gilding to stone	Elective
BCG3115A	Lay segmental/unit paving	Elective

Unit Number	Unit Title	Core/Elective
BCF3019A	Turn stone	Elective
BCF3020A	Materials handling	Elective
BCF3021A	Inlay lead to stone	Elective
BCF3025A	Use computer controlled static machinery to produce stone components	Elective
BCF3027A	Lay stair and floor surfaces	Elective
BCF3034A	Set out and cut letters in stone	Elective
BCF3040A	Plan monumental construction	Elective
BCF3059A	Cavity and solid construction	Elective
BCF3061A	Build stone veneer walls	Elective
BCF3064A	Carry out cemetery monument fixing	Elective
BCF3065A	Set and anchor stone facades	Elective

To achieve Certificate III in Stonemasonry, all core competencies plus 9 electives shall be chosen, with a maximum of 2 from the 2000 series.

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Core
BCG1008A	Use simple levelling devices	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1019A	Prepare for construction process (painting & decorating)	Elective
BCG2001A	Prepare surfaces	Core
MEM2.5C11	Measure with graduated devices	Core
BCF2004A	Layout signs	Core
BCF2005A	Use colour matching for signwriting	Core
BCG2004A	Carry out levelling	Elective
BCF2008A	Sign site survey	Elective
BCF3052A	Sign write to simple forms	Core
BCF3053A	Sign write to decorative forms	Core
BCF3054A	Apply graphics using pressure sensitive films	Core
BCF3055A	Apply graphics to illuminated signfaces	Core
BCF3056A	Produce C.A.M. signs – vinyl	Core
BCF3057A	Produce C.A.M. signs – digital	Core
BCF3058A	Produce C.A.M. signs – 3D dimensional	Core
BCG3045A	Apply paint by spray	Elective
BCG3096A	Apply paint by brush/roller	Elective
BCF3022A	Apply gilding to signs	Elective
BCF3026A	Apply line and scroll	Elective
BCF3028A	Write tickets and showcards	Elective
BCF3029A	Apply water gilding – glass	Elective
BCF3030A	Screen print	Elective
BCF3031A	Apply metal decorative finish	Elective
BCF3032A	Mould plastic formed signs	Elective
BCF3062A	Hand render pictorials	Elective

To achieve Certificate III in Off-Site Construction (Sign Writing/Computer Operation), all core competencies plus 6 out of 15 electives from the 2000/3000 series must be chosen.

BCF30800 Certificate III in Off-Site Construction (Sign Manufacture)

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Core
BCG1008A	Use simple levelling devices	Core
BCG1009A	Carry out excavation and install support	Core
BCG1010A	Carry out concreting to simple forms	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
MEM2.5C11A	Measure with graduated devices	Core
BCF2004A	Layout signs	Core
BCF2005A	Use colour matching for signwriting	Core
BCF2006A	Construct a sign	Core
BCF2007A	Install signs	Core
BCF2008A	Sign site survey	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCG3045A	Apply paint by spray	Core
BCG3096A	Apply paint by brush/roller	Core
BCF3032A	Mould plastic formed signs	Core
BCF3033A	Deliver and install signs	Core
BCF3054A	Apply graphics using pressure sensitive films	Core
BCF3055A	Apply graphics to illuminated signfaces	Core
BCF3063A	Fabricate plastic signs	Core
MEM5.15AA	Weld using manual metal arch welding process (MMAW)	Core
MEM5.10AA	Undertake fabrication, forming, bending and shaping	Core
MEM5.17AA	Weld using gas metal arc welding (GMAW)	Core
MEM5.21AA	Weld using oxy acetylene welding process (OAW) fuel gas welding	Core
BCG3071A	Assemble fabricated components	Elective
BCF3022A	Apply gilding to signs	Elective
BCF3026A	Apply line and scroll	Elective
BCF3028A	Write tickets and showcards	Elective
BCF3029A	Apply water gilding – glass	Elective
BCF3030A	Screen print	Elective
BCF3031A	Apply metal decorative finish	Elective
BCF3032A	Mould plastic formed signs	Elective
BCF3033A	Deliver and install signs	Elective
BCF3052A	Sign write to simple forms	Elective
BCF3053A	Sign write to decorative forms	Elective
BCF3056A	Produce C.A.M. signs – vinyl	Elective
BCF3057A	Produce C.A.M. signs – digital	Elective
BCF3058A	Produce C.A.M. signs – 3D dimensional	Elective
BCF3060A	Manufacture gas charged glass formed illuminated signs	Elective
BCF3062A	Hand render pictorials	Elective

To achieve Certificate III in Off-Site Construction (Sign Manufacture), all core competencies plus 6 electives must be chosen.

BCF30900 Certificate III in Off-Site Construction (Neon Manufacture)

Unit Number	Unit Title	Core/Elective
BCG1000A	Carry out interactive workplace communication	Core
BCG1001A	Carry out OH&S requirements	Core
BCG1002A	Plan and organise work	Core
BCG1003A	Read and interpret plans	Core
BCG1004A	Carry out measurements and calculations	Core
BCG1005A	Use hand and power tools	Core
BCG1006A	Use small plant and equipment	Core
BCG1007A	Erect and dismantle restricted height scaffolding	Core
BCG1008A	Use simple levelling devices	Core
BCG1009A	Carry out excavation and install support	Core
BCG1011A	Handle construction materials & safely dispose of waste	Core
BCG1010A	Carry out concreting to simple forms	Elective
BCG2001A	Prepare surfaces	Core
BCG2004A	Carry out levelling	Core
MEM2.5C11A	Measure with graduated devices	Core
BCF2004A	Layout signs	Core
BCF2006A	Construct a sign	Core
BCF2007A	Install signs	Core
BCF2008A	Sign site survey	Core
BCG2002A	Oxy/LPG acetylene cutting	Elective
BCF2005A	Use colour matching for sign writing	Elective
BCF3032A	Mould plastic formed signs	Core
BCF3033A	Deliver and install signs	Core
MEM5.10AA	Undertake fabrication, forming, bending and shaping	Core
BCF3060A	Manufacture gas charged glass formed illuminated signs	Core
BCF3063A	Fabricate plastic signs	Core
BCG3045A	Apply paint by spray	Elective
BCG3064A	Weld using manual metal arch welding process (MMAW)	Elective
BCG3071A	Assemble fabricated components	Elective
BCG3096A	Apply paint by brush/roller	Elective
BCF3022A	Apply gilding to signs	Elective
BCF3026A	Apply line and scroll	Elective
BCF3028A	Write tickets and showcards	Elective
BCF3029A	Apply water gilding – glass	Elective
BCF3030A	Screen print	Elective
BCF3031A	Apply metal decorative finish	Elective
BCF3052A	Sign write to simple forms	Elective
BCF3053A	Sign write to decorative forms	Elective
BCF3054A	Apply graphics using pressure sensitive films	Elective
BCF3055A	Apply graphics to illuminated signfaces	Elective
BCF3056A	Produce C.A.M. signs – vinyl	Elective
BCF3057A	Produce C.A.M. signs – digital	Elective
BCF3058A	Produce C.A.M. signs – 3D dimensional	Elective
MEM5.17AA	Weld using gas metal arc welding (GMAW)	Elective
BCF3062A	Hand render pictorials	Elective
MEM5.21AA	Weld using oxy acetylene welding process (OAW) fuel gas welding	Elective

To achieve Certificate III in Off-Site Construction (Neon Manufacture), all core competencies plus 6 electives must be chosen

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Assessment Guidelines

What are Assessment Guidelines?

Assessment guidelines describe the type of system by which the competence of an employee/learner may be assessed against endorsed industry/enterprise competency standards.

The process of assessment is a central element to the development of a competency-based training (CBT) system. It ensures that persons working or seeking work within the Building and Construction industry have the skills and knowledge required to perform selected job functions. Similarly it provides a benchmark that ensures an employee's/learner's skills are recognised and acknowledged.

Training Package Assessment Guidelines are based on principles agreed by Commonwealth, State and Territory Ministers of Education and Training through the operation of the Australian Recognition Framework.

The Assessment Guidelines provide direction for the implementation of an industry relevant assessment system which is designed to ensure the validity, reliability and fairness of assessments conducted in both the workplace and institutional contexts

SECTION 1

Assessment System Overview

1.1 Benchmark for Assessment

The benchmark for assessment, in accordance with national requirements, will be the endorsed industry competency standards for Building and Construction – Off-Site Construction.

1.2. Role of registered training organisations.

The relevant State Training or Recognition Authority, in accordance with the Australian Recognition Framework, is required to implement the national core standards for the registration of Registered Training Organisations and for the maintenance of the system through the provision of monitoring and auditing processes.

The requirements for assessment and the issuance of qualifications essentially refer to:

- ensuring that the resources for assessment and issuance of qualifications meet the requirements of the relevant endorsed Training Package
- ensuring that assessments are conducted in accordance with the endorsed components of the relevant endorsed Training Package.
- providing quality assurance mechanisms to ensure that assessment is fair, reliable, valid and provides for a consistency of outcomes.
- the provision of appropriate information, advice and support services which include an appeals system and dispute settling procedure.
- the issuing of the relevant AQF qualification(s) or statement of attainment in accordance with the requirements of the AQF guidelines, National Training Framework Training Committee Guidelines and the specific qualification requirements of the relevant endorsed Training Package(s).

Range of options for undertaking assessment.

The Building and Construction industry stream of Off-Site Construction has specific legislative and regulatory requirements in regards to load shifting operations, occupational health and safety and construction standards. Given the level of technical expertise required for assessors within the industry it may be appropriate that partnership arrangements are undertaken between Registered Training Organisations, enterprises and technically qualified industry personnel. It

should be noted that the Registered Training Organisation has responsibility for ensuring the integrity of the assessment process and this should be the guiding focus at all times. ***It is incumbent upon the relevant Registered Training Organisation to ensure that assessments are conducted in a fair and equitable manner which includes provision for the language and literacy capabilities of the assessee.***

The range of options may include:

- partnerships between enterprises, technically qualified industry personnel and Registered Training Organisations whereby aspects such as evidence collection, assessor requirements, validation methods and the like are shared between the respective parties.
- enterprises undertaking the assessment process with the Registered Training Organisation monitoring and validating the assessment outcomes.
- enterprises becoming Registered Training Organisations.
- enterprises engaging Registered Training Organisations to undertake all assessment requirements.
- combinations of the above.

1.3. Assessment Pathways

The Building and Construction industry considers that to maintain a level of consistency and validity with assessment outcomes, all assessments must be consistent with the relevant units of competency. Therefore this benchmark for assessment will operate for both on and off-the-job assessments within the industry.

The single assessment benchmark acknowledges that competency can be developed and assessed through a variety of structured and unstructured experiences, informal and formal training and the transference of knowledge and skills from other contexts and environments. To devise separate assessment benchmarks to encompass the myriad of ways in which competence may be gained and demonstrated is neither efficient or effective.

The major consideration in any assessment process must be the attainment of the required standard of performance rather than how the competencies may have been acquired.

Within the Off-Site Construction stream of Building and Construction a number of learning pathways have traditionally operated. This encompasses formal apprenticeship and traineeship systems as well as skills gained solely from workplace experience. The industry is conscious of the multiple ways that persons have gained workplace competence and in accordance with the principles of Training Reform, requires an assessment process that is non-discriminatory in

acknowledging that competence. *It is therefore of paramount importance that assessment instruments are in accordance with the level of language and literacy required by the assessee to achieve competence at the workplace.*

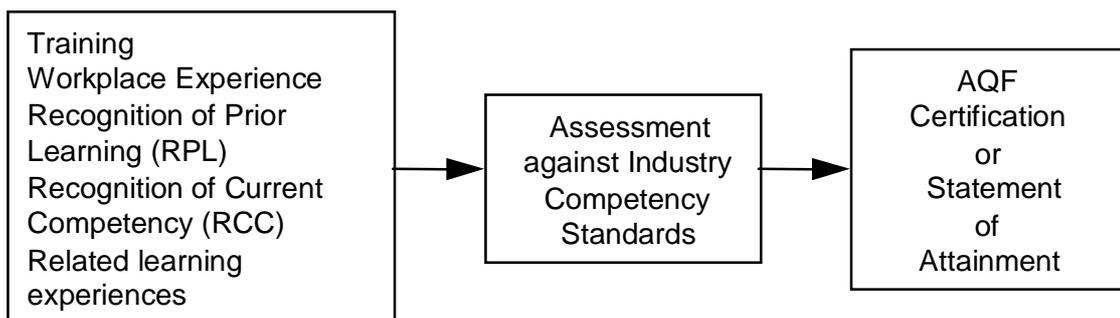
Assessment against the units of competence provides for the identification of the required skills and knowledge to be demonstrated and also details the appropriate context and range of evidence necessary to inform a valid assessment. The processes thereby ensuring that an assessee meets the specific legislative and regulatory requirements that operate within the industry.

It should be noted that this does impact upon the range of assessment methodologies and evidence collection processes which assessors may utilise to determine competence. It is acknowledged by the industry that these will differ to account for varying contexts and individual/enterprise requirements. Those processes must however confirm, that the assessed competencies can be effectively displayed in a workplace environment.

‘Assessment is the process of collecting evidence and making judgements on whether competency has been achieved, the purpose of assessment is to confirm that an individual can perform to those standards expected in the workplace as expressed in the relevant endorsed industry/enterprise competency standards’.
Guidelines for Training Package Developers. (1997, B11).

Figure 1

Pathways to Recognition



Options for AQF Certification or Statement of Attainment through training include New Apprenticeships, which may be on-the-job only or a combination of on and off-the-job. New Apprenticeships would not be available in off-the-job only.

1.4. Recording Assessment Outcomes

The responsibility for the recording, storing and retrieval of assessment outcomes rests with the Registered Training Organisation(s). It is acknowledged that individuals and enterprises may engage the services of different RTO's over a period of time. It is therefore important that results of any assessment process must be documented and stored in accordance with the requirements of the Australian Recognition Framework.

The Building and Construction industry recognises that individuals have an important role in ensuring that their competencies are recognised and recorded. Individuals should maintain a record of the competencies that they have achieved which provides a further measure of ensuring that when the required combination of standards have been met, an appropriate qualification against the Australian Qualifications Framework can be issued.

1.5. Reporting Assessment Outcomes

In accordance with the Australian Qualifications Framework the minimum level of detail to be provided in a statement of attainment or qualification includes the AQF level, the AQF title of the qualification (if applicable) and the title(s) of the achieved unit(s) of competency.

1.6. Appeal and Reassessment Process

The process of assessment carries a level of interpretation and procedural formality, which can create an environment, where disagreements may occur. Although clear understandings and informed views about the process of assessment will reduce the prospect of disagreements, an appeals and reassessment process is an essential element of any assessment framework.

Although it is noted that the responsibility for this function rests with the relevant Registered Training Organisation, it may be beneficial to consider workplace involvement within the appeals and reassessment process, particularly for on-the-job assessments.

1.7. External Audit of Assessment Process

The Australian Recognition Framework outlines a comprehensive monitoring and audit process for the operation of Registered Training Organisations. Although managed by the relevant State Training/Recognition Authorities there is a requirement for the industry to be involved in the process (Guidelines for Training Package Developers 1997, 18).

Industry involvement in the external audit of assessment processes will be facilitated by the relevant State/Territory Building and Construction ITAB. The appropriate level of industry involvement within the monitoring and auditing process would be determined in consultation between the relevant State Training/Recognition Authority and State/Territory Building and Construction ITAB.

SECTION 2

Assessor Qualifications and Training

2.1 Assessor Qualifications

Assessors within the Building and Construction industry are the principal drivers in delivering a responsive, efficient and high quality assessment system. Within the assessment framework they have primary responsibility for:

- determining the application of the assessment process,
- utilising appropriate assessment strategies and instruments,
- conducting the assessment process,
- making accurate and informed judgements, and
- informing and recording all relevant parties of the outcomes of the assessment process.

It is therefore fundamental that assessors must be competent and knowledgeable in the process of assessment.

All Building and Construction assessors, must:

- be competent against three competency standards included in the BSZ40198 *Certificate IV in Assessment and Workplace Training*. The three competency standards are BSZ401A Plan Assessment, BSZ402A Conduct Assessment and BSZ403A Review Assessment.
- be technically competent at least to the level being assessed either individually or in a partnership arrangement. (See section 2.2).

To ensure the integrity of the assessment process and to maintain industry confidence with the system, it is advisable that assessors have knowledge of the nature and impact of training reform within the Building and Construction industry including an overview of the process of assessment adopted for the industry.

Assessor competence may be achieved through the completion of a recognised training program or an approved recognition of prior learning process. Regardless of the method used to infer competence, assessment must always be demonstrated against the endorsed industry assessor standards.

“Assessment against competencies in the Training package will be carried out in accordance with these endorsed guidelines. The guidelines include the necessary qualifications for those conducting assessments and provide for those situations where more than one person may contribute to the assessment and where the required technical and assessment competencies may not be held by any one person.”

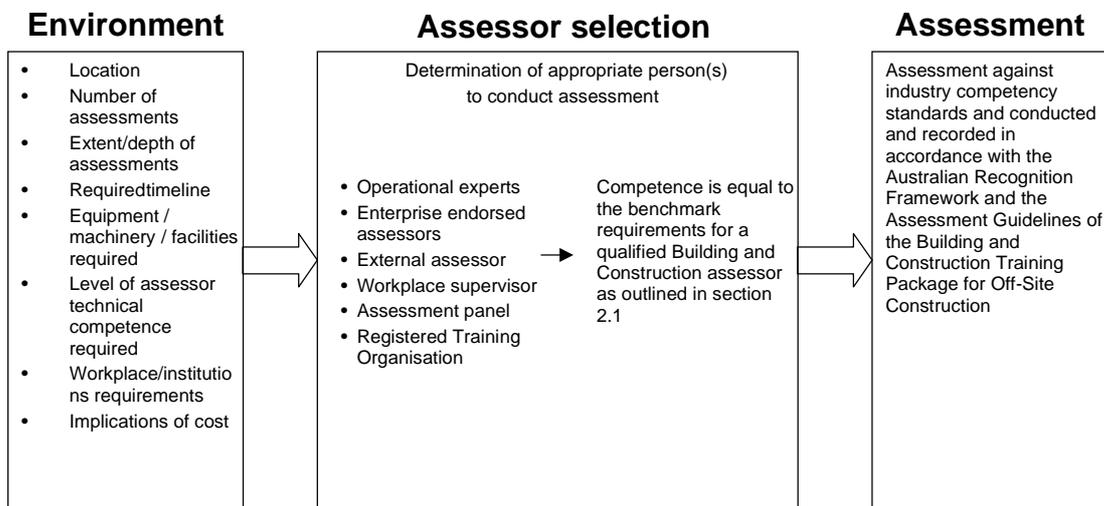
Updated Assessment Sections for the “Guidelines for Training Package Developers” January 1998

2.2 Using Qualified Assessors.

In order to ensure that a level of quality and rigor is maintained within the assessment process, it is mandated that the assessor is ultimately responsible for the outcome of any assessment and therefore must ensure that the assessment has met all stipulated requirements.

The assessor, in determining the level of competence or otherwise of a candidate, must be satisfied that the evidence collected adequately addresses the applicable industry/enterprise competency standards and that the assessment process has been undertaken in a valid, reliable and fair manner.

In undertaking the assessment process consideration should also be given to those methods that, whilst maintaining the integrity and quality of the system, offer an approach that is innovative and flexible. This may be achieved by using various combinations of persons that may conduct the assessment.



Whilst some enterprises and Registered Training Organisations will opt for a single qualified assessor to undertake the assessment process, others may utilise a flexible approach when undertaking workplace or institutional assessments. A combination of persons to undertake the assessment process being most appropriate where assessors may not be technically competent at the level or unit being assessed or where it is cost prohibitive to have an assessor undertake all aspects of the assessment process, (e.g. remote location, length of assessment, large number of assessments, prohibitive timeline etc.). The use of multiple persons to undertake an assessment must however be auspiced by a Registered Training Organisation.

A flexible approach to fulfilling the requirement for qualified assessors can potentially offer significant cost and time efficiencies to both enterprises and individuals.

SECTION 3

Guidelines for designing assessment instruments.

It is viewed that the assessor and assessee are active participants in the assessment process. Where the assessment is undertaken in a workplace, the opportunity to participate in the assessment process should be afforded to the employer and other relevant persons.

3.1 The Process of Assessment.

The process of assessment requires assessors to make informed judgements concerning an individual's performance against National Building and Construction industry or enterprise-based competency standards. To fulfil this requirement there is a constant need for assessors to interpret and translate information contained within the competency standards to meet the varying contexts in which assessment will take place. The development of reliable, valid, flexible and fair assessment instruments are critical in meeting this challenge.

The design of assessment instruments must therefore consider aspects such as the:

- assessment context
- assessment environment
- assessment purpose
- level of available resources
- characteristics of the assessee
- rigour and length of the assessment
- level of evidence required
- language and literacy capability of the assessee
- language and literacy requirements of the required function / competency

At all times assessors must ensure that sufficient evidence is gathered to provide an accurate, valid and fair assessment of an individual's performance against the applicable competency standard(s).

3.2 Evidence Gathering

An effective assessment process relies on the collection of sufficient information to make an informed judgement on the performance of an individual. Whilst there are no absolute rules about how much evidence is required or what evidence gathering methods should be used, there is a need to confirm the accuracy and consistency of any assessment of performance.

Although processes for the gathering of evidence will vary, four primary approaches should be utilised. They include:

- samples of performance (eg constructed through simulations, activities and the like);
- observation of performance in the workplace;
- evidence of prior performance (eg recognition of prior learning, recognition of current competencies);
- supplementary information (eg questioning, tests, presentations, contingency analysis and the like).

In many instances, the most appropriate method of gathering evidence will be a combination of all four approaches although this would need to be considered in relation to factors such as time, cost and context.

Figure 4

Examples of Appropriate Evidence Gathering Methods or Techniques

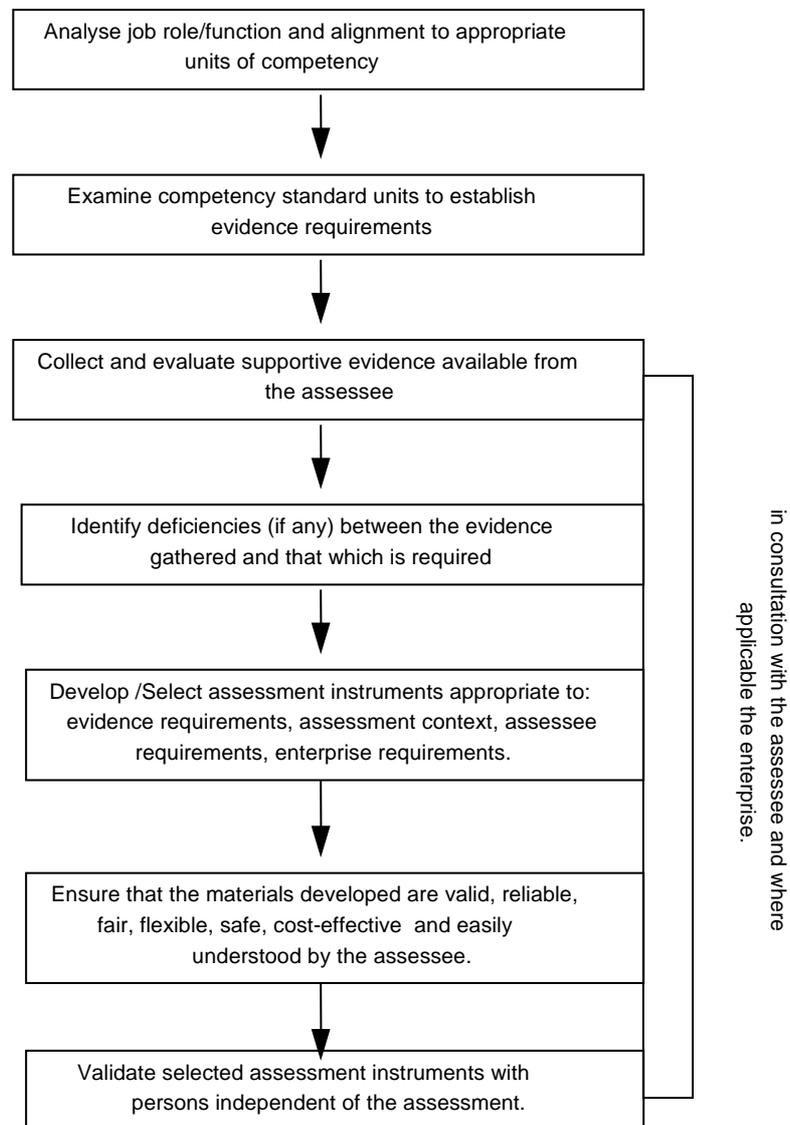
Samples of performance	evaluation of simulated product evaluation of simulated process examination of finished products and processes skill tests aligned to work activity
Observation of performance in the workplace	evaluation of product evaluation of process management of changing context and requirements interaction with related work activities
Evidence of prior performance	evaluation of qualifications content evaluation of previous work through portfolios, projects, articles, reports, work history, supervisor and referees' reports etc.

3.3 Assessment Instrument Design

In constructing valid and reliable assessment instruments a balance must be maintained between the specific needs of enterprises and individuals and that of ensuring the integrity of the industry/enterprise competency standards. It is the responsibility of the assessor to ensure that any instruments utilised will produce an outcome that can be directly aligned to the achievement of an industry/enterprise competency standard(s).

The following flowchart outlines a process of designing assessment instruments that meet that criteria.

Figure 5
Designing Assessment Instruments



**OFF-SITE CONSTRUCTION
COMPETENCY STANDARDS
June 2000**

Off-Site Construction Competency Standards

Code	Title
BCF1000A	Prepare for construction process (stonemasonry)
BCF2000A	Identify and use stone products
BCF2001A	Use static machines
BCF2002A	Move sheet glass by hand
BCF2003A	Finish stone
BCF2004A	Layout signs
BCF2005A	Use colour matching for signwriting
BCF2006A	Construct a sign
BCF2007A	Install signs
BCF2008A	Sign site survey
BCF2009A	Carry out load slinging of off-site materials
BCF2010A	Maintain inventory and control stock
BCF2011A	Use computers
BCF2012A	Package manufactured products for transport
BCF2013A	Assemble components
BCF2014A	Manually cut glass to simple shapes
BCF2015A	Use aluminium sections for fabrication
BCF2016A	Prepare for off-site manufacturing process
BCF2017A	Lay stone
BCF2018A	Apply and install sealant and sealant devices
BCF3000A	Maintain static machinery

Code	Title
BCF3001A	Set up static machinery
BCF3002A	Use computer controlled machinery
BCF3003A	Identify stair construction and the factors governing stair design
BCF3004A	Set out stairs
BCF3005A	Manufacture stair components – straight flighted stairs
BCF3006A	Assemble and install stairs
BCF3007A	Manufacture and install continuous hand-railing and special stair components
BCF3008A	Identify window and door construction
BCF3009A	Setting out of windows and doors
BCF3010A	Manufacture components for door and window frames, doors and sashes
BCF3011A	Assemble (door/windows)
BCF3012A	Setting out cabinets, showcases, wall units, counters and work stations
BCF3013A	Assemble cabinets, showcases, wall units, counters and work stations
BCF3014A	Prepare aluminum for assembly
BCF3015A	Assemble aluminum framework
BCF3016A	Set out shopfronts, commercial entries, bulkheads and component fittings
BCF3017A	Fabricate shopfronts, commercial entries, bulkheads, including component fittings
BCF3018A	Assemble/install shopfront, commercial entries, bulkheads, including components
BCF3019A	Turn stone
BCF3020A	Materials handling
BCF3021A	Inlay lead to stone
BCF3022A	Apply gilding to signs
BCF3023A	Apply finishes
BCF3024A	Install internal lining
BCF3025A	Use computer controlled static machinery to produce stone components

Code	Title
BCF3026A	Apply line and scroll
BCF3027A	Lay stair and floor surfaces
BCF3028A	Write tickets and showcards
BCF3029A	Apply water gilding – glass
BCF3030A	Screen print
BCF3031A	Apply metal decorative finish
BCF3032A	Mould plastic formed signs
BCF3033A	Deliver and install signs
BCF3034A	Set out and cut letters in stone
BCF3035A	Dress and mould stone
BCF3036A	Shift materials manually
BCF3037A	Set out and level
BCF3038A	Apply and trim decorative finishes
BCF3039A	Manufacture stair components – curved and geometric stairs
BCF3040A	Plan monument construction
BCF3041A	Cut and install glass
BCF3042A	Mark off/out
BCF3043A	Shape solid stone
BCF3044A	Tack weld fabricated components
BCF3045A	Manufacture joinery unit components
BCF3046A	Manufacture re-locatable buildings - framing
BCF3047A	Manufacture re-locatable buildings - finishing
BCF3048A	Construct cooling towers
BCF3049A	Manufacture aluminium grills and louvres
BCF3050A	Construct cold rooms
BCF3051A	Cut material manually
BCF3052A	Sign write to simple forms

Code	Title
BCF3053A	Sign write to decorative forms
BCF3054A	Apply graphics using pressure sensitive films
BCF3055A	Apply graphics to illuminated signfaces
BCF3056A	Produce C.A.M. signs – vinyl
BCF3057A	Produce C.A.M. signs – digital
BCF3058A	Produce C.A.M. signs – 3 dimensional
BCF3059A	Cavity and solid construction
BCF3060A	Manufacture gas charged glass formed illuminated signs
BCF3061A	Build stone veneer walls
BCF3062A	Hand render pictorials
BCF3063A	Fabricate plastic signs
BCF3064A	Carry out cemetery monument fixing
BCF3065A	Set and anchor stone facades
BCF3066A	Split stone manually
BCF3067A	Dress stone manually
BCF3068A	Construct fabricated stairs
BCF3069A	Styles of architecture

BCF3068A: Construct fabricated stairs

DESCRIPTOR

This unit applies to fabricated stair construction which may involve one flight in its structure and could incorporate fabricated components that are alternatives to timber components.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality assurance requirements with company's construction operations recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace environment recognised and adhered to.
		1.3	Design of stairs and method of joining identified from job drawings, specifications and in accordance with Building Code of Australia.
		1.4	Materials and quantities determined from job drawings and specifications.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with the requirements of job and checked for serviceability.
		1.7	Safety hazards identified and correct procedures used to minimise risk to self and others.
2	Set out and prepare material	2.1	Exit and ground finish levels determined from job drawings and site location.
		2.2	Rise, going and pitch of stair calculations determined from job drawings and site location, all measurements and requirements to conform to the Building Code of Australia.
		2.3	Full size out of stairs made to determine rise, going and pitch of stairs to actual location of landings, strings, treads and newels.
		2.4	Location of stair and newels determined from job drawings and pitch of stairs or full size set out.
		2.5	Location of footings where applicable, marked to layout of designed stairs to meet, job drawings and specifications or full size set out.
		2.6	Strings components selected in accordance with set

- out.
- 2.7 Components for newels selected and set out to design of stairs, storey rods and job drawings or from full size set out.
- 2.8 Newels assembled and checked to provide tight fit for strings and bearers, where applicable, to specifications.
- 2.9 Material for treads checked against set out and square to length according to requirements of stair design and Building Code of Australia.
- 3 Assemble and erect stair
- 3.1 Footings with post support where applicable, prepared to requirements of job drawings and specifications.
- 3.2 Angle brackets attached to strings to set out locations for tread support according to requirements of detail drawings and specifications.
- 3.3 Newels erected into position and temporarily braced to plumbing position.
- 3.4 Strings located and fixed into position to specifications.
- 3.5 Tie bolts, where applicable, located and secured to specification, to maintain stair width.
- 3.6 Stair attached to building in accordance with detailed drawings and specifications.
- 3.7 Treads and decking fixed into location to detailed drawings and specifications.
- 3.8 Bracing and lateral ties fixed to newels to specifications, where applicable, to maintain rigidity to stair structure.
- 4 Fit and fix handrailing and balustrade
- 4.1 Material for handrailing and balustrade checked to length and adjustment made to specification where appropriate.
- 4.2 Handrailing fitted and fixed into place to specifications and measurements above nosing line of a flight and above a landing deck according to Building Code of Australia.
- 4.3 Balustrade fitted and fixed into place to specifications and requirements of Building Code Australia.
- 5 Finish stairs
- 5.1 Arises and sharp edges removed and finished to specification, where appropriate.
- 5.2 Non slip surface adhered to treads, where required, in accordance with specifications and BCA.

- | | | | |
|---|----------|-----|---|
| 6 | Clean up | 6.1 | Area cleared and waste disposed of safely. |
| | | 6.2 | Unused materials stored/stacked. |
| | | 6.3 | Tools and equipment cleaned, maintained and stored. |

RANGE OF VARIABLES

This unit applies to fabricated stairs which may involve one flight in its structure and could incorporate fabricated composite materials that are alternatives to timber for stair components.

All construction to be carried out in accordance with structural requirements as laid down in the Building Code of Australia.

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specification of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators

Tools and equipment may include but are not limited to:

- measuring tape/ruler
- hammer
- spirit level
- squares
- nail bag
- chisels
- hand saws
- saw stools
- power saws
- power drill
- power planer
- mechanical nailing tools
- air compressor and hoses
- power leads
- string lines
- shovels
- fencing bars

- spanner
- steel square and fence
- bevels

Connections for timber construction include but are not limited to:

- nails/spikes
- bolts and nuts
- coach screws
- steel tie rods
- metal brackets
- timber joining methods

Connections for steel construction may include:

- bolts
- patented metal connecting plates

Balustrade construction may be of:

- parallel railing fixed to face of newels
- handrailing and balusters fixed to face of newels
- handrailing morticed into newels

Methods of fixing stair members to masonry walls may include but is not limited to:

- patented masonry anchors
- metal angle brackets
- wall plug and coach screw

Materials for stairs may include but are not limited to:

Strings

- metal
- timber
- composite materials

Treads

- metal
- timber
- cast acrylic materials
- concrete
- fibre-glass
- fibre-cement

Handrails and Balustrade

- timber
- metal
- cast acrylic materials
- glass
- fibre-glass

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective assembly and erection of stairs covering one flight to a landing including handrail or balustrade, to a nominated project.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- show compliance with organisational quality procedures and processes within the context of constructing and installing fabricated stairs
- identification of location and details of fabricated stair components and construction
- accurate calculations carried out to determine actual rise and going for each step and pitch of stairs
- accurate set out of stair prepared in order to check all stair components
- safe and effective procedures adopted and used to prepare stair components, assemble and fix to position in accordance with the Building Code of Australia, specifications and site conditions
- identification of typical faults and problems that occur and the necessary action taken to rectify faults
- Identification of types of stair construction and common terminology
- appropriate analysis and understanding of design concepts conveyed in drawings and specifications of nominated project
- interactive communication with others to ensure safe and effective workplace operations

(2) Concurrent Assessment and Prerequisite Relationship of Units

Pre-requisites for this unit are:

- BGC1003A Read and interpret plans
- BGC1004A Carry out measurement and calculations
- BCG1005A Use of power tools
- BCG1008A Carry and levelling

(3) Underpinning Knowledge and Skills

Knowledge

A Knowledge of:

- types of stairs
- terminology of components and dimensional relationships
- drawings and specifications
- factors governing design of stairs
- Building Code of Australia
- stair construction
- materials related to stair construction
- measurement and calculations related to lineal measurements in stair design
- workplace and equipment safety requirements
- tools and equipment
- fixing and fasteners

Skills

The ability to:

- interpret drawings and specifications/documentation
- organise work
- carry out calculations
- record information
- make a set out for stair construction
- solve problems relating to stair construction
- work safely
- use tools and equipment

- measure and level relevant to stair construction
- set out material and location
- calculate stair measurement details and quantities
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- drawings and/or information relevant to stair design activities
- suitable work location to carry out design work stair construction
- Building Code of Australia documentation
- work location ready for stair construction and installation
- plant and equipment appropriate to the construction processes of stairs
- construction materials appropriate to the proposed construction of stairs
- hand and power tools appropriate to the construction process of stairs

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision

Assessment may involve:

- observation of application process
- questioning related to underpinning knowledge
- inspection of completed construction

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment and in accordance with workplace and safety procedures.

Assessment should be while tasks are undertaken either individually or while working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	2	2	1	1	1

BCF1000A: Prepare for construction process (stonemasonry)

DESCRIPTOR

This unit applies to the preparation processes carried out to support the laying or placement of stone.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan for construction process	1.1	Quality assurance requirements of company's construction operations recognised and adhered to.
		1.2	Job requirements identified from drawings/work location and/or supervisor's instructions.
		1.3	OH&S requirements identified in accordance with application tasks and workplace environment and adhered to.
		1.4	Safety hazards identified and correct procedures adopted to minimise risk to self and others.
		1.5	Materials selected to supervisor's instructions and safely handled and stored/located ready for application.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Tools and equipment selected consistent with job requirements, checked for serviceability and faults reported to supervisor.
2	Prepare materials selected for construction process	2.1	Activities for material preparation identified from specifications or supervisor's instructions.
		2.2	Material preparation carried out to satisfy requirements of construction process.
		2.3	Correct manual handling techniques used to move materials to location of placement.
		2.4	Components distributed and stacked to suit job location and construction sequence.
3	Prepare work area suitable for construction process	3.1	Activities to be carried out in work area, identified from type of stonework and planned procedures according to layout of construction and access to location.
		3.2	Work area prepared for construction process to supervisor's instructions.

4	Use tools, plant and equipment appropriate for construction process	4.1	Regular hand and power tools suitable for application process, identified with the job requirements.
		4.2	Hand and power tools used safely and effectively to carry out processes.
5	Assist with stonemasonry work	5.1	Selected stone, visually checked to ensure to supervisor's instructions including colour, matching surrounding area, and distributed to location.
		5.2	Surface brushed/scraped/washed cleaned of surplus mortar material on completion of stonemasonry process.
6	Clean up	6.1	Materials stacked/stored for re-use or removal.
		6.2	Work area cleared.
		6.3	Tools and equipment cleaned, maintained and stored.
		6.4	Waste disposed in appropriate method to EPA requirements.

RANGE OF VARIABLES

Construction processes include:

- worksite preparation
- preparation for stone laying
- lay stone
- clean stone face

Drawings may include:

- worksite plan
- job drawings
- sketches

Quality Assurance requirements may include:

- workplace operations and procedures
- preparation of surfaces
- handling of materials
- storage of materials
- use and maintenance of tools and equipment

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

- use of lifting equipment

Safety hazards may include but are not limited to:

- working with heavy stone
- working from platforms
- dust
- wind

Personal protective equipment may include:

- boots
- safety goggles/glasses
- ear plugs/muffs
- leather aprons
- gloves
- dust masks/respirators

Tools and equipment include but are not limited to:

- hammer
- bolster
- shovel
- measuring tape/rule
- angle grinder
- masonry saw
- power leads
- hoses
- scaffolding
- brushes and brooms
- wheel barrows
- mortar boards

Types of stone used but not limited to, may be:

- limestone
- sandstone
- basalt
- granite
- ashlar - dressed stone

Materials in addition to stone include but are not limited to:

- cement
- lime
- sand

Materials preparation may include:

- cutting of stone
- preparing materials for batching for mortar

Work area preparation may include:

- cleaning of strip footings or slab
- setting up concrete mixer
- locating mortar boards
- establishing temporary water and power supply

- preparing access for supply of mortar
- erecting scaffolding

Selected stone may vary in accordance with:

- size
- shape
- types of stone
- colour

Work to be undertaken as part of a team under supervision with instructions being part of supervisor's directions, either verbal or written.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation for stonework in accordance with the performance criteria and using any of the range of variables for stone as listed within the range statement.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- correct procedures carried out prior to and during the application of construction processes
- demonstrate safe and effective operational use of tools, plant and equipment
- correct procedures adopted and used to handle and place materials
- interactive communication with others to ensure safe and effective worksite operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1007A Erect and dismantle restricted height scaffolding

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- materials associated with stonework
- portable power tools associated with stonework
- hand tools and equipment relevant to stonemasonry work
- materials handling associated with stonework
- measurement relative to stone
- accessories associated with stone construction
- workplace communications

Skills

The ability to:

- work safely to instructions
- read drawings
- use power tools and hand tools
- handle material
- select material
- measure relative to the construction process
- effectively communicate verbally with others working in a team situation
- use hand eye coordination

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to stonemasonry work
- hand tools and power tools appropriate to stonemasonry work processes
- plant and equipment appropriate to stonemasonry work processes
- suitable work area appropriate to the construction process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or it may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF2000A: Identify and use stone products

DESCRIPTOR

This unit applies to the use of stone products manufactured to designed specifications for both off-site and insitu installation.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify types, size, defects and the function of stone products	1.1	Common types of stone used identified.
		1.2	Key features and orientation of patterns in stone identified.
		1.3	Bed and face of stone and association to fretting of stone identified and explained.
2	Recognise terms used in the identification and usage of stone products	2.1	Common terms, instructions and information relating to usage of stone understood, explained and/or identified.
		2.2	Commonly used symbols and abbreviations identified.
		2.3	Key architectural types used in stonemasonry identified.
3	Explain processes and procedures used in stone production and manufacture	3.1	Methods used in processing and manufacture of stone products, identified.
		3.2	Common type of plant/tools used for stone production identified.
		3.3	Main difference between off-site and insitu stone production identified as part of construction process.
4	Correctly handle, saw and store stone products.	4.1	Handling characteristics of common types of stone identified and appropriate techniques applied.
		4.2	Work practices identified and sequenced according to performance requirements of product.
5	Clean Up	5.1	Work area cleared to specifications.
		5.2	Unused materials stored.
		5.3	Tools, plant and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit of competency applies to stone products manufactured in accordance with design specifications for both off-site and insitu installation.

Types of stone include but is not limited to:

- granite
- marble
- basalt
- sandstone
- pre-cast concrete

Processing and manufacturing of stone products may include:

- crushed to aggregate size
- crushed to fine particle (dust) size
- cut to tile size
- cut and polished to tile size
- cut or finished to pavement section size

EVIDENCE GUIDE

Competency is to be demonstrated by selecting for use at least two separate stone product materials for the installation of components to two nominated separate applications and in accordance with the range listed within the range of variables. This is to include one situation of cutting stone to size.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- correct procedures carried out prior to and during application of handling processes
- selection and use of appropriate processes, tools and equipment to cut stone
- correct procedures adopted and used to handle and place materials
- interactive communication with others to ensure safe and effective worksite operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stone and stone products
- workplace and equipment safety requirements
- drawings and specifications
- portable power tools relevant to stonework

- hand tools and equipment relevant to stonework
- materials handling related to stone and stone products
- measurement relative to stone
- accessories associated with stone construction
- workplace communications

Skills

The ability to:

- work safely to instructions
- read and interpret drawings
- use power tools and hand tools
- handle material
- select material
- measure relative to the construction process
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to stone product application
- hand tools and power tools appropriate to work processes
- plant and equipment appropriate to work processes
- suitable work area appropriate to application processes

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or it may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	2	2	2

BCF2001A: Use static machines

DESCRIPTOR

This unit applies to the use of static machines, which are those fixed to a set location for their operation, as applies with off-site manufacturing processes.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify static machines, their operation and safety requirements	1.1	Types and functions of static machines identified for use in offsite production.
		1.2	Method of operation of machines identified in accordance with manufacturer's operating manual.
		1.3	OH&S requirements for guard attachment and cut off switches identified.
		1.4	OH&S requirements for personal protective equipment associated with using machines identified and used.
		1.5	Quality Assurance requirements of company's machining operations, recognised and adhered to.
2	Prepare machine for use	2.1	OH&S requirements for preparing and using static machines recognised and adhered to.
		2.2	Appropriate personal protective equipment selected, correctly fitted and used.
		2.3	Machine set up to required operating process and setting with fences/guides locked to position in accordance with standard operating procedures.
3	Operate machine	3.1	Machine start up procedure carried out to manufacturer's recommendations.
		3.2	Material fed to machine, where applicable, in accordance with manufacturer's recommendations, safe handling procedures and standard operating procedures.
		3.3	Material set up and held into place, where applicable, for mobile machine and moving table operations in accordance with manufacturer's recommendations.
		3.4	Machine operated in accordance with its designed capacity and purpose and to manufacturer's specifications and OH&S requirements.
		3.5	Machine shut down procedure carried out to manufacturer's recommendations under supervisor's

			instruction.
4	Maintain machine and attachments	4.1	Machines maintained through regular servicing to manufacturer's operating manual.
		4.2	Faults identified and reported to responsible supervisor.
		4.3	Minor faults identified and corrected where applicable, under supervision.
		4.4	Assistance given when cutters/blades and attachments fitted and secured to manufacturer's specifications, under supervisor's instruction.
5	Clean up	5.1	Machine cleaned and waste material disposed of safely under supervisor's instruction.
		5.2	Cutters, blades and attachments cleaned, checked and stored under supervisor's instruction.

RANGE OF VARIABLES

Materials may include but are not limited to:

- timber or similar materials
- acrylic or similar materials
- metal or similar materials
- natural soft or hard stone
- glass or similar materials

Static machines may include but are not limited to:

- rip saws
- band saws
- docking saws
- vertical and horizontal drills
- dimensional saws
- thicknessers
- buzzers (jointer/surface planer)
- morticers
- multi drill machine
- table sanders
- grinders
- travelling beam saws

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials used in machining operations
- control of handling procedures
- use and maintenance of machines
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- safety switches on machinery
- maintenance of machines
- use of tools and equipment
- handling of and feeding of materials
- guarding on machinery
- safe use of machines in accordance with standard operating procedures

Personal protective equipment may include:

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

Tools and equipment for maintenance and setting up may include but are not limited to:

- oil cans
- grease guns
- spanners
- feeler gauges
- packers
- wedges
- screwdrivers
- measuring tape/rule
- hammer
- spirit level
- squares
- brushes

Reporting of faults should be in accordance with organisation's workplace procedures and may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of the safe and efficient setting up and operating of at least three (3) separate types of machines using any one type of material of those listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- compliance with OH&S regulations applicable to workplace and machine operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within context of carrying out machining operations
- identification and appropriate application of manufacturer's recommendations in use of machine
- identification and correct application of guarding requirements in operating machine
- demonstrate correct setting up procedures prior to use in accordance with carrying out machine operations
- demonstrate correct start up procedures for operation of machines
- demonstrate correct techniques with safe and effective operational use of machine
- demonstrate correct shut down/switch off procedures with completion of machining operation

- display appropriate attention to procedures of cleaning and maintaining machine to requirements
- demonstrate sound techniques with safe and correct procedures used to place or remove cutters and blades

(2) Concurrent Assessment and Prerequisite Relationship of Units

Pre-requisites for this unit are:

- BGC1005A Use hand and power tools
- BGC1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A Knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations
- types of machines and their operation
- safety considerations for operating machinery
- maintenance of machines
- cutter, blades and associated accessories
- tools and equipment relevant to setting up machines
- materials under machine operations
- materials handling related to working with machines
- reporting faults

Skills

The ability to:

- work safely to instructions
- set up for machine operation
- operate machine to standard operating procedures
- use hand tools and equipment associated with machine operation
- handle material
- stack material
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location
- access to a range of static machines
- materials appropriate to work orientation of machining operations
- information/specification of material machining requirements

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision

Assessment may involve:

- observation of application work
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or it may be at the completion of each task associated with setting up and using machine.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment and in accordance with work and safety procedures

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	-	2	2	2

BCF2002A: Move sheet glass by hand

DESCRIPTOR

This unit applies to the moving of sheet glass by use of manual handling applications. Handling applications include individual and team operations.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Assess risks and factors with relocation of glass	1.1	Glass sheets to be relocated, identified in accordance with supervisor's instructions
		1.2	Weight, shape, balance and dimensions of glass are estimated/calculated.
		1.3	Locations for relocation/storage are determined in accordance with supervisor's instructions.
		1.4	Potential routes to be followed are identified.
		1.5	Points of balance of glass sheet/s are estimated.
		1.6	Required clearances for glass size are compared to available space and adjustments made.
		1.7	Potential risks in route(s) which may be followed are considered.
		1.8	Risks to self are identified arising from the required lifting, load carrying, set down or movement of the glass.
		1.9	Manual handling procedures for lifting, lowering and carrying, pushing and pulling are identified.
		1.10	Team lifting procedures are considered for application with moving of glass, where applicable.
2	Plan glass movement	2.1	Quality assurance requirements of company's glass operations, recognised and adhered to.
		2.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		2.3	Relocation of the glass planned consistent with sound procedures for manual handling.
		2.4	Procedures for relocating glass determined including allowing for potential difficulties and compliance with workplace operation procedures.
		2.5	Personal protection equipment for the task identified,

		selected and used.
	2.6	Appropriate equipment selected and used in accordance with job requirements.
3	Relocate glass	
	3.1	Required actions of lifting, lowering and carrying, pulling and pushing are safely carried out.
	3.2	Applications appropriate for team relocation of glass are identified and used.
	3.3	Team lifting tasks are co-ordinated.
	3.4	Planned process and route are followed.
	3.5	Relocated materials are set down without damage to glass, personnel or equipment and checked for stability.
	3.6	Relocation is checked to see that it meets work requirements, with any difference(s) reported.
4	Clean up	
	4.1	Stored overlapping or protruding sheets marked for identification by taping corner.
	4.2	Equipment returned to storage location.

RANGE OF VARIABLES

This unit applies to sheet glass not exceeding 6.5mm in thickness.

Movement of glass may be carried out:

- individually
- working with a partner
- as a team operation

Team operations are determined in accordance with:

- size of sheet
- weight of sheet

Movement of sheet/s may be for:

- storage relocation
- placement cutting
- placement for transport
- placement for installation

Supervisor's instructions may involve:

- verbal instruction/direction
- written notes
- sketches
- material list

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- storing and stacking of material
- protection of finished edges

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- handling of materials
- use of equipment

Personal protective equipment may include:

- boots
- safety glasses/goggles
- gloves
- hard hat
- overalls

Equipment to assist in manual handling operations may include:

- vacuum suction grips
- gloves
- trolleys
- roller racks
- dolly wheels

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of safely and effectively moving glass in at least 3 of the situations listed within the range statement for reason of moving glass. Each situation must be carried out in the three modes of handling; individually, with a partner and as part of a team.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S requirements applicable to workplace operations
- application of organisation's policies and procedures including Quality Assurance requirements within the context of handling and storing glass
- identification of work order and correct interpretation of task requirements
- identification of glass and task and risk conditions related to movement to relocation
- identification of risks from sharp edges, awkward shapes, manoeuvring requirements, safe set down and potential for damage resulting from accidents
- indicate sound consideration for lift, move and place tasks appropriately planned and pathway checked for clear access
- selection and use of appropriate processes and equipment to carry out tasks
- demonstrate sound positioning of grips and/or hands for lifting of glass
- demonstrate sound positioning of body and handling techniques applied in team situation of moving glass
- demonstrate co-operative techniques with team members to maintain stability of glass throughout movement procedures
- demonstrate sound and safe techniques to place down glass to relocated position

- interactive communication with other to ensure safe and effective task and workplace operations

(2) Pre-requisite Relationship of Units:

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1011A Handle construction materials and safe disposal of waste

(3) Underpinning knowledge and skills:

Knowledge

A knowledge of:

- types of glass and their characteristics
- handling techniques associated with glass sheet
- behaviour of glass sheets when lifted or moved
- equipment relevant to manual handling of glass
- workplace and equipment safety requirements
- company's Quality Assurance requirements related to handling of glass
- measurement and calculations related to area, volume and weight
- work orders and job instructions relevant to handling of glass
- stacking of glass

Skills

The ability to:

- work safely to instructions
- interpret instructions
- plan and organise work
- carry out measuring and calculations
- handle materials
- handle and store glass
- use equipment
- effectively communicate verbally with other within a team environment

(4) Resource Implications

- workplace location
- glass sheet to be shifted and others to assist as required.
- equipment appropriate to support proposed activity
- job instructions or work order applicable to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under consistency of performance over time and in a range of workplace limited supervision.

Assessment should be by direct observation of application to tasks and questioning related to underpinning knowledge.

Assessment should be conducted over time in relationship to range of activities related to competency. Assessment may be by intermittent checking at various stages of each task in accordance with the performance criteria.

(6) Context for Assessment

Competency may be assessed in the workplace or simulated workplace setting. Assessment shall be while tasks are undertaken both individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	2	2	2	2

BCF2003A: Finish stone

DESCRIPTOR

This unit applies to the cutting and polishing processes used to finish both hard and soft stone.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application to tasks and workplace environment, identified and adhered to.
		1.3	Job requirements identified from drawings and specifications or detailed sketches and instructions provided by supervisor.
		1.4	Stone selected in accordance with job requirements and specifications.
		1.5	Required tools and equipment identified and selected to carry out finishing processes.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Drawings, specifications and schedules for job adhered to.
		1.8	Stone hardness identified using "Moh's scale".
2	Use abrasives	2.1	Coolant used as required by selected abrasives, stones and job requirements.
		2.2	Range of grades of abrasives used in accordance with job requirements and specifications.
		2.3	Polishing compounds used in accordance with job requirements and specifications.
		2.4	Various polishing heads used in correct sequence to provide finish to specification.
3	Use stone cutting equipment	3.1	Stone set into place on cutting table to obtain maximum efficiency in cutting.
		3.2	Stone wedged or fixed into place by nailed timber strips to ensure stable and aligned correctly to cutting blade.
		3.3	Adjustments made to machinery as required by

			maximum depth of cut and size of stone.
		3.4	Primary cutting machines used appropriate to their cutting capacity.
		3.5	Secondary cutting machines used appropriate to their cutting capacity.
		3.6	Stone marked out and cut according to job drawings, specifications and schedules.
4	Polish stone and form edges	4.1	Adhesives applied as fillers to stone as required by job.
		4.2	Grinding and polishing heads set up and operated as required by job.
		4.3	Adjustments made to machinery in accordance with job requirements.
		4.4	Polishing machinery used in a manner appropriate to its capacity.
		4.5	Various hand operated polishing machines used as required by job to achieve specified finish.
5	Use adhesives and fillers	5.1	Various filling compounds selected and used according to job requirements.
		5.2	Various types of adhesives selected and used according to job requirements.
		5.3	Tinting procedures for fillers and adhesives selected and used, where required.
		5.4	Various reinforcing materials and techniques selected and used, where required.
6	Clean up	6.1	Surfaces cleaned as required by job in preparation for transport or installation.
		6.2	Surface finishes applied as required by job (eg. wax).
		6.3	Work area cleaned up and waste materials disposed of in an appropriate manner and in accordance with EPA requirements.

RANGE OF VARIABLES

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials

- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

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

Machinery and equipment may include but is not limited to:

- frame saw
- circular saw
- rotating or transverse tables
- twin tables
- rise and fall saws
- wire saws
- water jet
- hole saws
- line polishers
- stationary slab polishers
- Jenny Lind type polishers
- edge polishers
- milling machines
- buffs
- drills
- angle grinders

Adhesives and fillers may include but are not limited to:

- cementitious material
- plaster
- epoxy and polyester resins
- chemical adhesive

Adhesive applied as fillers may be to:

- laminate edges
- fill natural fissures
- apply reinforcing to slabs

Supervisor's instructions may be verbal or written.

EVIDENCE GUIDE

Competence may be assessed by finishing stone using at least two pieces of equipment listed in the range of variables on both hard and soft stone.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to machinery equipment and workplace operations
- apply organisational quality procedures and processes within the context of finishing stone.
- stabilise stone or equipment, prior to cutting or polishing
- select cutting and polishing processes appropriate to stone shape, size and specified finish
- use polishing heads in a logical sequence to achieve specified finish
- demonstration of polishing using both hand held and static polishing machinery
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete finishing process to stone to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction material and safe disposal of waste

This competency may be concurrently assessed with:

- BCF2020A Use static machines

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- types of stone and their characteristics
- OH&S regulations relating to guarding and use of static and hand held power tools and equipment on stone
- methods of finishing stone
- role of coolant in the stone polishing process
- Moh's scale of stone hardness
- range and grades of polishing compounds
- machinery and equipment relevant to finishing stone
- regulations related to safe disposal of waste and dust suppression
- adhesives and fillers relevant to finishing of stone surfaces

Skills

The ability to:

- work safely

- read and interpret drawings and documentation
- select and use hand held power tools and equipment
- handle chemical adhesives and fillers
- handle materials associated with stonework
- set up and use machinery
- effectively communicate verbally with others working in a team environment

(4) Resource Implications

The following resources should be provided:

- workplace operations
- access to equipment and materials for cutting and polishing stone
- stone relative to cutting and polishing proposed activity
- drawings, specifications and/or documentation relevant to activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken under indirect supervision and should involve:

- direct observation of use of at least three types of machines
- questions related to underpinning knowledge
- inspection of final product

Competency shall be assessed while working under intermittent supervision and direction at various stages of the cutting and polishing process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace setting.

Assessment should be while tasks are undertaken under intermittent supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	-	1	-	2	-	2

BCF2004A: Layout signs

DESCRIPTOR

This unit applies to developing the design of internal/external signs to client's requirements, using data from client's drawings and information.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare	1.1	Client's requirements determined from provided information and drawings.
		1.2	Brief designed and developed incorporating client's requirements.
		1.3	Client's budget and/or concept design met.
		1.4	Materials and equipment selected in accordance with job requirements.
2	Determine layout, typeface, colours and graphics	2.1	Safety requirements incorporated.
		2.2	Type of layout determined in accordance with project brief.
		2.3	Typeface selected in accordance with project brief.
		2.4	Selection of colours determined in accordance with project brief.
		2.5	Type of graphics selected in accordance with AS2342.1 Development testing and implementation of information and safety symbols and symbolic signs, and AS1319 Safety signs for the occupational environment.
3	Develop rough layout sketch	3.1	Rough layout sketch developed using selected tools/equipment and materials.
		3.2	Layout sketch incorporates agreed design elements.
		3.3	Layout developed in accordance with Codes of Practice – Advertising Trade Practices Act.
		3.4	Layout developed and designed in accordance with AS2432.1 and AS1319 and local by-laws if applicable.
		3.5	Layout conforms to environmental and industry requirements.

4	Obtain client's amendments to layout	4.1	Client amendments to layout sought and recorded.
5	Refine layout of design	5.1	Layout amended to suit client's requirements.
		5.2	Layout accepted by client in writing.
6	Clean up	6.1	Waste materials disposed of safely.
		6.2	Equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to internal and external signs which may be made from a range of different types of materials.

The following Codes of Practice must be conformed to:

- Advertising Trade Practices Act
- Australian Standards - AS1319 Safety signs for the occupational environment
- AS2342.1 Development testing and implementation of information and safety symbols and symbolic signs
- Local by-laws

Clients requirements will vary in accordance with purpose of sign which may involve but is not limited to:

- safety
- directional
- information
- advertising

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of effectively reading and interpreting drawings and information to locate or identify nominated drawings, features or functions to produce the layout of a sign to nominated requirements.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate the ability to identify and understand various types of drawings
- identification of dimensions, symbols, abbreviations and key features
- identification of title panel and reference date as to up to date copy of drawings
- indicate a sound understanding of the purpose of specifications in accordance with work orientation
- demonstrate sound understanding of brief with the development of layout design
- interactive communication with client to ensure requirements are met with final design

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work

- BCG1003A Read and interpret plans

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- Workplace and safety requirements
- types of drawings
- materials relevant to reference from drawings/specifications for production of signs
- measurements and calculations relevant to design layout of signs
- symbols, dimensions and terminology related to signwork
- typography
- colour selection
- Australian Standards - AS1319, AS2342.1

Skills

The ability to:

- organise work
- read and interpret drawings
- measure accurately
- draught and/or set out layout
- effectively communicate verbally with client and others in the work environment

(4) Resource Implications

The following resources should be made available:

- suitable range of drawings and specifications
- drawing/sketching equipment appropriate to activity tasks
- data and brief of client's requirements

(5) Method of Assessment

Competency may be determined concurrently based upon integrated project work.

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	1	2	2	2	2

BCF2005A: Use colour matching for sign writing

DESCRIPTOR

This unit applies to identifying and matching colours against a specified sample.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Prepare materials and equipment	1.1	Quality Assurance requirements of company's sign writing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with handling and mixing paint and workplace operations, recognised and adhered to.
		1.3	Materials checked for conformity against drawings and specifications.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out the processes consistent with requirements of job, checked for serviceability and faults reported to supervisor.
		1.6	Safety hazards identified and correct procedures used to reduce hazards to self and others.
2	Match paint colour to specified sample for sign	2.1	Base colour identified from sample and from use of colour wheel principles.
		2.2	Colour sample matched against mixed test panel to select stainer(s)/tints.
		2.3	Colours mixed and tested against sample.
		2.4	Adjustments made to match and colour mix tested against sample.
		2.5	Final adjustments made to match colour.
3	Clean up	3.1	Area cleaned.
		3.2	Waste and unwanted material disposed of safely.
		3.3	Unused materials sealed and stored.
		3.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to:

- oil-based paint
- water-based paint
- stains

Quality Assurance requirements may include:

- quality of materials
- use and maintenance of equipment
- sampling procedures
- recording data

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- protective clothing and equipment
- handling of hazardous materials
- working environment
- emergency procedures
- operating equipment

Personal protective equipment may include:

- safety goggles/glasses
- respirators
- gloves
- overalls
- boots

Tools and equipment may include but are not limited to:

- stirring implement
- colorant dispenser
- mechanical paint mixer (shaker)

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by identifying base colours and colouring principles and mixing tints to achieve a colour match to a given sample.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of organisational quality procedures and processes within the context of matching specified paint colour
- identification of base colour by sample analysis
- demonstrate thorough mixing of paint after tint is added
- adoption and use of sound techniques in gradual adding of tints to achieve colour match

- accurate recording of formula for future reference code

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCG1005A Use hand and power tools

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace and equipment safety requirements
- specifications for paint and stains
- types of paint and colour
- hazards associated with paint materials
- tools and equipment relevant to colour matching work
- mixing procedures relevant to paint
- recording procedures relative to paint colour selection

Skills
The ability to:

- work safely
- organise work
- interpret specifications
- use tools and equipment
- prepare paint samples
- record information accurately
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workplace location
- tools and equipment applicable to activity tasks
- sample colour
- paint and colour tints/stains

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision.

Competency should be assessed through direct observation of application to tasks and questioning relating to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace environment.

Assessment shall be while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	2	-	1	2	1

BCF2006A: Construct a sign

DESCRIPTOR

This unit applies to the preparation and construction of a variety of signs.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the application tasks and workplace operations, recognised and adhered to.
		1.3	Plans, specifications and job instruction received, interpreted and carried out efficiently.
		1.4	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.5	Personal and protective equipment correctly selected and used safely.
		1.6	Materials selected in accordance with job requirements.
		1.7	Tools and equipment selected to carry out tasks consistent with job requirements, checked for serviceability and faults reported to supervisor.
		1.8	MSDS requirements determined and followed.
2	Construct signage	2.1	Sign type classified in accordance with job specifications.
		2.2	Materials selected appropriate to dimensions of sign type in accordance with job requirements.
		2.3	Materials cut and joined in accordance with job specification.
		2.4	Surface of signage appropriately finished to job specification.
		2.5	Appropriate fasteners and fixing devices selected and used according to manufacturer's specifications.
3	Clean Up	3.1	Waste material disposed of safely.
		3.2	Completed sign protected for packaging and transportation.

3.3 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to all sign types in A frame and flat surface which are fixed internally or externally.

Materials include:

- timber
- sheet metal
- non-metallic materials

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- hand plane
- power planer
- snips
- screwdrivers

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the safe and effective construction of a framed sign to a nominated designed construction in accordance with the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of constructing signs
- selection and use of appropriate processes, tools and equipment to carry out tasks
- correct procedures carried out prior to and during the application of construction and preparation processes
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate sound and safe techniques to cut, trim and fix materials to construct sign
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools relevant to sign construction
- hand tools and equipment relevant to sign construction
- materials relevant to construction of signs
- materials handling relevant to sign construction materials
- measurement relevant to sign construction
- drawings and specifications
- fixing and fasteners consistent with sign construction
- workplace communication

Skills

The ability to:

- work safely to instructions
- interpret drawings
- use power tools and hand tools
- handle material
- select material
- measure relative to processes
- prepare materials for steelwork
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to sign construction
- hand tools and power tools appropriate to application processes
- plant and equipment appropriate to application processes
- suitable work area appropriate to proposed activity
- drawings and specification/instructions relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency may be determined concurrently based upon integrated project work.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF2007A: Install signs

DESCRIPTOR

This unit applies to the knowledge and skills in planning, transporting and erecting of signs to their site location.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job sequence developed to include hazard prevention and safety procedures consistent with relevant applicable Australian Standards and Codes of Practice.
		1.4	Coordination requirements with other personnel determined from specifications/procedural directions and work practices.
		1.5	Permits and clearances obtained in accordance with requirements of Local Government and State/Territory Regulatory Authorities.
		1.6	Location and position of sign determined in accordance with layout/specifications/supervisor's instructions.
		1.7	All fastenings/fixings selected according to layout/specifications.
		1.8	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.9	All components checked to ensure consistency with job requirements.
		1.10	All materials and equipment identified and obtained in accordance with job requirements.
		1.11	Sign appropriately protected and packed securely for transport to site.
2	Arrange access to site	2.1	Availability of loading/unloading equipment/gear determined.
		2.2	Site access arranged interpreting specifications and instructions.

		2.3	Freighting of signage arranged using appropriate method.
		2.4	Location of sign identified with site in accordance with job drawings specifications.
		2.5	Insurance of signage arranged if appropriate.
3	Load equipment/sign	3.1	Sign and equipment correctly loaded and secured for transport to site using appropriate loading equipment.
4	Transport to site	4.1	All permits and clearances obtained from relevant Statutory Authorities.
		4.2	Sign safely and efficiently transported in accordance with State/Territory road transport authority requirements.
		4.3	Sign and equipment correctly unloaded when transported to site in accordance with OH&S standards.
		4.4	Signage inspected for damage and documented accordingly.
5	Complete documentation	5.1	Delivery documentation completed in accordance with Codes of Practices.
6	Assemble sign	6.1	Sign assembled as appropriate prior to erection upon arrival to site.
		6.2	Equipment and materials organised for erection.
7	Erect sign	7.1	Method of erection determined in accordance with job requirements.
		7.2	Fastenings installed to manufacturer's specifications.
		7.3	Electrical connection arranged to be carried out in accordance with State/Territory Regulatory Authorities and AS3000, AS3100 and AS3112, where applicable.
		7.4	Sign erected safely to location, plumb and level or as designed in accordance with specifications.
8	Obtain final certificate	8.1	Final certification obtained in accordance with State/Territory Regulatory Authorities.
		8.2	Client approval established at completion of erection.
9	Clean up	9.1	Debris and waste materials removed on completion of process.

- 9.2 Re-useable and recyclable materials salvaged and stored.
- 9.3 Tools and equipment cleaned, maintained and stored.
- 9.4 Personal protective equipment removed, inspected, cleaned and stored

RANGE OF VARIABLES

This unit applies to signs constructed and assembled either on site or off-site and erected on-site. It applies to all signage to be erected or affixed to structures.

Signs include:

- timber
- glass
- plastic
- cold/hot cathode lighting systems
- metal
- polystyrene foam
- vinyl
- masonry

Timber or metallic sections may be incorporated into structure as added support for fixing.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- packaging and support for transportation
- erection and fixing procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- lifting equipment and/or working with cranes
- hazardous conditions

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- screwdrivers
- set spanners
- wrenches
- post hole diggers
- shovels
- crowbars
- generator
- air compressor

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out all preparation tasks and erecting signs to nominated locations, one to be affixed to a structure or wall face and the other free standing in accordance with the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational quality procedures and processes within the context of erecting and/or installing signs
- correct identification of location and details of sign construction for proposed site
- selection and use of appropriate processes, tools and equipment to carry out tasks
- safe and effective procedures used to prepare material, assemble and fix components
- demonstrate sound and safe techniques to erect structural support for freestanding signs
- safe and effective procedures used to erect signs and brace assembled structure
- identification of typical faults and problems that occur and the necessary action taken to rectify
- interactive communication with others to ensure safe and effective work procedures

(2) Concurrent Assessment and Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BGC1003A Read and interpret plans
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCF2008A Construct a sign

This competency may be concurrently assessed with:

- BCF2010A Sign Site Survey

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and safety requirements including relevant statutory regulations, codes and standards
- working drawings and specifications
- materials relevant to sign construction and installation
- handling techniques
- tools and equipment relevant to sign construction and installation
- fastening methods relative to signwork
- calculation of material requirements relative to signwork
- measuring and levelling relative to sign installation work
- structural support to signs
- working with crane or plant operators

Skills

The ability to:

- work safely
- organise work
- read and interpret drawings and specifications
- use tools and equipment
- effectively communicate verbally with others in a team situation
- erect or construct structural support
- secure connections with fasteners
- measure and set out work

(4) Resource Implications

The following resources should be made available:

- prepared structure and site location
- tools, plant and equipment appropriate to the tasks
- materials and sign relevant to the activity
- drawings and documentation relevant to the activities

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may involve:

- observation of the application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team operation.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	2	2	1	1	1

BCF2008A: Sign site survey

DESCRIPTOR

This unit applies to the surveying of a site to determine design and installation considerations to erect or locate a sign.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan, prepare and interpret plans and specifications of site locations	1.1	Site location and sign requirements identified from drawings and specifications and site inspection.
		1.2	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.3	Power accessibility identified and checked for suitability.
		1.4	Restrictions to design, manufacture and installation of signage determined from plans and regulations.
2	Interpret council regulations	2.1	Council regulations assessed which affect proposed signage.
		2.2	Situation where Council permits are required established in accordance with relevant council regulations.
		2.3	Method of application for permits/approval signage determined in accordance with council regulations.
3	Assess structure for proposed signage	3.1	Existing and new structures determined suitable for fixing/erecting proposed signage.
		3.2	Method of fixing signage to structure determined using standard sign erection practices.
4	Assess site location for free standing signage	4.1	Site location assessed to determine requirements of free standing signage.
		4.2	All measurements verified and findings of site survey documented by drawings, notes and photographs.
5	Obtain council permits and owners permission for signage	5.1	Council permits obtained where required.
		5.2	Permission to affix signage obtained in writing from owner of premise(s)/structure.

RANGE OF VARIABLES

Applies to sites and structures for which signage is affixed externally and internally.

Installation of signage may be:

- erected on land (freestanding)
- erected on top of building
- affixed to wall face - external or internal
- affixed to building structure

Structures include:

- industrial buildings
- commercial buildings
- domestic buildings
- bridges

Considerations for proposed sign location may include:

- size of sign
- mass of sign
- method of fixing or supporting
- whether to be illuminated
- stability of sign
- by-law restrictions

Safety hazards may include but are not limited to:

- working at heights
- structural obtrusions
- public traffic
- access to location
- buildings' business operations
- weather conditions

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of preparing a summarised survey report satisfying all areas of the performance criteria related to a nominated site location and proposed signage to be installed.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identification and understanding of range of applicable drawings relevant to relating sign to location
- identification of dimensions, symbols, abbreviations and key features on drawings
- identification of title panel and reference date as to up to date copy of drawings
- indication of sound understanding of the purpose of specifications in accordance with work orientation
- selection and use of sound procedures to make and list relevant structural details
- indicate a sound understanding of physical details of sign and required support for installation
- adoption and use of sound system of recording all relevant details of survey
- interactive communication with others to ensure all appropriate data considered

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCG1004A Carry out measurements and calculations

This competency may be concurrently assessed with:

- BCF2007A Install signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of drawings
- materials relevant to drawings/specifications and methods of fixing thereto
- structure of buildings
- construction of signs
- methods of supporting signs
- methods of fixing signs
- relevant statutory by-laws and regulatory limitations
- measurements and calculations relevant to sign construction and installation
- symbols, dimensions and terminology related to signage and signwork
- survey reports

Skills

The ability to:

- read and interpret drawings
- identify relevant information
- measure accurately
- record information
- produce survey findings
- effectively communicate verbally and in written form with persons related with site location and sign
- prepare survey report

(4) Resource Implications

The following resources should be made available:

- suitable range of drawings and specifications relevant to survey
- site location/structure appropriate to activity
- documentation relevant to proposed sign
- location to prepare survey findings

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency may be determined concurrently based upon integrated project work.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	2	2	2	1	2

BCF2009A: Carry out load slinging of off-site materials

DESCRIPTOR

This unit applies to the slinging and moving of materials under supervision.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's manufacturing/construction operations recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks in handling of materials and workplace operations, identified and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Safety barricades and signage located and erected where required, to isolate work area.
		1.5	Slings, tackles, associated lifting gear and tools selected consistent with needs of task.
		1.6	Lifting equipment and tools inspected, and damaged work items reported to supervisor.
2	Move, locate and secure load	2.1	Lifting/anchorage points located/identified.
		2.2	Strongbacks/stiffeners positioned and securely attached as required.
		2.3	Load safely slung, connected to lifting gear and packing secured to protect load.
		2.4	Destination location prepared to receive load.
		2.5	Load stood vertically if necessary, safely moved to required location and secured in position.
3	Clean up	3.1	Slings, associated lifting equipment and packing safely removed.
		3.2	Loose debris and waste material removed and disposed of safely.
		3.3	Slings, lifting equipment and tools cleaned, maintained and safely stored.

3.4 Necessary documentation completed.

RANGE OF VARIABLES

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of lifting plant and equipment

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat

Off-site materials may include but are not limited to:

- packs of timber
- packs of sheet material
- packs of pipe lengths
- packs of metal sections
- pre-cast concrete
- stone sections
- crates of fittings
- pallets of bagged material
- steel sections

Tools and equipment may include but are not limited to:

- spanners
- chain slings and hooks
- lifting clutches
- lifting beams
- strongbacks
- shackles and eye bolts
- ropes
- nylon ropes
- packing
- mobile pendant operated cranes

The load slinging and lifting equipment specified in the range of variables refer to equipment excluding those requiring a certificate of competency for operation as specified by the State/Territory requirements.

Work is undertaken as part of a team under supervision.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the required slinging and moving of general materials used in off-site work orientation under supervision and in accordance with Worksafe Australia standards for users and operators of industrial equipment.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with workplace and equipment safety requirements to State/Territory regulatory authority
- indicate compliance with organisation policies and procedures within the context of handling materials and using valuable equipment
- selection and use of appropriate lifting equipment to suit load for movement process
- demonstrate safe and effective connection of lifting equipment
- application of safe and effective techniques to carry out movement and placement of materials
- adoption and use of appropriate communication techniques to assist with moving a load
- effective communication with others to ensure safe and effective work site operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant regulations, codes and standards
- types and characteristics of materials
- materials handling eg. pre-cast concrete sections
- stacking/storing materials safely allowing egress to others and easy access to materials for retrieval
- hazards eg. identification and prevention methods adopted
- plant and equipment related to materials handling
- tools and equipment related to materials handling
- basic hand signals
- measurement relative to slinging and placement of materials

Skills

The ability to:

- work safely
- organise work
- use tools and equipment
- stack material

- fix fastenings and secure lifting equipment
- effectively communicate both verbally and with basic hand signals with others in team situation

(4) Resource Implications

The following resources should be made available:

- workplace operation
- plant and equipment relative to activity tasks
- tools and equipment appropriate to materials and activities
- materials appropriate to proposed activities

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency may be determined concurrently based upon integrated project work.

Assessment may be by intermittent checking at various stages of each task application or at the completion of the overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment in accordance with work practices and safety procedures.

Assessment shall be while tasks are undertaken either individually or as part of a team under indirect supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	2	1	1	1

BCF2010A: Maintain inventory and control stock

DESCRIPTOR

This unit applies to the recording of changes to stock lists including materials, equipment and accessories to maintain a controlled inventory of stock.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify stock materials and equipment	1.1	System for controlling stock identified.
		1.2	Location for system of control and recording identified.
		1.3	Clerical/computer applications for maintaining records identified.
		1.4	Plant, equipment, tools and stock materials identified.
2	Maintain inventory/stock lists	2.1	Control of stock lists checked in accordance with company practice.
		2.2	Details of changes to inventory/stock lists entered in appropriate record hard copies printed and filed.
3	Store and record stock	3.1	Plant, equipment, tools and stock materials stored/stacked in identifiable, measurable and accessible locations.
		3.2	Changes to levels of stock identified and maintained for each category of stock, listing item details and quantity.
4	Control stock	4.1	Stock lists maintained at central storage location to company requirements.
		4.2	Items used recorded on stock lists.
		4.3	Incoming items stored and recorded on stock list.
		4.4	Low stocks noted and reported according to company practice.

RANGE OF VARIABLES

Inventory and stock lists would be considered in accordance with the work orientation and include:

- materials
- equipment
- accessories

Lists to record stock may include:

- sheets
- cards
- notes
- computer print outs

Lists to maintain stock may include:

- numerical notation
- written recording
- computer entry

Materials may include but are not limited to:

- raw or dressed materials
- adhesives
- fasteners
- fixings
- paints
- lacquers
- sealants

Workplace operations would be in accordance with OH&S requirements differing in accordance with work orientation and facilities.

EVIDENCE GUIDE

Competency is to be demonstrated by accurately recording changes to stock lists dealing with one each of the range of variables – materials, equipment and accessories in accordance with the work orientation.

The handling equipment listed in the resource implications refer to equipment excluding those requiring a certificate of competency for operation of industrial equipment specified by State/Territory requirements.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of maintaining stock control
- demonstrate sound recording of movement of stock items
- selection and use of correct procedures to make accurate adjustment of stock lists
- identification and reporting of critical situations which may affect product production
- completion of activity with all records stored or recorded to system requirements

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit:

- BCG1004A Carry out measurements and calculations

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace safety requirements

- work orientation materials
- materials for joining, fastening and finishing
- tools and equipment relevant to handling and storage of materials
- stock lists
- recording systems

Skills

The ability to:

- work safely
- organise work
- identify stock items
- record numerical changes
- maintain stock lists
- store records
- effectively communicate both verbally and in written form with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace operation
- handling equipment including support of forklifts, pendant cranes
- stored stock
- stock sheets

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may be intermittent checking at various stages of the job application in accordance with the performance criteria, or it may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	1	1	2	1	-

BCF2011A: Use computers

DESCRIPTOR

This unit applies to the use of computers, using programs applicable to the storage and retrieval of data.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify computer operation and application uses in the workplace	1.1	Computer operation and programmable equipment identified and basic methods of use determined.
		1.2	System software appropriate to needs of workplace, identified.
		1.3	Basic processes to use system and access information, identified.
		1.4	Security controls and restricted availability governing access to computer system identified where appropriate.
2	Use system and provide data entry	2.1	Required information gathered and prepared for data entry.
		2.2	Switch on and start up procedures carried out to system requirements.
		2.3	Access to particular records/data obtained by appropriate system procedures.
		2.4	Data entered accurately and indexed where applicable to company procedures.
3	Verify/confirm data input	3.1	Verification procedures carried out to ensure data input recorded.
		3.2	Printout produced where applicable to confirm input.
		3.3	System shut down and switched off according to required procedures.

RANGE OF VARIABLES

This unit covers the basic use of computers where applicable for storage and retrieval of off-site data.

Data may include but is not limited to:

- orders
- invoices
- stock control
- client lists

Computer data entry and application can vary in accordance with:

- type of computer
- software programs
- company's data system
- company's operations

EVIDENCE GUIDE

Competence is to be demonstrated by starting computer, accessing two application programs listed in the range of variables and entering and saving data.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- demonstrate sound application and adherence to program entry and exit procedures
- display correct processes in following of data entry work, saving and retrieval procedures
- maintaining security of system using passwords and log on procedures
- application of sound procedures in use of information material and storage thereof

(2) Pre-requisite Relationship of Units

This competency may be assessed concurrently with:

- BCF2010A Maintain inventory and control stock

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- basic keyboard skills
- uses for a range of software applications
- computer operations
- information and data relevant to company's operations
- data systems

Skills

The ability to:

- work safely
- organise work
- use a computer
- apply software programs
- enter data
- save and retrieve information

(4) Resource Implications

The following resources should be made available:

- computer hardware and work location
- suitable applications software relevant to proposed tasks
- data information relevant to application tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision.

Competence should be assessed through observation of application to tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or it may be at the completion of each process.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment should be under intermittent supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	2	1	1	2

BCF2012A: Package manufactured products for transport

DESCRIPTOR

This unit applies to the use of appropriate types of packaging systems to protect finished products from damage during transportation.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare packaging and transport of manufactured products	1.1	Quality Assurance requirements to company's manufacturing operations recognised and adhered to.
		1.2	OH&S requirements in accordance with workplace, packaging and handling operations, recognised and adhered to.
		1.3	Type and method of packaging determined in accordance with handling and transporting requirement.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Handling techniques including protective methods identified according to unit and type of materials.
2	Identify and select appropriate packaging for manufactured products	2.1	Material for packaging selected to supervisor's instructions/job specification.
		2.2	Wrapping/enclosing and packaging techniques identified.
		2.3	Special items in bulk, finish or value identified for special packaging requirements.
3	Prepare for handling and transporting of manufactured products	3.1	Packaging process carried out to enclose and protect item/unit for handling and transporting.
		3.2	Loose packaging for transporting selected eg. cover sheets and packaging cushions.
4	Undertake appropriate handling and transporting techniques of manufactured products	4.1	Special packaging, if required, obtained and used.
		4.2	Packaged units covered for transportation.

	4.3	Loaded units packed and secured for transportation.
5	Clean up	5.1 Area cleaned and waste material removed.
	5.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Types of material products to be packed and transported include:

- timber
- aluminium
- steel
- glass
- stone

Packaging processes may include but are not limited to:

- stretch wrap
- bubble wrap
- shrink packaging
- pallet wrapping
- polystyrene foam moulding

Application of packaging processes includes but is not limited to:

- separation packing applied to stacked or bundled components
- vacuum sealing applied to stacks/bundles/units to designed packaging process
- boxes/crates constructed to enclose and protect unit or components
- banding applied to stacks/bundles to maintain stack stability

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- packaging and protection of products

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators

- gloves
- cap

Supervisor's instruction may involve:

- verbal instruction
- written notes
- sketches

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of safely and effectively using at least two types of packaging systems listed within the range of variables to package separate nominated items, and load and pack securely for transportation.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures, including Quality Assurance requirements within the context of protecting finished products
- selection and use of appropriate handling techniques to minimise opportunity of damage to material surface
- demonstrate safe and effective application of packaging process to product
- adopt and apply effective loose packaging to packaged material for transportation
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace safety requirements
- organisation's Quality Assurance requirements
- products and protection requirements
- basic packaging techniques
- types of packaging materials and packaging systems
- materials handling related to work orientation
- transporting techniques
- storing/stacking of materials/items
- tools and equipment relevant to handling and packaging processes
- measurement and calculations related to packaging of products

Skills

The ability to:

- work safely to instructions

- organise work
- use tools and equipment
- handle materials and finished products
- measure and prepare packaging material
- stack/store material
- effectively communicate verbally with others in a team environment
- package products

(4) Resource Implications

The following resources should be made available:

- packaging systems appropriate to proposed tasks
- workplace operations
- tools and equipment relevant to proposed activities
- finished products
- packaging and packing materials

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team in order to achieve outcomes within time constraints.

Assessment may be by intermittent checking at various stages of the job application in accordance with performance criteria or at the completion of each process.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment should be under intermittent supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	1	1	2

BCF2013A: Assemble components

DESCRIPTOR

This unit applies to the assembling of manufactured components to form a completed constructed unit.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare for assembly	1.1	Quality Assurance requirements of company's manufacturing operations recognised and adhered to.
		1.2	OH&S requirements in accordance with task applications and workshop operations, recognised and adhered to.
		1.3	Design assembly identified from job drawings/supervisor's instructions.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and faults reported to supervisor.
		1.6	Materials for protection of component surfaces selected for assembly process.
2	Assemble and hold components in place	2.1	Component parts identified for location in assembly.
		2.2	Knockdown fittings prepared and located for assembly.
		2.3	Adhesive applied, where applicable, to specification.
		2.4	Components located and held in their assembled positions to design specifications
3	Secure assembled components	3.1	Frame/unit secured by adhesive cramped to design specifications.
		3.2	Fastened joints secured by fasteners/knockdown fittings using appropriate tools to specification.
		3.3	Plated joints secured by placement and pneumatic hammer or press of gangnail plates to specification.
		3.4	Weld joints prepared for welding.
4	Clean up	4.1	Assembly and holding system dismantled carefully.
		4.2	Waste material disposed of safely.

- 4.3 Reusable material stored/stacked.
- 4.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Assembled units include but are not limited to:

- roof trusses
- wall frames
- shopfronts
- door and window frames
- doors
- window sashes
- grills
- louvres
- fitments (including cupboards, counters, shelving, robes)
- stairs
- relocatable structures

Materials may be timber or aluminum or other similar materials.

Assembly applications may involve:

- platform or frame jigs
- packers/wedges
- presses
- cramps
- clamps

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- assembling procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- nail gun
- air compressor and hoses

Supervisor's instructions may involve:

- verbal instruction
- written notes
- sketches

Reporting of faults may be verbal or written.

Assembling processes may be undertaken individually or working as part of a team.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective assembly of any one unit of those nominated in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- demonstrate compliance with organisational policies and procedures including Quality Assurance requirements within the context of assembling units
- selection and use of appropriate processes, tools and equipment to carry out tasks
- indicate visual checking of component parts to ensure right part and right location
- selection and use of appropriate packing material for protection of surfaces during assembly
- select and apply effective methods of holding components together in an assembly process
- demonstrate sound procedures to ensure joints closed, true and assembly square and out of winding
- display sound and safe procedures to fix or secure joints

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- tools and equipment relevant to assembling processes
- manufacturing and assembly processes in constructing units

- use of assembling equipment and jigs
- fastening of joints
- fixings and fasteners
- measuring and marking related to assembling of units
- temporary bracing techniques

Skills

The ability to:

- work safely to instructions
- organise work
- use basic tools and equipment
- set up assembly area
- fasten joints
- square frame or unit
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workplace operation
- tools and equipment to support proposed activity
- materials appropriate to supporting assembly process
- manufactured components for assembly process
- drawings and documentation related to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may be by intermittent checking at various stages of the task application or at the completion of the overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment.

Assessment shall be while tasks are undertaken either individually or as part of a team under indirect supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	1	1	2	1

BCF2014A: Manually cut glass to simple shapes

DESCRIPTOR

This unit applies to manually cutting glass to simple shapes for installation purposes.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with task applications and workshop operations, recognised and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and faults reported to supervisor.
		1.5	Sizes, thickness (less than 6.38mm) and location determined from job drawings, specifications and glazing schedule.
		1.6	Openings to receive glass inspected for obstructions and clearances in accordance with standard operating procedures.
		1.7	Materials selected and handled appropriate to application.
2	Cut glass to a straight line	2.1	Type and thickness of glass selected appropriate for application.
		2.2	Cutting processes identified in accordance with AS1288 Glass in buildings - selection and installation.
		2.3	Glass cut to a line using straight edge and scoring and breaking to run cut to tolerance of + or – 1mm.
		2.4	Cutting defects recognised and corrective action taken to standard procedures to AS1288.
		2.5	Glass cut to shape and size to specifications.
		2.6	Glass sheets used in the most economical layout.
		2.7	Sharp edges removed to provide safe edges to glass.
3	Circle and hole cutting	3.1	Type and thickness of glass selected appropriate for

- application.
- 3.2 Centre of hole or circle set out using edge and rule and permanent marking pen.
 - 3.3 Circles/holes in glass cut using pyramid method, complete pre-cut checks, positioning of circle cutter, with hole/circle cut to AS1288.
 - 3.4 Cutting defects recognised and corrective action taken to standard procedures to AS1288.
 - 3.5 Glass cut to shape and size to specifications.
 - 3.6 Glass sheets used in the most economical layout.
 - 3.7 Sharp edges removed to provide safe edges to glass.
- 4 Cutting glass to simple shapes
- 4.1 Glass to be used selected.
 - 4.2 Template marked and prepared to designed shape.
 - 4.3 Template used to mark outline on glass with permanent marking pen.
 - 4.4 Glass offcuts removed safely to AS1288 specification.
 - 4.5 Cutting defects recognised and corrective action taken to standard procedures to AS1288.
 - 4.6 Glass cut to shape and size to specification.
 - 4.7 Glass sheets used in most economical layout.
 - 4.8 Sharp edges removed to provide safe edges to glass.
- 5 Maintain safe working area
- 5.1 Safe working area around glass installation maintained in accordance with site requirements and OH&S regulations.
- 6 Clean up
- 6.1 Recyclable material sorted and stored for collection.
 - 6.2 Glass surface and surrounding frame cleaned and cleared of waste material and assembled according to job specifications.
 - 6.3 Loose debris and waste material removed and disposed of safely.
 - 6.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the cutting of glass for installation of glass in an off-site environment with all glass applications in accordance with AS1288 Glass in building - selection and installation.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- handling of hazardous materials

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- tee square
- squares
- glass cutters
- pincers
- dividers/wing compasses

Personal protective equipment may include:

- safety glasses
- gloves
- gauntlets
- safety boots
- cap

This unit applies to glass for the insertion of glass panels where the glass is 6.35mm or less, by beads, moulds or other dry glazing methods.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of setting out and cutting glass to nominated situations - regular shaped glass, irregular shaped and holed.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- selection and use of appropriate process, tools and equipment to carry out application tasks
- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of glazing
- demonstrate sound techniques in selection, handling and placing glass for cutting
- display sound and accurate techniques to set out glass or templates
- demonstrate sound and safe techniques to cut glass to shape
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1004A Carry out measurements and calculations
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- glass and its characteristics
- procedures with glass cutting
- measuring and setting out relevant to cutting of glass
- tools and equipment related to glass cutting
- materials handling related to glass
- trimming of glass edges

Skills

The ability to:

- work safely
- organise work
- handle glass
- measure and set out work
- use tools and equipment
- cut glass
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location and appropriate bench or table
- tools and equipment appropriate for application tasks
- range of glass suitable for proposed activities
- drawings and/or documentation relevant to tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks.

Assessment may be through observation of work processes, inspections of product and questioning relating to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at the completion of each activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	1	1	1	1	1

BCF2015A: Use aluminium sections for fabrication

DESCRIPTOR

This unit applies to the use of aluminium sections in fabricated structure and the methods of joining.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's fabrication operations, recognised and adhered to.
		1.2	OH&S requirements for the cutting and joining of aluminium sections and workshop operations, recognised and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and faults reported to supervisor.
		1.5	Material requirements determined and selected from store.
2	Identify extruded aluminium sections	2.1	Types of aluminium sections identified for sectional size and design.
		2.2	Uses of various sections recognised consistent with their specific design.
3	Identify methods of joining sections	3.1	Characteristics of sections identified for method of joining.
		3.2	Securing of joints identified with types of sections.
4	Use sections to construct frames	4.1	Aluminium sections designed for frames, set out and prepared for joining.
		4.2	Door and sash type sections set out and prepared for joining.
		4.3	Joints made and secured to structural design requirements.
5	Clean up	5.1	Work area cleaned and waste material disposed of safely.
		5.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Aluminium sections are those designed for the fabrication of:

- door and window frames
- doors (swing, slide, revolving type)
- sashes
- screens
- partitions
- shop front components
- wet area unit components

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- fabrication procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- cutting of metals

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares
- screwdrivers
- docking saw
- power drills
- grinders
- files
- air compressor and hoses
- power leads

Preparation for joining may involve:

- cutting to length
- drilling holes

- punching holes
- cutting for joint
- trimming for fit

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by correctly selecting and identifying the design purpose of at least six separate aluminium extruded sections and the safe and effective demonstration of assembling at least four separate types of joints related to the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- display compliance with organisational policies and procedures, including Quality Assurance requirements within the context of aluminium fabrication
- identification of designed purpose of aluminium sections
- identification of methods of joining different sections
- demonstrate sound and safe techniques in preparing component sections for joining
- demonstrate safe and effective application in the fitting and securing of construction joints
- display safe and effective handling applications to minimise opportunities for damage of material surfaces
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1004A Carry out measurements and calculations
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- aluminium extrusions - design use
- materials relevant to aluminium fabrication work
- fabrication of aluminium sections
- workshop drawings
- tools and equipment relevant to aluminium fabrication work
- fasteners related to aluminium joining and fixing
- measuring and marking related to aluminium fabrication
- cutting and trimming aluminium

Skills

The ability to:

- work safely to instructions
- read and interpret drawings
- use tools and equipment

- set out work
- construct joints
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location
- tools and equipment appropriate to required tasks
- materials relevant to proposed activities
- drawings and documentation relevant to activities

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks.

Competency may be determined concurrently based upon integrated project work.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	-	1	1	1

BCF2016A: Prepare for off-site manufacturing process

DESCRIPTOR

This unit applies to the preparation processes to prepare material for the manufacturing processes and assembling as components to form manufactured units.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare for the manufacturing process	1.1	OH&S requirements recognised and complied with, according to manufacturing, assembling and joining processes and workshop operations.
		1.2	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and faults reported to supervisor.
		1.5	Handling techniques and methods of protecting edges/surfaces used appropriate to unit and material type.
		1.6	Fasteners, fixings, adhesives and/or sealants identified and selected appropriate to manufacturing process and used to manufacturer's specifications and/or MSDS data.
2	Identify, select and prepare materials for use in off-site production process	2.1	Materials identified and selected against characteristic and suitability of off-site production of components.
		2.2	Material acquisition and preparation techniques identified and used as appropriate.
		2.3	Appropriate handling and stacking processes identified and used.
3	Identify fabricated components and method of assembly	3.1	Types of component parts identified from working drawings/specifications.
		3.2	Terminology and dimension limitations specified by standards governing design are referenced and able to be identified.
		3.3	Processes identified for manufacture, assembly and joining techniques and components.

4	Process for manufacture, assembly and fabrication and sequencing is monitored	4.1	Space requirements for preparation/manufacture/ assembly of product identified and located.
		4.2	Component parts acquired, checked for accuracy, quality and suitability according to plans/drawings and specification.
		4.3	Assembling process identified according to sequential order of events.
		4.4	Typical common faults in product and/or process problems and appropriate remedial actions identified according to set workplace operating procedures.
5	Clean up	5.1	Unused materials recycled and/or returned to store.
		5.2	Tools/equipment/plant cleaned, maintained and stored.
		5.3	Work area cleaned and waste disposal of safely.
		5.4	Packaging/handling technique and methods of protecting material edge and surface used.

RANGE OF VARIABLES

Manufactured units or products may include but are not limited to:

- stairs
- fitments
- prefabricated framework
- shopfronts
- windows
- doors

STAIRS

Design and dimension limitation of stairs must be in accordance with:

- Building Code of Australia
- AS1657 Fixed platforms, walkways, stairways and ladders - Design, construction and installation

Components are those associated with straight flighted stairs, which include but are not limited to:

- doglegged stairs
- quarter spaced landings
- single flights

Components of straight flighted stairs may include but are not limited to:

- strings
- newels
- treads
- risers
- handrailing

- balusters
- bearers
- joists

Strings may be open or closed.

Stairs may be without risers.

Balustrade may be of:

- balusters
- multiple railing

Materials may include but are not limited to:

- timber
- laminated material
- metallic and non-metallic materials
- medium density fibreboard (m.d.f)

Material preparation may include:

- dressing to dimensional size
- ripping to size
- cutting to length
- marking for identification

Joining/connections may include but are not limited to:

- nails
- bolts/nuts
- metal rods/connection plates

FITMENTS AND FRAMEWORK

Assembling processes include the production of:

- fitments
- prefabricated timber framework
- shopfronts

Materials may include but are not limited to:

- timber
- laminated material
- aluminium
- veneered particleboard/sheeting
- plywood
- medium density fibreboard (m.d.f)

Preparation of materials include:

- cutting
- dressing
- stacking
- marking

WINDOWS AND DOORS

Opening sashes in windows include:

- sliding
- double hung
- hinged (awning/easement)
- hopper

Window frame construction may be of:

- timber
- aluminium
- plastic with solid core

Fastenings may include but are not limited to:

- screws
- nuts and bolts
- nails
- nail plates

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- cutting and dressing procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of lifting equipment
- use of machines

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape
- square
- bevels
- wire-cutters
- bolt-cutters
- hammer
- drop saw
- angle grinder
- guillotine
- compressor
- overhead/pendant crane and forklift
- docking saw

- circular saw
- buzzer
- thicknesser
- trolley
- metal cutting saw

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of preparing all components and assembly location area, in preparation for the manufacturing and assembly of a nominated unit/product in accordance with those listed within the range of variables and the work orientation.

(1) Critical Aspects Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of preparation of materials
- indicate a clear understanding of construction requirements of maximum and minimum dimension standards and governing authority, where applicable
- adoption and use of sound techniques to identify material requirements including allowances for joints
- indicate a clear understanding of joining methods and method of assembly of unit
- selection and use of appropriate processes and tools and equipment to carry out tasks
- demonstrate sound techniques in the selection and handling of material for components
- demonstrate sound techniques in handling and storing materials to ensure surfaces and edges are protected
- demonstrate sound and safe techniques to prepare material for manufacturing process
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1000A Carry out interactive workplace communication
- BCG1001A Carry out OH&S requirements
- BCG1002A Plan and organise work
- BCG1003A Read and interpret plans
- BCG1004A Carry out measurements and calculations
- BCG1005A Use hand and power tools

This competency may be concurrently assessed with:

- BCF2001A Use static machines

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace and safety requirements

- materials and their characteristics
- types of work orientation manufacturing
- tools and equipment relevant to preparation of materials
- methods of joining components and assembling
- workshop drawings and specifications
- Building Code of Australia and relevant Australian Standards (eg. AS1657)
- machinery processes with material preparation
- types of adhesives relevant to unit assembling processes
- fasteners and fixing relevant to unit assembling processes
- measurement and calculations relevant to work orientation
- static machines

Skills

The ability to:

- work safely to instructions
- organise work
- read and interpret drawings
- use tools and equipment
- read MSDS information
- identify materials
- handle and protect materials
- calculate measurement requirements related to lengths and allowances
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- work area appropriate to task
- working drawings/specifications relevant to task
- procedure documents appropriate to manufacturing processes
- tools/plant/equipment relevant to manufacture process
- material appropriate to proposed project activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team in order to achieve outcomes within time constraints.

Competency may be determined concurrently based upon integrated project work.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in an actual or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	1	1	1	1	1

BCF2017A: Lay stone

DESCRIPTOR

This unit applies to the preparing and laying of stone to construct stone structures using a variety of stone. Variety of stone covers the range of use in freestanding and garden walls, load bearing structural walls and veneer facing.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from drawings and specification or supervisor's directions.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Safety and protective requirements for work personnel, public and environment determined and used.
		1.6	Tools and equipment selected to carry out processes consistent with requirements of job, checked for serviceability and faults reported to supervisor.
		1.7	Drawings, specifications and schedules for job adhered to.
		1.8	Material selected appropriate to needs of job and specifications.
2	Bed stone into mortar	2.1	Prepared stone selected appropriate to the job.
		2.2	Mortar prepared to designed mix and spread or screeded to form a bed as required.
		2.3	Mechanical ties, fixtures, reinforcing, etc. placed as required.
		2.4	Stones laid to line and in a sequence as required by job.
		2.5	Packers, wedges, mortar consistency, propping, shoring and forming structures used to ensure correct joint size, plumb, level and shape.
		2.6	Backing materials used in a manner consistent with job requirements.

		2.7	Cavities maintained as required or specified.
3	Dry bed stone and grout	3.1	Prepared stone appropriate to job set in place dry and supported as required by wedges, packers, props, etc.
		3.2	Joints prepared and grout poured gradually as required to fill voids.
4	Dry stone construction	4.1	Stone prepared or selected in a manner appropriate to job
		4.2	Stone laid to achieve maximum stability using chips, flat faces and battered angles, through stones, earth sods and clay etc.
		4.3	Capping stone laid as required by job.
		4.4	Walling laid in a manner maximising the force of gravity as a stabilising element in structure.
5	Fix slab stone using metal ties and adhesives	5.1	Prepared stone slabs fixed to metal or masonry surfaces using adhesives, cement mortar or plaster.
		5.2	Metal ties and dowels used to secure stone slabs as required.
		5.3	Dowel cavity filled with grout or slurry as required in job specification.
6	Finish stone surfaces and joints	6.1	Stone surfaces finished as required by job specifications.
		6.2	Joints cleaned and/or raked as required to achieve either final appearance or as preparation for pointing.
		6.3	Pointing mortars or adhesives applied to joints as required by job specifications.
7	Clean up	7.1	Surfaces cleaned as required by job.
		7.2	Waste materials disposed of in an appropriate manner and in accordance with EPA requirements.
		7.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Admixtures may include plasticisers, waterproofers, setting retardants, etc.

Supervisor's directions may be verbal or written and may involve sketches.

Construction may include reinforcement which may involve:

- wire strands
- welded wire fabric
- steel rods
- mechanical ties and fixtures

Stone may include but not limited to:

- granite
- sandstone
- marble
- basalt
- other natural or manufactured stone material

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- bolster
- shovel
- wheelbarrow
- spirit level
- trowels
- jointing tools
- screed boards
- angle grinder

Quality Assurance requirements may include:

- control of quality of stone
- control of handling procedures
- specification of mix
- specified finish
- use and maintenance of equipment

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing
- working platforms
- working from scaffolding
- safety hazards
- use of tools and equipment

Mortar for bedding and perpend joints should be in accordance with AS3700 Masonry in buildings.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of constructing three separate stone walls using 3 separate types of stone or types of wall construction of those listed within the range statement.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- display compliance with organisational policies and procedures including Quality Assurance requirements within the context of laying stone
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound techniques in preparing mortar
- display sound and safe application methods of handling stone
- demonstrate sound techniques in laying stone to line, level, plumb or to designed alignment
- selection and use of sound techniques to finish stone face to specification
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCG1007A Erect and dismantle restricted height scaffolding
- BCG1008A Use simple levelling devices
- BCG1010A Carry out concreting to simple forms
- BCG1011A Handle construction materials & safe disposal of waste
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including regulations, codes and standards
- types of stone and characteristics
- types of stone wall construction
- work drawings and specifications
- mortar mix composition
- range of mortar additives including plasticisers and their application
- Building Code of Australia
- Australian Standards - AS3700 Masonry in buildings
- techniques in laying and securing stone
- measuring and levelling
- finishes for mortar in masonry
- materials
- tools and equipment

Skills

The ability to:

- work safely
- read and interpret drawings
- interpret documentation from a wide range of sources
- use tools and equipment
- set out work
- lay and secure stone
- communicate effectively.

(4) Resource Implications

The following resources should be made available

- workplace location
- tools, plant and equipment appropriate for application tasks
- scaffolding where applicable
- materials suitable to the task
- drawings and specifications/documentation relevant to the activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team in order to achieve outcomes within time constraints.

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	1	1	1

BCF2018A: Apply and install sealant and sealant devices

DESCRIPTOR

This unit applies to the application of sealants and sealant devices to structures to prevent the penetration of water into a building.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Select and prepare materials and equipment	1.1	Quality Assurance requirements of company's construction operations, recognised and adhered to.
		1.2	OHS requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Materials and equipment correctly selected to job requirements and specifications.
		1.4	Appropriate personal protective equipment correctly selected, fitted and used safely.
		1.5	Sealants prepared to manufacturer's specifications.
2	Prepare surface to receive sealants	2.1	Surface cleaned free of contaminants such as oil, grease, dust or moisture.
		2.2	Surface prepared by sanding and/or cleaning in accordance with preparation specifications.
3	Apply sealant	3.1	Sealant applied to manufacturer's recommendations and specifications.
		3.2	Care taken to ensure no air is trapped within applied sealant.
		3.3	Surfaces aligned and fixings correctly installed to specifications.
4	Install sealant devices	4.1	Sealant devices fitted securely to specified positions.
		4.2	Assistance is provided to secure installation of fixtures, assuring level and plumb to line.
5	Clean up	5.1	Excessive sealant removed from joint and surrounding surfaces.
		5.2	Cartridge nozzle or container sealed securely.

- 5.3 Sealants promptly removed from tools and equipment.
- 5.4 Tools and equipment cleaned, routinely maintained and returned to store.

RANGE OF VARIABLES

Sealant materials to include but are not limited to:

- silicone
- mastic
- bitumen
- putty
- waterproof paint

Sealant devices may include but are not limited to:

- flashings to window and door frames
- cover plates to aluminium framework
- coverstraps or beading to sheet jointing
- impregnated material for masonry expansion joints
- strip or sheet membrane

Quality Assurance requirements may include:

- quality of materials
- control of handling procedures
- preparation of surfaces
- use and maintenance of equipment
- attention to job specifications

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- handling hazardous materials (in accordance with AS1940 The Storage and Handling of Flammable Combustible Liquids - where applicable)

Personal protective equipment may include:

- boots
- safety glasses/goggles
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment include but are not limited to:

- brushes
- putty knives and paring knives
- rollers

- cartridge applicator
- sander
- spray equipment
- brooms

Application to construction materials include but are not limited to:

- bricks and concrete masonry
- timber
- structural metallic sections/components
- concrete
- plywood and particle board
- metal sheeting
- glass
- paints and sealants
- plaster sheeting
- acrylic sheeting

Protection of stored materials may include:

- covering
- signage as per MSDS
- locked away (hazardous materials) or isolated from flammable situations

Waste material and debris include but are not limited to:

- broken or damaged goods
- cardboard
- plastic
- paper
- loose material
- sealants and sealing materials

Removal of materials to include processes of recycling and salvage where applicable.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of effectively using and handling appropriate sealant materials listed within the range statement, relative to the work orientation.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations and State/Territory legislation applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- selection and use of appropriate processes, tools and equipment to carry out tasks
- adopt and carry out correct procedures prior to and during handling and application of materials
- demonstrate safe and effective operational use of tools and equipment
- demonstrate safe application in the process of cleaning up both application area and cleaning equipment
- interactive communication with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant codes and regulations
- hand tools and equipment relevant to sealant application and installation work
- sealants in buildings
- materials in structure
- methods for applying sealants
- materials handling including hazardous materials relevant to sealant application work
- company's Quality Assurance requirements
- Australian Standards - AS1940
- scaffolding and working platforms
- measurements and calculations relevant to surface areas

Skills

The ability to:

- work safely to instructions
- use hand tools and equipment
- handle materials
- apply sealants
- select material
- measure and calculate relevant to sealant application work
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- sealants and sealant devices appropriate to application tasks
- plant and equipment appropriate to application processes
- hand tools appropriate to application processes
- work location appropriate to activity processes
- MSDS information

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or it may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	1	1	2

BCF3000A: Maintain static machinery

DESCRIPTOR

This unit applies to the carrying out of maintenance, servicing and adjustment of static machines to maintain machines in designed safety and operative condition.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks for maintenance and operation of static machinery, recognised and adhered to
		1.3	Machines, services manual and relevant Australian Standards and codes of practice identified.
		1.4	Tools and equipment selected to carry out processes consistent with requirements of tasks and checked for serviceability.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
2	Identify and check safety and operational features of machine	2.1	Machine on/off and safety switches located and checked for serviceability.
		2.2	Compulsory fixed guarding recognised and checked for compliance with AS1473 Guarding and safe use of woodworking machinery.
		2.3	Positioning of all adjustable components ie. tables, fences and guarding, checked to AS1473.
		2.4	Cutter/blade performance, direction or rotation identified as well as procedure for adjusting cutting speeds.
		2.5	Direction of feed determined and feed speed adjusted in accordance with job and material requirements.
		2.6	Extraction unit operation checked for clearway and effectiveness.
3	Maintain machine	3.1	Machine isolated from power supply.
		3.2	Specified guarding/fences removed/re-instated to manufacturer's specifications.

		3.3	Machine cleaned with all dust and shavings removed.
		3.4	Cutters/blade removed by specified method and checked for defects.
		3.5	Cutters/blade support mechanism belts, pulleys etc. checked for faults or excessive wear and replaced if necessary.
4	Install cutters/blade to machine	4.1	New cutters/blade selected and checked for suitability and sharpness.
		4.2	Cutters/blade installed to specified tolerances and specification and checked for accurate position.
5	Lubricate machine	5.1	All points of lubrication determined to manufacturer's manual/specifications.
		5.2	Type of lubricant selected in accordance with manufacturers' recommendations.
		5.3	Machine lubricated to manufacturer's specifications.
6	Test and adjust machine	6.1	Specified method of starting up and running machine demonstrated for assessment of cutters/blade installation.
		6.2	Adjustment made where applicable and machine retested.
		6.3	Sample material selected and sectional dimensions determined for machining.
		6.4	Setting of machine adjusted to determined dimension for material.
		6.5	Appropriate cutter speed determined, where applicable, and machine adjusted accordingly.
		6.6	Sample material machined and checked for accuracy to machine settings.
		6.7	Machine settings adjusted, where required, to select accurate measurements.
7	Clean up	7.1	Machine isolated for final clean up.
		7.2	Excess lubricant removed and machine cleaned.
		7.3	Unwanted cutters/blades, stored safely.
		7.4	Area around machine cleared.
		7.5	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to static machines, but does not include computerised machines.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of manufacturer
- attention to guarding and OH&S requirements

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of static machinery
- use of tools and equipment
- handling of materials
- guarding and maintenance of machines
- isolation and safe working areas

Operation and safety considerations with static machines are to be in accordance with AS1473 Guarding and safe use of woodworking machinery.

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- hammers
- spirit level
- squares
- set spanners
- screwdrivers
- packing plates
- grease guns
- oil cans
- brushes
- levers

Machines to be adjusted for cutters and dimensional settings include but are not limited to:

SHOPFITTING:

- panel saw
- edge bander
- surface planer
- thicknesser

- band saws

TIMBER JOINERY:

- cross cut saw
- rip saw
- surface planer or buzzer
- thicknesser
- band saws

ALUMINIUM AND GLASS:

- docking saws
- die punch
- aluminium routers
- glass grinders and polishers
- vertical and horizontal drills

Electives

- spindle moulders
- 4 sider moulders
- shapers
- sanders
- morticers
- overhead routers
- over and under trencher
- tenoners
- wood lathes
- multi borers
- copy lathes

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out safely and efficiently a full maintenance service and adjustment of at least five separate types of static machines including two elective machines of those listed within the range of variables.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational quality procedures and processes within context of maintaining static machines
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate efficient and safe process of isolating machine from power source
- demonstrate efficient checking of safety and operational features of machine
- demonstrate safe and efficient techniques in handling and setting of cutters/blades
- demonstrate efficient servicing of machine to manufacturer's specifications
- display safe and efficient testing and adjusting of machine for operation

- identification of typical faults and problems and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Use Static Machines

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- static machines and their operation
- machine manufacturer's specifications
- use of tools and equipment relevant to maintenance of machines
- organisation's Quality Assurance requirements
- maintenance of equipment and static machines
- standard operating practices for static machines
- Australian Standards - AS1473
- measuring and levelling relevant to setting up and adjustment of machines

Skills

The ability to:

- work safely
- plan and organise work
- interpret manuals
- prepare for work application
- use static machines
- use tools and equipment
- lubricate machines
- adjust and set settings
- clean equipment
- solve problems
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace operation
- static machines appropriate to work orientation
- tools, equipment and lubricants, appropriate to relevant machines
- static machine manufacturers manuals and standard operating practices resources

(5) Method of Assessment

Competency should be assessed while tasks are undertaken under direct supervision.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge

Competence should be assessed under general guidance checking at various stages of the process and at the completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	1	3

BCF3001A: Set up static machinery

DESCRIPTOR

This unit applies to the setting up of static shaping and finishing machinery, in preparation for machining operations. Machines involved are associated with manufacturing production in Shopfitting, Joinery and Stairbuilding.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks for setting up and operation of static machines recognised and adhered to.
		1.3	Machining task determined from set out material and job specifications and machines selected for use.
		1.4	Specified cutters/blades selected and checked for serviceability.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Machine accessories and tools selected to carry out required tasks and checked for serviceability.
2	Install cutters/blades	2.1	Machine isolated from power.
		2.2	Specified guards and fences removed safely.
		2.3	Support apparatus for fitting of cutters or blades, cleaned and checked for defects.
		2.4	Existing cutters/blades removed, cleaned and stored safely.
		2.5	Specified cutters/blade checked for accurate fitting to machine.
		2.6	Cutters/blade positioned on machine, checked for balance and alignment and secured to specification.
		2.7	Guarding selected to requirements and secured in position in accordance with AS1473 Guarding and safe use of woodworking machinery.
		2.8	Fences selected, adjusted to specified requirements and secured in position.

3	Adjust machine speed	3.1	Cutter speed determined to specification where applicable.
		3.2	Specified method of cutter speed adjustment demonstrated.
		3.3	Drive mechanism secured and guarding replaced to specification.
4	Test machine set up	4.1	All tools and equipment removed from machine.
		4.2	Machined checked and connected to power supply.
		4.3	Specified method of running machine demonstrated and checked for assessment of sound cutters/blade installation.
5	Clean up	5.1	Work area cleaned to specification.
		5.2	Tools and equipment cleaned, maintained and stored.
		5.3	Machine isolated from power supply.

RANGE OF VARIABLES

This competency applies to non-computerised static shaping and finishing machines which include:

- spindle moulders
- planers
- overhead routers
- panel or dimension saw
- edge bander
- planer
- thicknesser
- aluminium routers
- glass grinders and polishers
- over and under trenchers
- 4 sided moulders
- morticers
- tenoners
- multi borers

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of manufacturer
- attention to guarding and OH&S requirements

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of static machinery
- handling of materials
- guarding and maintenance of machines
- isolation and safe working areas

Operation and safety considerations with static machines are to be in accordance with AS1473 Guarding and safe use of woodworking machinery.

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- rule
- hammers
- spirit level
- squares
- set spanners
- screwdrivers
- packing plates
- brushes
- levers

Support apparatus for fitting of cutters or blades include but are not limited to:

- collars
- spindles
- chucks
- plates

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of safe and efficient setting up of at least three separate types of machines from those listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate application of organisational quality procedures and processes within the context of setting up static machinery
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate efficient and safe process of isolating machine from power source
- demonstrate efficient checking of safety and operational features of machine

- demonstrate sound techniques in safe and efficient removal and installation of cutters/blades
- selection and use of appropriate cutting speed including necessary adjustments
- demonstrate safe and efficient testing and adjusting of machine for operation
- identification of typical faults and problems and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Use static machines

This competency may be concurrently assessed with:

- BCG3000A Maintain static machinery

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant regulations, codes and standards
- static machines and their operation
- machine manufacturer's specifications
- use of tools and equipment relevant to setting up and maintaining machines
- Quality Assurance requirements
- maintenance of equipment and static machines
- standard operating practices for static machines
- cutters and blades for machinery
- Australian Standards - AS1473
- measuring and levelling relevant to setting up and adjustment of machines

Skills

The ability to:

- work safely
- prepare for work application
- use static machines
- use tools and equipment
- install and secure cutters/blades
- clean equipment
- solve problems
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace operation
- static machines relevant to work orientation
- tools, equipment and lubricants appropriate to relevant machines
- static machine manufacturers manuals and standard operating practices resources
- relevant information and/or setout material applicable to data for setting up machines

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken under direct supervision.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	1	3

BCF3002A: Use computer controlled machinery

DESCRIPTOR

This unit applies to the programming, loading and operating of computer controlled machinery for the production of components. Manufacturing applications are involved with Shopfitting, Joinery and Stairbuilding work.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Workplace operations plan determined in accordance with job requirements and surrounding environment
		1.4	Personal protection equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to reduce risk to self and others.
		1.7	Materials selected in accordance with job design, drawings and specifications.
2	Carry out data input adjustments	2.1	Programming terms, methods and data storage capacity determined and stated consistent with job requirements of specifications for machine.
		2.2	Program edited to produce straight and circular tool movements, compensating for tool profiles.
		2.3	Program entered.
3	Transfer program to machine control	3.1	Methods of transferring programs into machine memory identified and listed.
		3.2	Program loaded into machine memory using appropriate.

4	Demonstrate operation of the loaded program to control the machine	4.1	Program operated through dry run simulation mode testing all alarm settings.
		4.2	Program edited where required using control station.
		4.3	Specified workpiece produced using automatic mode as per manufacturer's specification.
5	Clean up	5.1	Debris and waste materials removed on completion of process.
		5.2	Re-useable and recyclable materials salvaged and stored.
		5.3	Tools and equipment cleaned, maintained and stored.
		5.4	Personal protective equipment removed, inspected, cleaned and stored.

RANGE OF VARIABLES

This unit applies to computerised controlled machining processes to provide a multiple production process or designed finish. It does not apply to stonework or stonemasonry production work.

Operations may include:

- cutting
- boring
- milling
- forming/shaping
- cutting and polishing

Materials include but are not limited to:

- timber
- acrylics
- medium density fibreboard (m.d.f)

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- procedures for computer controlled production

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment

- handling of materials

Personal protective equipment may include:

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

Safety hazards may include:

- other workshop operations
- handling of material
- dust
- use of lifting equipment

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of producing at least 2 separate components from separate operations using any one of the materials specified in the range of variables in accordance with the work orientation.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate processes, tools and equipment consistent with requirements of activity
- application of organisational quality procedures and processes within the context of operating computer controlled machinery
- selection and correct application of program opening and shut down procedures
- demonstrate correct procedures to provide data input to achieve requirements of job
- demonstrate sound procedures with machine operated through a reduced speed dry run to check functions and alarms
- products produced to design in accordance with job specifications and drawings
- interactive communication with others to ensure safe and effective workplace operations
- identification of typical faults and problems that may occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Use Static Machines
- BCF3001A Set Up Static Machinery

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- computers
- types of machines and machining processes
- computer controlled machining
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards

- range of software applications appropriate to CNC equipment
- hardware requirements for programs
- materials and their characteristics
- measuring relevant to dimensions and shape

Skills

The ability to:

- work safely
- plan and organise work
- use basic keyboarding skills
- use basic problem and fault finding skills with software applications
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- CNC machinery applicable to proposed activity
- range of cutters and heads and required tools and equipment
- machining projects and specifications relevant to activity
- data and software program relevant to application activity
- material applicable to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency should be assessed through direct observation and questions related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	3	1	3	2	3

BCF3003A: Identify stair construction and the factors governing stair design

DESCRIPTOR

This unit applies to the identifying of types of stair construction and features and factors influencing the design of a stair.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify stair construction and components	1.1	Types of stair construction identified.
		1.2	Component parts of stairs identified with common terminology.
		1.3	Dimension terminology identified.
		1.4	Component parts of balustrade and landing structure identified with common terminology.
2	Identify factors governing design of a stair	2.1	Area available for stair and rise of stair identified from proposed construction and drawings.
		2.2	Doorways and head height clearance requirements identified and noted.
		2.3	Structural limitation requirements in accordance with the Building Code of Australia.
3	Determine the rise and going for steps on a stair	3.1	Total rise of stair identified and rise of each step determined in accordance with maximum allowable rise.
		3.2	Number of rises identified from calculations.
		3.3	Going for step design determined in accordance with minimum going according to classification of building.
4	Identify stairs incorporating landings with straight flights	4.1	Use of landings to connect separate flights identified.
		4.2	Terminology for stair design utilising landings, identified.
		4.3	Structural design of stairs with landings identified.

5	Identify use of winders	5.1	Use of winders in lieu of landings identified and considered for inclusion.
		5.2	Dimensions for winder treads identified in accordance with Building Code of Australia.
		5.3	Structural design for construction with winders identified.
6	Identify geometric stairs	6.1	Curved staircases identified.
		6.2	Spiral staircases identified.
		6.3	Structural design to support and construct curved and spiral stairs identified.

RANGE OF VARIABLES

This unit applies to all types of timber stairs and includes:

- straight flights
- quarter spaced landings
- winders
- dog legged
- curved flight
- geometric designs
- spiral stairs
- closed string
- open string

Balustrade may be of:

- balusters
- multiple railing

Design of stairs must conform to requirements of the Building Code of Australia.

EVIDENCE GUIDE

Competency is to be demonstrated by identifying all features associated with the design of stairs and designing two separate nominated stairs, one of double flighted design and the other incorporating winders.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- identification of types of stair construction and common terminology
- identification of Codes and Standards governing design requirements of stairs
- identification of functional, aesthetic and limitation features governing design of a stair
- application of organisational quality procedures and processes within context of design of stairs

- appropriate analysis and understanding of design concepts conveyed in drawings and specifications of nominated project
- calculations accurately carried out to determine number of rises
- stairs designed in accordance with all governing conditions
- stair design detailed to provide information on components and materials

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2016A Prepare for off-site manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- terminology of components and dimensional relationships
- drawings and specifications
- factors governing design of stairs
- Building Code of Australia
- stair construction
- materials related to stair construction
- measurement and calculations related to lineal measurements in stair design

Skills

The ability to:

- interpret drawings and specifications/documentation
- organise work
- carry out calculations
- record information
- make a set out
- solve problems

(4) Resource Implications

The following resources should be made available:

- drawings and/or information relevant to stair design activities
- suitable work location to carry out design work
- Building Code of Australia

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application to tasks
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency may be assessed in the normal or simulated workplace environment or a location suitable to carry out tasks.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	1	2	3	1

BCF3004A: Set out stairs

DESCRIPTOR

This unit applies to the setting out of dressed material to prepare for manufacturing processes in preparation for the assembling of components to construct a stair.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare for work	1.1	Quality Assurance requirements with company's stair-building operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with setting out of stairs and workshop operations recognised and adhered to.
		1.3	Design of stair identified from job drawings and specifications.
		1.4	Dimensions governing stair pitch design obtained directly from constructed building or drawing details.
		1.5	Rise and going of steps determined and lengths of strings calculated.
		1.6	Methods of joining stair components and balustrade members identified.
		1.7	Manufacturing processes for preparing components for joining identified.
		1.8	Storey rod and full size set out prepared where applicable.
2	Prepare stair material for setting out	2.1	Personal protective equipment selected, correctly fitted and used.
		2.2	Materials selected and dressed in accordance with stair requirements and specifications.
		2.3	Laminated sections formed and joined to designed curve and pitch to specifications.
3	Set out strings for a stair	3.1	Tools and equipment selected to carry out processes consistent with the job requirements.
		3.2	Steel square or pitch board prepared to stair pitch set out.
		3.3	Strings set out to show locations of treads and risers with allowances for nosing and wedges on closed

		strings.
	3.4	Strings set out to show lengths for junctions with newels and landings.
	3.5	Curved strings set out in temporary erected positions.
4	Set out newels	
	4.1	Floor/landing height relationships with allowances for floor discrepancies marked on newels.
	4.2	Newels set out to show positions of strings, treads, flooring, joists, bearers and handrails.
	4.3	Locations for housings accurately marked on newels.
5	Set out component parts	
	5.1	Lengths and bevels, where application, determined from string and newel set outs.
	5.2	Component parts set out to respective lengths and bevels where applicable.

RANGE OF VARIABLES

Stair construction designs include:

- straight flights
- dog legged
- quarter spaced landings
- half spaced landings
- closed string
- open string
- open rise
- curved

Component parts include:

- strings
- newels
- treads
- risers
- handrail
- balusters
- landing bearers
- landing joists

Manufacturing processes associated with set out material for components include but are not limited to:

- morticing
- docking to lengths
- trenching
- housing
- grooving
- rebating

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- procedures for setting out

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- bevels
- steel square
- squares
- marking gauge

- Design of stair should conform to the Building Code of Australia.

Materials used in stair construction may include:

- timber
- medium density fibreboard (m.d.f)
- plywood
- steel
- plastics

EVIDENCE GUIDE

Competency is to be demonstrated by setting out all components for at least two nominated separate types of stairs of the types listed in the range of variables.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of preparation of material and setting out for timber stairs
- identification of details and specifications of nominated stair to be set out
- identification of limitations on design in accordance with Building Code of Australia

- demonstrate appropriate calculations to accurately determine number of rises, actual rise, run and going
- identification of materials required and accurate cutting list prepared
- selection of materials and safe and effective operation of machines to dress material to specified sizes
- selection and use of appropriate processes, tools and equipment for setting out material
- display accurate application and clear marking in setting out of materials for stair components
- demonstrate safe and effective handling procedures for movement and placement of material/components
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2016A Prepare for off-site manufacturing process
- BCF3003A Identify stair construction and the factors governing stair design

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- terminology of components and dimensional relationships
- workplace and equipment safety requirements
- drawings and specifications
- Building Code of Australia
- organisation's Quality Assurance requirements
- stair construction and joining methods
- materials relevant to stair construction
- measuring and setting out related to stair construction
- tools and equipment related to stair setting out
- handling of materials relevant to stair construction
- calculations related to lineal measurements in stair design

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- carry out calculations
- use tools and equipment
- handle materials safely
- make set outs relevant to stairs
- set out material

(4) Resource Implications

The following resources should be made available:

- workplace operation, tools and equipment appropriate to activity
- static machines appropriate to material preparation for setting out
- material relevant to proposed activity
- drawings/set out and specifications/documentation relevant to activities

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the work process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Handling techniques may require the assistance of a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	3	3

BCF3005A: Manufacture stair components - straight flighted stairs

DESCRIPTOR

This unit applies to the manufacturing processes to prepare stair components for the assembly of straight flighted stairs involving two flights or more.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stair-building operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with manufacturing tasks and workshop operations for stair construction, recognised and adhered to.
		1.3	Job requirements identified from design of stair, drawings, specifications and set out material.
		1.4	Materials for components checked for set out in accordance with stair design.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.7	Static machines, suitable for processes, selected and used in accordance with operative and OH&S requirements.
2	Prepare strings for assembly	2.1	String set outs for treads and risers checked for work.
		2.2	Housings cut and waste removed accurately to set out and required depth.
		2.3	Grooves or mortices to receive balusters run/carried out to set out requirements.
		2.4	Open strings cut to set out shape for treads and risers.
		2.5	Ends of strings cut to set out requirements for junction with newels/landing or left long for on-site fitting.
		2.6	Strings marked for identification, where applicable.

3	Prepare newels for assembly	3.1	Newel set out checked for work requirements with tread nosing marked accurately.
		3.2	Housings cut and made accurately to set out and required depth.
		3.3	Mortices to receive strings and handrail cut accurately to set out and specified depth.
		3.4	Head of newel cut and finished to specified finish, where applicable.
		3.5	Newel marked for identification, where applicable.
4	Cut treads, risers and wedges to length	4.1	Treads and risers cut to designed length, true and square.
		4.2	Risers to open strings cut to length with true mitre.
		4.3	Winders made to shape, length and width and cut. and finished to specification.
		4.4	Wedges marked to design and cut to shape and quantity.
5	Prepare balustrade components	5.1	Handrail prepared to shape with groove run for balusters where applicable.
		5.2	Mortices in handrail for balusters made accurately to set out.
		5.3	Balusters cut to designed length.
		5.4	Railings cut to design length.
6	Prepare landing structural components	6.1	Bearers where applicable cut to length or allowance for on-site fitting.
		6.2	Joists cut to length or allowance for on-site fitting.
		6.3	Flooring boards and nosing cut to length allowable for fitting on-site.
7	Finish surfaces and pre-assemble stair	7.1	Exposed surfaces of components sanded to specifications for finish.
		7.2	Component parts checked to ensure will fit to specification.
		7.3	Component parts pre-assembled to ensure stair will assemble appropriately.
		7.4	Components handled with care to ensure no damage to surfaces.

8	Clean up	8.1	Materials stacked/stored for transportation.
		8.2	Work area cleared and waste material disposed of safely.
		8.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the manufacturing processes applied to set out material to produce the components for the assembly of a stair.

Stair designs involved include:

- straight flights
- dog legged
- quarter spaced landings
- half spaced landings
- winders
- closed string
- open string
- open rise

Components of stairs include:

- strings
- newels
- treads
- risers
- handrail
- balusters
- landing bearers
- landing joists

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to machining processes

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines

Personal protective equipment may include:

- boots
- safety glasses/goggles

- ear plugs/muffs
- dust masks/respirators
- gloves
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares
- chisels
- hand saws
- power saws
- power router
- clamps
- workbench

Static machines suitable for manufacturing processes may include:

- spindle shaper
- docking saw
- mortiser
- buzzer
- trencher

Operation and safety considerations with static machines are to be in accordance with AS1473 Guarding and safe use of woodworking machinery.

- Design of stairs to conform to the Building Code of Australia

Materials used in stair construction may include:

- timber
- medium density fibreboard (m.d.f)
- plywood
- steel
- plastics

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out all manufacturing processes to produce each of the components required for the assembly of a stair involving two flights in its design.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of manufacturing components for timber stairs.
- identification of design of stair and set out materials for components
- identification of machining processes required and selection of appropriate machines to carry out tasks
- safe and correct procedures used to set up machines for machining applications
- demonstrate safe and efficient operation of machines to accurately carry out designed processes to set out material

- selection and use of appropriate processes, tools and equipment for hand application work
- safe and correct procedures used in the setting up and operating of portable power tools
- selection and use of safe and efficient procedures in setting up work and using hand tools
- all material prepared accurately to set out and designed requirements with component joints checked to ensure will fit when assembling
- components sanded to specified finish, marked for identification and stacked ready for assembly
- demonstrate safe and effective handling procedures for movement and placement of materials/components
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCF2001A Use static machines

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- organisation's Quality Assurance requirements
- stair construction and joining methods
- Building Code of Australia
- materials and their characteristics, relevant to stair construction
- measuring and setting out related to stair construction
- use of static machines
- use of tools and equipment related to manufacturing of components for stairs
- handling of materials related to stair construction
- identification marking

Skills

The ability to:

- work safely
- organise work
- use static machinery
- use tools and equipment
- handle materials safely
- work to set out material
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace operation, tools and equipment appropriate to activity
- set out material prepared for manufacturing processes
- static machines appropriate for activity tasks

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application to tasks
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment.

Handling techniques may require the assistance of a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	1	3

BCF3006A: Assemble and install stairs

DESCRIPTOR

This unit applies to the assembling of prepared components to assemble and install a timber stair to location.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality assurance requirements with company's stair-building operations recognised and adhered to
		1.2	OH&S requirements in accordance with assembling and installing stairs and workplace operations, recognised and adhered to.
		1.3	Methods of assembling erected stairs identified.
		1.4	Job requirements identified from design of stair, location and access to location.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
2	Select and prepare materials and components	2.1	Material for packing and glue blocks selected and prepared to designed requirements.
		2.2	Components checked for appropriate locations in stair structure.
		2.3	Method of assembling and fixing determined in accordance with stair design and location.
3	Assemble strings and newels	3.1	Specific position for stair identified particularly for whole of assembly in place.
		3.2	Floor level checked and adjustments made where applicable to foot of newels and strings.
		3.3	Strings and newels assembled to design and fixed to specification.
		3.4	Strings to be fixed to walls temporarily supported or fixed in position to specification.

4	Install treads and risers	4.1	Assembled strings and newels temporarily braced in vertical position.
		4.2	Treads and risers about newels fitted and fixed to assembly first to provide width.
		4.3	Intermediate treads and risers fitted and wedged where applicable to fit tight to housings to specification
		4.4	Flight checked for true and square.
		4.5	Glue blocks fitted to treads and risers to specified locations.
5	Assemble and install landings	5.1	Bearers, where applicable, and joists fitted and fixed to level to specification for fixing.
		5.2	Nosing and flooring fitted and fixed to form landing to specified finish.
		5.3	Fascia fitted and fixed to landing to specification for finish.
6	Install handrail and balustrade	6.1	Balusters/intermediate railing and handrails fitted to form stair balustrade to specification.
		6.2	Balusters checked to ensure fitted plumb.
		6.3	Newels checked prior to final fixing to ensure plumb.
		6.4	Handrailings to wall fitted and fixed in accordance with specifications.
7	Install spiral stair/curved strings	7.1	Location of stair and first step accurately marked on floor.
		7.2	Central post erected into true position, fixed at floor and temporarily braced at top.
		7.3	Initial string section temporarily supported in place for assembly.
		7.4	Treads and risers fitted and fixed into position to specification.
		7.5	Stair progressively developed with the extending, supporting and fixing of curved string.
		7.6	Stair completed with head secured to floor/landing, balustrade installed and central post fixed to specifications.
8	Secure stair to structure and line spandril area	8.1	Designed securing of stair to building carried out during/on completion of assembly.

	8.2	Spandril, where applicable, framed, lined and fixed out to specified finish.
9	Clean up	
	9.1	Stair checked with marks removed and surfaces left to specified finish
	9.2	Area cleared with waste material removed.
	9.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the assembling of components and the installing of all types of timber stair construction.

Components include:

- strings
- newels
- treads
- risers
- hand railing
- balusters
- landing bearers
- landing joists
- flooring
- nosing

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- procedures for installation and finishing
- projection of materials and location

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- power planer
- nail gun
- air compressor and hoses
- power leads
- clamps
- set spanners
- screwdrivers

Materials in stair construction may include:

- timber
- medium density fibreboard (m.d.f)
- plywood
- steel
- plastics

Methods of fixing may include:

- nailing
- glue and wedging
- glue blocks
- screws
- bolts and nuts
- coach screws
- handrail bolts

Stair installation may involve a piece by piece assembly in location as occurs with a stair between two full height walls, or it may allow for flights to be preassembled and lifted and fitted into place as part of a stair.

Tasks are undertaken with a partner or as part of a team depending on the size of the project.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of assembling and installing a complete stair involving both flight and landing balustrades.

(1) Critical Aspects Evidence

Competency must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of assembling and installing timber stairs
- identification of correct location, design of stair and method of attaching and securing to structure
- identification of delivered components, materials and assembly diagram, if applicable
- accurate application used to set out stair location and check levels for adjustments on newels
- selection and use of appropriate processes , tools and equipment to assemble stair components

- demonstrate safe and effective procedures in assembling strings and newels and installing landing bearers and joists
- selection and use of safe and efficient procedures in installing treads, risers, flooring and nosing
- adopt and use appropriate techniques to fit and fix balustrade
- completion of installation with stair true to plumb, level, fixed securely to structure and surfaces finished free of marks
- adopt safe and effective handling procedures for movement and placement of material/components
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective stair installation

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCF3003A Identify stair construction and the factors governing stair design
- BCF3004A Set out stairs
- BCF3005A Manufacture components – straight flighted stairs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- organisation's quality assurance requirements
- stair construction and joining methods
- assembling procedures for stairs
- materials and their characteristics, relevant to stair construction
- measuring and setting out related to assembling and installing stairs
- use of tools and equipment relevant to stair construction and installation
- handling materials relevant to stair construction
- adhesives, fixings and fasteners related to stair construction
- identification marking of components
- levelling

Skills

The ability to:

- work safely
- interpret drawings and documentation
- organise work
- set out work
- use tools and equipment
- handle materials safely
- assemble and fix stair
- use fixings and fasteners
- install to level and plumb
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- site location for stair installation
- stair components and accessory materials fixings and fasteners

- tools and equipment appropriate for activity tasks
- drawings and specifications/documentation relevant to the installation

(5) Method of Assessment

Competency shall be assessed while work is undertaken, with regular checking.

Assessment may involve:

- observation of the application to tasks
- inspection of final product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of the overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or with a partner or as part of a team.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	3	2	3	2

BCF3007A: Manufacture and install continuous handrailing and special stair components

DESCRIPTOR

This unit applies to the preparing, joining and installing of continuous handrailing and special stair components. Special stair components include wreaths, scrolls, bullnosed steps and decorative features.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality assurance requirements with company's stair-building operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications.
		1.4	Personal protective equipment selected correctly, fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	Material requirements determined and selected in accordance with specifications.
2	Prepare wreath for continuous handrailing	2.1	Pitch of stair and change of direction of handrail identified from stair design.
		2.2	Area governing design of wreath set out or assessed to determined thickness of material to be prepared.
		2.3	Material prepared, cut square to wreath length and set out to shape for dressing.
		2.4	Wreath formed to square section with designated twist and free of bumps.
3	Join and mould wreath to straight sections	3.1	Straight sections of handrail measured and cut to length with ends square to join wreath.
		3.2	Wreath and straights joined to specifications with joints tight and no movement.
		3.3	Wreath moulded to handrail shape and fine sanded to smooth finish.

		3.4	Handrailing installed in lengths practical to manage and rejoined in location.
4	Manufacture scroll and join to handrail	4.1	Design of scroll and wreath, where applicable, identified, set out and prepared to designed shape.
		4.2	Materials prepared to required overall scroll and wreath dimensions.
		4.3	Set out patterns applied and scroll and wreath formed to basic shapes.
		4.4	Scroll and wreath joined to handrail to specification with joints tight and no movement.
		4.5	Scroll and wreath moulded to design and connecting handrail shape and fine sanded to smooth finish.
5	Manufacture and install bullnosed steps	5.1	Design of bullnosed steps identified and method of constructing curve determined.
		5.2	Riser of step manufactured to design curve with block support fixed to specification.
		5.3	Tread cut and dressed with nosing to shape according to design specification.
		5.4	Bullnosed step fitted and fixed to stair and secured in location to specified fixing.
6	Manufacture and install brackets and decorative features	6.1	Brackets and scotia, where applicable, fitted and secured into place to cut and mitred string to specified fixing.
		6.2	Decorative/ornamental features fitted and secured to designed position to specified fixing.
		6.3	All surfaces fine sanded to smooth finish.
7	Clean up	7.1	Area cleaned and waste material disposed of safely.
		7.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Special stair components include:

- wreaths
- scrolls
- bullnosed steps
- decorative features

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- procedures for installing and finishing

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines

Operation and use of machines must conform to AS1473 Guarding and safe use of woodworking machinery.

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- power router
- carving chisels
- clamps
- set spanners
- screwdrivers

Methods of fixing may include:

- nailing
- gluing
- screws
- handrail bolts

All stairs must conform to the Building Code of Australia.

EVIDENCE GUIDE

Competency is to be demonstrated by manufacturing and installing one example of each category listed in the range of variables.

(1) Critical Aspects Evidence

Competency must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of manufacturing and installing special features to stairs
- identification of details of special features, design of stair and method of attaching to adjoining component
- identification of method of manufacturing, setting out techniques and material required
- selection and use of appropriate processes, tools and equipment to manufacture and install feature item
- selection of appropriate material and safe and effective procedures adopted to use machines and prepare material to initial requirements
- demonstrate correct procedures in setting out and using machines, power tools and hand tools to mould and manufacture designed shape
- adopt safe and effective handling procedures for movement and placement of material/component
- demonstrate safe and efficient applications to fit and secure feature item to designed location
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCF3003A Design stairs
- BCF3004A Set out stairs
- BCF3005A Manufacture stair components – straight flighted stairs

This competency may also be concurrently assessed with:

- BCF3006A Assemble and Install Stairs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- methods of forming and constructing handrails
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- special feature components with stair construction
- fitting and fixing of ornamental features for stairs
- drawings and specifications
- organisation's Quality Assurance requirements
- stair construction and joining methods
- materials and their characteristics relevant to stair construction
- measuring and setting out relevant to manufacturing and installing stair components
- use of tools and equipment relevant to manufacturing and installing stair components
- handling of materials relevant to stair construction
- use of adhesives, fixings and fasteners relevant to stair construction
- use of static machines
- identification marking of stair components
- carving and moulding techniques

Skills

The ability to:

- work safely
- interpret drawings and documentation
- organise work
- develop set outs and set out work
- use tools and equipment
- shape and mould timber
- handle materials safely
- use fixings and fastenings
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workshop and site location for manufacturing and installation processes
- materials appropriate to application tasks
- tools and equipment appropriate to proposed processes
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken, with regular checking.

Assessment should involve:

- observation of the application to tasks
- inspection of final product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of the overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or with a partner or as part of a team.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	3	2	3	2

BCF3008A: Identify window and door construction

DESCRIPTOR

This unit applies to the identifying of materials and features associated with the construction of windows and doors for internal and external purposes.

It applies to timber or plastic covered timber cored material construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's joinery operations, recognised and adhered to.
		1.2	OH&S requirements for access, ventilation and light requirements recognised and adhered to.
		1.3	Types of window frames and openable sash designs identified.
		1.4	Window frame and sash components recognised and sectional designed shapes identified.
		1.5	Relevant Building Codes and Australian Standards recognised and adhered to.
		1.6	Architectural style recognised from drawings or site inspections.
2	Identify structural features of doors/windows	2.1	Construction of doors and windows identified in accordance with AS2688 Timber doors and AS2047.2 Windows in buildings - Construction, installation and maintenance.
		2.2	Specified Australian Standards interpreted and requirements of structural door/window components determined.
		2.3	Construction techniques appropriate to job requirements determined and identified.
		2.4	Window/door construction optimised for minimum wastage of material.
		2.5	Ventilation requirements recognised and adhered to as specified in Building Code of Australia.
		2.6	Glazing requirements identified through interpretation of specified Australian Standard AS1288-1994 Glass in buildings - selection and installation.
		2.7	Specified features incorporated to prevent moisture

penetration identified.

3	Determine materials for timber windows and doors	3.1	Characteristics of materials for external joinery determined and nominated.
		3.2	Material preservation for external joinery surface finishes identified.
		3.3	Characteristics of material for internal doors identified
		3.4	Composite materials used in door/window manufacture identified.
4	Clean up	4.1	Personal documentation and reference material compiled in sequential order.
		4.2	Relevant texts and standards returned to resource centre.

RANGE OF VARIABLES

Window and door types include both external and internal items constructed of timber or timber cored material. It does not include aluminium construction.

Design and construction of windows and doors are governed by a number of codes and standards which include:

- Building Code of Australia
- Australian Standards
 - AS2047.2 Windows in buildings - construction, installation and maintenance
 - AS2688 Timber doors
 - AS1288 Glass in buildings - selection and installation

Windows include fixed glazing and operable windows, which may include but are not limited to:

- sliding
- double hung
- awning
- casement
- double glazed

Windows may be constructed of:

- timber
- plastic with solid core

Doors include but are not limited to:

- flush panel
- panelled
- panelled and beaded
- solid panelled
- flush panel and beaded
- glazed panelled

Beading for doors include:

- insertion mould
- bolection mould

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- procedures for manufacturing and finishing
- attention to specifications

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of identifying features and construction techniques of both the doors and windows for a nominated residential building within the category types of those listed within the range of variables and in accordance with the Building Code of Australia.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- identification of codes and standards governing construction requirements for doors and windows
- application of organisational quality procedures and processes within context of construction of windows and doors
- appropriate analysis and understanding of design features conveyed in drawings and specifications of a nominated project
- identification of types of windows and structural requirements of components
- identification of types of doors and structural requirements of components
- identification of window designs with reference to light and ventilation requirements
- identification of joint construction of components of window frames, sashes and doors
- identification of appropriate mechanisms and attachments for operation of windows and doors

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret drawings
- BCF2016A Prepare for off-site manufacturing processes
- BCG2012A Make set outs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of windows
- types of doors
- drawings and specifications
- window features and construction details
- door features and construction details
- manufacturing processes for window and door components
- company's Quality Assurance requirements
- materials appropriate to door and window construction

- fixing, fasteners and adhesives with window and door construction
- Building Code of Australia
- Australian Standards - AS2047.2, AS2688, AS1288
- hinges, mechanisms, locks, handles and grips relative to windows and doors
- measurement and marking relevant to window and door construction

Skills

The ability to:

- organise work
- interpret drawings and specifications
- make a set out
- prepare a cutting list
- measure and calculate dimensions
- record information
- effectively communicate verbally with others in identifying resources and information

(4) Resource Implications

The following resources should be made available:

- working drawings and specifications/documentation appropriate to activity
- design documentation appropriate to windows/doors
- material data information appropriate to windows/doors manufacture
- Building Code of Australia and Australian Standards relevant to activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of application processes
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment or a location suitable to carry out tasks.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	-	3	2	1

BCF3009A: Setting out of windows and doors

DESCRIPTOR

This unit applies to the making of full size sectional set outs and setting out and marking of components in preparation for manufacturing processes, towards the assembling of windows and doors.

It applies to timber or plastic covered timber cored material construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's joinery operations recognised and adhered to.
		1.2	OH&S requirements in accordance with setting out and workshop operations, recognised and adhered to.
		1.3	Drawings and specifications interpreted so that project is accurately set out and construction techniques identified.
		1.4	Types of joints identified for various component junctions and method of manufacturing, identified.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected consistent with the requirements of the task.
		1.7	Set out rods or boards prepared to dimensional requirements for setting out.
2	Develop height set out	2.1	Overall height accurately indicated on set out.
		2.2	Sectional detail of horizontal frame components drawn to specification.
		2.3	Frame stile width including rebate and shoulder lines accurately set out.
		2.4	Sectional detail of door/sash horizontal components accurately set out.
		2.5	Position and thickness of door/sash style including rebate and shoulder lines accurately set out.
		2.6	Door/sash panels in insertion/bolection moulds accurately indicated where specified.
		2.7	All joint details drawn in as specified.

	2.8	Type and position of fittings/furniture indicated with set out, if applicable.
3	Develop width set out	
	3.1	Overall width accurately indicated on set out.
	3.2	Sill including rebated and shoulder lines set out accurately.
	3.3	Sectional detail of vertical frame components set out as specified.
	3.4	Sectional detail of door/sash vertical components accurately indicated.
	3.5	Position and thickness of door/sash rail including rebated and shoulder lines accurately set out.
	3.6	Door panels and bolection/insertion moulds indicated where specified.
	3.7	Type and position of fittings drawn in as specified, if applicable.
4	Mark out material	
	4.1	Prepared material checked for defects.
	4.2	Material lengths optimised for minimum wastage.
	4.3	Work face and edge identified on each component.
	4.4	Length and joint detail transferred from set out to door/window frame components as specified.
	4.5	Length and joint detail transferred from set out to door/sash components as specified.
	4.6	Marking out on all components checked in preparation for machining.
5	Clean up	
	5.1	Components stacked in preparation for machining.
	5.2	Set outs stored for reference.
	5.3	Waste and unwanted material disposed of safely.
	5.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to all timber or timber cored window and door construction. It does not include aluminium construction.

Windows include fixed glazing and openable windows, which may be:

- sliding

- double hung
- awning
- casement
- single or double glazed

Windows may be constructed of:

- timber
- plastic with solid core

Doors include:

- panelled
- panelled and beaded
- solid panel and beaded
- glazed

Beading for doors include:

- insertion mould
- bolection mould

Set out rods or boards may be:

- dressed wide board
- particle board
- plywood
- paper on solid base

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- set out bench

- squares
- straight edge
- templates of moulds
- clamps
- marking gauges

Joints involved in joining components of windows and doors include:

- housings
- mortice and tenon
- haunched mortice and tenon
- scribed
- mitred

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of setting out all the components for at least two separate types of doors and two separate types of windows of the category types listed in the range of variables.

(1) Critical Aspects and Evidence

Competence must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of setting out of windows and doors
- identification of details and specifications of windows and doors to be set out
- selection and use of appropriate setting out techniques, tools and equipment
- correct application of details to make set out for window frame and sashes
- correct application of details to make set out for door frame and doors
- clear details of sectional material and method of joining components, provided on each set out
- accurate application of set out to mark each component correctly for length and machining processes
- demonstrate efficient identification marking and stacking of each different marked component
- identification of typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCG2012A Make set outs
- BCG2016A Prepare for off-site manufacturing process
- BCG3008A Identify window and door construction

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and safety requirements including statutory regulations, codes and standards
- types of windows
- types of doors
- drawings and specifications
- manufacturing processes for window and door components
- window construction methods

- door construction methods
- measuring and setting out relevant to lineal measurement for windows and doors
- company's Quality Assurance requirements
- materials appropriate to window and door construction
- handling of material relevant to window and door construction
- identification marking for components

Skills

The ability to:

- organise work
- interpret drawings and specifications
- make a setout
- prepare a cutting list
- use tools and equipment
- set out components
- handle and store material
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location and set out bench appropriate for activities
- dressed materials relevant to door and window designs
- materials appropriate for set out rods or boards
- drawings and specifications relevant to activities
- tools and equipment appropriate for tasks

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of set out
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	-	2	2	1

BCF3010A: Manufacture components for door and window frames, doors and sashes

DESCRIPTOR

This unit applies to the carrying out of machining and manufacturing processes to set out component material in preparation for the assembling of window frames, sashes, doors and doorframes.

It applies to timber or plastic covered timber cored material construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's joinery operations, recognised and adhered to
		1.2	OH&S requirements in accordance with the manufacturing processes of windows and doors and workshop operations, recognised and adhered to.
		1.3	Drawings and specifications interpreted so that project is manufactured within tolerances specified.
		1.4	Job components identified with set out material to identify manufacturing processes in accordance with job specifications.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out tasks consistent with the job requirements and checked for serviceability.
2	Set up machine	2.1	Machines to be used and sequence of machining selected according to machining processes to be carried out.
		2.2	Safety procedures associated with each machine identified in accordance with manufacturer's operating procedures, OH&S requirements and AS1473 Guarding and safe use of woodworking machinery.
		2.3	Routers/cutters installed to manufacturer's specifications with fences and stops secured in place.
		2.4	Guarding secured in position to manufacturer's specifications and AS1473.
		2.5	Work area prepared for machining.
		2.6	Components selected for respective machining

processes.

3	Machine components	3.1	Components correctly positioned on machine and securely clamped where required.
		3.2	Machine operated to designed operating procedures and AS1473.
		3.3	Components machined accurately to set out lines/template.
		3.4	Process completed with all components machined to specification and set out requirements.
4	Clean up	4.1	Cutters removed where applicable and machine left clean.
		4.2	Area cleared to specification.
		4.3	Waste cleared to specification.
		4.4	All components stored correctly in preparation for assembly.

RANGE OF VARIABLES

This unit applies to the manufacturing processes of components for all timber or timber cored window and door construction which includes:

- window frames
- door frames
- sashes
- doors

Windows include fixed glazing and openable windows, which may be:

- sliding
- double hung
- awning
- casement
- single or double glazed

Door types include:

- panelled
- panelled and beaded
- solid panel and beaded
- glazed

Manufacturing processes may include:

- dressing material to shape
- cutting to lengths
- trenching for housings
- trenching for tenons

- mortising
- moulding material to shape
- band sawing for shape
- sanding to curved shape

Static machines suitable for manufacturing processes may include:

- spindle shaper
- docking saw
- mortiser
- buzzer
- trencher
- bandsaw
- disk sander

Operation and safety considerations with static machines are to be in accordance with AS1473 Guarding and safe use of woodworking machinery.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to machining processes

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- trolleys
- squares
- chisels
- power router
- clamps
- workbench

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of accurately setting up machines and carrying out all the machining processes to prepare components for the assembly of nominated items of window and door frames, sash and panelled door.

(1) Critical Aspects and Evidence

It is essential that competency be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of machining components for door and window construction
- selection of appropriate machines to carry out each process
- demonstrate safe and accurate setting up of each machine for each process
- demonstrate safe and efficient operation of each machine to produce designed result
- demonstrate sound and accurate techniques to produce manufactured result to set out design for each component
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCG2001A Use static machines
- BCF3001A Set up static machinery
- BCF3009A Setting out of windows and doors

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- use of static machines
- setting up of static machines
- workshop operations with machining
- manufacturing processes with door and window construction
- materials and their characteristics relevant to window and door construction
- use of tools and equipment relevant to window and door manufacturing processes
- door and window construction joints
- company's Quality Assurance requirements
- identification marking
- component setting out techniques
- measuring relevant to setting up of static machines
- Australian Standard - AS1473

Skills

The ability to:

- work safely
- plan and organise work
- identify set out material
- prepare for work application

- set up static machines
- use static machines
- carry out manufacturing processes to set out material
- use tools and equipment
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location relevant to activity tasks
- static machines appropriate for application tasks
- tools and equipment appropriate to activity tasks
- set out component material for application processes
- documentation/reference notation relevant to set out material

(5) Method of Assessment

Competency should be assessed while tasks are undertaken under limited supervision.

Assessment may involve but not limited to:

- observation of the application process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	2	3

BCF3011A: Assemble (door/windows)

DESCRIPTOR

This unit applies to the assembling of manufactured component parts to construct joinery items of window frames, sashes, doors and door frames.

It applies to timber or plastic covered timber cored material construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's joinery operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the application tasks in assembling of doors/windows and workshop operations, recognised and adhered to.
		1.3	Processes for making joints and assembling frames, doors and sashes, identified.
		1.4	Methods of fitting and fixing components for doors and sashes, identified.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Drawings and specifications interpreted so that project is correctly assembled.
		1.7	Tools and equipment selected, consistent with requirements of task and checked for serviceability.
2	Check components to be assembled	2.1	Wedges and fixing hardware selected to specifications, where required.
		2.2	All joints checked for accurate fitting and adjustments made, where required.
		2.3	All components identified and prepared for assembly.
3	Assemble frame	3.1	Components set out in position for assembly according to template/set out.
		3.2	Fasteners/fixing applied to component joints forming frame in accordance with designed procedure for assembly.
		3.3	Junctions with frame components assembled tight with edges flush and fixed to specifications.

- | | | |
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| | 3.4 | Cramping devices used, where applicable, to ensure tight joints |
| | 3.5 | Frame assembled square, with all designed component edges flush and frame out of wind. |
| | 3.6 | Temporary brace installed to maintain frame square. |
| 4 | Assemble door/sash | |
| | 4.1 | Sash cramps selected to suit sizes of doors/sashes and prepared ready for application. |
| | 4.2 | Adhesive prepared (if specified) and applied to joint faces correctly. |
| | 4.3 | Door/sash assembled and clamped with panels to be carefully installed where specified. |
| | 4.4 | Joints accurately aligned to locations and cramped to close joints. |
| | 4.5 | Door/sash squared, checked to be out of wind, and joints fixed using specified fixing method. |
| | 4.6 | Door/sash stored correctly to eliminate distortion while drying. |
| 5 | Prepare door/sash for fitting | |
| | 5.1 | Door/sash cleaned and trimmed free of glue and protruding tenons or wedges. |
| | 5.2 | Door/sash face dressed/sanded with all adjoining faces flush and free from blemish. |
| | 5.3 | Beading/moulds accurately installed to specifications. |
| 6 | Fit door/sash | |
| | 6.1 | Hinges/stays installed to job requirements and manufacturers specifications. |
| | 6.2 | Door/sash fitted to frame with specified clearance allowed with edges. |
| | 6.3 | Door/sash hung or set in frame to specified clearance allowances depending on coating finishes. |
| | 6.4 | Door furniture installed where indicated to job requirements and manufacturer's specifications. |
| 7 | Clean up | |
| | 7.1 | Work area cleared to specifications. |
| | 7.2 | Waste and unwanted material disposed of safely. |
| | 7.3 | Door/window stored safely. |
| | 7.4 | Tools and equipment cleaned, maintained and stored. |

RANGE OF VARIABLES

This unit applies to the assembling of components to form:

- window frames
- door frames
- sashes
- doors

Windows include fixed glazing and openable windows which may be:

- sliding
- double hung
- awning
- casement
- single or double glazed

Door types include:

- panelled
- panelled and beaded
- solid panel and beaded
- glazed

Fixing methods may include but are not limited to:

- adhesives
- wedges
- nails
- screws
- metallic plates

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- finishing of surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators

- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- chisels
- sash cramps
- squares
- brushes
- adhesive dispenser
- hand saw
- hand plane
- sanders
- power drills
- screwdrivers
- work bench
- trolley

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of completing the assembly processes for a nominated door, door frame, window frame and sash.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of assembling door and window frames, doors and sashes
- identification of components for the assembling of doors or windows
- efficient checking to ensure all joints will assemble as designed
- selection and use of appropriate techniques and tools to adjust and trim material to ensure true fit for joints
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound preparation to ensure all equipment and fixing materials are available and ready for assembling process
- demonstrate safe and effective procedures to assemble a door and door frame with tight joints, square and out of winding
- demonstrate safe and effective procedures to assemble a window frame with tight and flush joints and square
- demonstrate safe and effective procedures to assemble a sash with tight joints, square and out of winding
- demonstrate sound techniques to clean and dress surfaces of assembled units
- display efficient application of processes to fit and fix a sash into location in a window frame
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2013A Assemble components

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of windows
- types of doors
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- assembling processes for window and door construction
- use of tools and equipment relevant to assembly of frames, windows and doors
- adhesives relevant to timber construction
- fixings and fasteners relevant to window and door construction
- door and window construction
- company's Quality Assurance requirements
- measuring and squaring relevant to fitting and assembling components for windows and doors
- finishing of surfaces

Skills

The ability to:

- work safely
- identify materials
- prepare for work application
- use tools and equipment
- assemble joints
- apply adhesive
- use fixings and fasteners
- square frames
- dress material
- effectively communicate with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location appropriate for activity tasks
- tools and equipment appropriate for application tasks
- manufactured components ready for assembly process
- adhesives, fixings and fastening devices relevant to activities
- documentation relevant to proposed activity

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment shall be while tasks are undertaken either individually or working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	1	1

BCF3012A: Setting out cabinets, showcases, wall units, counters and work stations

DESCRIPTOR

This unit applies to the setting out processes for the components of a fitment unit in readiness for machining, joining and assembly.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's shopfitting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the application tasks and workshop operations, recognised and adhered to.
		1.3	Types of carcass construction for fitments identified.
		1.4	Methods of manufacturing and fitting doors and drawers for fitments identified.
		1.5	Plans and specifications interpreted to identify fitment unit and clarify requirements of set out.
		1.6	Set out material prepared to specified sectional dimensions.
		1.7	Material lengths optimised for minimum wastage.
		1.8	Tools and equipment selected consistent with requirements of task and checked for serviceability.
		1.9	Specific requirements of specified hardware determined.
2	Develop width set out	2.1	Overall width of carcass marked out to specifications.
		2.2	Bench top length, thickness overhang and edge profile indicated as specified.
		2.3	Plinth/kicker accurately depicted, including length, set back, position of intermediate bearers and joint detail.
		2.4	Position and thickness of vertical carcass components marked in to specifications.
		2.5	Drawer detailed, including width, clearances and runner type as specified.
		2.6	Position, width and design of drawer fronts and doors accurately marked in on set out.

- | | | | |
|---|----------------------------------|-----|--|
| | | 2.7 | Capital or bolection moulding detail clearly indicated to specification. |
| | | 2.8 | All relevant joint detail indicated as specified to allow accurate calculations of quantities. |
| 3 | Develop height set out | 3.1 | Overall height of unit marked in to specified dimension. |
| | | 3.2 | Bench top position and thickness defined as specified. |
| | | 3.3 | Height and set back of plinth/kicker drawn in to specified dimensions. |
| | | 3.4 | Position of shelving including thickness and type (fixed/adjustable) accurately depicted on set out. |
| | | 3.5 | Position and dimensions of fixing rails clearly defined as specified. |
| | | 3.6 | Drawer detail including height and clearance defined to specifications. |
| | | 3.7 | Height of draw fronts and doors including clearances accurately marked in. |
| | | 3.8 | Position and dimensions of capital/bolection moulding accurately defined to specifications. |
| | | 3.9 | Relevant joint detail drawn in to specification. |
| 4 | Develop depth set out | 4.1 | Overall depth marked in to specifications. |
| | | 4.2 | Depth and setback of plinth/kicker depicted as specified. |
| | | 4.3 | Depth of carcass, including type and thickness of backing, determined to specifications. |
| | | 4.4 | Bench top detail including depth, overhang and edge detail accurately defined. |
| | | 4.5 | Accurate depth of draws nominated on set out. |
| | | 4.6 | Shelf depths and setback accurately marked in to specifications. |
| | | 4.7 | All relevant joint detail drawn in to specifications. |
| 5 | Mark out material for components | 5.1 | Materials selected/prepared to design requirements for components. |
| | | 5.2 | Face and edge marked on each component. |
| | | 5.3 | Length and joint detail transferred from set out to component material. |

	5.4	Marking out on each component checked in preparation for machining.
	5.5	Set out material marked for identification, where required, for appropriate identification of components.
6	Clean up	
	6.1	Area cleared to specifications.
	6.2	Drawing/specifications and set outs stored safely for future reference.
	6.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to free standing fitments constructed of solid timber or manufactured board but construction may include:

- laminates
- glass
- acrylic

Types of carcass construction include:

- framed and panelled
- hollow frame flush
- solid core flush
- solid panel

Materials used in carcass construction include:

- timber
- particle board
- veneered particle board
- plywood
- medium density fibreboard (mdf)

Surface/edge finishes include:

- thermo plastics
- plastic laminates
- aluminium mouldings
- timber veneers

Set out boards may be:

- particle board
- plywood
- paper on solid base

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures

- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- set out bench
- straight edge
- squares
- marking gauge
- bevels

EVIDENCE GUIDE

Competency is to be demonstrated by making a set out and setting out all components of a nominated fitment from the specified areas listed in the unit title.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of setting out for fitment construction
- identification of details and specifications of nominated fitment to be set out
- selection and use of appropriate setting out techniques, tools and equipment
- correct application of details and dimensions to make set out for fitment
- clear details of sectional material and method of joining components provided on set out
- accurate application of set out to mark each component correctly for length and machining processes
- efficient identification marking and stacking of each different marked component
- identification of typical faults and problems that occur and necessary action to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2012A Make set outs
- BCF2016A Prepare for off-site manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of fitments
- workplace and safety requirements
- drawings and specifications
- manufacturing processes for fitment components
- methods of constructing fitments
- materials and their characteristics relevant to fitment construction
- handling of materials relevant to fitment construction
- company's Quality Assurance requirement
- use of tools and equipment relevant to setting out materials for fitments
- setting out processes relevant to fitments
- measurement and marking related to making set out for fitments
- setting out of material for manufacturing processes

Skills

The ability to:

- interpret drawings and specifications
- organise work
- make a set out
- prepare a cutting list
- use tools and equipment
- set out material/components
- handle and store material
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location and set out bench appropriate for activities
- dressed and sheet materials relevant to fitment designs
- material appropriate for set out boards
- drawings and specifications relevant to activities
- tools and equipment appropriate for activity tasks

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of set out
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

KEY COMPETENCIES

Collecting,	Communicating	Planning and	Working with	Solving	Using	Using
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analysing and organising ideas and information	ideas and information	organising activities	others and in teams	problems	mathematical ideas and techniques	technology
3	3	3	-	2	2	1

BCF3013A: Assemble cabinets, showcases, wall units, counters and work stations

DESCRIPTOR

This unit applies to the manufacturing of component parts and the assembling and fitting to complete the construction of the fitment.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's shopfitting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the manufacturing and assembling processes of fitments and workshop operations, recognised and adhered to.
		1.3	Tools and equipment selected to carry out processes consistent with requirements of task and checked for serviceability.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Set out material prepared to specified sectional dimensions.
2	Carry out manufacturing processes to components	2.1	Machines set up and used to carry out machining processes to set out component material.
		2.2	Tools and equipment used to carry out hand tool applications to set out component material.
		2.3	Components prepared to set out details and joints checked for design requirements prior to assembling.
		2.4	Overall sequence of assembly determined in accordance with carcass structure.
3	Assemble carcass	3.1	Carcass assembled to determined procedures with faces and edges flush and joints secured to specified fixing.
		3.2	Carcass squared and held square with temporary brace or back fixed into position.
		3.3	Shelves and mullions installed as specified in accordance with fitment design.
		3.4	Plinth/kicker assembled to designed construction,

			square and out of wind with adjoining surfaces flush.
	3.5		Face panels fitted to plinth/kicker with all joints close fitting and adjoining surfaces flush.
	3.6		Plinth/kicker positioned to specified location and screwed to carcass.
	3.7		External fixed panels prepared to specifications for assembling and secured to carcass.
4	Assemble and fit bench tops	4.1	Bench/counter top components assembled to specified design and finished in preparation for installation.
		4.2	Bench/counter top positioned on carcass to specified dimensions and fixed by specified fixing method.
5	Assemble and install drawers	5.1	Drawer/s assembled to specifications with bottoms fitted and fixed.
		5.2	Drawer runner type determined and installed to specified dimensions and manufacturer's specifications.
		5.3	Drawers installed parallel to carcass bottom, showing specified clearances.
6	Fit doors and drawer fronts	6.1	Drawer fronts and doors prepared for installation.
		6.2	Door hinges installed to plan and manufacturer's specifications.
		6.3	Doors hinged to carcass with faces flush and specified clearances allowed.
		6.4	Drawer fronts secured to draws by nominated method with specified clearances allowed.
		6.5	Unit cleaned up and surfaces sanded to specified finish for proposed coated finish, where applicable.
		6.6	Handles and catches accurately installed to specification.
7	Clean up	7.1	Work area cleared to specifications.
		7.2	Fitment stored safely to avoid damage to surfaces.
		7.3	Waste and unwanted material removed safely.
		7.4	Plans, specifications and set outs stored for future reference.
		7.5	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to free standing fitments constructed of solid timber or manufactured board but construction may include:

- laminates
- glass
- acrylic

Types of carcass construction include:

- framed and panelled
- hollow frame flush
- solid core flush
- solid panel

Materials used in carcass construction include:

- timber
- particle board
- veneered particle board
- plywood
- medium density fibreboard (m.d.f)

Surface edge finishes include:

- thermo plastics
- plastic laminates
- aluminium mouldings
- timber veneers

Fasteners used in assembling fitments include but are not limited to:

- wood screws
- self tapping screws
- director screws
- nails
- brads
- knockdown fittings

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- assembling procedures
- attention to specifications of work
- storing and packaging

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of adhesives

- use of machining

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares
- chisels
- hand saws
- power saws
- power drills
- power planer
- power routers
- nail gun
- air compressor and hoses
- power leads
- clamps
- sash cramps
- sanders
- screwdrivers

Machining manufacturing processes may include but is not limited to:

- dressing to shape
- cutting to lengths
- trenching for housings
- trenching for tenons
- mortising
- moulding to shape
- band sawing to shape
- sanding
- grooving and rebating

Safety and operation considerations with use of static machines should conform to:

- AS1473 Guarding and safe use of woodworking machinery

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the manufacturing and assembling processes to complete the construction of a nominated fitment from the specified areas listed in the unit title.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations

- application of organisational quality procedures and processes within context of manufacturing and assembling a fitment
- identification of details and specifications of nominated fitment to be constructed
- identification of components and manufacturing processes to be carried out
- safe and efficient setting up and use of machines for required machining processes
- safe and efficient use of hand tools and equipment
- selection and use of appropriate processes, tools and equipment for assembling of components
- demonstrate sound techniques in checking and adjusting component joints for fitting
- safe and efficient assembling and fixing of carcass and components parts
- accurate and safe fitting and fixing/securing of drawers and doors
- application of appropriate processes to finish surfaces to specified requirement
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2013A Assemble components
- BCF2001A Use static machines
- BCF3001A Set up static machinery
- BCF3013A Setting out cabinets, showcases, wall units, counters and work stations

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of fitments
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- fitment construction - joining of components
- manufacturing processes with fitment construction
- materials used in fitment construction
- calculations and quantities related to fitments and components
- company's Quality Assurance requirements
- use of tools and equipment relevant to fitment manufacturing and assembling processes
- use of static machines including setting up
- Australian Standards - AS1473
- guarding and safe use of wood working and machinery
- assembling and fixing procedures for fitment construction
- adhesives, fixings and fasteners relevant to fitment construction
- clearances associated with types of finishes to surfaces

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- use tools and equipment
- use static machines
- manufacture components to set out material
- assemble components
- fix, square and temporarily brace fitments
- dress and finish surfaces
- fit doors and drawers

- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workshop location appropriate to activity
- tools and equipment appropriate for activity tasks
- materials/components related to proposed activity
- static machines relevant to proposed manufacturing processes
- drawings and specifications/documents relevant to the fitment

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken with regular checking.

Assessment may involve:

- observation of the application process
- inspection of final product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment shall be while tasks are undertaken either individually or working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	1	2

BCF3014A: Prepare aluminium for assembly

DESCRIPTOR

This unit applies to the preparation processes in cutting and shaping aluminium extrusion in readiness for assembly.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's fabrication operations, recognised and adhered to.
		1.2	OH&S requirements with the cutting and preparing aluminium extrusions for assembly and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications.
		1.4	Materials selected to size and design section and checked against drawings and specifications.
		1.5	Personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with requirements of task and checked for serviceability.
		1.7	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.8	Material lengths determined from detailed drawings, set out or calculations and recorded.
2	Cutting extrusion	2.1	Extrusions handled with care to protect finishes from scratches and dents.
		2.2	Stops set on saw bench to desired length and rechecked to avoid wastage.
		2.3	Extrusion cut to tolerance of +/- 1 mm.
		2.4	Excess lubricant and cuttings cleaned from extrusions, tools and equipment.
3	Prepare extrusions for assembly	3.1	Surface areas to be machined are masked to ensure finishes are protected from tools and equipment.
		3.2	Location of preparation work marked correctly on

		extrusion lengths.
	3.3	Extrusions prepared by drilling or punching, where required.
	3.4	Extrusions prepared by rebating with routers or countersinking as applicable, where required.
	3.5	All masking removed and excess lubricant and cuttings cleaned from extrusions, tools and equipment.
	3.6	All extrusions marked and stacked above floor level in assembly area.
4	Clean up	
	4.1	Waste and unwanted material disposed of safely.
	4.2	Unused materials stored/stacked.
	4.3	Waste aluminium stored for re-cycling.
	4.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Aluminium extrusions cover the range used in the construction of:

- shopfronts
- commercial windows
- residential windows
- curtain walls
- office partitions
- doors
- partitions

Preparation requirements include:

- cutting to length
- drilling holes
- punching holes
- cutting for joint
- trimming for fit

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- fabrication procedures
- protection of surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety

- protective clothing and equipment
- use of tools and equipment
- handling of materials
- cutting of metals

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares
- docking saw
- clamps
- power drills
- power router
- grinder
- air compressor and hoses
- power leads

EVIDENCE GUIDE

Competency is to be demonstrated by cutting and preparing at least four (4) separate types of extrusions for nominated assembly operations.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of manufacturing of aluminium framework
- selection and use of appropriate processes, tools and equipment to carry out tasks
- selection of appropriate material and accurate marking of designed length
- safe and efficient setting up of docking saw for cutting process
- safe and efficient operation of docking saw to cut extrusion to length
- accurate setting out/markings of extrusions for pre-assembly preparation process
- safe and efficient application to carry out drilling/punching/cutting processes to set out extrusions
- handling and placement of extrusions carefully carried out to ensure surfaces free from scratches and dents
- demonstrate sound techniques to check and fit joints for true fit
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1011A Handle construction materials and safely dispose of waste
- BCF2001A Use static machines

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- aluminium extrusions - design use
- organisation's Quality Assurance requirements
- working drawings and specifications
- aluminium construction
- handling of materials relevant to aluminium
- manufacturing processes with aluminium extrusions
- static machines
- tools and equipment relevant to aluminium preparation processes
- fasteners and fixing related to aluminium construction
- measuring and marking related to lineal measurements with aluminium work
- assembling procedures related to aluminium construction

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- identify materials
- use tools and equipment
- use static machines
- handle materials
- set out material
- cut and trim aluminium
- prepare for joining
- mark for identification
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workshop location
- static machines appropriate for activity tasks
- tools and equipment appropriate to required tasks
- materials relevant to proposed activities
- drawings and specifications/documentation relevant to the activities

(5) Method of Assessment

Competency may be determined concurrently based upon integrated project work.

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	3	-	2	-	2

BCF3015A: Assemble aluminium framework

DESCRIPTOR

This unit applies to the processes for the assembling and securing of components to assemble framework of aluminium construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's fabrication operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the assembling processes and workshop operations with aluminium framework, recognised and adhered to.
		1.3	Materials and prepared components selected and checked against drawings, specifications and identification marking.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of task and checked for serviceability.
2	Assemble components	2.1	Assembly area checked to ensure clean and free of sharp objects and solvents.
		2.2	Assembly screws selected to specifications.
		2.3	Standard and non-standard brackets fitted where required.
		2.4	Assembly of all components completed to specifications ensuring framework square.
		2.5	Doors checked for fitting to assembled framework.
		2.6	Hinges, door locks, door furniture and door closers fitted in accordance with drawings and specifications.
		2.7	Assembled framework cleaned free of excess lubricants, cuttings and finger marks.
		2.8	Assembled framework protected for transportation to destination.
3	Clean up	3.1	Waste and unwanted material disposed of safely.

- 3.2 Unused materials stored/stacked.
- 3.3 Waste aluminium stored for recycling.
- 3.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This process applies to all aluminium framework which includes:

- shopfronts
- curtain walls
- commercial windows
- office partitions
- show cases
- directory cases

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- fabrication procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- screwdrivers
- squares
- power drills
- power screwdrivers
- files
- straight edge
- work benches

EVIDENCE GUIDE

Competency is to be demonstrated by assembling all components of a nominated project of one of the types listed within the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of aluminium framework construction
- identification of all components with designed set out, drawings and specifications
- selection and use of appropriate processes, tools and equipment to carry out tasks
- identification and adoption of sound method and sequence of assembling components
- demonstrate safe and efficient assembly of components so that all joints and alignment are within tolerance of +/-1mm
- demonstrate sound techniques in ensuring framework assembled square
- demonstrate safe and efficient fixing of all fittings so that all operate correctly
- completion of assembly to specifications, free of scratches, dents and blemishes
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2016A Prepare for off-site manufacturing process

This competency may be concurrently assessed with:

- BCF3014A Prepare aluminium for assembly

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- working drawings and specifications
- aluminium construction
- manufacturing processes with aluminium extrusions
- organisation's Quality Assurance requirements
- use of tools and equipment relevant to aluminium assembling processes
- fixings and fasteners related to aluminium construction
- measuring, aligning and squaring related to aluminium assembling work
- handling of material relevant to aluminium sections
- identification marking of components

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use tools and equipment
- assemble joints
- secure joints and fittings

- measure and square frame
- handle material
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workshop location with appropriate space for activity
- tools and equipment appropriate for activity tasks
- components, fixings and fasteners relative to proposed activity
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	1	2

BCF3016A: **Set out shopfronts, commercial entries and bulkheads and component fittings**

DESCRIPTOR

This unit applies to the setting out on site of measurements to locate and position components that form shopfronts and commercial entries.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare	1.1	Quality Assurance requirements of company's shopfitting operations, recognised and adhered to
		1.2	OH&S requirements in accordance with the setting out and fabrication of shopfronts, recognised and adhered to.
		1.3	Materials and work location identified and checked against drawings and specifications.
		1.4	Personal protective equipment selected, correctly fitted and used
		1.5	Dimensions, levels and tolerances identified and noted.
		1.6	Tools and equipment selected to carry out tasks consistent with job requirements.
2	Undertake site measurements	2.1	Datums and gridlines or reference points located and confirmed.
		2.2	Surrounding structures and surfaces checked for plumb, level, line and square.
		2.3	Measurements taken of internal width and height if applicable and recorded.
		2.4	Inconsistencies in dimensions, layout or location of structure outside the specified tolerances noted and reported to appropriate personnel.
		2.5	Position of proposed frames and fittings marked out on surrounding surfaces using non-permanent markers.
3	Clean up	3.1	Waste and unwanted materials disposed of safely.
		3.2	Unused materials stored/stacked.
		3.3	Waste aluminium stored for recycling.
		3.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to street fronts, shopping centres, commercial and industrial buildings and both internal and external applications.

Construction/fabrications may be of aluminium or timber.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- setting out procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- gloves
- hard hat

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- plumb bob
- straight edge
- chalk line
- building line
- levelling equipment
- step ladders

EVIDENCE GUIDE

Competency is to be demonstrated by setting out a nominated project to a shopfront location marking the material thickness and component fittings positions, where applicable

(1) Critical Aspects and Evidence

Competency must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of shopfront construction
- identification of details and specifications of nominated shopfront to be set out

- accurate application of tools and equipment to set out and mark location of frame material thickness and components
- accurate application of measuring devices to read and record dimensions, plumb and level
- identification of inconsistencies in dimensions, plumb and level recorded for notification to appropriate personnel
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective setting out operations

(2) Concurrent Assessment and Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCG1003A Read and interpret plans
- BCG1004A Carry out measuring and calculations
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- shopfronts and framework construction
- measuring and levelling related to setting out and checking lineal measurements and levels of surfaces
- organisation's Quality Assurance requirements
- setting out and marking related to shopfront installation work
- tools and equipment relevant to setting out processes
- installation of shopfronts
- structure of buildings
- materials and their characteristics
- recording of data

Skills

The ability to:

- work safely
- interpret drawings and specifications
- set out locations
- use measuring and levelling devices
- use tools and equipment
- record information
- effectively communicate verbally and in a written form with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workplace location for shopfront installation
- drawings and specifications relevant to activity
- tools and equipment appropriate to activity tasks

(5) Method of Assessment

Competency should be assessed while tasks are undertaken and may involve:

- observations of the application process
- inspection of set out
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or while working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	2	2	2	1

BCF3017A: Fabricate shopfronts, commercial entries and bulkheads, including component fittings

DESCRIPTOR

This unit applies to the assembling of component parts and fittings that form the total product fabrication for a shopfront structure.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's shopfitting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the fabrication processes and workshop operations for shopfronts, recognised and adhered to.
		1.3	Prepared materials selected and checked against drawings, specifications and marked identification.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.6	Tools and equipment selected to carry out processes consistent with requirements of task and checked for serviceability.
2	Assemble components of framework	2.1	Appropriate area selected and material components laid out for assembly.
		2.2	Framework assembled with overall dimension checked for conformity to location and design.
		2.3	Frame checked for square and adjusted where required.
		2.4	Areas laminated where required and finishes applied where applicable.
3	Pre-fit component fittings	3.1	Component fittings prefitted where applicable.
		3.2	Fittings fixed to locations according to specifications.
4	Prepare for packaging	4.1	Fittings too large for safe transport, disassembled.

	4.2	Packaging of separate components identified and arranged.	
5	Clean up	5.1	Components and assembly diagram numbered for inclusion in delivery instructions.
		5.2	Waste and unwanted material disposed of safely.
		5.3	Unused materials stored/stacked.
		5.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to street fronts, shopping centres, commercial and industrial buildings and both internal and external applications.

Construction/fabrication may be of aluminium or timber.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- assembling procedures
- protection of material surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- straight edge
- squares
- screwdrivers
- clamps
- sash cramps
- power drills

- nail gun
- air compressor and hoses
- power leads
- brushes

EVIDENCE GUIDE

Competency is to be demonstrated by the accurate preparing of all components and assembling of a nominated shopfront project.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of fabricating a shopfront
- identification and selection of prepared materials for components
- display sound procedures for the safe and accurate preparation of each component for assembling
- selection and use of appropriate processes, tools and equipment for assembling components
- demonstrate safe and efficient use of tools and equipment
- demonstrate sound techniques in the safe and efficient assembly of components to form framework for shopfront
- display sound and accurate fitting of component fittings to locations
- assembly completed free of scratches, dents and blemishes
- safe and efficient application to disassemble components and fittings and identify for delivery and assembling instructions
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2013A Assemble components
- BCF2015A Use aluminium sections for fabrication

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- materials and their characteristics
- shopfront designs and construction
- aluminium construction
- timber construction
- manufacturing processes with timber and aluminium sections
- fixing of joints - adhesives, fasteners and fixings relative to shopfront construction
- assembling procedures relative to shopfront framework
- tools and equipment relevant to assembling and fabricating shopfronts
- measuring and squaring relevant to lineal measurements related to framework
- installation of doors
- packaging and protection

Skills

The ability to:

- work safely
- interpret drawings and specifications
- identify components
- use tools and equipment
- organise work
- fit and secure joints
- assemble framework
- dismantle framework for transportation
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workshop location with appropriate area
- tools and equipment appropriate to required tasks
- materials and prepared components for assembly processes
- drawings and specifications/documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	2	2	2	2

BCF3018A: Assemble/install shopfront, commercial entries and bulkheads, including components

DESCRIPTOR

This unit applies to the preparation for installation and the assembling and installation of shopfront structures to location. It applies to both aluminium and timber construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's shopfitting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the assembling/installing of shopfronts and workplace operations, recognised and adhered to.
		1.3	Materials and fixing accessories and fasteners selected and checked against drawings and specifications.
		1.4	Personal protective equipment selected, correctly fitted and used
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.7	Fittings and/or pre-assembled frames unloaded carefully to protect finishes.
		1.8	Fittings and/or pre-assembled frames placed in well protected area until ready to reassemble.
		1.9	Installation to conform to AS2047 Windows in buildings.
2	Establish datum and plumb lines	2.1	Datum struck for level as required for installation.
		2.2	Plumb lines marked at all connecting points.
3	Prepare opening	3.1	Opening dimensions checked in accordance with dimensions of fabrication.
		3.2	Plumb lines checked for similarity to original site measurement.

- 3.3 Drawings checked for position of lease line and where unavailable checked with building contractor.
 - 3.4 Protrusions scraped, chipped and cut away to connecting points to facilitate installation.
 - 3.5 Sill packing set up to specified level.
 - 3.6 Narrowest part of opening determined and packing organised for installation.
- 4 Assemble shopfront
- 4.1 Fittings replaced into position to commence installation.
 - 4.2 Holes pre-drilled for fixing positions suitable to connect to brickwork, timber and stone.
 - 4.3 Measurements of completed assembly checked against opening and glazier contacted for site .measurements
- 5 Fit bulkhead
- 5.1 Bulkhead prepared for installation by drilling, cutting, routing holes and openings to accept fittings and fixtures.
 - 5.2 Fixing methods required to securely support bulkhead prepared.
 - 5.3 Scaffolding erected to fit bulkhead into position.
 - 5.4 Bulkhead raised into position using mechanical lifting equipment and secured to specifications.
- 6 Install assembly
- 6.1 Door checked for square to ensure glazier has blocked glass correctly.
 - 6.2 Assembly positioned into opening allowing to rest on packing at highest position in floor.
 - 6.3 Datum line transferred onto masking tape on assembly and position measured and transferred to all connecting points.
 - 6.4 Assembly packed level using appropriate equipment for levelling process.
 - 6.5 Assembly plumbed off narrowest point of width and packed to position.
 - 6.6 Assembly anchored at all connecting points to specifications.
 - 6.7 Door or doors fitted, where applicable.
 - 6.8 Glazier contacted to notify assembly ready for glass installation.

	6.9	Door closures checked to ensure they face mount, floor or transom and that automatic and floor or head fixed tracks operate freely.
	6.10	Closures, door furniture and scribe fillers fitted and any remaining gaps sealed with approved sealant.
	6.11	Sealants applied to specification to protect against water, wind and dust penetration.
7	Clean up	
	7.1	Assembly cleaned free from excess sealant, finger marks and masking tape.
	7.2	Waste and unwanted material disposed of safely.
	7.3	Waste aluminum stored for recycling.
	7.4	Unused material stored/stacked.
	7.5	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to streetfronts, shopping centres, commercial and industrial buildings and both internal and external applications.

Construction/fabrication may be of aluminium or timber.

Installation to be in accordance with AS2047.2 Windows in buildings - Construction, installation and maintenance.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- assembling procedures
- installation of doors

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- boots

- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- clamps
- sash cramps
- squares
- chalk lines
- screwdrivers
- plumb bob
- chisels
- cold chisels
- bolsters
- hand saws
- saw stools
- explosive power tools
- power saws
- power drills including masonry
- power planer
- grinder
- air compressor and hoses
- power leads
- set spanners
- brushes
- step ladders
- scaffolding

Operation of explosive tower tools are to be in accordance with:

- AS1873 Powder actuated (PA) hand held fastening tools

Levelling equipment includes:

- spirit level
- spirit level and straight edge
- automatic level
- staff

Safety hazards may include:

- public area
- other works in area
- access to location
- noise
- dust

Fixings and fasteners may include but are not limited to:

- metal brackets
- bolts and nuts
- bolts

- self tapping screws
- masonry anchors
- coach screws
- wall plugs

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of assembling the framework and installing the assembly into location to form a nominated shopfront.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate operational safety compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of assembling and installing a shopfront
- identification of design, delivered assemblies, components, fittings and assembly diagram
- identification and selection of components and fittings to locations in assembled shopfront
- selection and use of appropriate process, tools and equipment to assemble and install nominated unit
- appropriate and effective applications to prepare opening to receive framework
- safe and efficient assembling of sections, components and fittings
- safe and efficient installing of bulkhead into position
- safe and efficient location and installation of assembly into place
- safe and efficient installation of all components and fittings and, where applicable, checked for designed operation
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF3012A Set out shopfronts, commercial entries and bulkheads, including component fittings
- BCF3017A Fabricate shopfronts, commercial entries, bulkheads, including component fittings

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- organisation's Quality Assurance requirements
- shopfronts - designs and construction
- components and fittings with shopfront construction
- manufacturing processes with timber and aluminium sections
- fixing of joints - fasteners, fixings and adhesives relative to shopfront construction and installation
- tools and equipment relevant to assembling and installing shopfronts
- assembling procedures relative to shopfront framework
- measuring and levelling relative to shopfront installation
- Fixing to structures
- Australian Standards - AS1873, AS2047

- installation of doors
- handling and protection of materials relevant to shopfront materials

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- identify and safety handle materials
- assemble framework
- carry out levelling
- use fixings and fasteners
- fix and secure framework to location
- install accurately to line and plumb
- install doors
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- shopfront site location
- pre-fabricated frame/components designed for location
- tools and equipment appropriate to proposed activity tasks
- fittings and accessories relevant to installation tasks
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the work process
- inspection of installation
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of application of tasks or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	3	3	2	2

BCF3019A: Turn stone

DESCRIPTOR

This unit applies to the turning of stone to produce a designed finished product. It includes preparation of stone, operation of lathe, dressing of stone and finishing of surface.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.5	Materials selected in accordance with job design, drawings and specifications for templates.
		1.6	Stone quality identified, selected and prepared for turning.
2	Construct templates	2.1	Appropriate template material selected.
		2.2	Template prepared and cut to required shape/design using appropriate tools.
		2.3	Template applied to stone for basic roughing out procedure as required by design.
		2.4	Appropriate tools/machines selected consistent with job requirements.
3	Identify applications of lathe work to stonemasonry	3.1	Specific features of lathe applications identified and listed.
		3.2	Methods of handling and holding work applicable to lathe operation identified and used.
		3.3	Machine operations including pre-service checks identified and machine speeds and feed rates calculated.

- | | | | |
|---|------------------------------|-----|--|
| 4 | Operate lathe and turn stone | 4.1 | Job sheet prepared as service record of lathe operation, where applicable. |
| | | 4.2 | Correct lathe cutting tools selected and prepared for use. |
| | | 4.3 | Correct alignment of talkstock accurately performed. |
| | | 4.4 | Pre-service check correctly performed in accordance with manufacturer's specifications. |
| | | 4.5 | Machine working speeds and feed rates for roughing and finishing areas set per calculation specified in job operations sheet specifications. |
| | | 4.6 | Holding devices correctly applied to work piece. |
| | | 4.7 | Lathe operated through a dry run check before lathe start up procedure applied. |
| | | 4.8 | Lathe operation performed to turn stone to match contour of template. |
| 5 | Finish and seal stone | 5.1 | Correct contour conformity to template, checked. |
| | | 5.2 | Stone turned and surface finished to specification. |
| | | 5.3 | Stone work removed from lathe and prepared for sealant application as specified. |
| | | 5.4 | Sealing solutions/compounds applied to manufacturer's specifications. |
| 6 | Clean up | 6.1 | Debris and waste materials removed on completion of process. |
| | | 6.2 | Re-usable and recyclable materials salvaged and stored. |
| | | 6.3 | Tools and equipment cleaned, maintained and stored. |
| | | 6.4 | Personal protective equipment removed, inspected, cleaned and stored. |
| | | 6.5 | Correct service procedure for post-operation care undertaken to manufacturer's specifications. |
| | | 6.6 | Lathe accessories removed, cleaned and stored. |

RANGE OF VARIABLES

Operations with turning stone may include:

- cutting
- boring
- shaping to taper
- shaping to parallel
- shaping to template

Preparing stone for turning operations may include:

- cutting
- boring
- milling
- shaping
- dressing

Materials for turning may include but are not limited to:

- sandstone
- limestone
- marble
- granite

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- use and maintenance of machinery

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of machinery
- hazardous materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- range of cutting chisels
- spirit level

- squares
- abrasive heads
- grinders
- scriber
- abrasive sheets
- straight edge
- dividers/calipers

Templates may be made of:

- zinc sheet
- aluminium sheet
- plywood
- plastic sheet
- cardboard

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of preparing and turning stone to produce two (2) separate types of finished turned products in accordance with the variations listed within the range statement.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of producing turned stone
- demonstrate safe and effective operational use of tools and equipment with processes
- correct procedures adopted and used to handle and place material
- demonstrate sound techniques to accurately produce template to designed profile
- demonstrate sound and safe procedures to dress stone to requirements in preparation for turning
- display sound understanding of turning work application with the selection of appropriate cutting tools
- demonstrate sound techniques to set up and prepare material and lathe for lathe operation
- display sound and safe techniques to cut, dress and finish stone to shape and specifications
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2012A Make set outs
- BCF3035A Dress and mould stone
- BCF2003A Finish stone
- BCG3074A Carry out profile work

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stone and their characteristics
- techniques in turning and shaping of stone

- techniques in operating a lathe
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- cutting tools associated with turning stone
- hand tools and equipment relevant to setting up and turning stone
- handling of material relevant to stonework
- measurement relative to design shapes
- templates for lathe work
- preparation of stone
- finishing of stone surfaces
- setting out and making of templates

Skills

The ability to:

- work safely
- organise work
- interpret drawings and documentation
- use tools and equipment
- operate lathe
- handle material
- select material
- measure relative to setting out
- make templates
- turn and work stone
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- materials relative to the activity
- hand tools and equipment appropriate to activity tasks
- machinery and equipment appropriate to activity tasks
- suitable work area
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCF3020A: Materials handling

DESCRIPTOR

This unit applies to the handling, moving, lifting and storing of stone material using both manual handling techniques and materials handling plant and equipment.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonework operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Safety and protective requirements for work personnel, public and environment determined.
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.6	Job requirements identified from instructions/directions and followed.
		1.7	Area checked to ensure that space is clear and available for movement and storage as required by job.
2	Manually handle stone	2.1	Stone products identified and handled in appropriate manner dependent on size and finish of material.
		2.2	Manual stone handling principles applied: levers, rollers, inclined planes, benchwork (eg lifting or otherwise handling stone on to work surfaces).
		2.3	Manual handling and movement carried out avoiding damage to stone and handling equipment.
		2.4	Range of appropriate manually operated stone handling equipment used, where applicable, to move and relocate material.
3	Operate or assist with mechanical lifting/handling systems	3.1	Stone prepared for handling by use of lifting equipment where mechanical lifting systems are required.
		3.2	Materials handling plant including lifting plant operated as required for the job, where qualified, or assistance provided to operators where applicable.

		3.3	Assistance provided to plant operators by directing, preparing surfaces for placement and connecting/disconnecting of lifting equipment.
		3.4	Scaffolding requirements identified and used where required, where lifting operations undertaken on-site.
4	Store and protect various types of stone	4.1	Slabbed stone moved and stored against frames or stacked horizontally.
		4.2	Dimensional stone blocks moved and stored.
		4.3	Rough blocks and boulders moved and stored.
		4.4	Delicate or sensitive stone products moved and stored.
		4.5	Spacers, packers and softening used with storage to avoid staining or other damage to stone.
		4.6	Stored stone checked to ensure stability in stored location.
		4.7	Strapping systems selected and used appropriate to job.
		4.8	Requirements for storing stone under special environmental conditions identified and carried out.
5	Clean up	5.1	Site cleaned and cleared of debris and unwanted material.
		5.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to material handling of stone which includes:

- hardstone - irregular shapes
- softstone - irregular shapes
- dressed stone
- reconstituted stone
- stone products

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- storing and stacking of material
- protection of finished surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- working with mechanical lifting plant

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- leather apron
- cap

Tools and equipment to assist in handling operations may include but is not limited to:

- slings
- cables
- chains
- "Dogs"
- "Lewis" pins
- wedges
- crow bars
- chain blocks
- pallet trolleys
- sack trucks
- flat bed hand trucks
- conveyors
- slab trolleys
- scaffolding
- rollers
- levers

Materials handling plant associated with handling and movement may be:

- fork lifts
- front end loaders
- tail gate loaders

All work and work practices undertaken to legislative and statutory regulations and in accordance with Worksafe Australian Standards for Users and Operators of Industrial Equipment.

Stone handling operations may be undertaken in various environments which include:

- quarry
- workshop
- building site
- storage area

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the required slinging and moving of stone materials used in off-site work in accordance with Worksafe Australia standards for users and operators of industrial equipment under supervision.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to equipment and workplace operations
- indicate compliance with organisation policies and procedures within context of handling materials and using plant equipment
- selection and use of appropriate tools and lifting equipment to assist with movement processes
- demonstrate sound and safe techniques with placement and storage of material and releasing lifting equipment
- demonstrate safe and effective positioning and connection of lifting equipment
- safe and effective techniques applied to movement and placement of materials
- demonstrate correct procedures in signalling and communication with movement of materials
- indicate sound techniques in preparing drop or placement area to receive material
- identification of faults and problems that occur and the necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2009A Carry out load slinging of off-site materials
- BCF2000A Identify and use stone products
- BCF3036A Shift materials manually

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stone and their characteristics
- materials handling plant relevant to stone work
- lifting equipment relevant to handling stone
- workplace safety requirements including relevant statutory regulations, codes and standards
- stone products - reconstituted stone, wall and floor tiles, bench tops, marble chips
- materials handling eg: heavy and irregular shaped
- stacking/storing materials safely allowing egress to others and easy access to materials for retrieval.
- hazards eg: identification and prevention methods adopted
- tools and equipment relevant to handling of stone and stone products
- measuring and calculating related to lineal, spacial and mass determinations
- Worksafe Australia Standards for Users and Operators of Industrial Equipment
- workplace communication

Skills

The ability to:

- work safely
- organise work
- use tools and equipment

- work with materials handling plant
- store and stack material
- handle materials
- position and secure lifting equipment
- effectively communicate both verbally and basic hand signalling with others within a team operation

(4) Resource Implications

The following resources should be made available:

- workplace operation for proposed activities
- plant and equipment appropriate for activity tasks
- tools and equipment appropriate to support activity tasks
- designated material and documentation/instructions relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of the overall task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment and in accordance with work practices and safety procedures.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	-	3	1	-	3	2

BCF3021A: Inlay lead to stone

DESCRIPTOR

This unit applies to the inlaying of lead to lettering or shapes carved into stone surfaces.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality assurance requirements of company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application to tasks and workplace operations recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out processes consistent with needs of job and checked for serviceability.
2	Prepare background surface	2.1	Appropriate equipment selected and used for removing excess material so that surface is even and flat.
		2.2	Surface made suitable for designed treatment as per specifications for setting out and cutting letters.
		2.3	Protection to surrounds of lettering area applied using appropriate masking and covering technique.
		2.4	Surface painted with weak water based paint to specifications for ease of marking out letters and shapes.
3	Identify and draw to scale various type of lettering, insignias and monograms	3.1	Drafted designs set out and drawn to appropriate scale on set out material.
		3.2	Designs transferred to prepared surface either directly or by using templates or stencils.
		3.3	Designs marked by pencils or scribes accurately to stencil/template or direct set out.
4	Use hand and/or power tools for cutting letters	4.1	Material safely held in most suitable position ready for cutting and/or shaping operation.
		4.2	Stone, less than 30mm thick, fixed to a larger section of stone to minimise risk of breaking.
		4.3	Tools/equipment selected for cutting/shaping process in

			accordance with size and shape of letters.
	4.4		Tools/equipment adjusted correctly for operation to standard operating procedure and in accordance with work to be undertaken.
	4.5		Start up and shut down procedures for use of equipment carried out in accordance with specifications, where applicable.
	4.6		Tools used or equipment operated to carefully cut letters to set out.
	4.7		Letters cut to size and depth specified.
	4.8		Holes drilled for cut out letters to specifications, to provide keying for securing load.
5	Perform lead in process on lettering of stone surfaces	5.1	Pre-cut lettering inlaid with solid or melted lead using appropriate tools or method, without damage to stone.
		5.2	Molten lead heated and handled safely in accordance with job and OH&S requirements.
		5.3	Lead inlaid to give a flat or raised finish to stone in accordance with specifications.
		5.4	Letters or insignias finished clean on their edges and surface finished to specifications.
6	Clean up	6.1	Waste and unwanted material disposed of safely.
		6.2	Re-usable and recyclable materials salvaged and stored.
		6.3	Tools and equipment cleaned, maintained and stored.
		6.4	Personal protective equipment removed, inspected, cleaned and stored.

RANGE OF VARIABLES

This unit applies to the laying of lead to recesses carved in stone to form lettering, insignias and monograms.

Operations for inlaying lead may include:

- cutting
- melting
- shaping
- forming

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials

- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- finishing of stone surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- straight edge
- squares
- power grinder
- mallets
- lettering chisels
- sculptor's chisels
- pneumatic lettering chisels
- scribes
- masonry drill
- clamps
- punch
- power leads

Templates or stencils may be made of:

- cardboard
- zinc sheet
- aluminium sheet
- plywood
- plastic sheet

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out lead inlay to lettering or shapes carved in stone, using both solid and melted material.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- select and use appropriate tools, equipment and processes consistent with requirements of activity
- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- apply organisational quality procedures and processes within context of inlaying lead to stone
- prepare face for lettering, finished to specification
- accurately set out lettering to form balanced presentation
- check spelling prior to cutting of letters
- to provide appropriate protection to surrounding area
- use safe and effective procedures to inlay lead to recesses
- complete inlaying of lead and finishing of surface to specifications
- accurately cut letters on design to specifications
- interactively communicate with others to ensure safe and effective workplace operations

(2) Prerequisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG2012A Make set outs
- BCF3067A Dress stone manually

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations and codes
- types of stone and their characteristics
- methods of working stone
- methods of inlaying lead
- drawings and specifications
- effect of lead on the human body and organs
- most common pathway by which lead enters workers bodies
- traditional and contemporary font styles
- tools and equipment
- measuring and marking
- making of templates or stencils

Skills

The ability to:

- work safely
- organise work
- set out work
- interpret drawings and specifications
- work safely with lead
- use tools and equipment
- work stone
- make templates and stencils
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools and equipment appropriate to inlaying processes

- stone relevant to proposed activity
- drawings and specifications/documentation relevant to activity

(5) Method of Assessment

Competency should be assessed through observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance, checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency should be demonstrated in inlaying lead to stone as required in the workplace.

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	-	2	1	2

BCF3022A: Apply gilding to signs

DESCRIPTOR

This unit applies to the knowledge and skills associated with applying gilding to lettering, shapes, heraldic signs and other decorative forms of signage.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks consistent with needs of job.
2	Prepare background surface of sign	2.1	Correct equipment selected and used for preparation of surface.
		2.2	Surface made suitable for treatment as per type of surface and specifications.
		2.3	Appropriate protection applied to surrounds.
3	Identify and draw to scale various types of lettering and decorative forms of signage	3.1	Drafted designs set out and drawn to appropriate scale.
		3.2	Designs transferred to prepared surface either directly or by using templates.
		3.3	Decorative process applied to create desired finish to specifications.
4	Use hand and/or power tools for cutting shape and to signage design	4.1	Material safely held in correct position ready for cutting and/or shaping operation.
		4.2	Tools/equipment selected for cutting/shaping process.
		4.3	Tools/equipment adjusted correctly for standard operating procedure, where applicable.
		4.4	Start up and shut down of equipment carried out in

			accordance with standard operating procedure.
		4.5	Sign design cut to size and depth as specified.
5	Apply gilding to sign	5.1	Cut gilding material to required size and shape as specified.
		5.2	Sign surface prepared to receive gilding using appropriate size or adhesive.
		5.3	Gilding material applied to surface and excess material trimmed and removed.
		5.4	Appropriate cleaning procedure and materials selected and applied to sign surface.
6	Clean up	6.1	Waste and unwanted material disposed of safely.
		6.2	Re-useable and recyclable materials salvaged and stored.
		6.3	Tools and equipment cleaned, maintained and stored.
		6.4	Personal protective equipment removed, inspected, cleaned and stored.

RANGE OF VARIABLES

This unit applies to gilding of prepared sign surfaces which may be:

- painted
- stained
- sealed
- sanded

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- handling of hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles

- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- drawing equipment
- cutting blades
- paint brushes
- gilding brushes
- clamps

Operations may include:

- cutting
- melting
- shaping

EVIDENCE GUIDE

Competency should be demonstrated by the performance of gilding to lettering shapes and other decorative forms of signage as nominated in accordance with this unit and the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S legislation applicable to workplace operations
- selection and use of appropriate tools, equipment and processes consistent with requirements of activity
- application of organisational quality procedures and processes within the context of applying gilding
- demonstrate sound techniques in preparing sign surface to receive gilding
- application of sound and accurate techniques to produce design to sign requirements
- demonstrate sound techniques in reproducing and transferring of design to sign surface
- spelling checked prior to cutting of gilding for sign
- demonstrate sound and accurate techniques to transfer and place gilding to location
- completion of gilding consistent with specifications for sign
- identification of typical faults that occur and appropriate remedial action taken to rectify problem

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- gilding techniques
- layout of signs
- materials relative to gilding processes

- preparation of signs
- workplace safety requirements including relevant statutory regulations, codes and standards
- traditional and contemporary font styles
- design transfer methods
- use of tools and equipment relevant to gilding application for signwork
- measuring and setting out relative to signwork
- drawings and specifications

Skills

The ability to:

- work safely
- prepare for work application
- use tools and equipment
- draft design of sign to scale
- prepare surfaces for gilding
- apply gilding
- transfer designs
- measure and set out designs

(4) Resource Implications

The following resources should be made available:

- appropriate work area
- tools and equipment appropriate for application tasks
- appropriate working drawing and specification applicable to activity
- prepared sign construction or surface
- materials appropriate to application tasks

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	2	1	2	1

BCF3023A: Apply finishes

DESCRIPTOR

This unit applies to the knowledge and skills in preparing and applying types of finishing materials to surfaces.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify various types of finishing applications	1.1	Various types of finishing surfaces identified in accordance with type of material surface and specified finish.
		1.2	Methods of applying finishes to surfaces identified.
		1.3	Characteristics for type of material to be applied identified to determine means of application.
2	Plan and prepare for finish application	2.1	Quality Assurance requirements with company's surface finishing operations, recognised and adhered to.
		2.2	OH&S requirements for workshop operations and material applications to provide finishes, recognised and adhered to.
		2.3	Job requirements identified from instructions/specifications.
		2.4	Personal protective equipment selected, correctly fitted and used.
		2.5	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
		2.6	Safety hazards identified and correct procedures used to reduce risk to self and others.
		2.7	Material selected and prepared in accordance with manufacturer's recommendations.
3	Apply stain to a surface/ veneered surface	3.1	Surface checked to ensure clean, dry and ready for stain application.
		3.2	Stain applied in an even and consistent manner with cloth/pad/brush to instructions/specifications.
4	Apply lacquers to a surface	4.1	Stained surface checked for dry and light sanded to ensure clean surface.

		4.2	Surface sanded to ensure clean and free of imperfections.
		4.3	Lacquer applied to surface in accordance with manufacturer's recommendations to provide a consistent coverage.
5	Apply paint/sealer to a surface	5.1	Surface checked for smooth and clean.
		5.2	Paint/sealer applied with roller/brush to obtain an even coverage to specifications.
		5.3	Paint/sealer applied with spray gun to obtain an even coverage to specifications.
6	Apply powder to a surface for baked finish	6.1	Surface to be covered prepared to specifications for process.
		6.2	Powder coating applied in accordance with manufacturer's specifications and AS3754-1990 Safe application of powder coatings by electrostatic spraying.
7	Clean up	7.1	Area cleaned and waste material disposed of safely.
		7.2	Unused materials sealed and stored.
		7.3	Equipment cleaned safely using correct solvent in accordance with MSDS instructions, maintained and stored.

RANGE OF VARIABLES

Type of material surface to be finished may be:

- timber
- veneered panelling
- particleboard
- medium density fibreboard (m.d.f)
- aluminum

Instructions for applied finishes may be supervisor or architect's and may include:

- verbal instruction
- written notes
- sketches

Methods of applying finishes for both horizontal and vertical applications include:

- brush
- roller
- pad
- spray gun

Powder application to be in accordance with AS3754 Safe application of powder coatings by electrostatic spraying.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- spray application procedures
- finishing of surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of spray equipment
- hazardous materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- paint stirrers
- brushes
- rollers
- spray guns
- air spray equipment
- airless spray equipment
- pads
- dusting brushes
- rags
- buckets
- roller accessories
- benches
- stools

Safety hazards may include:

- inhalation of solvent vapours
- dust
- confined spaces
- hazardous materials
- manual handling

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of producing at least three (3) different nominated types of finishes using three separate types of finishing materials to surfaces of those listed within the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of applying finishes to timber and aluminum surfaces
- identification of designed finish and surface to be covered
- identification and selection of appropriate materials and applicators to apply finish
- selection and use of appropriate processes and safety requirements to prepare materials, application and area
- selection and use of appropriate personal protective equipment
- safe and effective application of material to provide designed base coat
- safe and efficient sanding and preparation of surface before coat applications, where applicable
- correct and efficient use of applicators
- safe and effective application of coats to produce specified finish to surface, free from blemishes
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG2001A Prepare surfaces

This competency may be concurrently assessed with:

- BCG3096A Apply paint by brush/roller

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- Types of finished surfaces
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- specification interpretation
- organisation's Quality Assurance requirements
- material surfaces - types of material substrates
- surface preparation relevant to material surfaces and applied finishes
- finishing materials
- applicators and equipment relevant to applying finishing materials
- methods of application for finishes
- Australian Standard - AS3754
- hazardous materials

Skills

The ability to:

- work safely

- interpret drawings, specifications and Australian Standards
- organise work
- use tools and equipment
- prepare surfaces
- identify and select materials
- use applicators appropriate to finish
- use spray equipment
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace location appropriate for application processes
- spray booth and appropriate spray equipment for activity
- materials and equipment applicable to activity processes
- documentation/specifications relevant to the application and finishes

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application to tasks
- inspection of finished surface
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	3	1	2

BCF3024A: Install internal lining

DESCRIPTOR

This unit applies to the preparation processes and the installing of lining materials to surfaces to produce a specified designed finish.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify internal lining materials and methods of fixing	1.1	Types of lining materials and their characteristics, identified.
		1.2	Methods of fixing lining materials including secret fixing identified in accordance with edge junctions of material.
		1.3	Methods of finishing at corners/ends identified
2	Plan and prepare work	2.1	Quality Assurance requirements with company's construction operations, recognised and adhered to.
		2.2	OH&S requirements in accordance with the tasks in the installing of lining materials and workplace operations, recognised and adhered to.
		2.3	Materials for lining selected and checked for conformity against drawings and specifications.
		2.4	Appropriate personal protective equipment selected, correctly fitted and used.
		2.5	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
3	Prepare material and surface for fixing	3.1	Surface to be lined identified from job drawings/instructions and prepared to specifications for fixing of material.
		3.2	Lining material set out and cut to length/shape, as applicable.
		3.3	Surface set out where applicable to provide balanced panel or board effect.
4	Fit and install lining material to surfaces	4.1	Lining fitted and installed to surface according to specifications for fixing of material and finish.
		4.2	Lining installed with no gaps and vertical/horizontal joints formed in accordance with specified requirements.

	4.3	Securing and fixing of lining carried out to job and manufacturer's specifications.
	4.4	Lining installation to within ± 1 mm over any 2.4m length for straightness and within 0.5mm gaps for beaded joints.
	4.5	Surrounds/edging, where applicable, fitted, fixed and finished to specification.
5	Clean up	
	5.1	Work area cleared and waste material disposed of safely.
	5.2	Unused materials stored/stacked.
	5.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the use of lining materials where they may be specified to finish surfaces to match internal wall lining. Application of material finishes may be to:

- fitments
- wall units
- partitions
- spandrills

Lining materials may include but are not limited to:

- lining boards
- veneered panelling
- plywood
- fibre cement sheet
- particleboard
- hardboard

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- power planer
- nail gun
- air compressor and hoses
- power leads
- hand plane
- builders line
- straight edge

Preparation of surface may involve:

- fixing of battens to surface
- fixing of additional noggings to line of stud wall
- trimming of frame members to line
- packing of frame members to line

Methods of fixing may include:

- nails
- screws
- adhesives

Surrounds/edging to provide finish may include:

- flat beading
- quad beading
- architrave
- skirting

Lining materials may be fixed vertically, horizontally or at an angle.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of installing at least three (3) types of the lining materials listed within the range of variables to nominated application areas with one involving angled application of boards and one involving a spandril area.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- demonstrate sound techniques to prepare surface aligned horizontally and vertically to receive lining
- application of organisational quality procedures and processes within context of installing internal lining material
- identification of designed finish and surface to be covered
- identification and selection of specified materials to carry out lining work
- selection and use of appropriate processes, tools and equipment to install material
- appropriate and accurate setting out of work to provide balanced finish
- demonstrate safe and effective applications to cut and prepare material for installation
- demonstrate safe and efficient handling and placing of material for fixing into position
- safe and efficient fixing of lining material including specified surround/edge material
- completion of lining installation to finish specifications
- identification of typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG2000A Assemble simple partition frames
- BCG2001A Prepare surfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- company's quality assurance requirements with lining of surfaces
- materials relevant to lining of surfaces
- methods of fixing lining materials
- use of tools and equipment relevant to installation of lining materials
- fixings and fasteners related to installing lining materials
- adhesives related to installing lining materials
- measurement and calculation of material requirements related to lineal and area measurements
- measuring and levelling related to installing lining materials

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use tools and equipment
- use fixings and fasteners
- set out material and surfaces
- calculate material quantities
- measure and level relevant to lining applications
- fit and fix material
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace location appropriate to activity
- materials applicable to proposed lining activity
- tools and equipment appropriate to installation processes
- drawings and specifications relevant to proposed activities

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of installed area
- questioning related to underpinning knowledge

Assessment may be intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken under minimal supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	2	2	2

BCF3025A: Use computer controlled static machinery to produce stone components

DESCRIPTOR

This unit applies to the use of computer controlled machining applications to produce components including curved and straight moulds, levels and cuts in hard and soft stone.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	OH&S requirements with company's stonemasonry operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Workplace operations plan determined in accordance with job requirements and surrounding environment.
		1.4	Appropriate personal protection equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to minimise risk to self and others.
		1.7	Materials selected in accordance with job design, drawings and specifications.
2	Carry out data input	2.1	Programming terms, methods, limits and data storage capacity determined and stated consistent with job requirements of a specification machine.
		2.2	Program written to produce straight and circular tool movements, compensating for tool profiles.
		2.3	Program entered and edited.
3	Transfer program to machine control	3.1	Methods of transferring programs into machinery memory identified and listed.
		3.2	Program loaded into machine memory using appropriate techniques applicable to job and/or machinery specifications.
4	Demonstrate operation of the loaded program to control the	4.1	Program operated through dry run simulation mode testing all alarm settings.

	machine		
		4.2	Program edited where required using control station.
		4.3	Specified workpiece produced using automatic mode as per manufacturer's specifications.
5	Clean up	5.1	Debris and waste materials removed on completion of process.
		5.2	Re-useable and recyclable materials salvaged and stored.
		5.3	Tools and equipment cleaned, maintained and stored.
		5.4	Personal protective equipment removed, inspected, cleaned and stored.

RANGE OF VARIABLES

Machining operations may include:

- cutting
- boring
- milling
- turning
- forming
- shaping
- cutting of letters

Materials include:

- hard stone
- soft stone
- reconstituted stone

Work pieces are processed using/following straight edge or curved contours.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- procedures for computer controlled production

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- leather apron
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- dividers/wing compasses
- clamps
- squares
- scriber
- packers
- set spanners
- brushes
- brooms
- shovels

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of producing at least three separate components from separate operations of those listed within the range of variables. At least two separate types of material are to be used.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate processes, tools and equipment to carry out application tasks
- application of organisational quality procedures and processes within context of operating computer controlled machinery
- selection and correct application of program opening and shut down procedures
- data inputted to achieve requirements of job
- demonstrate sound procedures with machine operated through a reduced speed dry run to check functions and alarms
- demonstrate sound and safe techniques to set stone into place for machine operations
- demonstrate correct procedures in start up and shut down procedures for machining operations
- products produced to design in accordance with job specifications and drawings
- identification of faults or problems that may occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2001A Use static machines
- BCG3074A Carry out profile work

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of machines and machining processes
- computer controlled machinery
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- range of software applications appropriate to CNC equipment
- hardware requirements for programs
- materials and their characteristics
- measuring relevant to dimensions and shape
- tools and equipment relevant to setting up for machine operation processes
- use of machinery
- handling of material relative to stone work

Skills

The ability to:

- work safely
- use basic keyboarding skills
- use basic problem and fault finding skills with software applications
- prepare for work application
- set up software program
- use tools and equipment
- set up material for processes
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- CNC machinery applicable to proposed activity
- range of cutters and heads and required tools and equipment
- machining project and specifications relevant to activity
- data and software programs relevant to application activity
- material applicable to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	3	1	3	2	3

BCF3026A: Apply line and scroll

DESCRIPTOR

This unit applies to the applications to produce the setting out and application of materials that form a range of signage that depicts various forms of line and scroll work.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Specifications, drawings and instructions interpreted and job requirements and sequence determined.
		1.4	Shape and form of line and scrolls accurately checked from copy.
		1.5	Line and scroll layout set out using appropriate techniques.
		1.6	Colour selection determined, consistent with job requirements or to AS2700 Colour standards for general purposes.
		1.7	Tools, equipment and materials selected and used consistent with job requirements.
		1.8	Material quantities in accordance with size of sign and materials estimated to be used and listed.
		1.9	Substrates identified and prepared in accordance with planned application process.
		1.10	Material safety data sheets referred to as required.
2	Apply materials to layout	2.1	Appropriate personal protective equipment selected, correctly fitted and used.
		2.2	Material/substance applied to surface using application consistent with job requirements and layout of lines and scroll work.
		2.3	Linework and scroll work produced accurately to set out and specified colours.

3	Present work to client	3.1	Work presented to client to specification and relevant Australian Standards, if applicable.
4	Clean up	4.1	Tools and equipment cleaned, maintained and stored.
		4.2	Completed work cleaned, checked for protection/packed and transported/presented to client for approval.

RANGE OF VARIABLES

Signwriting application may include but is not limited to:

- spray/roller/brush application to substrate
- free hand brush application
- brush with lining or template guide

Reference documents may include:

- Relevant Australian Standards:
- AS2311 General Workmanship – Painting
- AS1319 Safety Signs for the Occupational Environment

Sign types include:

- signage containing lines and scroll work

Instructions may be verbal or written in directions related to job/tasks/colour.

Finishing of lines at ends may involve but are not limited to:

- square end
- bullnosed
- tapered
- curled
- arrowed

Materials may include but are not limited to:

- acrylic paint
- enamel paint
- waterbased paints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- preparation of surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety

- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- hazardous materials

Personal protective equipment may include:

- coveralls
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- drafting equipment
- brushes
- rollers
- spray equipment
- artists brushes
- lining fitches
- dagger liners
- quil liners
- pots
- stirrers
- templates
- straight edges
- guides
- scaffolding
- ladders
- planks

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective and accurate layout and application of substances to surfaces in forming line and scrolled outlines to a nominated sign.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identification of dimensions, symbols, abbreviations and key features of lines and scroll work used in signage
- demonstrate compliance with OH&S legislation applicable to workplace activity/operation
- indicate compliance with organisational policies and procedures including Quality Assurance within the context of signwriting lines and scrolls
- show sound preparation in checking all relevant reference information before preparing layout
- selection and use of appropriate processes, tools and equipment to carry out tasks
- identification and correct application of designed material to substrate
- demonstrate sound and accurate techniques to produce design to sign layout
- show appropriate techniques to identify and record colours
- demonstrate sound techniques to produce clean linework accurately to set out and specifications
- demonstrate sound techniques to produce clean scrollwork accurately to set out and specifications
- identification of typical faults and problems that occur and the necessary action taken to rectify

- interactive communication with client and others to ensure safe and efficient workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Lay out signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- design of lines and scroll work
- techniques in producing lines
- techniques in producing scroll work
- drawings and layouts for line and scroll work on surfaces
- materials relevant to drawings/specifications for scroll work on surfaces
- measurement and calculations related to material quantities
- symbols, dimensions and terminology relating to scroll work on surfaces
- brushes used in lines and scroll work
- Australian Standards - AS2311, AS1319
- use of tools and equipment relevant to line and scroll work
- colour selection
- measuring and setting out relevant to layout of signs

Skills

The ability to:

- work safely
- plan and organise work
- calculate quantities
- interpret drawings and specifications
- measure accurately
- transfer measurements from drawings to scroll work on surfaces
- use brushes effectively
- select and record colours
- prepare colour
- apply paint
- use tools and equipment
- effectively communicate verbally with clients and others within a team environment

(4) Resource Implications

The following resources should be made available:

- reference documentation relating to producing signs
- drawings and/or specifications relevant to proposed activity
- suitable work area
- tools and equipment relevant to signage application work
- range of materials appropriate to activity tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Competency in this unit may be determined concurrently based upon integrated project work.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3027A: Lay stair and floor surfaces

DESCRIPTOR

This unit applies to the preparing, laying and finishing of stone stairs and floors.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonework operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job material and equipment requirements determined from drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability
		1.6	Location of steps/stairs identified from job drawings.
		1.7	Location of stone floor identified and to dimensions from job drawings and specifications.
2	Prepare substrate to lay stone floors	2.1	Set out stone floor in accordance to job drawings and specifications.
		2.2	Datum line and level established for stone floor and step/stair surfaces.
		2.3	Area excavated to designed depth in accordance with specifications and maximum size stone.
		2.4	Allowance made for sub-base and bedding material.
		2.5	Sub-base laid to acceptable foundation and compacted in accordance with specifications.
3	Mark details on stone	3.1	Set out for stone steps/stairs.
		3.2	Rise and going for each step identified or calculated in accordance with Building Code Australia requirements.
		3.3	Position locations for face to treads and risers set out to dimensions for going and rise of step.
		3.4	Face location of profile of steps/stairs set out to specifications for finish.

- | | | | |
|---|--|-----|---|
| 4 | Lay stone | 4.1 | Stones selected for variance in shape to suit abutting blocks. |
| | | 4.2 | Starting point determined and first stone selected. |
| | | 4.3 | First stone individually bedded to finish level to proposed floor level according to specifications. |
| | | 4.4 | Stone selected, individually bedded with close joints to proposed finish level to specifications. |
| | | 4.5 | Individual bedding carried out by adding additional sand where required and compacting initially to specifications. |
| | | 4.6 | Profile of steps/stairs faced with like stone to designed pattern, straight and plumb to specifications, where applicable. |
| 5 | Lay regular stone on mortar adhesive bed | 5.1 | Concrete base poured to designed level and finished to specification. |
| | | 5.2 | Base set out to determine layout of stone to specifications. |
| | | 5.3 | Mortar materials prepared and mixed to specifications. |
| | | 5.4 | First stone laid to mortar bed and finished to designed level. |
| | | 5.5 | Stones laid individually to specified joints and tolerances in accordance with specifications. |
| 6 | Lay dressed stone | 6.1 | Close fitting stone finished by brushing in fine sand to specifications. |
| | | 6.2 | Stone laid for mortar joints cleaned to clear joints for finish. |
| | | 6.3 | Natural or coloured mortar mixed, applied and finished to joints in accordance with specified finish. |
| | | 6.4 | Surface cleaned removing spillage or waste mortar. |
| 7 | Finish stone floors/stairs | 7.1 | Layout of dressed stone identified from job drawings and specifications. |
| | | 7.2 | Materials checked for conformity to design and pattern where applicable. |
| | | 7.3 | Risers and treads laid in mortar/adhesive bed to specifications with allowance of 2-3mm fall to front edge of treads for water run off, where applicable. |
| | | 7.4 | Expansion joints determined in accordance with |

		specifications including non-corrosive metal strips
	7.5	Bedding material of adhesive or mortar identified from specifications.
	7.6	Mortar and/or adhesive prepared in accordance with manufacturer's specifications.
	7.7	Designed layout set out to job drawings and specifications.
	7.8	Stone laid to specifications to produce true level surface.
8	Clean up	
	8.1	Area cleared to specification.
	8.2	Waste and unwanted material disposed of safely.
	8.3	Unused materials stored/stacked.
	8.4	Stonework cleaned using dry, liquid or chemical means in accordance with type of stone laid.

RANGE OF VARIABLES

This unit applies to laying of stone floors and stairs.

Stone floors can include, but are not limited to:

- irregular stone floors
- regular stone floors
- stone tiles
- reconstituted stone.

Steps and stairs can include, but are not limited to:

- straight flight
- quarter and half space landings
- geometrical stairs.

Steps can include, but are not limited to:

- solid treads
- open flight
- veneer faced.

Base and bedding requirements differ in accordance with the type and size of stone sections and may include:

- compacted crushed rock
- concrete
- sand
- mortar

Method of finishing joints is dependent on type of stone and size of joints.

Types of stone may include but are not limited to:

- marble
- granite

- slate
- locally available stone

Work carried out in accordance with AS3700 Masonry in buildings.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- workplace environment and safety
- boots
- safety goggles/glasses
- ear plugs/muffs
- dust mask/respirators
- gloves.

Tools and equipment may include:

- measuring tape/rule
- mallet
- spirit level
- squares
- trowels
- mortar board
- screed board
- shovel
- masonry saws
- concrete mixer
- jointing tools
- brushes
- broom
- power leads
- wheelbarrow
- rollers
- lifting clamps.

EVIDENCE GUIDE

Competence is to be demonstrated by safe and effective laying of stone and construction of stone stairs/steps and floors to a nominated location.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- selection and use of appropriate processes, tools and equipment
- application of organisational quality procedures and processes within context of laying and fixing stone
- selection of stone and mortar consistent with specification of job required
- location of treads and risers marked out accurately
- safe and effective procedures adopted and used to handle and place stone
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations
- completion of steps/stairs and joints finished to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices
- BCG2001A Prepare surfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- stair design
- types of stone and characteristics
- fixing of stone work
- mortar mix composition
- range of mortar additives including plasticiser/s and/or application
- Building Code of Australia and AS3700 Masonry in Building
- plant, tools and equipment
- materials handling

Skills

The ability to:

- work safely
- interpret drawings and specifications
- use hand and power tools
- measure and calculate quantities appropriate to task
- select materials appropriate to task
- organise and set out work
- handle materials in safe manner
- communicate effectively

(4) Resource Implications

The following resources should be made available

- work location for construction of stone steps and stairs

- construction materials appropriate to construction of stone steps and stairs
- tools, plant and equipment appropriate to installation processes
- appropriate communication of documentation relative to task

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	2	1	1	2	1

BCF3028A: Write tickets and showcards

DESCRIPTOR

This unit applies to the preparation of designed layout and application of water-based paint to decorative outlines creating showcards or ticket signage.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Client instructions and drawings/specifications interpreted and job requirements and sequence determined.
		1.4	Layout set out to scale using setting out techniques appropriate to task.
		1.5	Tools, equipment and materials to carry out tasks consistent with job requirements selected and used.
		1.6	Material quantities estimated in accordance with size of work and materials to be used.
		1.7	Colour selection determined consistent with job requirements.
2	Apply materials to layout	2.1	Appropriate personal protective equipment selected, correctly fitted and used.
		2.2	Materials applied to surface using application consistent with job requirements and layout of ticket or showcard.
		2.3	Layout design produced to designed colours and specifications.
3	Present work to client	3.1	Work presented to client to specification instruction.
4	Clean up	4.1	Tools and equipment cleaned, maintained and stored.
		4.2	Completed work cleaned, checked for protection/packed and transported/presented to client for approval.

RANGE OF VARIABLES

Signwriting application processes may include but are not limited to:

- brush
- airbrushing
- roller application

Reference documents may include:

- client brief
- relevant Australian Standards

Sign types may include but are not limited to:

- signage containing basic numerals and lettering in different fonts
- signage containing logos, symbols, caricature and other decorative forms suitable for tickets and showcards

Materials may include:

- waterbased paints and other similar materials

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- drafting equipment
- brush
- rollers
- spray equipment
- artists brushes
- lining brushes/fitches

- pots
- stirrers
- straight edges
- templates/guides

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective and accurate layout and application of substances to a surface creating an illustrative form of signage for use in a temporary ticket and showcard format to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identification of dimensions, symbols, abbreviations and key features of signage
- demonstrate compliance with OH&S legislation applicable to workplace activity/operation
- indicate compliance with organisational policies and procedures including Quality Assurance within the context of writing tickets
- selection of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound and accurate techniques to produce design to sign layout
- demonstrate sound checking techniques to ensure spelling and dates are correct
- show appropriate techniques to identify and record colours
- demonstrate sound techniques to apply material to respective locations on design
- demonstrate sound and accurate application to produce design to colours and specification
- identification of typical faults or problems that occur and the necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Lay out signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- designs of signs
- decorative signwork
- techniques in producing decorative work
- workplace and equipment safety requirements
- drawings and layouts for tickets and showcards
- materials relevant to drawings/specifications for tickets and showcards
- measurement and calculations related to material quantities
- symbols, dimensions and terminology relating to signage
- brushes and applicators relevant to signage work
- use of tools and equipment relevant to decorative signage work
- colour selection
- measuring and setting out relevant to layout of signs

Skills

The ability to:

- work safely
- plan and organise work

- interpret drawings and documentation
- measure accurately
- calculate quantities
- transfer design from sample or client brief to layout
- use brushes effectively
- select and record colours
- prepare colour
- apply paint
- use tools and equipment
- effectively communicate verbally with client and others associated with design work

(4) Resource Implications

The following resources should be made available:

- reference documentation relating to producing tickets or showcards
- drawings and/or specifications relevant to proposed activity
- suitable work area
- tools and equipment relevant to activity tasks
- range of materials appropriate to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of application to tasks
- inspection of final product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3029A: Apply water gilding - glass

DESCRIPTOR

This unit applies to the application processes in preparing background surfaces, masking, drafting sign design and applying gilding material to sign face.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from client's brief, drawings and specifications/instructions.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with needs of job and used.
2	Prepare background surface of sign	2.1	Correct equipment selected and used for preparation of surface.
		2.2	Surface made suitable for the application of size or paint for gilding.
		2.3	Protection applied to surrounds of application area, where applicable.
3	Identify and draw to scale various types of lettering and decorative forms of signage	3.1	Drafted designs set out and drawn to appropriate scale.
		3.2	Designs transferred to prepared surface either directly or by using templates.
		3.3	Decorative process applied to create desired finish to specifications.
4	Apply gilding to sign	4.1	Gilding size prepared and mixed with colour added as designed in accordance with specifications.
		4.2	Size applied carefully to surface using appropriate

		application to contain within design.
	4.3	Method of gilding to size, determined.
	4.4	Gilding material applied to size using appropriate rubbing techniques and ensuring no gaps and design shape covered.
	4.5	Applied leaf burnished to ensure loose particles removed.
	4.6	Design shapes trimmed carefully, where applicable and appropriate cleaning procedure and materials selected and applied to clean surface.
5	Clean up	
	5.1	Waste and unwanted material disposed of safely.
	5.2	Re-useable and recyclable materials salvaged and stored
	5.3	Tools and equipment cleaned, maintained and stored
	5.4	Personal protective equipment removed, inspected, cleaned and stored

RANGE OF VARIABLES

This unit applies to the use of water based gilding materials.

Gilding materials may include but are not limited to:

- enamel paints or suitable paints for glass
- loose leaf metals
- waterbased size

Gilding leaf materials include:

- gold
- silver
- aluminium
- dutch metal
- copper

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- preparation of surfaces
- procedures for gilding

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety

- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- hazardous materials

Personal protective equipment may include:

- coveralls
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- range of brushes
- rollers
- straight edges
- drafting instruments
- pots
- tweezers
- cotton wool pads

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective use and application of gilding materials to lettering shapes and other decorative forms of signage to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S legislation applicable to workplace operations
- application of organisational quality procedures and processes applied within context of applying gilding
- selection and use of appropriate tools, equipment and processes to carry out the tasks
- demonstrate sound procedures to prepare surface for gilding process
- demonstrate sound and accurate techniques to produce sign design to location
- display sound understanding of requirements and prepare size for application
- carry out spell check of sign to ensure correct
- demonstrate sound procedures to accurately apply size to designed shapes
- demonstrate correct techniques in handling, preparing and placing gilding material to size
- demonstrate sound techniques to trim applied gilding to design shapes and clean surface
- completion of gilding to finish design of sign to specifications
- identification of typical faults and appropriate remedial action taken to rectify problem

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Lay out signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- gilding materials and their characteristics
- gilding techniques
- preparation of surfaces
- designs and layout of signs
- workplace and equipment safety requirements
- drawings and specifications
- traditional and contemporary font styles
- design transfer method
- types of leaf for gilding
- measuring and setting out relevant to layout of signs
- use of tools and equipment relevant to applying water gilding
- handling materials relevant to gilding operations
- preparation of materials for gilding
- finishing techniques with gilding

Skills

The ability to:

- work safely
- interpret drawings and documentation
- prepare for work application
- use tools and equipment
- draft design of sign to scale
- prepare surfaces
- transfer design to location
- prepare materials
- apply gilding materials
- finish surfaces

(4) Resource Implications

The following resources should be made available:

- work location for proposed activity
- tools and equipment appropriate to activity tasks
- working drawings and specification relevant to activity
- materials applicable to the proposed activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria or at the completion of the process.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	2	1	2	1

BCF3030A: Screen print

DESCRIPTOR

This unit applies to the application tasks in preparing screens and applying paint to signfaces creating decoratively designed signs.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Job requirements identified from drawings and specifications/instructions and/or client's brief.
		1.2	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.3	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.4	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.5	Appropriate personal protective equipment relevant to job requirements selected and used safely.
		1.6	Materials, tools and equipment selected in accordance with job requirements and used.
		1.7	Design for printing identified and accurately reproduced for screen face.
		1.8	Material for screen face marked by transferring design and cut accurately to set out shape.
		1.9	Colours of paint or ink selected and tested to match specification.
		1.10	Multiple screen printing identified and number of screens required, determined and produced to specifications.
		1.11	MSDS requirements determined and followed.
2	Screen print	2.1	Stencils/screens prepared and manufactured to job specification.
		2.2	Material to be screen printed, prepared and located to position for printing.

		2.3	Paint or ink prepared to specifications ready for application.
		2.4	Printing process set up for operation with material and screen aligned to specification.
		2.5	Screens printed to achieve accurate registration in accordance with job specification.
3	Identify and solve problems	3.1	Painting application problems and faults solved by reference to painting manuals/manufacturer's instructions.
4	Maintain equipment and tools	4.1	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to screen printed signage, which may include:

- letters shaped to different fonts
- symbols, ensignias, logos
- decorative designed sign
- ink types appropriate to task
- mesh types appropriate to task
- substrate materials appropriate to task

Verbal/written instructions include directions or instructions related to job/task.

Operations may include:

- drafting layout of design
- transference of design to screen material
- shaping or forming various materials used as stencils in the screen printing process
- constructing or fabrication of screen
- setting up printing process
- printing

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include but are not limited to:

- boots
- safety glasses/goggles
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- drafting instruments
- hammer
- cutting knife
- hand saw
- square
- rollers
- work bench
- pots
- stirrers

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of preparing screens to a decorative design and screen printing of a sign surface to produce sign to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S legislation applicable to workplace operations
- selection and use of appropriate processes, tools and equipment to carry out the tasks
- application of organisational quality procedures and processes within context of applying screen printing
- demonstrate sound procedures to accurately reproduce a design for screen printing
- display sound techniques to transfer design to material for screen
- demonstrate accurate and safe techniques to cut screen design to shape
- demonstrate sound and safe procedures to construct screen ready for printing
- display sound techniques in identifying and recording colours
- demonstrate application of material accurately to sign surface for printing
- demonstrate sound techniques to apply paint/ink to print from screen
- identification of typical faults and appropriate remedial action taken to rectify problem

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Lay out signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- screen printing
- designs of signs
- layout of signs
- workplace and equipment safety requirements
- drawings and specifications
- traditional and contemporary font styles
- manufacture of screens
- design transfer method
- cutting of designs for screens
- handling materials related to manufacture of screens
- measuring and setting out related to layout of signs and manufacturing of screens
- use of tools and equipment relevant to manufacture of screens
- colour selection

Skills

The ability to:

- work safely
- interpret drawings and specifications
- prepare for work application
- apply paint/ink for screen printing
- use tools and equipment
- draft design of sign to scale
- set out screen material
- cut designs accurately
- measure and set out
- manufacture screens

(4) Resource Implications

The following resources should be made available:

- appropriate work area
- tools and equipment appropriate to activity tasks
- working drawing and specifications relevant to activity
- materials applicable to activity processes

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria or at the completion of the process.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting

Assessment shall be while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3031A: Apply metal decorative finish

DESCRIPTOR

This unit applies to the different forms of application treatment to produce decorative effects on metal finishes of sign surfaces.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Job requirements identified from drawings and specifications and/or client's brief or instructions.
		1.2	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.3	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.4	Finished decorative effect determined from job requirement and specification.
		1.5	Safety hazards identified and correct procedures used to reduce hazards to self and others.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Job activities and sequence planned in conjunction with others involved or affected by work.
		1.8	Materials, tools and equipment selected in accordance with job requirements.
		1.9	Material Safety Data Sheet requirements determined and followed.
		1.10	Environmental effects of materials determined in accordance with job requirements.
2	Apply decorative effect	2.1	Designed shape/s or sign features transferred accurately to material to specified location for decorative application.
		2.2	Decorative effect created using various tools, equipment and materials in accordance with their specified application processes and job requirements.
		2.3	Where relevant, protective finish applied in accordance with job requirements.

3	Clean up	3.1	Decorative effect cleaned according to job requirements.
		3.2	Tools and equipment cleaned, maintained and stored.
4	Pack and Store	4.1	Where relevant, structure with decorative effect carefully packed, protected and stored using appropriate methods and materials.

RANGE OF VARIABLES

Applies to all metal finish signage to be created using decorative effect applications.

Material surfaces to be treated for decorative finish include:

- mild steel sheet
- zincneal
- aluminum
- brass
- copper

Verbal/written instructions include directions or instructions related to job/task.

Materials used in application to surfaces include but are not limited to:

- abrasive paper
- polishing compounds
- solvents
- acids
- powder

Tools and equipment used in application techniques to surfaces include:

- cutting equipment
- hand tools
- electrical filer
- grinders
- heat treatment equipment ie. oxyheat guns
- baking ovens
- power sanders

Method of applications of decorative effects can include:

- aged effect on brass using acid wash
- rag wash
- grind and oxy effect to mild steel
- finish

Use of hazardous chemicals and treatment of metal surfaces must conform to:

- Australian Standards: AS3780- The storage and handling of corrosive substances and AS1627- Metal finishings-Preparation and pretreatment of surfaces

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment to support processes may include but are not limited to:

- measuring tape/rule
- hammers
- files
- brushes
- pots
- stirrers
- material pads
- cold chisels
- clamps
- brooms
- portable polishers
- spray equipment

Safety hazards may include but are not limited to:

- working with acids
- metal particles
- dust
- heating equipment
- handling equipment
- handling materials
- other work personnel
- toxic fumes

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of identifying at least two recognised finishes and carrying out signage metal decorative finishes to at least two separate types of materials from those listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of applying decorative finishes
- correct identification of separate types of decorative and ornamental finishes
- identification of designed decorative/ornamental finishes to be applied in application projects
- identification and selection of required materials and/or components for project
- selection and use of appropriate processes, tools and equipment to carry out tasks
- appropriate and accurate setting out of materials and location for placement
- safe and effective operational use of tools, power tools and equipment
- appropriate and efficient applications applied to finish work to specified finish
- identification of typical problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG2001A Prepare surfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- metals and their properties
- decorative finishes
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- organisation's Quality Assurance requirements
- materials and their characteristics relevant to metals and decorative finishes
- reactionary effects on metals
- measuring and setting out related to areas and shapes for decorative finishes
- use of tools and equipment relevant to applying decorative finishes to metals
- handling of materials relevant to metal sheets, plate and sections
- Australian Standards - AS1627, AS3780
- handling of hazardous materials

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use tools and equipment

- set out material
- secure material for application work
- handle materials safely
- apply materials to surfaces
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- suitable work area
- workplace operation appropriate to processes
- materials/components appropriate to proposed activity
- drawings and specifications relevant to the activity
- tools and equipment appropriate to activity tasks

(5) Method of Assessment

Competency should be assessed while tasks are undertaken

Assessment may involve:

- observation of work processes
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria or at the completion of the process.

(6) Context of Assessment

Competency should be assessed in the workplace or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	1	2

BCF3032A: Mould plastic formed signs

DESCRIPTOR

This unit applies to the production of moulded plastic forms involving the construction of decorative moulds including thermo-forming methods and using moulding machinery.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Job requirements determined from specifications and/or given instructions.
		1.2	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.3	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.4	Machine set up and adjusted for operation using operator's manual and manufacturer's specifications.
		1.5	Pre-heat temperature set for operation in accordance with operator's manual.
2	Construct mould	2.1	Work requirements determined from drawings and specifications.
		2.2	Dimensions transferred from drawings and specifications to work application.
		2.3	Appropriate template material chosen.
		2.4	Relevant codes, standards and symbols interpreted for mould template.
		2.5	Template produced in accordance with details from drawings and specifications.
		2.6	Material wastage minimised.
		2.7	Correct labelling and storage procedures followed.
3	Determine materials and equipment to be used	3.1	Mould selected for job requirements.
		3.2	Materials, tools and equipment selected consistent with job requirements.
		3.3	Sheet size of material determined and cut to ensure

		minimum waste.
	3.4	Correct cooling time of plastic determined in accordance with job requirements.
4	Set machine	
	4.1	Machine set to required specifications in accordance with operator's manual.
	4.2	Materials and safety guards positioned in accordance with operator's manual.
	4.3	Forming temperature set to specifications and operating manual.
5	Operate machine	
	5.1	Machine safely started up and shut down in accordance with operator's manual.
	5.2	Forming procedures followed in accordance with operator's manual.
	5.3	Cooling time applied to form in accordance with operator's manual.
	5.4	Form removed from mould with appropriate release tools.
6	Clean up mould and formed work	
	6.1	Form correctly cleaned and trimmed.
	6.2	Form glued in accordance with job requirements and specifications.
	6.3	Equipment and materials maintained, cleaned and stored.
	6.4	Waste materials removed and disposed of according to EPA requirements.
	6.5	Labelling/storage of moulds according to Quality Assurance procedures.

RANGE OF VARIABLES

This unit applies to production of plastic forms using thermo forming methods and factory moulding machinery.

Given instructions related to job/task may include:

- verbal instruction

- written notes
- sketches

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- operation of machinery

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of machinery

Materials may include but are not limited to:

- polycarbonates and acrylics.
- expanded PVC
- styrene

Types of moulds and templates include:

- timber
- metal
- cast-resin

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators

Tools and equipment may include:

- measuring tape/rule
- range of general hand and power tools
- trowels
- brushes
- levelling equipment
- tools associated with machine operations
- trimming knives

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the safe and effective construction of decorative moulds to form plastic signs to at least two (2) separate nominated applications in accordance with the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures and processes within context of moulding of plastics
- identification of details of proposed decorative moulding to be produced
- selection and use of appropriate processes, tools and equipment to carry out tasks
- selection and use of sound and accurate procedures to produce template to design requirements
- safe and effective procedures used to construct moulds to design
- demonstrate correct and safe procedures to set up and operate moulding machinery
- demonstrate sound techniques to remove formed plastic from mould and trim or finish to specifications
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCF2004A Lay out signs

Competency may be concurrently assessed with:

- BCF3063A Fabricate plastic signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- moulding with plastics
- manufacturing of plastic component
- design of fabricated plastic signs
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- moulding machinery
- Australian Standards relevant to quality and durability of plastics in signs
- templates and moulds related to production of plastic signs
- working drawings and specifications
- measuring and setting out relevant to preparation of templates and moulds
- materials and their characteristics relevant to plastic formed signs
- use of tools and equipment relevant to processes for moulding plastic signs
- adhesives relevant to manufacture of plastic signs
- cleaning and trimming

Skills

The ability to:

- work safely
- read and interpret drawings
- organise work
- use tools and equipment
- measure and transfer dimensions
- set up and operate machinery
- prepare templates and moulds
- clean and trim moulded forms
- use adhesives

- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- work area suitable for designed activity
- mould construction materials appropriate to activity
- drawings and specifications relevant to the task
- machinery appropriate to the designed activity
- tools and equipment appropriate to the activity tasks

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency shall be assessed while work is undertaken.

Competence should be assessed under general guidance checking at various stages of the process and at the completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace environment.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	2	3	2	1	1

BCF3033A: Deliver and install signs

DESCRIPTOR

This unit applies to the application processes in installing illuminated signs to their locations. Associated with the process is the testing of lighting systems and internal wiring which must be carried out by qualified persons.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Inspection of work site and wiring systems to be tested is carried out to establish completed work.
		1.4	Job activities and sequence planned in conjunction with others involved or affected by work.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
2	Prepare the worksite	2.1	Worksite prepared in conjunction with others involved or affected by work and the processes to be carried out.
		2.2	All necessary and appropriate tools and work platforms selected and safely used.
3	Install sign	3.1	Delivered sign handled and moved in accordance with the size and type of sign, packaging and location to be installed.
		3.2	Sign installed to location in accordance with designed structural support and fixing to specifications.
		3.3	Sign installed to designed location, plumb and level or otherwise in accordance with specifications for installing and wiring.
4	Check wiring systems	4.1	Arrangements made for wiring to be tested in accordance with AS3000-1991 Electrical installations - Buildings, structures and premises and AS3100-1997

		Approval and test specification - General requirements for electrical equipment.
	4.2	Wiring system inspected for damage or signs of deterioration.
	4.3	Test results and observations accurately and concisely documented.
	4.4	Test results and observations interpreted to confirm wiring system compliant to manufacturer's specifications.
5	Arrange connection and testing of lighting system	5.1 Arrangements made for wiring to be connected to appropriate transformer in accordance with AS3000 and AS3100, local wiring regulations and supply authority requirements.
		5.2 Arrangements made for lighting system to be tested to ensure safe installation and operation in accordance with AS1201, 1680, 3100, 3137 and 3168.
6	Clean up area	6.1 Installation area cleaned and all waste removed.
		6.2 Tools and equipment removed and stored.

RANGE OF VARIABLES

This unit applies to installation of neon and fluorescent lighting units for signs and it includes manufacture/signs with plugs, bad connections and those requiring installation of wiring. All wiring installation and electrical testing requirements to be carried out by persons qualified in accordance with State/territory regulatory authorities.

Components include:

- transformers
- ballasts
- capacitors
- starters
- wire
- power units
- open circuit monitors (OPMs)

Documentation may include but is not limited to:

- testing procedure and risk management documentation
- appropriate Australian Standards and wiring diagrams
- wiring compliance specifications

Australian Standards applicable to installation work and testing carried out by a qualified person include:

- AS3000 Electrical installation - Buildings, structures and premises
- AS3100 Approval and test specification - General requirements for electrical equipment
- AS1201 Tubular fluorescent lamps for general lighting service
- AS1680 Interior lighting

- AS3137 Approval and test specification - Luminaries (lighting fittings)
- AS3168 Approval and test specification - Fluorescent lamp ballasts

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- regulatory requirements
- testing procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- working with electrical installations

Personal protective equipment may include:

- boots
- safety glasses
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- spirit level
- multi purpose pliers
- screwdrivers
- hammers
- power drills
- electrical multi meter
- shifting spanners
- set spanners
- scaffolding
- ladders
- trestles and planks

Installation locations include but are not limited to:

- top of buildings
- open land (freestanding)
- facades of buildings
- suspended from awnings (external)
- suspended from ceilings
- walls of buildings (internal and external)
- freestanding internal

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of carrying out the installation of assembled neon/fluorescent signs to at least two (2) separate situations in accordance with the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes applied within context of installing illuminated signs
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound and safe techniques to install and secure sign to location
- selection and use of sound procedures to ensure sign aligned and stable to position
- compliance with wiring and test procedures confirmed according to manufacturing specifications
- identification of faults or problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2006A Construct a sign
- BCF2007A Install signs
- BCF2008A Sign site survey

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- electrical sign construction
- installing of signs
- workplace equipment and safety requirements including relevant statutory regulations, codes and standards
- schematic and wiring diagram and operation of lighting systems
- drawings and specifications/documentation
- use of tools and equipment relevant to installation of electrical signs
- measuring and levelling relevant to installation of signs
- materials and their characteristics relevant to electrical sign construction and installation
- fittings and fasteners relevant to installation of signs

Skills

The ability to:

- work safely
- plan and organise work
- use hand and power tools
- install signs to location
- interpret drawings and documentation
- use tools and equipment
- solve problems
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- appropriate installation location
- appropriate materials to support proposed activity
- documentation, drawings and procedures relevant to activity
- sign designed for location
- tools and equipment appropriate to activity tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of work processes
- inspection of product
- questioning relating to underpinning knowledge

Assessment may be by intermittent checking at the various stages of the job application or at the completion of the activity in accordance with the performance criteria and specifications.

(6) Context of Assessment

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

Competency may be assessed in the workplace or simulated workplace setting.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	3	1	3	1	2

BCF3034A: Set out and cut letters in stone

DESCRIPTOR

This unit applies to hand applied skills involving the use and adaptation of methods and equipment for the production of a range of letters and fonts set in stone or similar material.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised adhered to.
		1.3	Appropriate personal protective equipment selected consistent with requirements of job.
		1.4	Job requirements identified from client's brief, drawings and specifications, and followed.
		1.5	Tools and equipment selected to carry out tasks consistent with job requirements.
		1.6	Stone selected for quality, grain and dimensions to suit job specifications.
		1.7	Surface for lettering prepared for setting out process in accordance with type of stone and specifications.
2	Set out for lettering	2.1	Drafting skills used to accurately set out designed lettering to full size for transference to work surfaces.
		2.2	Fonts appropriate to cemetery monuments set out to design requirements.
		2.3	Fonts set out appropriate to architectural settings.
		2.4	Fonts set out to suit a variety of commercial (signage) applications.
		2.5	Appropriate applications identified for variety of fonts, identified and set out.
		2.6	Set out lettering, accurately transferred to stone face by use of appropriate transfer method.
3	Cut and form traditional and contemporary letters	3.1	Raised letters cut and formed in stone to set out designed shapes.

		3.2	Flush letters cut and formed in stone to set out designed shapes.
		3.3	'V' formed letters cut and formed in stone to set out designed shapes.
		3.4	Decorative ornamental work in lettering cut and formed in stone to set out designed shapes.
4	Cut and form innovative forms of lettering	4.1	Innovation in design and technique for working letters in stone, developed and drafted into set out.
		4.2	Drafted design transferred to prepared surface by an appropriate method.
		4.3	Lettering cut and formed in stone to designed shapes and style of cut
5	Clean up	5.1	Final stone finish cleaned to specification.
		5.2	Waste material disposed of according to EPA requirements.
		5.3	Tools cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to hand operations in cutting and forming letters in stone which may involve:

- hand tools
- pneumatic tools

Lettering repertoire may extend beyond recognised fonts to include symbols, iconography, heraldry etc.

Stone materials may include but are not limited to:

- granite
- marble
- slate
- reconstituted stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- finishing of stone surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety

- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- hazardous materials

Personal protective equipment may include:

- boots
- safety glasses
- ear plugs/muffs
- dust masks/respirators
- gloves
- leather apron
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- drafting equipment
- squares
- power grinder
- mallets
- lettering chisels
- sculptors chisels
- pneumatic lettering chisels
- pneumatic chisels
- scribes
- masonry drill
- clamps
- punch

Methods of preparing surfaces for lettering may include:

- dressing
- sandblasting
- milling or cutting
- polishing
- painting surface for setting out

Methods of transferring drafted designs may involve:

- templates
- direct drafting
- stencils
- tracings
- or computer aided design equipment may assist setting out ie. vinyl cut out

Templates or stencils may be made of:

- cardboard
- zinc sheet
- aluminium sheet
- plywood
- plastic sheet

EVIDENCE GUIDE

Demonstration of competence in this unit should involve the use and adaptation of methods and equipment used for producing a range of letters and fonts formed in stone or similar material.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of lettering in stone
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound and accurate techniques to draft lettering to designed requirements
- preparation of face for lettering, carried out to surface finish and setting out specifications
- accurate setting out of letters to form balanced presentation
- spelling checked prior to transference or cutting processes
- demonstrate sound and accurate techniques to transfer design to stone face
- demonstrate correct procedures and sound techniques to use tools and equipment to produce lettering to design
- attention given to provide protection to surrounding area during application processes
- completion of lettering and finish of surface to design and specifications
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG2012A Make set outs
- BCF3035A Dress and mould stone
- BCF2003A Finish stone
- BCG3074A Carry out profile work

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- traditional and contemporary font styles
- types of stone and their characteristics
- methods of working stone
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- portable power tools relevant to stonework
- use of tools and equipment relevant to dressing stone and processes for cutting letters
- drawings and specifications
- materials handling whilst operating tools
- lettering techniques relevant to stonework
- drawing and sketching
- measuring and setting out related to layout of signs or lettering
- making of stencils and templates

Skills

The ability to:

- work safely
- organise work

- measure and set out work
- interpret drawings and specifications
- use tools and equipment
- work stone
- make templates and stencils
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- materials relative to the activity
- hand and power tools appropriate to activity tasks
- plant and equipment appropriate to activity tasks
- suitable work area appropriate to activity
- appropriate drawings, documentation and drawing/sketching equipment relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge
- inspection of product

Assessment may be by intermittent checking at various stages of the job application or at the completion of the activity in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	1	1	2

BCF3035A: Dress and mould stone

DESCRIPTOR

This unit applies to the preparing and finishing of simple mouldings in hard or soft stone.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements in accordance with worksite operations and safety of personnel, public and environment recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications or detailed sketches and instructions provided by supervisor.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Tools, equipment and work space selected consistent with requirements of the job, checked for serviceability and faults reported to supervisor.
		1.6	Information relating to size, shape and finish collected from available sources.
		1.7	Working drawings prepared as required at each stage of job.
		1.8	Materials selected in accordance with specifications and job.
2	Prepare stone for dressing	2.1	Stone checked for defects or natural inclusions considered inappropriate for job.
		2.2	Dimensions of stone checked for accuracy as required by job and specifications.
		2.3	Bedding plane checked (where relevant) for correct orientation to suit function and location of finished job.
3	Mark details on stone	3.1	Templates applied square to stone or appropriate to job requirements.
		3.2	Templates marked on adjacent ends of stone.
		3.3	Placed templates checked for twist/wind to ensure stone marked out true.
		3.4	Required template details scribed or marked so lines remain indelible for duration of job.

4	Dress a simple moulding	4.1	Mouldings dressed in a staged sequence of fillets and chamfers, or as required by job.
		4.2	Each stage of dressing marked out accurately and as required by job before proceeding with dressing.
		4.3	Each stage checked upon completion for accuracy before proceeding.
5	Finish moulded stone surfaces	5.1	Stone surfaces finished using chisels or other hand tools as required by job and specifications.
		5.2	Abrasives used to finish surfaces if required by job and specifications.
6	Clean up	6.1	Stone cleaned using water and brush or other appropriate non-corrosive method.
		6.2	Tools and equipment cleaned, maintained and stored.
		6.3	Work area cleared and waste materials disposed of in an appropriate manner and in accordance with EPA requirements.
		6.4	Templates cleaned, labeled and stored for reuse.

RANGE OF VARIABLES

A range of simple mouldings may include:

- straight sections
- curved segments
- ashlar stopped with external mitre
- internal mitres
- pediment springers
- ramp and twist

Moulding types may depend on local industry requirements, existing heritage structures or other factors.

Types of stone include but are not limited to:

- marble
- granite
- sandstone
- basalt (blue stone)
- igneous rock

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials

- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- control of dust
- noise control

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- cap
- leather apron
- tools and equipment may include but are not limited to:
- measuring tape/rule
- dividers/wing compasses
- scribes
- squares
- hammers
- chisels
- power grinder
- portable cutter/grinder
- pneumatic chisels
- clamps
- power leads
- straight edge
- pitching tools
- tooth chisels
- punches
- bevels
- cocks combs
- drags
- brushes

Templates may be made of:

- cardboard
- zinc sheet
- aluminium sheet
- plastic
- plywood

Supervisors instructions and reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of dressing stone to at least three simple moulds of those listed in the range of variables in both hard and soft stone.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of dressing stone
- selection and use of appropriate processes, tools and equipment consistent with the requirements of tasks
- sound and accurate techniques used to set out and prepare stone for dressing processes
- demonstrate sound techniques in the dressing of both hard and soft stone
- display sound application processes in sequencing of tasks associated with the shaping of stone
- adoption and use of accurate techniques to set out stone and set up templates to mark mould
- safe and effective procedures adopted and used to dress and shape stone
- completion of mould to designed shape and surface finish

(2) Pre-requisite Relationship of Units

This competency may be assessed concurrently with:

- BCG2012A Make set outs

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1003A Read and interpret drawings
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- types of stone and their characteristics
- methods of dressing stone
- materials handling associated with stonework
- working drawings and specifications
- templates for stonework
- regulations related to safe disposal of waste and dust suppression
- tools and equipment relevant to dressing of stone
- measuring and marking relevant to stonework.

Skills

The ability to:

- work safely
- organise work
- use hand tools and equipment

- identify stone
- use manual handling techniques relevant to stonework
- interpret drawings and specifications
- use templates and set out work
- dress stone
- effectively communicate verbally with others, working in a team situation.

(4) Resource Implications

The following resources should be made available

- hand tools and equipment appropriate to tasks
- working drawings, specifications and templates relevant to tasks
- workshop and related equipment appropriate for required activity
- stone appropriate to the relevant tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Competency may be determined concurrently based upon integrated project work.

Competency should be assessed through direct observation and questions related to underpinning knowledge.

Evidence should be collected over time allowing for demonstration in a range of workplace activities.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment should be under intermittent supervision as part of a team or individually.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	2	1	2	2	1

BCF3036A: Shift materials manually

DESCRIPTOR

This unit applies to the shifting of materials by manual handling methods including using a range of equipment appropriate to the materials to be moved.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from type of material to be shifted and distance to be moved.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Safety and protective requirements for work personnel, public and environment determined.
		1.6	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.7	Manual assistance required with shifting of material identified and used, where applicable.
		1.8	Area checked to ensure space is clear and available for movement and storage as required by job.
2	Manually handle material	2.1	Material assessed for length, bulk and weight to determine means of handling and shifting.
		2.2	Packs of material broken where applicable, to allow handling and moving of a number of or single items at a time.
		2.3	Heavy materials identified and handled in appropriate manner, dependent on size and finish of material.
		2.4	Lifting and carrying of material, carried out using correct safe manual handling techniques.
3	Shift material using tools and equipment	3.1	Bulky or heavy material assessed for best means of raising and moving using tools and equipment.

	3.2	Material raised and temporarily supported, where applicable, using appropriate tools and equipment.
	3.3	Material moved safely by skidding or use of rollers using appropriate tools and equipment, where applicable.
	3.4	Material moved safely by use of trolleys, where applicable.
	3.5	Material stored or stacked to relocated position, where applicable.
	3.6	Manual handling principles applied using appropriate tools and equipment to manoeuvre heavy material into required position.
	3.7	Manual handling and movement of material carried out avoiding damage to material and handling equipment.
4	Clean up	
	4.1	Site cleaned and cleared of debris and unwanted material.
	4.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Materials to be shifted may include:

- timber sections
- rolled steel sections
- light steel sections
- aluminium sections
- plywood
- particle board
- medium density fibreboard (mdf)
- veneered sheet
- metal sheet
- bagged material - cement, lime
- drum material - adhesives, sealants
- stone
- reconstituted stone
- glass

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- storing and stacking of material
- protection of finished surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap
- leather apron

Tools and equipment to assist in handling operations may include but are not limited to:

- measuring tape/rule
- crow bars
- pallet trolleys
- hand trucks
- slab trolleys
- flat bed hand trucks
- levers
- rollers
- incline planes
- chain blocks
- packers
- wedges
- chains
- slings
- cables

Packs of material may include:

- timber sections
- aluminium sections
- light steel sections
- sheet material - plywood, particle board, etc

Work may be carried out individually or working with a partner or as part of a team.

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of shifting material related to the work orientation using at least three separate pieces of equipment of those listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S requirements applicable to workplace operations
- apply organisational quality procedures and processes within context of handling and protecting material
- selection and use of appropriate tools, equipment and processes consistent with requirements of handling and moving material
- selection and use of appropriate processes, tools and equipment to store material
- indicate sound considerations for lift/move appropriately planned and pathway checked for obstructions
- demonstrate sound positioning of lifting device to ensure stability of load
- demonstrate sound procedures to lift/move material without damaging face surfaces
- indicate correct techniques to prepare drop or placement area using packers or spacers to receive material
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1011A Handle construction materials and safe disposal of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of material and their characteristics
- company's quality assurance requirements related to handling of materials
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- handling operations for different types and forms of material
- storing requirements for different materials
- use of tools and equipment relevant to shifting material
- lifting equipment relevant to manual handling operations
- measuring and levelling relative to lifting and storing of materials

Skills

The ability to:

- work safely
- plan and organise work
- carry out measuring and levelling accurately
- use tools and equipment
- handle materials

- store materials to requirements
- effectively communicate verbally with others in a team environment

(4) Resource Implications

The following resources should be made available:

- tools and equipment appropriate for activity processes
- appropriate work area for proposed activity
- range of material and size appropriate for activity
- materials and instructions relevant to movement and storage task

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	1	2	2	2

BCF3037A: Set out and level

DESCRIPTOR

This unit applies to the setting out procedures to determine line, level, plumb to given alignment, offset, outlines or structure.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Requirements of job determined from instructions/drawings.
		1.2	Quality Assurance requirements of company's construction operations, recognised and adhered to.
		1.3	OH&S requirements for setting out and levelling recognised and adhered to.
		1.4	Relative reduced levels obtained, where applicable.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
2	Use automatic/spirit level to identify/determine levels	2.1	Relevant level identified at given point/datum.
		2.2	Automatic level, where applicable, set up to coordinate requirement ready for use.
		2.3	Levelling device used to transfer/check relevant level to/with other locations.
		2.4	Relevant heights measured and recorded.
3	Set out alignment to given co-ordinates	3.1	Location of coordinates to produce alignment identified from instructions/drawings.
		3.2	Relevant dimensions measured and marked along an alignment at specified locations to establish a grid.
		3.3	Chalk line or straight edge used to mark out line of grid.
		3.4	Line/grid checked for parallel requirement and adjusted where applicable.

4	Set up vertical levels	4.1	Heights to be transferred/established, identified.
		4.2	Horizontal levelling device correctly set up with clear sight lines.
5	Clean up	5.1	Equipment and tools cleaned, maintained and stored appropriate to manufacturer's recommendations.

RANGE OF VARIABLES

This unit applies to setting out and levelling procedures where a datum point given may be a wall or a RRK/benchmark marked on the floor.

Levelling devices may include but are not limited to:

- automatic level
- laser level (category 2)
- spirit level

Quality Assurance requirements may include:

- workplace operations and procedures
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- building line
- chalk line
- staff
- laser target

- straight edge
- scribe

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out two nominated separate setting out and levelling exercises using two separate levelling devices of those listed within the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- adoption and use of correct procedures prior to and during application of setting out and levelling processes
- demonstrate safe and effective operational use of tools and equipment
- selection and use of correct techniques to set up level for operational use
- correct procedures adopted and used to mark and record set outs and levels
- demonstrate sound techniques with care of levelling equipment in handling, use and storage
- interactive communication with others to ensure safe and effective worksite operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1004A Carry out measurements and calculations
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- levelling devices and equipment
- workplace and equipment safety requirements
- drawings and specifications
- setting out procedures
- use of levelling equipment
- tools and equipment related to setting out and levelling processes
- materials handling related to setting out processes
- measuring and levelling related to setting out processes
- measurement relative to materials and locations
- workplace communications
- recording of data

Skills

The ability to:

- work safely
- read and interpret drawings
- use tools and equipment
- use levelling equipment
- measure relative to setting out processes
- record information

- effectively communicate with others verbally and in written form related to exchanging setting out information

(4) Resource Implications

The following resources should be made available:

- work area appropriate to proposed activity
- levelling devices and equipment relevant to activities
- tools and equipment appropriate for activity tasks
- drawings and/or documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks, but may take the form of some autonomy when working as part of a team.

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	3	2	2	2

BCF3038A: Apply and trim decorative finishes

DESCRIPTOR

This unit applies to the processes in preparing and applying decorative and ornamental edgings and add ons as finishes to specified designs.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify types of decorative finishes	1.1	Types of decorative add ons and finishes, identified.
		1.2	Materials used to form/manufacture add ons, identified.
		1.3	Methods of fixing and finishing add ons, identified.
2	Identify preparation requirements and prepare for fixing	2.1	Quality Assurance requirement with company's joinery/stairbuilding operations, recognised and adhered to.
		2.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		2.3	Job requirements including materials determined from instructions/drawing and specifications.
		2.4	Appropriate personal protective equipment selected, correctly fitted and used.
		2.5	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
3	Carry out fixing processes and finishing techniques	3.1	Preparation requirements for fixing of add ons carried out to instructions/specifications.
		3.2	Decorative add ons fitted and fixed to instructions/specifications.
		3.3	Applied add ons trimmed and finished to specifications.
4	Clean up	4.1	Work area cleared and waste material disposed of safely.
		4.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to decorative and ornamental edgings and add ons used to provide finishes to a specified design.

Decorative and ornamental edgings and add ons include but are not limited to:

- mouldings
- brackets
- carving
- extruded sections

Add ons may be manufactured from:

- timber
- plastics
- aluminium
- stone
- marble
- medium density fiberboard (mdf)
- reinforced concrete
- plaster

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- bevels
- chisels
- hand saws
- saw stools

- power drills
- nail gun
- air compressor and hoses
- power leads
- clamps
- screwdrivers

Methods of fixing may include but are not limited to:

- nailing
- use of adhesives
- screwing
- dowel joint

EVIDENCE GUIDE

Competency is to be demonstrated by identifying at least four recognised finishes and carrying out the fixing and finishing of at least two separate types of material add ons from those listed in the range of variables.

(1) Critical Aspects and Evidence

Competency must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of applying decorative finishes
- identification of designed decorative/ornamental finishes to be applied in application projects
- identification and selection of required materials and or components for project
- selection and use of appropriate processes, tools and equipment for application tasks
- appropriate and accurate setting out of materials and location for placement
- safe and effective handling procedures adopted for movement and placement of material/component
- safe and efficient applications carried out to fix/secure add ons into place
- appropriate and efficient applications applied to finish work to specified finish
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2016A Prepare for off-site manufacturing process

This unit may be concurrently assessed with:

- BCF3024A Install internal lining

OR

- BCF3013A Assemble cabinets, showcases, wall units, counters and work stations.

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- decorative and ornamental finishes
- workplace and environment safety requirements
- drawings and specifications

- organisation's Quality Assurance requirements
- materials and their characteristics relevant to decorative edgings and add-ons
- measuring and setting out related to decorative finishes
- use of tools and equipment relevant to fitting and fixing decorative add-ons
- handling of materials relevant to decorative add-ons
- adhesives and sealants relevant to affixing of decorative edgings and add-ons
- fixings and fasteners relevant to affixing of decorative edgings and add-ons

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use tools and equipment
- fit and fix materials
- handle materials safely
- measure and set out material
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workplace location and unit associated with application tasks
- materials/components relevant to proposed activity tasks
- tools and equipment appropriate for activity tasks
- drawings and/or documentation relevant to designed activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the work process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	1	2

BCF3039A: Manufacture stair components - curved and geometric stairs

DESCRIPTOR

This unit applies to the manufacturing processes to prepare and manufacture components for the assembly of curved and geometric stairs.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's stairbuilding operations, recognised and adhered to.
		1.2	OH&S requirements for application tasks and workshop operations recognised and adhered to.
		1.3	Job requirements identified from design of stair, drawings and specifications.
		1.4	Materials selected, dressed and set out in accordance with stair design.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
2	Manufacture strings for geometric curves	2.1	Material prepared to designed structural requirements.
		2.2	Curved wall/profile constructed to curve design of stair.
		2.3	Developed pitch set out to curved wall/profile location.
		2.4	String manufactured in accordance with curved wall and set out to specifications.
3	Prepare strings for assembly	3.1	Strings set out for treads and risers with nosing marked accurately.
		3.2	Housings cut and waste removed accurately to set out and depth.
		3.3	Grooves or mortises to receive balusters run/carried out to set out requirements.
		3.4	Open strings cut to set out shape for treads and risers.

		3.5	Ends of strings cut to set out requirements for junction with newels/landing or left long for on-site fitting.
		3.6	String marked for identification where applicable.
4	Prepare post for spiral stair	4.1	Post manufactured and/or dressed to designed shape.
		4.2	Post set out to designed requirements of stair.
		4.3	Housings cut and made accurately to setout and required depth.
5	Prepare newels for assembly	5.1	Housings cut and made accurately to newel set out and required depth.
		5.2	Mortices cut and made accurately to set out and required depth.
		5.3	Newels marked for identification, where applicable.
6	Cut treads, risers and wedges to length and shape	6.1	Treads cut to designed length and shape.
		6.2	Risers cut to designed length and requirement for junction with string.
		6.3	Wedges marked to design and cut to shape and quantity.
7	Prepare balustrade components	7.1	Handrail manufactured to shape with groove run for balusters, where applicable.
		7.2	Mortises in handrail for balusters made accurately to set out.
		7.3	Balusters cut to designed length.
		7.4	Handrail cut to length and sections marked for identification, where applicable.
8	Finish surface and preassemble stair	8.1	Exposed surfaces of components sanded to specification for finish.
		8.2	Component parts checked to ensure will fit to specification.
		8.3	Components preassembled to ensure stair will assemble appropriately.
9	Clean up	9.1	Materials stacked/stored for transportation.
		9.2	Work area cleared and waste material disposed of

safely.

9.3 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the manufacturing processes applied to set out material to produce the components for the assembly of curved designed stairs.

Stairs include:

- curved
- spiral
- geometric

Stairs include both open or closed strings.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to machining processes

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- chisels
- hand saws
- saw stools
- power saws
- power drills
- router
- jig saw

- clamp
- work bench

Static machines suitable for manufacturing processes may include:

- spindle shaper
- docking saw
- mortiser
- buzzer
- band saw

Operation and safety considerations with static machines are to be in accordance with AS1473-Guarding and safe use of woodworking machinery.

Design of stairs to conform to the Building Code of Australia

Tasks within this unit associated with handling and holding processes will require the assistance of a partner.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out all the processes to produce all the types of components for assembly of at least two separate designed stairs in according with the range statement; one of which is to involve an open string and the other a closed string.

(1) Critical Aspects and Evidence

Competency must be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of manufacturing components for curved stairs
- identification of design of stair and details of component composition and design
- identification of methods of manufacturing, setting out techniques and material required
- selection and use of appropriate processes, tools and equipment to construct and manufacture components
- selection of appropriate material and safe and effective procedures to use machines and prepare material to initial requirements
- appropriate and efficient procedures adopted to construct curved strings to designed requirements
- correct procedures used in setting out and using machines, power tools and hand tools to mould and manufacture components to designed shape
- safe and efficient applications used to prepare all components for assembly
- appropriate checking of all component connections to ensure all joints will fit in assembling
- safe and effective handling procedures adopted for movement and placement of material/components
- identification of typical faults and problems that occur and necessary action to rectify
- interactive communication with others to ensure safe and efficient workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCF3003A Identify stair construction and factors governing stair design
- BCF3004A Set out stairs
- BCF3005A Manufacture stair components - straight flighted stairs

Competency of this unit may be concurrently assessed with:

- BCF3007A Manufacture and install continuous handrailing and special stair components

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stairs
- curved stair design
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- organisation's Quality Assurance requirements
- stair construction and joining methods
- construction of curved strings
- materials and their characteristics related to stair construction
- measuring and setting out relevant to curved stair construction
- use of static machines
- use of tools and equipment relevant to manufacturing of stair components
- handling of materials relevant to stair construction
- adhesives, fixings and fasteners related to stair construction
- identification marking
- Building Code of Australia

Skills

The ability to:

- work safely
- organise work
- use static machinery
- use tools and equipment
- handle materials safely
- work to set out material
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workshop location and appropriate workspace
- static machines appropriate for activity tasks
- set out material/components prepared for manufacturing processes
- tools and equipment appropriate for activity tasks
- drawings and documentation relevant to activity design

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the work process
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task application in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment

Assessment should be while tasks are undertaken either individually or with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	2	2	3	3

BCF3040A: Plan monument construction

DESCRIPTOR

This unit applies to the preparing of plans and specifications and the co-ordinating of the planning phase of monumental construction in cemeteries.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify design requirements for various monuments	1.1	Range of monuments covered by AS4204 Headstones and cemetery monuments, identified.
		1.2	Features and components involved in monumental construction, identified.
		1.3	Legislation, regulations and codes relating to masonry work identified.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Site features influencing design, identified from site visit/report.
2	Prepare plans and specifications for construction and installation	2.1	Foundation design selected in accordance with AS4204, proposed monument and foundations.
		2.2	Materials selected in accordance with regulations, site conditions and customer requirements.
		2.3	Quality Assurance requirements with company's monumental construction operations, identified and adhered to.
		2.4	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		2.5	Drawings and specifications prepared to requirements of approving authority, where applicable.
3	Check details, edit drawings and specifications for submission	3.1	Specifications and drawing details checked to ensure consistency with client brief and regulatory authority requirements.
		3.2	Documentation and drawings copied and distributed.

RANGE OF VARIABLES

This unit covers the design and documentation of cemetery monuments in accordance with AS4204 Headstones and cemetery monuments.

Stone for monuments include but are not limited to:

- granite
- marble
- basalt
- pre-cast concrete sections
- re-constituted stone

Design considerations include:

- design of monument
- type of stone
- footings for monument
- foundation material
- design for headstone
- design of side, front and back stones
- design of cover stone
- methods of joining
- method of assembling

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of designing a monument to a nominated or clients brief and completing the planning phase for monumental construction including liaison with the client.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate appropriate selection of available data consistent with requirements of activity
- applies organisational quality procedures and processes within the context of planning monumental construction
- information relating to site regulations/caveats and construction requirements gathered and addressed in planning process
- identification of burial site location on site drawing and location on site
- selection of materials in accordance with cemetery proposed monument and AS4204-1994 requirements
- construction fixing, fastening and finishing requirements specified with final design

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2009A Carry out concrete work
- BCF2000A Identify and use stone products

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- regulatory authorities and agencies controlling monumental construction
- design of cemetery monuments
- materials in monumental construction
- concrete footings
- soils and foundations
- Building Code of Australia
- AS4204 Headstone and Cemetery Monuments
- drawings and specifications
- workplace and equipment safety requirements
- measuring and levelling

Skills

The ability to:

- plan and organise work
- collate relevant information
- draft working drawings
- read and interpret plans and documentation
- communicate effectively
- provide documentation.

(4) Resource Implications

The following resources should be made available

- drawing equipment and appropriate workplace
- Australian Standards and Building Code of Australia
- brief relevant to the proposed activity
- cemetery data relevant to the design project

(5) Method of Assessment

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	1	3	2	2

BCF3041A: Cut and install glass

DESCRIPTOR

This unit applies to the preparation, cutting and installing of glass to frames using glazing methods including beads or mouldings.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workshop operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
		1.5	Sizes, thicknesses (less than 6.35 mm) and location determined from job drawings, specifications and glazing schedule.
		1.6	Openings to receive glass inspected for obstructions and clearances in accordance with standard operating procedures.
2	Select and install glass	2.1	Sheet/s of glass selected consistent with opening dimensions and glazing schedule.
		2.2	Glass marked, scored and snapped to size, where applicable.
		2.3	Glass installed into opening using appropriate glazing method in accordance with AS1288-1994 Glass in buildings - Selection and installation.
3	Maintain safe working area	3.1	Safe working area around glass installation maintained in accordance with site requirements and OH&S regulations.
4	Clean up	4.1	Recyclable material sorted and stored for collection.
		4.2	Glass surface and surrounding frame cleaned and cleared of waste material according to job

specifications.

- 4.3 Loose debris and waste material removed and disposed of safely.
- 4.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the installation of glass in an off-site environment.

Installation of glass may be to:

- joinery units
 - windows
 - sashes
 - doors
- shopfitting fitments
 - display cabinets
 - counters
 - cabinet doors

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- installation of glass

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- handling of hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- straight edges
- tee square
- screwdrivers
- glass cutters

- putty knife
- chisels
- brushes
- pincers

This unit applies to the insertion of glass panels where the glass is 6.35 mm or less by beads, moulds or other dry glazing methods.

Glass installation should be in accordance with AS1288 Glass in buildings - Selection and installation.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of installing glass to nominated frames using glazing methods in accordance with the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of glazing
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound techniques in checking or preparing location for installation of glass
- selection and use of appropriate procedures to mark and identify removed beading with place of location
- demonstrate sound techniques in selection, handling and placing of glass for cutting
- display sound techniques in cutting of glass
- demonstrate safe and effective procedures to fit and fix glass to location
- completion of glass installation to specification
- identification of typical faults and problems that occur and the necessary action to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit area:

- BCF2014A Manually cut glass to simple shapes

This unit may be concurrently assessed with:

- BCF3011A Assemble (doors/windows)

OR

- BCF3013A Assemble cabinets, showcases, wall units, counters and work stations

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- methods of glazing
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- fitment design and construction
- window and door design and construction
- methods of fixing glass beading
- materials and their characteristics relevant to glazing construction

- use of tools and equipment relevant to installing glass
- measuring and marking related to cutting and installation of glass
- cutting of glass
- fixing and fasteners related to securing beading and glass
- Australian Standards - AS1288

Skills

The ability to:

- work safely
- plan and organise work
- handle glass
- cut glass
- measure and set out
- use tools and equipment
- remove and install glass beading
- install glass
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workplace location and space appropriate for activity
- fitment or joinery unit applicable to proposed activity
- drawings, specifications and materials relevant to proposed activity
- tools and equipment appropriate for activity tasks

(5) Method of Assessment

Competency may be determined concurrently based upon integrated project work.

Assessment may involve:

- observation of work process
- inspection of product
- questioning related to underpinning knowledge

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	1	-	1	1	1

BCF3042A: Mark off/out

DESCRIPTOR

This unit applies to the marking out of material for general fabrication processes in both heavy and light gauge steel or metal commonly used in fabrication workplaces.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's fabrication operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workshop operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks and used consistently with needs of job.
		1.5	Relevant standards/codes and symbols interpreted.
2	Transfer dimensions from engineering drawing to work	2.1	Specifications and work requirements determined and noted from working drawings.
		2.2	All marking off carried out to specification and requirements of engineering/shop drawing.
		2.3	Datum points correctly established.
3	Make templates for plate, sheet, pipe and section	3.1	Appropriate template material chosen.
		3.2	Wrap around templates produced to developed design.
		3.3	Inside and outside templates/drawings for profiles produced.
		3.4	Correct storage procedures followed including labelling and identification to company's standard operating procedures.
4	Develop pattern for sheet, plate or hollow sections	4.1	Most appropriate development method chosen and applied.
		4.2	Development procedures accurately performed to produce true shapes or patterns.

		4.3	Allowances for fabrication and assembly correctly determined and transferred.
5	Estimate quantities of materials from engineering drawings	5.1	Materials correctly identified from engineering drawings.
		5.2	Quantities estimated from drawings or developed patterns.
6	Mark out patterns to sheet, plate or hollow sections	6.1	Material marked out accurately to shapes or from developed patterns with allowances for fabrication.
		6.2	Material wastage minimised with marking out of sheet or plate material.

RANGE OF VARIABLES

Heavy and light materials for fabrication include the following forms:

- flat plate
- sheet
- solid sections eg. rectangular
- rectangular and circular tubing
- pipe sections

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares

- tee squares
- set squares
- scissors
- cutting knife
- straight edge
- centre punches
- scribes

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of marking off/out material for two nominated projects covering the range of forms of material listed within the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of marking off/out of fabrication work
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound and safe techniques in handling and marking material
- demonstrate sound techniques with dimensions, datum and reference points transferred consistent with drawings
- determination and transference of correct allowances for material thickness and fabrication to material
- display correct procedures to develop true shape for templates in marking material
- adoption and use of appropriate techniques to mark material for fabrication and identification
- identification of typical faults and problems that may occur and the necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- MEM2.5c11A Measure using graduated devices
- BCG2012A Make set outs
- BCF2016A Prepare for off-site manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of metal fabrication
- methods of joining components in fabrication
- workplace and equipment safety requirements
- materials in metal fabrication
- principles of plane and solid geometry
- measuring and marking relevant to marking off/out of metal fabrication work
- geometrical development of true shape and patterns
- drawings and specifications
- identification marking of components
- handling of material relevant to metal fabrication work

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- transfer details from drawings
- develop true shapes and patterns
- measure and mark material
- mark for identification
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- tools and equipment appropriate to activity tasks
- appropriate work area suitable to activity
- material appropriate to activity tasks
- appropriate drawings, specifications and similar documentation relevant to activity

(5) Method of Assessment

Competency should be assessed while work is undertaken.

Competency may be assessed through:

- direct observation of application processing
- inspection of marked out material
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	3	1	3	3	3

BCF3043A: Shape solid stone

DESCRIPTOR

This unit applies to the shaping of stone using a range of methods for shaping to provide stone to required specifications.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations recognised and adhered to
		1.2	OH&S requirements in accordance with application tasks and workplace environment, recognised and adhered to.
		1.3	Personal protective equipment selected, correctly fitted and used.
		1.4	Safety and protective requirements for work personnel, public and environment determined and used.
		1.5	Tools, measuring and marking instruments, equipment and work space selected consistent with requirements for job.
		1.6	Drawings, specifications, plans and schedules for job adhered to.
		1.7	Machines inspected for serviceability, maintenance undertaken and adjustments made (as required by job) prior to operation.
2	Use various hand working methods for shaping dimensional stone	2.1	Stone dressed using each tool according to correct application and in appropriate sequence to specification.
		2.2	Soft stone cut accurately to squared sizes as required by job.
		2.3	Hard stone dressed using hammers and axes.
3	Use various power assisted hand tools for shaping dimensional stone	3.1	Range of percussion hammers and chisels used to shape stone at different stages of processing as required by job.
		3.2	Rotary, chain and/or oscillating saws used to cut stone to size and shape as required by job.
		3.3	Abrasive machines used to dress stone surfaces as required by job.
		3.4	Equipment operated in conjunction with jigs and guides for repetitive and fine tolerance work as required by

		job.
	3.5	Adjustments made to machinery, as required, in accordance with stone and application processes.
4	Set up and operate static machinery for shaping dimensional stone	
	4.1	Circular diamond saws operated to cut squared blocks as required by job.
	4.2	Circular diamond saws operated with rise and fall functions for cutting to profiles as required by job.
	4.3	Stone shaped on lathes both between centres and facework as required by job.
	4.4	Core drilling machinery operated as required by job.
	4.5	Moulded sections shaped on planing machines as required by job.
	4.6	Water-jet cutting machinery operated as required by job.
5	Clean up work	
	5.1	Work cleaned on completion with fresh water and brushes if necessary.
	5.2	Waste materials disposed of in an appropriate manner and in accordance with EPA requirements.
	5.3	Finished stone surfaces protected as required by job specification.

RANGE OF VARIABLES

Tools used to shape stone may include but are not limited to:

- bush hammers
- chisels
- poky
- spalling hammers
- axes
- patent axes

Material may include both hard and soft stones such as:

- limestone
- sandstone
- granite
- basalt-blue stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials

- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- control of dust
- control of noise

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat
- cap

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of sequentially removing stone until shaped to design and job specifications for two nominated stone sections, one hard and one soft.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of shaping stone
- selection and use of appropriate processes, tools and equipment to carry out required tasks
- adoption and use of sound and safe techniques with the handling and manoeuvring of stone
- sound and accurate techniques used to set out stone for shaping processes
- display effective and sound procedures to control dust, noise and hazards
- demonstrate sound and safe application techniques to use equipment and shape stone

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1003A Read and interpret drawings
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction materials and safe disposal of waste
- BCF3067A Dress stone manually

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements used to shape stone

- types of stone and their characteristics
- methods of shaping stone
- drawings and specifications
- OH&S regulations relating to manual handling of stone materials
- regulations related to safe disposal of waste and dust suppression
- tools and equipment
- measuring and marking
- machinery and portable power tools

Skills

The ability to:

- work safely
- organise work
- use hand and power tools and equipment associated with shaping stone
- use manual handling techniques
- transfer measurements to stone material
- interpret drawings and specification
- identify stone
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- hand tools and equipment appropriate to tasks
- stone materials applicable to required activities
- suitable work area appropriate to application tasks
- work drawings and documentation

(5) Method of Assessment

Competency should be assessed whilst work is undertaken under direct observation with regular checks, but with some autonomy when working as part of a team in order to achieve outcomes within time constraints.

Evidence should be collected over time allowing for demonstration in a range of workplace activities.

Competency in this unit may be determined concurrently, based upon integrated project work.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with general work practices.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	2	2	1	2	1

BCF3044A: Tack weld fabricated components

DESCRIPTOR

This unit applies to the preparation and application processes to tack weld a range of metals according to standard working procedures. This unit also includes the skills to spot weld and repair fabricated components not requiring existing welding skills.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's fabrication operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Assembly method identified and jigs applied to engineering/shop drawings according to standard workshop practice, where required.
		1.5	All components checked against drawings and material list for conformity to design specifications.
		1.6	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
2	Tack weld	2.1	Tack weld areas cleaned and prepared to specifications.
		2.2	Tack weld undertaken safely and to prescribed procedures.
		2.3	Position and size tack (thickness, length) determined from instructional directions and/or specifications.
		2.4	Deviations in quality of welds reported according to standard operating procedures.
		2.5	Welds cleaned to specifications
3	Clean up	3.1	Waste and unwanted material disposed of safely.
		3.2	Unused material stored.
		3.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Work could be undertaken using general fabricated components in either plate, pipe and section or sheet.

Typical applications are:

- simple structural fabrication
- general jobbing work

Application applies to production, manufacturing or maintenance environment.

Tack welds may be undertaken on any one of a range of materials including:

- mild steel
- stainless steel
- alloys

Autonomy is required for equipment settings and choice of consumables.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- preparation of material
- welding procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- safety with welding processes and equipment

Personal protective equipment may include:

- boots
- safety glasses
- ear plugs/muffs
- dust masks/respirators
- leather gloves
- leather apron
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- support stands
- clamps
- grinders
- cold chisels
- arc welding equipment

- power leads

Removal of materials to include processes of recycling and salvage where applicable.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the assembly of a nominated job using tack welding in accordance with range of materials listed within the range statement.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to work place operations
- application of organisational quality procedures and processes within context of assembling components by tack welding
- selection and use of appropriate process, tools and equipment
- selection of fabricated components size, shape, finish and materials, consistent with specifications
- demonstrate sound and accurate techniques to set out and set up materials for welding
- display sound and safe procedures to set up plant and equipment for welding
- application of temporary fixing and distortion prevention techniques
- demonstrate sound and safe techniques to tack weld assembled components to specified locations and finish
- identification of faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Prerequisites for this unit are:

- BCF2013A Assemble components

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- use of electric arc welding equipment
- tack welding techniques
- arc welding electrodes
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- materials and their properties related to tack welding applications
- jointing method for a range of material related to tack welding
- drawings and specifications
- use of tools and equipment relevant to tack welding applications
- measuring and setting out relevant to assembling components
- handling of materials relevant to metal sheet, plate and sections

Skills

The ability to:

- work safely
- plan and organise work
- use electric arc welding equipment

- interpret drawings and specifications
- select and identify materials appropriate to tasks
- measure and set out work
- set up components for welding
- weld effectively with welding process
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- off-site construction materials relevant to proposed activity
- plant and equipment appropriate to activity tasks
- hand tools appropriate to activity tasks
- suitable work area appropriate to activity
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency in this unit may be determined concurrently based on integrated project work.

Assessment may involve:

- observation of application to tasks
- inspection of project
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	-	3	1	-	3	2

BCF3045A: Manufacture joinery unit components

DESCRIPTOR

This unit applies to the production processes to prepare and manufacture components for the assembly/fabrication of a range of joinery units and/or structural units. Units include fitments, prefabricated timber framework and shopfronts.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's operations, recognised and adhered to.
		1.2	OH&S requirements for manufacturing tasks and workshop operations for joinery unit construction recognised and adhered to.
		1.3	Manufacturing requirements identified from drawings and specifications.
		1.4	Materials selected, dressed and set out in accordance with drawing and specifications.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out tasks consistent with job requirements and checked for serviceability.
		1.7	Fasteners, fixings, adhesives and/or sealants identified and selected appropriate to manufacturing process and used to manufacture specifications and/or MSDS data.
		1.8	Handling techniques and methods used for protecting edges/surfaces appropriate to unit and material type.
2	Select, prepare materials for use in joinery production process	2.1	Materials identified and selected against characteristic and suitability of production components.
		2.2	Material acquisition and preparation techniques identified and used, as appropriate.
		2.3	Appropriate handling and stacking processes identified and used.
3	Manufacture components	3.1	Types of component parts identified from working drawings/specifications.
		3.2	Terminology and dimension limitations specified by standards governing design are referenced and able to

			be identified.
		3.3	Processes for manufacture and joining techniques and components identified and used.
		3.4	Machines to be used and sequence of machining selected according to machining processes to be carried out.
		3.5	Safety procedures with each machine identified in accordance with OH&S requirements and AS 1473 Guarding and safe use of woodworking machinery.
4	Secure and hold components in place	4.1	Component parts identified for location in assembly.
		4.2	Knockdown fittings prepared and located for assembly.
		4.3	Adhesive applied, where applicable, to specification.
		4.4	Components located and held in their assembled positions to design specifications.
5	Fabricate assembled components	5.1	Frame/unit secured by adhesive and cramped to design specification.
		5.2	Fastened joints secured by fasteners/knockdown fittings using appropriate tools to specification.
		5.3	Plated joints secured by placement and pneumatic hammer or press of gangnail plates to specification.
6	Process for manufacture and fabrication sequencing is monitored	6.1	Space requirements for preparation/manufacture/assembly of product identified and located.
		6.2	Component parts acquired, checked for accuracy, quality and suitability according to plans/drawings and specifications.
		6.3	Assembling process identified according to sequential order of events.
		6.4	Typical common faults in product and/or process problems and appropriate remedial actions identified according to set workplace operating procedures.
7	Clean up	7.1	Unused materials recycled and/or returned to store.
		7.2	Tools/equipment/plant cleared, maintained and stored.
		7.3	Work area cleaned and waste disposed of safely.
		7.4	Packaging/handling techniques and methods of protecting material edge and surface used.

RANGE OF VARIABLES

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines

Assembling processes include the production of:

- fitments/units
- prefabricated timber framework
- shopfronts

Manufacturing processes include:

- timber mouldings
- panelling and laminates
- timber framework
- glass panels

Plant and equipment requirements include:

- air compressors
- static machines
- portable power tools
- power requirement

Operation of static machines to be in accordance with AS1473 Guarding and safe use of woodworking machinery.

Preparation of materials includes:

- cutting/routing/jointing processes
- dressing process
- stacking procedures

Material may include but is not limited to:

- timber
- laminated material
- metallic and non-metallic materials

Joining/connections may include but are not limited to:

- nails
- bolts/nuts
- metal rods/connection plates

Personal protective equipment may include:

- safety goggles/glasses
- earmuffs
- safety boots
- gloves
- dust masks/respirators

Tools and equipment may include but are not limited to:

- measuring tape
- square
- bevels
- hammer
- drop saw
- hand and pneumatic pop-rivetter
- pneumatic screwdriver
- angle grinder
- compressor
- punching and forming press tools
- crimping machine
- overhead/pendant crane and forklift

Fastenings may include but are not limited to:

- crimping
- pop-rivets
- screws
- nuts and bolts
- adhesives
- nails
- knockdown fittings

Packing and wrapping materials may include:

- timber
- polystyrene
- clear plastic sheet
- bubble plastic
- cardboard

EVIDENCE GUIDE

Competency is to be demonstrated by identifying all joinery unit and/or structural components and their functions and the safe and effective manufacture/fabrication of components for at least two (2) joinery units in accordance with those listed within the range of variables.

(1) Critical Aspects and Evidence

Competence must be observed in the following aspects:

- identification of types of joinery unit products
- identification of components of joinery unit products
- identification of construction and assembly method and process sequencing
- identification of maximum and minimum standards and governing authority
- demonstrate compliance with OH&S regulations applicable to workplace operations
- organisational quality procedures and processes applied within context of manufacturing components for joinery units
- identification of machining processes required and selection of appropriate machines
- safe and correct procedures used to set up machines for machining applications
- safe and efficient operation of machines to accurately carry out designed processes to set out material
- selection and use of appropriate processes, tools and equipment for hand application work
- safe and correct procedures used in setting up and operating portable power tools
- safe and efficient procedures used in setting up work and using hand tools
- safe and efficient procedures used in holding components during manufacturing processes
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workshop operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCF2001A Use static machines
- BCF2013A Assemble components
- BCF2016A Prepare for off-site manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of fitments and their construction
- types of framework and their construction
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- materials and their characteristics relevant to joinery unit construction
- use of tools and equipment relevant to manufacture of joinery unit components
- working drawings and specifications
- machining processes relevant to joining of joinery components
- use of static machines
- adhesives relevant to manufacture of joinery units and components
- fixings and fasteners relevant to joinery unit construction
- measuring and setting out related to joinery unit components
- identification marking
- Australian Standards - AS1473

Skills

The ability to:

- work safely
- plan and organise work
- read and interpret drawings
- use tools and equipment

- read MSDS information
- use static machines
- carry out manufacturing processes to set out materials
- assemble and fix/secure components
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made:

- work area and static machines appropriate to task
- working drawings/specifications relevant to activity
- procedure documents appropriate to manufacturing processes
- tools/plant/equipment relevant to manufacture processes
- materials/components appropriate to activity

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken under indirect supervision.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment

Assessment shall be while tasks are undertaken either individually or working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	1	3

BCF3046A: Manufacture re-locatable buildings - framing

DESCRIPTOR

This unit applies to the manufacturing processes to set out, construct and erect framing associated with re-locatable building construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
2	Construct base frame	2.1	Base frame (chassis) set out to requirements of shop drawings and engineer's specifications.
		2.2	Steel sections cut and welded or fixed according to shop drawings, engineer's specifications and AS1554 Structural steel welding.
3	Construct floor frame and lay flooring	3.1	Steel or timber floor joists and side plates fixed to base frame to requirements of shop drawings.
		3.2	Floor frame squared and sheet flooring glued, screwed or stapled to joists to manufacturer's specification.
		3.3	Sheet flooring in wet areas prepared to architect's specifications.
		3.4	Floor covering laid to finishes schedule and manufacturer's specification.
4	Construct and erect walls	4.1	Wall framing constructed in accordance with shop drawings and internally cladded.
		4.2	Timber framing constructed in accordance with AS168 National Timber Framing Codes.

		4.3	Wall frames erected, fixed to floor frame and braced externally with sheet plywood.
		4.4	Electrical and plumbing service rough-in organised and facilitated.
5	Construct and erect ceiling/ roof frame	5.1	Ceiling/roof frame constructed and fixed to walls in accordance with shop drawings.
		5.2	Purlins fabricated to provide fall for roof, located and fixed to roof framing in accordance with shop drawings.
6	Clean up	6.1	Tools and equipment cleaned, maintained and stored.
		6.2	Loose debris and waste material removed and disposed of safely.

RANGE OF VARIABLES

This unit applies to the construction and erection of framing for relocatable homes and portable site sheds in an off-site environment.

Construction may be:

- timber framed
- steel framed
- expanded polystyrene (EPS)/colourbond sandwich panels

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- assembling procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- safety goggles
- hard hat
- ear muffs
- dust masks/respirators
- safety boots
- gloves

Tools may include but are not limited to:

- measuring tape/rule
- hammers
- levelling equipment
- squares
- measuring tape
- portable electric saws
- electric and/or pneumatic drills and screwdrivers
- nail guns
- screw drivers and staplers
- explosive powered tools
- oxy or electric welding equipment
- overhead travelling crane

Timber construction to be in accordance with AS1684 National Timber Framing Code.

Flooring may consist of plywood, particle board or compressed fibre cement.

Floor covering may consist of seamless vinyl or carpet.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the construction of the framework of a relocatable building involving base floor, wall and ceiling/roof frame working with others as part of a team.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of manufacturing of relocatable buildings
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate fixing installed in accordance with the Building Code of Australia and manufacturer's specification
- demonstrate correct procedures in assembling floor frame and installing flooring to design specifications
- application of correct techniques to square and brace all frames
- application of sound and safe procedures to assemble wall frames and erect into place
- demonstrate sound and safe procedures to construct and erect ceiling and roof framing
- completion of assembly of framing to design and specifications
- identification of typical faults and problems that occur and the necessary action to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1007A Erect/dismantle restricted height scaffolding
- BCG2000A Assemble simple partition frames
- BCF2001A Use static machines
- BCF2016A Prepare for off-site manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- relocatable buildings
- floor framing construction
- wall framing construction
- ceiling and roof framing construction
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- scope and coverage of Building Code of Australia
- Australian Standards - AS1554, AS1684
- bracing of framed construction
- assembling and erection of wall framing
- fixing of flooring and wall cladding relevant to relocatable buildings
- materials in structures
- measuring and levelling relevant to framing and building construction
- use of tools and equipment relevant to framing construction
- fixing and fastening related to framing construction

Skills

The ability to:

- work safely
- read and interpret drawings
- plan and organise work
- use tools and equipment
- assemble and erect wall frames
- construct framed structure
- fix materials
- set out work
- work to line, level and plumb
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- tools, plant and equipment appropriate for activity tasks
- work area appropriate for space for proposed activity
- proposed materials appropriate to activity construction
- drawings and specifications/documentation relevant to project

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	2	-	2	2	2

BCF3047A: Manufacture re-locatable buildings - finishing

DESCRIPTOR

This unit applies to installing the materials and completing the fitout and finish processes associated with the construction of re-locatable buildings.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job material and equipment requirements identified from shop drawings, specifications, and cutting list.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
2	Apply external claddings	2.1	External wall and roof cladding installed to manufacturer's specifications.
		2.2	Finishing trims, gutters and downpipes fitted, fixed and sealed to requirements of shop drawings.
		2.3	Window/door openings cut out and frames fixed to inside of openings or face fixed to shop drawing details.
		2.4	Electrical and plumbing service rough-in organised and facilitated, where applicable.
		2.5	Wall and ceiling insulation installed to manufacturer's specifications.
3	Complete internal fitout and finish	3.1	Internal trim fitted to door and window openings and wall/floor/ceiling junctions.
		3.2	Fitments installed/fitted out to requirements of shop drawings.
		3.3	Electrical and plumbing service fit-off organised and facilitated.

	3.4	Floor covering to wet areas laid according to finishes schedule and manufacturer's specifications.	
	3.5	Internal surfaces/trim painted/touched up to requirements of finishes schedule.	
4	Prepare building for transport	4.1	Temporary bracing installed to ensure rigidity and integrity of building during transport.
		4.2	Loose fittings, fixtures and attachments temporarily secured.
		4.3	Construction openings temporarily sealed to exclude elements.
5	Clean up	5.1	Tools and equipment cleaned, maintained and stored.
		5.2	Loose debris and waste material removed and disposed of safely.

RANGE OF VARIABLES

This unit applies to the finishing of re-locatable buildings and portable site sheds in an off-site environment.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- finishing procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- safety goggles
- ear muffs
- safety boots
- gloves
- dust masks/respirators

Tools and equipment may include but are not limited to:

- hammers
- squares

- measuring tape/rule
- hand and power saws
- router
- hand and power drills/screwdrivers
- chisels
- coping saws
- levels
- chalk line
- nail guns
- air compressor
- drop saw
- hand plane

External wall cladding may be:

- timber
- compressed fibre cement weatherboards or sheets
- prefinished metal cladding

Internal wall/ceiling linings may be:

- prefinished metal cladding
- laminate faced plywood
- timber lining boards
- plasterboard
- compressed fibre cement sheets

EVIDENCE GUIDE

Competency is to be demonstrated by the installation of internal and external linings, fittings and surface finishes to a nominated re-locatable building.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within the context of finishing relocatable buildings
- selection and use of appropriate processes, tools and equipment to carry out tasks
- identification of work to be carried out by licensed trades people
- display sound and safe techniques in handling material and erecting scaffolding
- demonstrate sound techniques in installing cladding and lining in accordance with relevant sections of Building Code of Australia and relevant Australian Standards
- identification of requirements for temporary bracing for transportation recognised and installed to company's policy
- demonstration of sound techniques in applying/fitting finishing materials and trim to relocatable buildings to specification
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1007A Erect/dismantle restricted height scaffolding

- BCF2016A Prepare for off-site manufacturing process
- BCF3024A Install internal lining
- BCF3046A Manufacture re-locatable buildings - framing

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- relocatable buildings
- internal lining techniques
- external cladding techniques
- materials and fixing methods relevant to lining and finishing of relocatable buildings
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- Building Code of Australia
- installation of doors and windows
- services within buildings
- drawings and specifications
- use of tools and equipment relevant to fitting out and finishing of framed buildings
- fixing and fasteners relevant to materials in relocatable buildings
- measuring and levelling relevant to fitting out and finishing of buildings
- preparation of materials
- finishing of surfaces of relocatable buildings
- adhesives relevant to fitting out and fixing of finishing materials

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings, specifications and documentation
- measure and set out work
- prepare materials
- fit and fix materials
- work to line, level and plumb
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- tools, plant and equipment appropriate for activity tasks
- portable building completed to frame stage and working space around thereof
- materials relevant to specifications for activity tasks
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken with regular checks.

Assessment may involve:

- observation work process

- inspection of product
- questioning relating to underpinning knowledge

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	2	-	2	2	2

BCF3048A: Construct cooling towers

DESCRIPTOR

This unit applies to the construction processes in preparing and fabricating material and assembling to construct a cooling tower to a required specification.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.5	Material, accessories and fixing/fastening requirements identified from shop drawings and cutting lists.
2	Fabricate components	2.1	Constituent items aligned and cooling tower components assembled with joints/intersections fastened to requirements of shop drawings.
		2.2	Fibreglass components fabricated to requirements of shop drawings.
3	Assemble prepared components	3.1	Prepared components laid in place and aligned to requirements of shop drawings.
		3.2	Cooling tower assembled and component joints/intersections fastened to shop drawing details.
		3.3	Waterproofing sealant applied to joints to manufacturer's specifications.
		3.4	Superfluous sealant removed and surface left clean.
4	Clean up	4.1	Recyclable material sorted and stored for collection.
		4.2	Loose debris and waste material removed and disposed of safely.

- 4.3 Unused materials stacked/stored.
- 4.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to cooling towers manufactured in an off-site environment.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- use of static machines
- hazardous materials

Personal protective equipment may include:

- safety goggles/glasses
- ear muffs
- safety boots
- gloves
- respirators

Tools and equipment may include but are not limited to:

- measuring tape/rule
- square
- spanners and allen keys
- pneumatic rivetter
- cutter
- grinder
- drill
- spray equipment
- drop saw
- band saw
- bench saw
- drill press
- forklift and overhead/pendant crane

Fastenings may include but are not limited to:

- nuts and bolts and/or pop-rivets
- silicon caulking compound
- self tapping screws

Materials may include:

- galvanised and stainless angles/sections
- fibreglass mat
- extruded plastic sections
- PVC pipes and fittings

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the fabrication and assembly of a cooling tower, working individually or as part of a team.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of organisational quality procedures and processes within the context of construction of cooling towers
- demonstrate sound and safe techniques to manufacture components to design requirements
- demonstrate sound techniques with the handling and application of sealant and adhesives in accordance with manufacturer's specifications
- demonstrate accurate alignment of components prior to fastening or joining to ensure shape and size are in accordance with plans and specifications
- demonstrate correct techniques to ensure all fastening methods are firmly secured
- identification of typical faults or problems that occur and necessary action to rectify

(2) Pre-requisite Relationship of Units

Pre-requisite skills for this unit are:

- BCF2016A Prepare for off-site manufacturing process
- BCG3071A Assemble fabricated components

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- cooling tower designs
- construction of cooling towers
- workplace and safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- materials and their characteristics relevant to cooling tower construction
- use of tools and equipment relevant to constructing cooling towers
- measuring and marking off or setting out related to cooling tower construction
- use of adhesives and sealants relevant to cooling tower assembling procedures
- assembling of cooling towers
- fixing of materials - fasteners and fixings

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications

- identify and assemble components
- use adhesives and sealants
- use tools and equipment
- fit and fix/secure components in assembly
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- tools, static machines and equipment appropriate to the activity tasks
- workplace location and space appropriate to activity
- materials and components appropriate for activity construction
- drawings and specifications relevant to the activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace environment.

Assessment shall be while tasks are undertaken individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	2	-	2	2	2

BCF3049A: Manufacture aluminium grills and louvres

DESCRIPTOR

This unit applies to the manufacturing processes in fabricating aluminium material and assembling of components to produce grills and louvres cooling towers, air conditioning and air ventilation system operations.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from shop drawings, specifications and/or cutting lists
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.6	Material, accessories and fixing/fastening requirements identified from shop drawings and cutting lists.
2	Select, mark-out and cut materials	2.1	Materials, accessories and fixing/fastenings located and selected to job requirements.
		2.2	Materials marked out to requirements of shop drawings and cutting lists.
		2.3	Wastage minimised with marking out of material for manufacturing.
		2.4	Machinery set up and operated in accordance with manufacturers recommendations and OH&S requirements
		2.5	Materials cut, drilled, punched and/or notched to marked out requirements.
3	Assemble prepared components	3.1	Prepared components laid in place and aligned to requirements of shop drawings.
		3.2	Components assembled and joints/intersections fastened to shop drawing details.

		3.3	Assembled frame checked for square and adjustments made, where required
		3.4	Sealant devices or seals installed to frame and blades to job specifications, where applicable
		3.5	Security steel mesh and flywire secured to frame to job specifications, where applicable
		3.6	Hinged or clipped panels to grill frames fitted and where applicable fitted with catches or locks to requirements of shop drawings.
		3.7	Assembled unit cleaned and left prepared for finishing process
4	Prepare for transport	4.1	Temporary stiffening/packing attached to completed grille/louvre as required to facilitate transport.
		4.2	Product protectively wrapped to minimise damage.
5	Clean up	5.1	Loose debris and waste material removed and disposed of safely.
		5.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to aluminium grills and louvres manufactured in an off-site environment.

Types of grills and louvres include:

- Perforated face
- Egg crate cores
- Linear slots and bars
- Adjustable bars
- Splayed pans
- Fixed frame
- Removable or openable frames

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

- use of machinery

Use of machinery should be carried out in accordance with:

AS 1219 Power presses - safety requirements
AS 4024.1 Safeguarding of machinery - general principles
AS 1893 Code of Practice for the guarding and safe use of metal and paper cutting guillotine's

Personal protective equipment may include:

- safety goggles/glasses
- earmuffs
- safety boots
- gloves
- protective clothing

Tools and equipment may include but are not limited to:

- measuring tape/rule
- square
- bevels
- wire-cutters
- file
- hammer
- drop saw
- hand and pneumatic pop-rivetter
- pneumatic screwdriver
- jig saw
- guillotine
- compressor
- punching and forming press tools
- crimping machine
- overhead/pendant crane and forklift

Fastenings may include:

- crimping
- pop-rivets
- screws
- nuts and bolts

Packing and wrapping materials may include:

- timber
- polystyrene
- clear plastic sheet
- bubble plastic
- cardboard

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the processes in preparation, fabricating and assembling of a grill and a louvre to nominated designs and in accordance with conditions within the range of variables. One should include an inner frame hinged with catch or lock.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes applied within context of manufacture of grills and louvres
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound procedures with the selection and marking out of materials to design, and minimising waste
- demonstrate sound techniques with the handling of materials to avoid damage during the application process
- demonstrate safe and correct procedures to set up and operate machines
- display accurate procedures to ensure components align correctly with design for construction
- demonstrate sound techniques with materials assembled and fastened to form product consistent with size and shape specified in shop drawings
- demonstrate appropriate techniques to fit and fix hinges and notches to designed locations
- identification of typical faults and problems that occur and the necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit are:

- BCF2015A Use aluminium sections for fabrication
- BCF2016A Prepare for manufacturing process

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- manufacture of grills and louvres
- materials and assembling techniques relevant to grills and louvres
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- Australian Standards - AS1219, AS4024.1, AS1893
- handling of materials relevant to aluminium manufacturing applications
- use of tools and equipment relevant to aluminium grills and louvre construction
- measuring and marking off or setting out related to grills and louvre construction
- use of machinery relevant to aluminium fabrication
- assembling of components relevant to grill and louvre construction
- fixing and securing methods - fasteners and fixings

Skills

The ability to:

- work safely
- plan and organise work
- select and mark off/set out material
- interpret drawings and specifications
- assemble and secure components
- use tools and equipment
- use machines
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workplace location and space appropriate for activity
- tools, equipment and machinery appropriate to activity tasks
- materials and components appropriate for activity
- drawings and specifications relevant to the activity task

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of work processes
- inspection of product
- questioning relating to underpinning knowledge

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	2	-	-	2	2

BCF3050A: Construct cold rooms

DESCRIPTOR

This unit applies to the construction processes in the fabrication, installation and erection of wall, floor and ceiling panel components to construct cold rooms in an off-site situation.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job material and equipment requirements identified from shop drawings, specifications and cutting lists.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
		1.6	Floor of cold room set out on existing concrete floor to requirements of shop drawings.
		1.7	Plastic vapour barrier strip laid around perimeter of cold room.
		1.8	Floor perimeter angles or channels bedded in sealant and fixed to existing concrete floor.
2	Erect wall panels	2.1	Insulating wall (EPS) panels cut to length to requirements of shop drawings and rebated where required to avoid thermal bridging.
		2.2	Opening for door/frame cut from wall panel in accordance with shop drawings.
		2.3	Wall panels erected and sealant embedded into existing base angles/channels with vertical joints continuously sealed.
		2.4	External and internal vertical corner angles sealed and fixed in position to shop drawing details.
		2.5	All external slip joints continuously sealed.
3	Install floor panels	3.1	Plastic vapour barrier sheet fitted to existing floor and

			continuously sealed to edge of perimeter strip.
		3.2	Insulating floor panels cut to length snug to wall panels and installed flat to existing concrete floor.
		3.3	Coved finishing mould sealed and fixed at junction of wall and floor surfaces.
		3.4	Alternatively, coved finishing mould fixed to wall panel to allow for installation of poured concrete floor.
4	Install insulated panel ceiling	4.1	Insulated ceiling panels cut to length and installed in wall panel rebates.
		4.2	Internal and external aluminium angles continuously sealed and fixed to intersections of wall and ceiling panels.
5	Install door frame and door	5.1	Door frame and architrave continuously sealed into pre-cut opening in wall panel and securely fixed.
		5.2	Threshold tread plate fitted and securely fixed to structural floor.
		5.3	Door and latch fitted and fixed to manufacturer's specifications.
		5.4	Door seal adjusted to prevent air leakage.
6	Clean up	6.1	Superfluous sealant removed and surfaces left clean.
		6.2	Loose debris and waste material removed and disposed of safely.
		6.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the fabrication of cold rooms off-site and their erection on-site.

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

- working platforms and scaffolding
- hazardous materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat

Tools and equipment may include but are not limited to:

- hammers (ball pen)
- tin snips
- measuring tape
- hack saw
- hand pop riveter
- sealant gun
- squares
- spirit level
- metal cutting jig-saw
- power and hand screwdriver
- nibbler
- hot wire
- metal shears
- overhead travelling or mobile crane

Flooring may include:

- existing concrete floor
- insulating panel floor with plywood wearing surface

Insulated panels are expanded polystyrene (EPS) foam with pre-finished metal cladding to both surfaces.

Fasteners may include but are not limited to:

- pop-rivets
- masonry anchors
- tap-ins or concrete nails

Work application requires assembly tasks to be carried out in a team situation.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of preparing and cutting material and the installing of walls, ceilings, floor and finishing of trims to construct a cool room to a nominated design.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate process, tools and equipment to carry out tasks

- application of organisational quality procedures and processes within context of constructing cool rooms
- demonstrate accurate measuring to set out size and shape consistent with drawings and specifications
- attention given to ensure perimeter angle/channel sealed at all connecting surfaces
- demonstrate sound construction techniques with joints continuously sealed during assembly
- completion of construction to specified design with door installed to sealed requirements
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and efficient workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2016A Prepare for off-site manufacturing process
- BCF3036A Shift materials manually
- BCF3051A Cut materials manually
- BCF3037A Set out and level

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- cold rooms design and construction methods
- materials in cold room construction
- drawings and specifications
- measuring and levelling relevant to cold room construction
- preparation of materials
- use of tools and equipment relevant to cold room construction
- use of sealants and sealant devices relevant to constructing cold rooms
- methods of joining walls with floors and ceilings
- Building Code of Australia
- door installation relevant to cold room construction
- principles of heat transfer and insulation

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- use tools and equipment
- markout/setout components to details
- assemble materials and components
- apply sealants and fix seals
- install cold room doors
- fit and secure trims, architraves and door furniture
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- tools, plant and equipment appropriate to the activity tasks
- appropriate work area to suit activity

- appropriate material relevant to proposed project
- appropriate plans and specification or similar documents relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Assessment may involve:

- observation of work process
- inspection of product
- questioning relating to underpinning knowledge

Competence should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	2	2	2	2

BCF3051A: Cut material manually

DESCRIPTOR

This unit applies to the application processes in manually cutting metal material using hand operated tools and equipment to form shapes involving both straight and curved lines.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's manufacturing operations, recognised and adhered to.
		1.2	OH&S requirements for processes in manually cutting steel recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications/instructions or marked out material.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out tasks consistent with needs of job and checked for serviceability.
2	Select appropriate hand or hand held power cutting tool	2.1	Most appropriate tools for specific cutting operation selected and used in correct designed operation.
		2.2	Tools adjusted for operation in accordance with materials and application work.
3	Cut material with hand or portable power cutting tool	3.1	Tools correctly activated and deactivated with application processes.
		3.2	Material marked out to designed requirement and cut to specification.
		3.3	Wastage minimised with material lengths used and set out.
4	Clean up	4.1	Waste and unwanted material disposed of safely.
		4.2	Unused material stored/stacked.
		4.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to cutting operations to be carried out on:

- sheet and plate material
- solid sections
- tubular sections

Cutting operations may include but are not limited to:

- drilling
- sawing
- grinding
- nibbling
- shearing
- chiselling
- bevelling

Materials include ferrous and non-ferrous metals.

Cutting operations may follow straight or curved lines.

Instructions for cutting of material may be provided by supervisor and include:

- verbal instruction
- written notes
- sketches

Quality assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- setting out procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- squares

- scribes
- wing compasses
- straight edges
- power saws
- power drills
- grinders
- sheet metal shears
- nibbler
- clamp
- work benches

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of cutting materials across a range of thicknesses in both straight and curved lines using at least four (4) of the cutting operations listed within the range statement.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of organisational quality procedures and processes within context of cutting materials manually
- demonstrate correct operations with equipment start up and shut down procedures
- selection and use of appropriate technique to accurately mark out materials
- demonstrate correct procedures in handling materials
- display sound techniques in the holding or clamping of materials for cutting operation
- demonstrate safe and sound techniques to cut materials to set out shape
- identification of typical faults and problems that occur and the necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCF3042A Mark off/out

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- materials and their characteristics relevant to metal fabrication work
- portable power tools for cutting of metal
- workplace and equipment safety requirements including relevant statutory regulations codes and standards
- set out material
- measuring and marking off/out relevant to lineal measurement and shapes
- use of tools and equipment relevant to cutting of metal material
- methods of holding material
- handling of material relevant to metal sheet, plate and sections

Skills

The ability to:

- work safely
- organise work
- use tools and equipment
- measure and mark out work
- operate and use power tools
- secure materials for application work
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- workplace location, workbench/work stools and appropriate space
- tools and equipment appropriate for activity tasks
- range of materials relevant to activity tasks
- drawings and documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency may be determined concurrently based upon integrated project work.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

Competency may be assessed in the workplace or simulated workplace setting.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	3	1	2	1	2

BCF3052A: Sign write to simple forms

DESCRIPTOR

This unit applies to the preparation and production processes to effectively apply substances to surfaces in forming simple sign work.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Specifications, drawings and instructions interpreted and job requirements and sequence determined.
		1.4	Spelling checked from copy and confirmed as correct.
		1.5	Layout set out to scale using setting out techniques applicable to sign design.
		1.6	Tools, equipment and materials selected and used consistent with job requirements.
		1.7	Material quantities estimated in accordance with size of sign and materials to be used.
		1.8	Substrates identified and prepared in accordance with planned material application.
		1.9	Colour selection determined, consistent with job requirements or to AS2700 Colour standards for general purposes.
		1.10	Scaffold requirements identified to comply with OH&S regulations and safe working practices.
		1.11	Material safety data sheets referred to, as required.
2	Apply materials to layout	2.1	Appropriate personal protective equipment selected, correctly fitted and used.
		2.2	Materials subsequently applied to surface using application consistent with job requirements and layout of sign.
3	Present work to client	3.1	Work presented to client, to specification, Industry

Standards and relevant Australian Standards.

- | | | | |
|---|----------|-----|--|
| 4 | Clean up | 4.1 | Tools and equipment cleaned, maintained and stored. |
| | | 4.2 | Completed work cleaned, checked for protection, packed and transported/presented to client for approval. |

RANGE OF VARIABLES

Sign writing application processes may include but are not limited to:

- brush
- spraying
- airbrushing
- stipple
- roller application

Instructions for signwriting may be provided by supervisor or client and include:

- verbal instruction
- written notes
- sketches
- colour identification

Reference documents may include but are not limited to:

- Relevant Australian Standards:
 - AS2311 General Workmanship – Painting
 - AS2700 Colour Range – Painting
 - AS1530.3 Fire Retardant Systems
 - AS1319 Safety Signs for the Occupational Environment

Sign types may include but are not limited to:

- signage containing basic numerals and lettering to simple layout

Materials may include but are not limited to:

- acrylic paint
- enamel paints
- water based paints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to clients brief
- specifications of design

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment

- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- hazardous materials
- use of spray equipment

Personal protective equipment may include:

- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- drafting instruments
- brushes
- rollers
- spray equipment
- pots
- mixers
- artists brush
- lining fitches
- dagger liners
- scaffolding
- ladders
- planks

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective and accurate layout and application of substances to surfaces in forming simple sign work to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competency is observed in the following aspects:

- identification of dimensions, symbols, abbreviations and key features of signage
- demonstrate compliance with OH&S legislation applicable to workplace activity/operation
- indicate compliance with organisational policies and procedures including Quality Assurance within the context of producing signs
- selection and use of appropriate processes, tools and equipment to produce sign
- show sound preparation in checking all relevant reference information before preparing layout
- demonstrate sound techniques to produce layout accurately to balanced design
- identification and use of appropriate material application to substrate
- demonstrate sound techniques to set out sign for designed signwriting
- demonstrate sound techniques to produce sign to design and specifications
- interactive communication with client or others to ensure sign produced to requirements and in accordance with standards
- demonstrate sound techniques to provide appropriate protection to finished signs against handling damage
- identification of faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Lay out signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and layouts for signs
- materials relevant to drawings/specifications for signs
- measurements and calculations related to designing layout of signs
- symbols, dimension and terminology relating to signage
- letter styles
- Australian Standards - AS2311, AS2700, AS1530.3, AS1319
- colour selection
- use of tools and equipment relevant to sign writing
- measuring and setting out related to layout of signs

Skills

The ability to:

- work safely
- plan and organise work
- measure accurately
- effectively communicate verbally with others associated with sign design
- transfer measurements from drawings to sign in simple forms
- select and prepare colour
- use tools and equipment
- signwrite to design

(4) Resource Implications

The following resources should be made available:

- reference documentation relating to producing signs
- suitable layouts, drawings and/or specifications for signs in simple forms
- suitable work area
- tools, equipment relevant to signage activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under minimal supervision.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at the various stages of the job in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3053A: Sign write to decorative forms

DESCRIPTOR

This unit applies to the preparation and production processes to produce accurate layout designs and to effectively apply substances to surfaces to form decorative sign work.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signwriting operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Specifications, drawings and instructions interpreted and job requirements and sequence, determined.
		1.4	Spelling checked from copy and confirmed as correct.
		1.5	Layout set out to scale using setting out techniques applicable to sign design.
		1.6	Tools, equipment and materials selected and used consistent with job requirements.
		1.7	Material quantities estimated in accordance with size of sign and materials to be used.
		1.8	Substrates identified and prepared in accordance with planned material application.
		1.9	Colour selection determined, consistent with job requirements or to AS2700 Colour standards for general purposes.
		1.10	Scaffold requirements identified to comply with OH&S regulations and safe working practices.
		1.11	Material safety data sheets referred to, as required.
2	Apply materials to layout	2.1	Appropriate personal protective equipment selected, correctly fitted and used.
		2.2	Materials/subsequently applied to surface using application consistent with job requirements and layout of sign.

3	Present work to client	3.1	Work presented to client, to specification, industry standards and relevant Australian Standards.
4	Clean up	4.1	Tools and equipment cleaned, maintained and stored.
		4.2	Completed work cleaned, checked for protection, packed and transported/presented to client for approval.

RANGE OF VARIABLES

Signwriting application processes may include but are not limited to:

- brush
- spraying
- airbrushing
- stipple
- roller application

Instructions for signwriting may be provided by supervisor or client and include:

- verbal instruction
- written notes
- sketches
- colour identification

Reference documents may include:

- Relevant Australian Standards:
AS2311 General Workmanship – Painting
AS2700 Colour Range – Painting
AS1530.3 Fire Retardant Systems
AS1319 Safety Signs for the Occupational Environment

Sign types may include but are not limited to:

- signage containing basic numerals and lettering in different fonts
- signage containing logos, symbols, sculptures and other decorative forms
- internal and external applications

Materials may include but are not limited to:

- acrylic paint
- enamel paint
- water based paints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to clients brief
- specifications of design

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- drafting instruments
- straight edge
- brushes
- rollers
- spray equipment
- pots
- mixers
- artists brush
- lining fitches
- dagger liners
- scaffolding
- ladders
- planks

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective and accurate layout and application of substances to surfaces in forming decorative sign work to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identification of dimensions, symbols, abbreviations and key features of signage
- demonstrate compliance with OH&S legislation applicable to workplace activity/operation
- indicate compliance with organisational policies and procedures including Quality Assurance within the context of producing signs
- selection and use of appropriate processes, tools and equipment to produce sign
- show sound preparation in checking all relevant reference information before preparing layout
- demonstrate sound techniques to produce layout accurately to balanced design
- identification and use of appropriate material application to substrate
- demonstrate sound techniques to set out sign for designed signwriting
- demonstrate sound techniques to produce sign to design and specifications
- interactive communication with client or others to ensure sign produced to requirements and in accordance with standards

- demonstrate sound techniques to provide appropriate protection to finished signs against handling damage

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and layouts for signs
- materials relevant to drawings/specifications for signs
- measurements and calculations related to designing layout of signs
- symbols, dimension and terminology relating to signage
- decorative letter styles
- layout and design of signs
- colour schemes and principles
- Australian Standards - AS2311, AS2700, AS1530.3, AS1319
- use of tools and equipment relevant to sign writing
- measuring and setting out related to layout of signs

Skills

The ability to:

- work safely
- plan and organise work
- measure accurately
- effectively communicate verbally with others associated with sign design
- transfer measurements from drawings to sign in decorative forms
- select and prepare colour
- use tools and equipment
- signwrite to design

(4) Resource Implications

The following resources should be made available:

- reference documentation relating to producing signs
- suitable layouts, drawings and/or specifications for signs in decorative forms
- suitable work area
- tools and equipment relevant to signage activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under minimal supervision.

Assessment may involve:

- observation of application to tasks
- inspection of product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3054A: Apply graphics using pressure sensitive films

DESCRIPTOR

This unit applies to the processes in setting out, producing sign layout and shaping graphics using pressure sensitive vinyl signage.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications/instructions and/or clients brief.
		1.4	Product range assessed and selected in accordance with job requirements and relevant Australian Standards.
		1.5	Tools, equipment and materials selected to carry out tasks consistent with job requirements.
		1.6	Routine maintenance requirements of equipment identified and implemented in accordance with workplace/Quality Assurance procedures.
		1.7	Temporary/permanent application of materials determined from job requirements.
		1.8	Material shrinkage determined to ensure quality of completed work.
2	Layout sign	2.1	Substrate compatibility with vinyl determined.
		2.2	Surface appropriately cleaned and where previously applied self-adhesive tape exists, removed carefully minimising risk of damage to surface.
		2.3	Layout of sign produced on computer or set out directly onto face of vinyl.
		2.4	Vinyl layout cut using appropriate processes, tools and equipment to ensure minimum waste.
3	Weed out vinyl	3.1	Lettering or background weeded out using appropriate tools and minimising risk of damage to vinyl.

4	Apply transfer tape	4.1	Transfer tack tape applied to either lettering or background.
5	Apply vinyl	5.1	Vinyl applied to surface consistent with job requirements.
		5.2	Vinyl applied to layout design to specifications.
		5.3	Surface of vinyl finished consistent with job requirements.
6	Clean up finished sign	6.1	Sign and surrounding surface environment/area cleaned and waste materials removed in accordance with environmental concerns (EPA).
		6.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Applies to all situations where vinyl signs are applied to surfaces. Vinyls vary from short term to long term application.

Surfaces include:

- glass
- pre-painted and painted surfaces
- metal plastic
- plastic
- acrylics
- fibreglass vinyl
- timber
- masonry
- marble

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- safety glasses/goggles

- ear plugs/muffs
- gloves
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- cutting blades
- templates
- drafting instruments
- brushes
- scrapers

Preparation of surfaces may include but is not limited to:

- cleaning
- removing irregular or affixed material
- sanding of surface
- painting

This unit also applies to carrying out all communication requirements associated with working with other persons at a site location and carrying out tasks under limited supervision.

Verbal/written instructions include directions or instructions related to job/task.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the application of graphics and other decorative forms of signage using pressure sensitive film to a nominated brief, within the range listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S legislation applicable to workplace activity/operations
- application of organisational quality procedures and processes within the context of applying pressure sensitive film
- selection and use of appropriate tools, equipment and processes to carry out requirements of activity
- selection and use of appropriate techniques to ensure sign surface prepared to receive film
- demonstrate sound techniques to layout sign to design requirements
- attention given to check spelling prior to cutting of sign, to ensure correct
- demonstrate sound and safe techniques to cut film to designed set out shapes
- demonstrate sound techniques in applying film to surfaces
- completion of application with finish consistent with specifications
- identification of typical faults and appropriate remedial action taken to rectify problem
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Layout signs

This competency may be concurrently assessed with:

- BCF3055A Apply graphics to illuminated signfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- vinyl in sign design
- layout of signs
- workplace and equipment safety requirements
- traditional and contemporary font styles
- preparation of surfaces
- design transfer method
- handling of material related to using pressure sensitive film and general base materials
- use of tools and equipment relevant to applying pressure sensitive film
- measuring and setting out related to layout of signs
- cutting of sensitive film

Skills

The ability to:

- work safely
- prepare for work application
- use tools and equipment
- draft design of sign to scale
- handle materials
- prepare surfaces
- cut and fix vinyl
- effectively communicate verbally with others including client within work environment

(4) Resource Implications

The following resources should be made available:

- work location with appropriate space for activity
- tools and equipment appropriate to carry out activity tasks
- working drawing and specifications relevant to activity
- material required for activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3055A: Apply graphics to illuminated signfaces

DESCRIPTOR

This unit applies to the processes in producing designed sign layout and shaping of vinyl materials to form graphical images applied to signface. It also covers the spray application of paint products to form graphical images applied to illuminated signfaces.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Job requirements identified from drawings and specifications/instructions and/or clients brief.
		1.4	Product range assessed and selected in accordance with job requirements and relevant Australian Standards.
		1.5	Tools, equipment and materials selected to carry out tasks consistent with job requirements.
		1.6	Routine maintenance requirements of equipment identified and implemented in accordance with workplace/Quality Assurance procedures.
		1.7	Temporary/permanent application of materials determined from job requirements.
		1.8	Material shrinkage determined to ensure quality of completed work.
2	Layout sign	2.1	Substrate compatibility with material application determined.
		2.2	Surface appropriately cleaned and where previously applied self-adhesive tape exists, removed carefully minimising risk of damage to surface.
		2.3	Layout of sign produced on computer or set out directly onto face of sign.
3	Apply vinyl to signage	3.1	Vinyl layout cut using appropriate processes, tools and equipment to ensure minimum waste.
		3.2	Lettering background weeded out using appropriate tools and minimising risk of damage to vinyl.

	3.3	Transfer tack tape applied to either lettering or background.	
	3.4	Vinyl applied to surface consistent with job requirements.	
4	Spray application to signage	4.1	Work area set up for spray application in accordance with OH&S requirements.
		4.2	Equipment set up tested and defects corrected to operator's manual.
		4.3	Background masked to layout.
		4.4	Spray applied across face using correct method.
5	Clean up finished sign	5.1	Sign and surrounding surface and environment/area cleaned and waste materials removed in accordance with environmental concerns (EPA).
		5.2	Tools and equipment cleaned, maintained and stored according to operation manual or manufacturer's specification.

RANGE OF VARIABLES

This unit applies to all situations where signage materials are applied to surfaces of illuminated signs. Materials vary from short term to long term application.

Surfaces may include but are not limited to:

- glass
- plastic
- acrylics
- fibreglass

Materials include:

- vinyls
- lacquer based paints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- procedures with spray application

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment

- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- use of spray equipment

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- cutting blades
- templates
- drafting instruments
- spray equipment
- brushes
- scrapers

This unit also applies to carrying out all communication requirements associated with working with other persons at a site location or whilst carrying out tasks under limited supervision.

Verbal/written instructions include directions or instructions related to job/task.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the application of graphics and other decorative forms of signage or graphics to illuminated signfaces to two separate nominated projects, one of vinyl film application and the other of sprayed application.

(1) Critical Aspects and Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S legislation applicable to workplace activity/operations
- selection and use of appropriate tools, equipment and processes to carry out the requirements of activity
- application of organisational quality procedures and processes within context of applying graphics to signages
- selection and use of appropriate techniques to ensure sign surface prepared to receive film
- demonstrate sound techniques to layout sign to design requirements
- attention given to check spelling prior to cutting of sign, to ensure correct
- demonstrate sound and safe techniques to cut film to designed set out shapes
- demonstrate sound techniques in applying film to surfaces
- completion of application with finish consistent with specifications
- demonstrate sound techniques in preparing surface, materials and spray equipment for spray application
- demonstrate correct techniques in spray application and finish sign to specification
- identification of typical faults and appropriate remedial action taken to rectify problem
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Layout signs

Part of this competency may be concurrently assessed with:

- BCF3054A Apply graphics using pressure sensitive film

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- vinyl in sign design
- layout of signs
- spray application of paint
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- traditional and contemporary font styles and graphics used for signs
- materials and their characteristics relevant to illuminated signfaces
- design transfer method
- preparation of surfaces
- use of tools and equipment relevant to application of graphics to illuminated signfaces
- use of spray equipment
- measuring and setting out relevant to layout of signs
- prepare materials
- cutting of sensitive film

Skills

The ability to:

- work safely
- prepare for work application
- use tools and equipment
- draft design of sign to scale
- handle materials
- prepare surfaces
- use spray equipment
- measure and set out
- cut and fix vinyl
- effectively communicate verbally with others including client within work environment

(4) Resource Implications

The following resources should be made available:

- work location with appropriate space for activity
- tools, plant and equipment appropriate to carry out activity tasks
- working drawings and specifications relevant to activity
- materials relevant to activity tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken.

Competency should be assessed through direct observation and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting

Assessment shall be while tasks are undertaken either individually or while working with a partner or part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3056A: Produce computer aided manufactured (CAM) signs - vinyl

DESCRIPTOR

This unit applies to the preparation of materials and design layout for computer operation in producing computer manufactured vinyl signs.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Design layout identified/established prior to operation of sign computer.
		1.2	Appropriate tools, equipment and materials selected in accordance with industry and manufacturer's Quality Assurance requirements.
2	Start up and operate computer	2.1	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		2.2	Start up/shut down procedures established in accordance with operator's manual.
		2.3	Machine set to requirements of design layout and operation commenced ensuring appropriate design quality.
		2.4	Material waste minimised.
		2.5	Disk formatted in accordance with operator's manual for workplace procedures.
		2.6	Scanning digitising performed consistent with operator's manual.
		2.7	Backup copy of data made in accordance with operator's manual.
		2.8	File management undertaken in accordance with operator's manual/workplace procedures and Quality Assurance Standards.
		2.9	Plotter/output device used to print out/cut graphic or signage profile.
3	Maintain equipment	3.1	Ongoing routine maintenance carried out in accordance with operating manual.
		3.2	Service of equipment arranged in accordance with manufacturers requirements.

4	Identify and solve operating problems	4.1	Operating problems remedied by reference to operator's manual/machine manufacturer or maintenance contractor.
5	Clean up	5.1	Tools and equipment cleaned/stored to manufacturer's specifications.
		5.2	Waste disposed of safely and recyclable materials stored.
		5.3	Personal protective equipment removed inspected, cleaned and maintained.

RANGE OF VARIABLES

This unit applies to the operation and maintenance of all sign computers which produce signs and graphics.

Equipment used includes:

- computerised sign makers
- knife blades
- lasers
- drawing pens

Background materials to conform to:

- AS1865, AS1231 – Aluminum and Aluminum Alloys
- AS1449 – Wrought Alloy Steels
- AS1566 – Copper and Copper Alloys
- AS1565, AS2324 – PVC Film and Sheeting
- AS1366.3 Rigid Cellular Polystyrene

Signage materials include:

- PVA plastics
- acrylics
- polycarbonates
- timber
- paper
- granite
- glass
- brass
- stainless steel
- marble
- stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- coveralls
- safety glasses/goggles
- gloves
- cap

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective production of two separate nominated signs through the operation and maintenance of computer aided machinery used to produce signs and graphic reproduction.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S legislation applicable to workplace activity/operations
- application of organisational quality procedures and processes within context of computer controlled machinery
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of correct techniques to set up material with machine for production application
- selection and correct application of program opening and shut down procedures
- data imputed to achieve requirements of job
- demonstrate sound procedures with machine operated through a reduced speed dry run to check functions
- products produced in accordance with job specifications and drawings
- identification of faults or problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- types of machines and machining processes
- computer controlled machinery
- computers
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- design and layout of signs
- range of software applications appropriate to CNC equipment

- hardware requirements for programs
- materials and their characteristics relevant to vinyl material
- use of tools and equipment relevant to CNC equipment operations
- use of machinery
- handling of material

Skills

The ability to:

- work safely
- plan and prepare work
- use basic keyboarding skills
- use basic problem and fault finding skills with software applications
- set up software
- use tools and equipment
- use computers
- input data
- set up material for processes
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- tools, plant and equipment including CNC machinery appropriate to proposed activity
- range of cutters and heads applicable to machine operations
- material relative to proposed activity
- project details and specifications relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at the completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	3	1	3	2	3

BCF3057A: Produce computer aided manufactured (CAM) signs - digital

DESCRIPTOR

This unit applies to the preparation of materials and design layout for computer operation in producing computer manufactured digital signs.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Design layout identified/established prior to operation of sign computer.
		1.2	Appropriate tools, equipment and materials selected in accordance with industry and manufacturer's Quality Assurance requirements.
2	Start up and operate computer	2.1	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		2.2	Start up/shut down procedures established in accordance with operator's manual.
		2.3	Machine set to requirements of design layout and operation commenced ensuring appropriate design quality.
		2.4	Material waste minimised.
		2.5	Disk formatted in accordance with operator's manual and workplace procedures.
		2.6	Scanning digitising performed consistent with operator's manual and colour adjustments made to specification.
		2.7	Backup copy of data made in accordance with operator's manual.
		2.8	File management undertaken in accordance with operator's manual/workplace procedures and Quality Assurance Standards.
		2.9	Plotter/output device used to print out/cut or engrave graphic or signage profile.
3	Maintain equipment	3.1	Ongoing routine maintenance carried out in accordance with operating manual.

		3.2	Service of equipment arranged in accordance with manufacturers requirements.
4	Identify and solve operating problems	4.1	Operating problems remedied by reference to operator's manual/machine manufacturer or maintenance contractor.
5	Clean up	5.1	Tools and equipment cleaned/stored to manufacturer's specifications.
		5.2	Waste disposed of safely and recyclable materials stored.
		5.3	Personal protective equipment removed inspected, cleaned and maintained.

RANGE OF VARIABLES

This unit applies to the operation and maintenance of all sign computers which produce signs and graphics.

Equipment used includes but is not limited to:

- computerised sign makers
- knife blades
- water jet cutting
- lasers
- drawing pens
- routers
- engravers (routers with adaptable cutting heads)

Background materials to conform to:

- AS1865, AS1231 – Aluminum and Aluminum Alloys
- AS1449 – Wrought Alloy steels
- AS1566 – Copper and Copper Alloys
- AS1565, AS2324 – PVC Film and Sheeting
- AS1366.3 Rigid Cellular Polystyrene

Signage materials include:

- PVA plastics
- acrylics
- polycarbonates
- timber
- paper
- granite
- glass
- brass
- stainless steel

- marble
- stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- coveralls
- safety glasses/goggles
- ear plugs/muffs
- gloves
- cap

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective production of two separate nominated signs through the operation/maintenance of computer aided machinery used to produce signs and graphic reproduction.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S legislation applicable to workplace activity/operations
- application of organisational quality procedures and processes within context of computer controlled machinery
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of correct techniques to set up material with machine for production application
- selection and correct application of program opening and shut down procedures
- data imputed to achieve requirements of job
- demonstrate sound procedures with machine operated through a reduced speed dry run to check functions
- products produced in accordance with job specifications and drawings
- identification of faults or problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of machines and machining processes
- computer controlled machinery
- computers
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- design and layout of signs
- range of software applications appropriate to CNC equipment
- hardware requirements for programs
- materials and their characteristics relevant to producing digital signs
- use of tools and equipment relevant to CNC equipment operations
- use of machinery
- handling of material

Skills

The ability to:

- work safely
- plan and organise work
- use basic keyboarding skills
- use basic problem and fault finding skills with software applications
- set up software program
- use tools and equipment
- use computers
- input data
- set up material for processes
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- tools, plant and equipment including CNC machinery appropriate to proposed activity
- range of cutters and heads applicable to machine operations
- material relative to proposed activity
- project details and specifications relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	3	1	3	2	3

BCF3058A: Produce computer aided manufactured (CAM) signs - 3D dimensional

DESCRIPTOR

This unit applies to the preparation of materials and design layout for computer operation in producing computer manufactured 3D dimensional signs.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Job requirements identified from drawings, specifications and/or job instruction.
		1.2	OH&S requirements with the application tasks and workplace operations, recognised and adhered to.
		1.3	Appropriate tools, equipment and materials selected in accordance with industry and manufacturer's Quality Assurance requirements.
		1.4	Personal protective clothing selected, correctly fitted and used in accordance with OH&S requirements.
		1.5	Material safety data sheets determined and followed.
		1.6	Quality Assurance requirements of company's signage operations, recognised and adhered to.
2	Start up and operate computer	2.1	Start up/shut down procedures established in accordance with operator's manual.
		2.2	Machine set to requirements of design layout and operation commenced ensuring design quality appropriate.
		2.3	Material waste minimised.
		2.4	Disk formatted in accordance with operator's manual and workplace procedures.
		2.5	Scanning digitising performed consistent with operator's manual and colour adjustments made to specification.
		2.6	Backup copy of data made in accordance with operator's manual.
		2.7	File management undertaken in accordance with operator's manual/workplace procedures and Quality Assurance Standards.

		2.8	Plotter/output device used to print out/cut or engrave graphic or signage profile.
		2.9	Machine set to design layout requirements.
		2.10	Signage produced to layout requirement.
3	Identify and solve operating problems	3.1	Operating problems solved by reference to operator's manual/machine manufacturer or maintenance contractor.
4	Maintain equipment	4.1	Ongoing routine maintenance of tools and equipment carried out in accordance with operator's manual.
5	Clean up	5.1	Tools and equipment cleaned/stored to manufacturer's specifications.
		5.2	Waste disposed of safely and recyclable materials stored.
		5.3	Personal protective equipment removed, inspected, cleaned and maintained.

RANGE OF VARIABLES

This unit applies to the operation and maintenance of all sign computers which produce signs and graphics.

Equipment used includes:

- computerised sign makers
- knife blades
- water jet cutting
- lasers
- drawing pens
- routers
- engravers (routers with adaptable cutting heads)

Materials to conform to:

- AS1865, AS1231 – Aluminum and Aluminum Alloys
- AS1449 – Wrought Alloy Steels
- AS1566 – Copper and Copper Alloys
- AS1565, AS2324 – PVC Film and Sheeting
- AS1366.3 Rigid Cellular Polystyrene

Materials include:

- PVA plastics
- acrylics
- polycarbonates
- timber
- paper
- granite

- glass
- brass
- stainless steel
- marble
- stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Cutting devices used may include but are not limited to:

- engravers
- routers

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of setting up and inputting appropriate data for program and operating nominated machines to specified requirements to produce two separate nominated signs.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate tools, equipment and processes to carry out tasks
- application of organisational quality procedures and processes within context of computerised machine operation
- identification of all switches, controls and limitations in function and operation of a machine
- demonstrate sound and accurate techniques in setting up material for application process
- input of appropriate data to program machine to carry out specified task
- safe and efficient setting up of machine cutter heads and work table in preparation for machining process
- compliance with manufacturer's specifications in overall setting up of machine for operation
- safe and efficient operation of machine to produce specified result

- identification of faults or problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of machines and machining processes
- computer controlled machinery
- computers
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- use of tools and equipment relevant to CNC equipment operations
- company's Quality Assurance requirements
- maintenance of equipment
- materials and their characteristics relevant to producing 3D dimensional signs
- use of machinery
- handling of materials relevant to materials used with 3D dimensional sign production
- designs and layout of signs
- drawings and specifications

Skills

The ability to:

- work safely
- prepare for work application
- use machines
- use tools and equipment
- clean equipment
- solve problems
- handle and set up material
- set up and maintain machines
- use computers
- input data
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- computerised static machine and allied equipment appropriate to proposed activity
- tools and equipment appropriate to activity tasks
- appropriate materials for task
- project details and specifications/documentation relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	3	1	3	2	3

BCF3059A: Cavity and solid construction

DESCRIPTOR

This unit applies to the building of stone to form structures of cavity and solid construction.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Select and prepare materials and equipment	1.1	Quality Assurance requirements of company's recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Materials and quantity required determined from drawings and specifications.
		1.5	Tools, equipment selected to carry tasks consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to reduce hazards to self and others.
2	Set stone blocks	2.1	Datum or level line established.
		2.2	Dowel holes drilled in stone veneer to specifications.
		2.3	Stone blocks handled, raised/lifted, manoeuvred and located in position.
		2.4	Stone blocks fixed level and to line to specifications.
		2.5	Wall ties selected, located and installed in accordance with specifications and AS2699 Wall ties for masonry construction.
		2.6	Stonework cleaned using dry, liquid or chemical means.
3	Set out stonework	3.1	Location and structural details of stonework determined from drawings and specifications.
		3.2	Datum or level line established.
		3.3	Base stonework below floor construction set out to job drawings and specifications.
		3.4	Load bearing stonework and piers set out to job drawings and specifications.

		3.5	Stone walls set out to job drawings.
4	Construct base stonework	4.1	Mortar mixed to specifications and in accordance with AS3700.
		4.2	Base stone laid to set out and constructed to specifications and AS3700.
5	Position door and window frames	5.1	Timber, aluminium and steel windows located and built into walls to specification and protected from mortar droppings during construction.
		5.2	Timber and steel door jambs located, built in and fixed to cavity walls to drawings and specifications.
6	Construct stone walls	6.1	Stonework gauge determined and set out to rod preparation.
		6.2	Cavity walls constructed accurately to specifications and AS3700.
		6.3	Solid walls constructed to specifications and AS3700.
		6.4	Damp proof courses built to specifications and AS2904 Dampproof courses and flashings.
		6.5	Walls to be straight and true in plumb, line and level within tolerance set.
		6.6	Scaffolding erected as required in accordance with job requirements and OH&S regulations.
		6.7	Wall ties positioned correctly to AS2699.
		6.8	Openings constructed and flashing installed to specifications.
		6.9	Lintels installed to specifications.
		6.10	Expansion joints formed in accordance with locations on job drawings and AS3700.
		6.11	Weepholes, reinforcing, vermin proofing, wall flashing built in, where required, to specifications.
		6.12	Sills cut where required and laid to line to specifications.
		6.13	Tie downs for ceiling/roof structure built to specification as per AS1684 National Timber Framing Code.

7	Rake/rule joints	7.1	Joint to laid stonework raked or ruled to correct depth in accordance with job specification.
		7.2	Stonework brushed down prior to drying using appropriate brushing tool.
8.	Clean up	8.1	Area cleared to specification.
		8.2	Waste and unwanted material disposed of safely.
		8.3	Unused materials stored/stacked.
		8.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Stone for solid construction may be:

- regular
- random regular
- coursed
- uncoursed.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- control of dust
- noise control

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat.

Tools and equipment may include but are not limited to:

- measuring tape/rule
- squares
- hammers
- spirit level
- scaffolding
- rollers
- power drills including impact
- power grinder
- rubber mallet
- air compressor and hoses
- power leads
- screw cramp and wedges
- string line
- chalk line
- concrete mixer
- shovels
- mortar boards
- trowels
- jointing tools
- spanners.

Hazards may include but are not limited to:

- obstructions to clear access for supply
- barricades
- other work personnel
- excessive noise nearby
- wind
- power leads
- dust.

Lifting equipment includes but is not limited to:

- gin poles
- shear legs
- mechanised hoists
- elevating work platform.

Work to be undertaken and supported in accordance with legislative and regulatory requirements and Worksafe Australia Standards for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competence is to be demonstrated by working with a team to construct cavity and solid structures.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- compliance with OH&S regulations applicable to workplace operations
- compliance with organisational policies and procedures
- selection and use of appropriate processes, tools and equipment to carry out tasks
- application of organisational quality procedures and processes within the context of cavity and solid construction
- selection of stone consistent with specification for material and colour
- attention given to safe handling practices in moving and placing stone
- particular attention given to fixing of stone to position and structure
- stone fixed to line, level and plumb
- safe and effective procedures used to lay a stone wall to alignment and plumb
- attention given to wall tie fixing and finish of stone face to specifications
- identification of typical faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices
- BCF3067A Dress stone manually
- BCF2017A Lay stone

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- types of stone and characteristics
- Building Code of Australia and Australian Standards 1316, 2699, 2904 and 3700
- lifting equipment
- tools, plant and equipment
- mortar mix composition
- range of mortar additives
- scaffolding
- measuring, levelling and calculations
- worksite communication.

Skills

The ability to:

- work safely

- organise work
- use plant, equipment hand and power tools
- measure and set out work
- select materials specific to requirements
- calculate quantities
- handle materials safely
- erect scaffolding
- fix materials
- mix mortar
- dress stone
- effectively communicate verbally with others within a team situation.

(4) Resource Implications

The following resources should be made available

- Work location for stone construction activity
- Tools, plant and equipment appropriate to installation processes
- Construction materials relevant to proposed activity
- Appropriate communication of documentation relevant to task.

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specification.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCF3060A: Manufacture gas charged glass formed illuminated signs

DESCRIPTOR

This unit applies to the marking out, shaping glass into sections, charging glass sections and connecting to lighting systems to create illuminated signage.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Job requirements determined from drawings/patterns and specifications or instructions.
		1.2	Quality Assurance requirements of company's sign operations, recognised and adhered to.
		1.3	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.4	Appropriate personal protective equipment correctly selected and used safely.
		1.5	Routine maintenance requirements of equipment identified and implemented in accordance with workplace/Quality Assurance procedures.
		1.6	Design layout set out on appropriate heat resistance cloth/paper either manually or by computer aid.
		1.7	Sections calculated and marked out to design.
		1.8	Joints determined from layout and marked out on pattern.
		1.9	Electrodes marked out to indicate double backed/right angled position.
2	Bend glass	2.1	Glass heated with care over a gas flame until pliable.
		2.2	Glass bent to form shape consistent with pattern and specifications.
3	Attach electrodes	3.1	Electrodes attached in accordance with pattern specification and AS3100 Approval and test specification - General requirements for electrical equipment.
4	Connect glass to form sections	4.1	Glass tubing connected using appropriate procedures and techniques.

5	Prepare glass for lighting system	5.1	Pumping station activated in accordance with job requirements.
		5.2	"Section" connected to pumping station in accordance with job specifications.
		5.3	Glass vacuumed in accordance with job requirements.
		5.4	Glass filled with gas pumped using equipment and materials consistent with job requirements.
		5.5	Glass sealed using equipment consistent with job requirements.
		5.6	Glass bombarded in accordance with industry standards.
		5.7	Glass cooled in accordance with job requirements.
		5.8	Glass aged in accordance with job requirements.
		5.9	Neon sections tested to determine transformer loadings in accordance with AS3953 Loading guide for dry-power transformers.
		5.10	Doubled sections of glass blackened to form design shape.
6	Install tube supports to board/panel	6.1	Neon glass sign securely attached to board/panel using tube supports.
7	Clean up	7.1	Tools and equipment cleaned, maintained, and stored.
		7.2	Unused materials safely stored.
		7.3	Waste materials removed and disposed of in accordance with environmental concerns.
		7.4	Labelling and storage of patterns carried out to company Quality Assurance procedures.

RANGE OF VARIABLES

This unit applies to all neon/cold cathode glass to be used in creating signs, sculpture, logos and symbols. Gas includes use of neon and argon gas which should be in accordance with AS2508.2.012 Sale, storage and handling information card - Non-flammable, inert, compressed gases (includes: argon, helium, krypton, neon, nitrogen and xenon).

Mercury maybe added to tubes in some cases

Includes use of electrodes and transformers which should conform to:

- AS3100 Approval and test specification - General requirements for electrical equipment
- AS3953 Loading guide for dry-power transformers

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- straight edge
- templates
- heating equipment - blow torch
- glass shaping implements
- tongs
- multi purpose pliers
- screwdrivers
- power drills
- electrical multi meter

Verbal/written instructions and reports relate to the job/tasks/process.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of the safe and effective operation of machinery to manufacture and form gas filled glass tubing to create illuminated signage to two separate nominated designs within the range listed in the range of variables.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of manufacturing gas charged glass illuminated signs
- selection and use of appropriate processes, tools and equipment to carry out tasks

- demonstrate sound and accurate techniques to set out design layout
- correct procedures adopted and carried out prior to and during application of process
- effective operational use of tools and equipment with handling and forming glass to design shapes
- demonstrate sound and safe techniques to attach electrodes and connect glass tubing
- demonstrate safe and controlled techniques to prepare glass and pump gas to glass assembly
- demonstrate sound and safe techniques to bombard, cool and age glass to specifications
- display sound handling and securing procedures to affix sign to board or panel to complete job to requirement
- identification of typical faults and appropriate remedial action taken to rectify problem
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs
- BCF2006A Construct a sign
- BCG3071A Assemble fabricated components

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- gas charged glass formed illuminated signs
- shaping and forming glass
- pumping of gas to glass
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- designs and layout of signs
- drawings and specifications
- use of portable power tools
- use of hand tools and equipment relevant to manufacture of gas charged illuminated signs
- materials and their characteristics relevant to construction of glass illuminated signs
- measurement and setting out related to layout of signs
- handling of materials relevant to manufacture of gas charged illuminated signs
- working with glass tubed section
- Australian Standards - AS3100, AS2508.2.012, AS3953
- electrodes and transformers
- drawings, patterns and specifications

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- handle/hold materials during operation of tools
- select and use appropriate tools
- work and shape glass tubed section
- join glass sections
- use equipment and power tools
- measure and set out
- assemble signs
- install electrodes
- install gas to tubing
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- materials appropriate to proposed activity
- hand and power tools appropriate to activity tasks
- plant and equipment appropriate to activity tasks
- suitable work area appropriate to activity
- drawings and documentation relevant to proposed activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Assessment may involve:

- observation of application to tasks
- inspection of work
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job application or at the completion of the activity in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	2	2	2

BCF3061A: Build stone veneer walls

DESCRIPTOR

This unit applies to the building of single leaf, stone block facing to metal and timber wall framing.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Select and prepare materials and equipment	1.1	Quality Assurance requirements with company's construction operations recognised and adhered to.
		1.2	OH&S requirements with the processes of preparing for and laying stone for veneer construction and of the workplace environment identified and adhered to.
		1.3	Appropriate lifting equipment installed and tested to OH&S regulations and job requirements, where applicable.
		1.4	Working platforms/scaffolding erected in accordance with OH&S regulations and job requirements.
		1.5	Material and quantity requirements determined from job drawings and specifications.
		1.6	All work to comply to AS2904 Damp proof courses and flashings, AS3700-1988 Masonry Code and AS2699 Wall ties on Masonry construction.
		1.7	Appropriate personal protective equipment selected, correctly fitted and used.
		1.8	Tools and equipment selected consistent with the requirements of stone veneer construction, checked for serviceability and faults reported to supervisor.
		1.9	Safety hazards identified and correct procedures used to minimise risk to self and others.
2	Set out veneer stonework	2.1	Location and structural details of stonework identified from drawings and job specifications.
		2.2	Datum or level line established.
		2.3	Stonework set out to location and dimensions from drawings and specifications.
3	Construct base stonework	3.1	Mortar mixed to specifications and in accordance with AS1316 Masonry cement.
		3.2	Stonework gauge determined and set out rod prepared.
		3.3	Base stonework constructed for veneer construction to requirements of AS3700.

- | | | | |
|---|------------------------|------|--|
| 4 | Construct veneer walls | 4.1 | Timber/steel structural frame checked to ensure completed ready for stonework veneer with no protrusions into cavity requirements. |
| | | 4.2 | Stonework laid and completed to job drawings and specifications. |
| | | 4.3 | Damp proof course laid in accordance with specifications and AS2904 Damp proof courses and flashings. |
| | | 4.4 | Reflective foil laminate installed to comply with AS1904 and AS3700 Masonry in buildings. |
| | | 4.5 | Ventilation for veneer construction built in to specifications to requirements of as per AS1684 and Building Code of Australia. |
| | | 4.6 | Wall ties positioned and fixed to timber/steel framework correctly to AS2699. |
| | | 4.7 | Openings constructed and flashings installed to job specifications. |
| | | 4.8 | Cavities kept clear of mortar droppings and bridging. |
| | | 4.9 | Lintels installed to job specifications. |
| | | 4.10 | Top stonework constructed to eaves level to requirements AS3700. |
| | | 4.11 | Scaffolding erected as required in accordance with job requirements and OH&S regulations. |
| | | 4.12 | Walls to be built to gauge straight and true in plumb, line and level within the tolerances set out in AS3700. |
| | | 4.13 | Control joints formed in accordance with locations on job drawings and specifications and requirements of AS3700. |
| | | 4.14 | Weepholes, brick/block reinforcing, vermin proofing, wall flashing located and built in, where required, to job specifications. |
| | | 4.15 | Sills cut where required and laid to line in accordance with job specifications. |
| 5 | Rake/rule joints | 5.1 | Joints to laid stonework raked or ruled to correct depth and profile in accordance with the job specifications. |
| | | 5.2 | Stonework brushed down prior to drying to remove unwanted mortar. |
| 6 | Clean up | 6.1 | Stonework cleaned using dry, liquid or chemical means in accordance with type of stone and specifications. |
| | | 6.2 | Area cleared of waste, material, scaffolding and equipment. |

- 6.3 Waste and unwanted material disposed of safely.
- 6.4 Unused materials stored/stacked.
- 6.5 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit covers the construction of single leaf stone walling incorporating wall ties and reinforcement as specified.

Type of structure may include:

- timber wall framing
- metal wall framing

Stone for veneered construction may be:

- regular
- random regular
- uncoursed
- coursed

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- use and maintenance of equipment
- use and maintenance of equipment
- attention to specifications of work
- colour and shape of stones
- mortar mix/composition
- control of handling procedures
- application procedures
- attention to specifications of work.

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- safety hazards
- lifting equipment, cranes and hoists.

Personal protective equipment may include:

- safety glasses/goggles
- boots
- overalls
- gloves

- dust masks/respirators
- cap/hard hat
- ear plugs/muffs

Tools and equipment may include but are not limited to:

- measuring tape/rule
- spirit level
- dumpy level
- concrete mixer
- chisels
- wheelbarrows
- pitching tool
- shovels
- masonry saw
- trowels
- straight edges
- plumb rule
- jointing tools
- string line
- line pins
- profiles
- scaffolding
- mortar boards
- masons square
- angle grinder
- power leads

Reporting of faults should be in accordance with company's workplace procedures and may be verbal or written.

Hazards may include but are not limited to:

- obstructions to clear access for supply
- barricades
- other work personnel
- excessive noise nearby
- wind
- power leads
- dust

Lifting equipment includes but is not limited to:

- gin poles
- shear legs
- mechanised hoists
- elevating work platform.

Methods of securing veneer to structure may include but are not limited to:

- metal bracket for connection to steel frame
- metal wall ties for connection to timber or metal wall frame.

Work to be undertaken and supported in accordance with legislative and regulatory requirements and Worksafe Australia Standards for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competence is to be demonstrated by working with a team and fixing stone to provide the veneer to one of the types of structures listed within the range of variables statement and the laying of a stone wall as part of a veneered construction.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- selection and use of appropriate processes, tools and equipment for carrying out tasks.
- apply organisational quality procedures and processes within the context of stone veneer construction
- select stone consistent with specification for material and colour
- use safe handling practices in moving and placing stone
- give particular attention to fixing stone to position and structure
- use safe and effective procedures to lay a stone wall to alignment and plumb
- give attention to wall tie fixing and finish of stone face to specifications
- indicate compliance with organisational policies and procedures
- demonstrate accurate measuring and setting out techniques
- wall location determined and set out accurately
- stone laid to line level, plumb and gauge
- safe and effective procedures applied in erecting of scaffold
- identification of faults and problems that occur and the necessary action taken to rectify
- interactive communication with others to ensure safe and effective work operations are carried out
- cleanup of cavities, wall and work area
- completion of base and stone veneer construction to specification

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008BA Use simple levelling devices
- BCF2017A Lay stone
- BCG3011A Carry out basic setting out

(3) Underpinning Knowledge and Skills

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- types of stone and their characteristics
- methods of fixing stone veneer
- building Code of Australia and Australian Standards 1316, 2699, 2904, 1225, 2733 and 3700
- lifting equipment
- tools, plant and equipment
- mortar mix composition
- range of mortar additives
- scaffolding
- measuring, levelling and calculations

- worksite communication

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use plant, equipment, hand and power tools
- measure and set out work
- select materials specific to requirements
- calculate quantities
- handle materials safely
- erect scaffolding
- fix materials
- mix mortar
- lay stone
- communicate effectively

(4) Resource Implications

The following resources should be provided

- work location for stone veneer activity
- tools, plant and equipment appropriate to construction processes
- construction materials relevant to proposed activity
- appropriate communication of documentation relevant to task

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCF3062A: Hand render pictorials

DESCRIPTOR

This unit applies to the production and layout of signs that form hand rendered pictorial images on a range of substrates as signage installations.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements of company's signage operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Tools, equipment and materials to carry out tasks selected and used consistent with job requirements.
		1.4	Specifications, sample drawings and client instructions interpreted and job requirements and sequence, determined.
		1.5	Material quantities estimated in accordance with size of sign and materials to be used.
		1.6	Sample accurately checked from copy.
		1.7	Substrates identified and prepared in accordance with planned material application.
		1.8	Layout set out to scale using appropriate setting out techniques.
		1.9	Colour selection determined consistent with job requirements.
		1.10	Material safety data sheets referred to, as required.
2	Apply materials to layout	2.1	Appropriate personal protective equipment selected, correctly fitted and used.
		2.2	Materials applied to surface using application consistent with job requirements and to outline of pictorial.
		2.3	Detail of pictorial outline used to control application of selected materials and colour to produce accurate copy to sample and/or to instructions.

3	Present work to client	3.1	Work presented to client to specification and relevant Australian Standards, if applicable.
4	Clean up	4.1	Tools and equipment cleaned, maintained and stored.
		4.2	Completed work cleaned, checked for protection, packed and transported/presented to client for approval.

RANGE OF VARIABLES

Sign writing application to hand rendered pictorials may include but is not limited to:

- brush
- spraying
- airbrushing
- roller application

Reference documents may include:

- relevant Australian Standards:
AS2311 General Workmanship – Painting
AS2700 Colour Range – Painting
- Sample pictorial or client design brief

Sign types include:

- internal or external signs depicting pictorial images

Materials may include but not limited to:

- acrylic paint
- enamel paint
- waterbased paints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to client's brief
- specifications of design

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

- coveralls
- safety glasses/goggles
- dust masks/respirators
- gloves

Tools and equipment may include but are not limited to:

- measuring tape/rule
- range of brushes
- rollers
- pots
- stirrers
- artists brush
- scaffolding
- ladders
- planks
- spray equipment
- drafting instruments

Instructions may be verbal or written in directions on pictorial production.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out the effective and accurate layout and application of substances to surfaces in creating pictorial work within signage to a nominated brief.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identification of dimensions, symbols, abbreviations and key features of signage
- demonstrate compliance with OH&S legislation applicable to workplace activity/operation
- indicate compliance with organisational policies and procedures including Quality Assurance within the context of hand rendering pictorials
- show sound preparation in checking all relevant reference information before preparing layout
- identification and correct application of designed material to substrate
- demonstrate sound and accurate techniques to reproduce pictorial to size requirements
- show appropriate techniques to identify and record colours
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound techniques to produce colour fully to boundary limits
- completion of pictorial to design and specifications
- demonstrate sound techniques in handling and providing appropriate protection to finished sign
- interactive communication with client and others to ensure safe and efficient workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG2001A Prepare surfaces
- BCF2004A Lay out signs
- BCF2005A Use colour matching for signwriting

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- pictorial designs and reproduction
- drawings and layouts for signs
- materials relevant to drawings/specifications for signs
- measurements and calculations related to material quantities
- Australian Standards - AS2311, AS2700
- symbols, dimension and terminology relating to signage
- colour selection
- application techniques with paint
- use of tools and equipment relevant to hand rendering pictorials
- measure and setting out relevant to layout of signs

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and documentation
- measure accurately
- use tools and equipment
- select and record colours
- transfer measurements from drawings to sign in pictorial forms
- prepare colours
- apply paint
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available:

- reference documentation relating to producing signs
- drawings and/or specifications relevant to proposed activity
- suitable work area
- tools and equipment relevant to signage tasks
- range of materials appropriate to activity tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checking.

Assessment may involve:

- observation of application to tasks
- inspection of final product
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of the job in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCF3063A: Fabricate plastic signs

DESCRIPTOR

This unit applies to the preparation and application processes to assemble a sign constructed of plastic fabricated components.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's signage operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with the processes of assembling plastic sign components and workplace operations, recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
2	Identify assembly method and construct jigs if required	2.1	Assembly method identified and jigs constructed from engineering drawings or according to workshop practice, where required.
		2.2	Distortion prevention/control techniques correctly applied.
3	Check all components to be assembled are available	3.1	All components checked against drawings and material list for conformity to design specifications.
4	Select tools and fixtures for fabrication assembly	4.1	Tools and equipment selected to carry out tasks consistent with requirements of job and checked for serviceability.
5	Assemble plastic components	5.1	Materials and/or fabricated components correctly positioned for assembly.
		5.2	Jigs, fixtures, tools and measuring equipment correctly adjusted and applied.
		5.3	Alignment of plastic components are adjusted to specifications.
		5.4	Assembled components checked for square, level and alignment within ± 1 mm.

	5.5	Temporary fixing/joining techniques applied as necessary.
	5.6	Assembly checked for compliance with job drawing and specifications.
	5.7	Codes/standards interpreted and applied.
6	Clean up	
	6.1	Waste and unwanted material disposed of safely.
	6.2	Unused material stored.
	6.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to plastic fabricated components, designed for assembling to form signs.

Materials may include but are not limited to:

- polycarbonates
- acrylic based materials
- expanded PVC materials
- fluoropolymer resins

Fabricated components may include but is not limited to:

- sheet material
- extruded sections
- moulded panels
- moulded shapes
- moulded sections

Fixing/joining methods may include but are not limited to:

- solvent bonding
- plastic welding
- riveting
- screw/bolt type fasteners

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- gloves
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- screwdrivers
- squares
- power drill
- set spanners
- shifting spanners
- straight edges
- welding equipment

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of assembling two separate types of fabricated signs of those listed in the range of variables in either sheet or formed materials.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of assembling of fabricated components
- selection and use of appropriate processes, tools and equipment to carry out tasks
- indicate sound understanding of design and method of assembling sign
- safe and effective procedures used to assemble components
- demonstrate sound techniques to join/secure junctions of components
- display appropriate procedures and application to ensure assembly is to line, square and/or level
- completion of assembly to form sign to finish specification
- identification of faults and problems that occur and necessary action taken to rectify
- interactive communication with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCF2004A Layout signs

Competency may be concurrently assessed with:

- BCF3032A Mould plastic formed signs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- design of fabricated plastic signs
- manufacturing of plastic components
- types of material forms developed from plastics
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- jointing methods for a range of materials relevant to plastic signs
- Australian Standards relevant to quality and durability of plastics in signs
- fabricated components and materials
- use of tools and equipment relevant to fabricating of plastic signs
- use of fixings and fasteners relevant to assembling plastic signs
- measuring and setting out related to assembling of signs
- assembling procedures

Skills

The ability to:

- work safely
- interpret drawings and specifications
- plan and organise work
- use tools and equipment
- measure and set out work
- join a range of materials using methods appropriate to types of material
- assemble and secure components
- align and square framework
- effectively communicate verbally with others within a team situation

(4) Resource Implications

The following resources should be made available:

- workplace location with appropriate space for activity
- tools and equipment appropriate to activity tasks
- appropriate signage materials relevant to proposed activity
- working drawings and specifications relevant to sign design

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment and in accordance with work practices and safety procedures.

Assessment should be while tasks are undertaken individually or working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	3	1	3	1	2

BCF3064A: Carry out cemetery monument fixing

DESCRIPTOR

This unit applies to the fixing of a monumental stone, using granite, marble, basalt, pre-cast concrete sections or re-constituted stone

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements with company's stone masonry operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Job material and equipment requirements determined from drawings, site location and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	All work to comply to AS2904 Damp proof courses and flashings, AS3700 Masonry Code and AS2699 Wall ties on Masonry construction.
		1.7	Appropriate personal protective equipment selected, correctly fitted and used.
		1.8	Tools and equipment selected consistent with the requirements of stone veneer construction, checked for serviceability and faults reported to supervisor.
		1.9	All work to be carried out in accordance with AS4204 eadstones and cemetery monuments.
2	Construct footings and prepare monument stones	2.1	Monument footings set out and excavated to dimensions from drawings and specifications.
		2.2	Reinforcement placed, formwork fixed and concrete poured to provide footings to specifications.
		2.3	Delivered stone checked for conformity to size, design and specifications.
		2.4	Layout set out on footings to dimensions of design.
		2.5	Appropriate lifting equipment installed and tested or made ready to OH&S regulations and job requirements, where applicable.
3	Set up side stones into place	3.1	Side stones stood up into position on packing of cement sheet or stone pieces.

- | | | |
|---|--------------------------------|---|
| | 3.2 | Packing adjusted to provide slight fall towards front stone. |
| | 3.3 | Side stones checked for plumb and packing adjusted where required. |
| | 3.4 | Measurement for diagonals and parallel checked to be true. |
| | 3.5 | Stones checked for alignment by levelling at both front and back ends of side stones. |
| 4 | Prepare dowel joints | |
| | 4.1 | Depth of abutting dowel holes checked for measurement. |
| | 4.2 | Dowels measured and marked to length – 10 mm and cut to marks. |
| | 4.3 | Dowels inserted in or located near applicable holes. |
| 5 | Stand up front and back stones | |
| | 5.1 | Mortar mixed to specification and inserted into side stone holes. |
| | 5.2 | Designated dowels inserted into mortared holes to full depth. |
| | 5.3 | Back stone positioned on timber packing ready for lifting into place. |
| | 5.4 | Timber pieces placed against side stones to avoid chipping in lifting. |
| | 5.5 | Mortar placed to fill holes and back stone raised into position. |
| | 5.6 | Back stone manouvered into close joints and packing adjusted to ensure back stone level. |
| | 5.7 | Front stone located, raised and manouvered into position to finish with joints to specifications and level. |
| 6 | Grout base and joints | |
| | 6.1 | Grout prepared and mixed to specification. |
| | 6.2 | Joints between kerb stones and base packed slightly with grout to specifications. |
| | 6.3 | Kerb joints cleaned with wet cloth and grouted to specifications. |
| 7 | Fix headstone to backstone | |
| | 7.1 | Dowels for joints measured and cut to specifications. |
| | 7.2 | Dowel holes filled with mortar and dowels placed fully into backstone. |
| | 7.3 | Headstone raised and lowered carefully into place. |

		7.4	Headstone finished plumb and level to specification.
8	Fill centre and finish with chip top	8.1	Centre area filled and finished to specified base.
		8.2	Brick or concrete supports placed in each corner and maximum 50 mm thick reinforced concrete slab poured to specification.
		8.3	Bluestone and granite screening mixed and spread to specified finished level.
9	Fit cover stone and finish monument	9.1	Dowels for joints, where applicable, measured and cut to specifications.
		9.2	Centre area filled to specifications.
		9.3	Dowel holes filled with mortar and dowels placed fully into position.
		9.4	Cover stone lifted into place and rested upon timber packing pieces.
		9.5	Cover stone lowered into place using wedges to finish in position.
		9.6	Pointing/grouting material prepared and applied to joints, finishing to specification.
10	Clean up	10.1	Monument cleaned down and polished where applicable to specification.
		10.2	Area cleared and waste material disposed of safely.
		10.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the fixing of monumental stone. All work is to comply with AS4204 Headstones and Cemetery Monuments.

Stone for monuments include but are not limited to:

- granite
- marble
- basalt
- pre-cast concrete sections
- re-constituted stone

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

- attention to finish of monuments

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

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

Personal protective equipment may include:

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

Tool plant and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- spirit level
- squares
- concrete mixer
- masonry chisel
- hacksaw
- power grinder
- shovels
- impact drill
- wheelbarrow
- air compressor and hoses
- power leads
- generator
- trowels
- rollers
- pinch bars
- fencing bars.

Lifting equipment may include is not limited to:

- gin poles
- shear legs
- hydraulic or mechanical jacks.

EVIDENCE GUIDE

Competence is to be demonstrated by installing a cemetery monument in accordance with elements of the competency and using any of the materials listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures

- select and use appropriate processes, tools and equipment to carry out installation tasks
- apply organisational quality procedures and process within the context of installing cemetery monuments
- install concrete footings to location and level
- give attention to accurate measurement of stone sections and setting out for monument
- adopt and use safe and effective procedures to fit and fix front, side and backstones
- use correct procedures to place and fix headstone
- complete installation and finish to specifications
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices
- BCF3067A Dress stone manually

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- lifting equipment
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- types of stone and characteristics
- concrete footings
- stone monument construction methods
- AS4204 Headstones and Cemetery Monuments
- plant, tools and equipment
- measure and levelling
- materials handling
- adhesives and sealants

Skills

The ability to:

- work safely
- organise work
- read and interpret drawings
- set out work
- use tools plant, and equipment
- measure and set out work
- work to measurements and levels
- handle materials safely
- communicate effectively

(4) Resource Implications

The following resources should be made available

- site location for proposed activity

- materials appropriate to required constructions activity
- hand/power tools, plant and equipment appropriate to applications tasks
- drawings and specifications relevant to proposed activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge..

Competence should be assessed under guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCF3065A: Set and anchor stone facades

DESCRIPTOR

This unit applies to the attaching of stone slabs and panels to single and multi-storey structures.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Design of stone façade and method of fixing identified from site drawings and engineer's structural details.
		1.4	Stone façade erection planned consistent with AS3850 Guide to the erection of pre-cast concrete members.
		1.5	Delivered stone checked for conformity to size and colour against specifications and provided material sample.
		1.6	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.7	Appropriate personal protective equipment selected, correctly fitted and used.
		1.8	Safe working area isolated and maintained in accordance with job safety requirements and AS3850.
		1.9	Area below construction face cleared and isolated with designed barricade to OH&S and job requirements.
		1.10	Scaffolding erected, where required, to job requirements and OH&S regulations.
		1.11	Slings, clutches and other pre-determined rigging equipment selected to job requirements and inspected for correct function.
2	Prepare stone for dressing	2.1	Area of structure to receive stone for façade set out for line and level in accordance with job drawings and dimensions.
		2.2	Datum or level line established for base course of stone components.

- | | | |
|---|-------------------------------|--|
| | 2.3 | Area of structure to receive stone components prepared consistent with manufacturer's fixing recommendations, site drawings and specifications. |
| | 2.4 | Brackets or anchors installed to structure for line of placement to specifications for structural fixing. |
| | 2.5 | Steel dowels fitted to base where specified to provide key for base course of components. |
| | 2.6 | Stone checked for faults prior to installation. |
| | 2.7 | Stone components prepared, lifting locations checked and lifting gear attached in accordance with manufacturer's requirements and AS3850. |
| 3 | Lift, erect and fix stone | |
| | 3.1 | Stone component lifted and transferred safely to fixing location at structure in accordance with job safety requirements. |
| | 3.2 | Base components prepared for placement by drilling of holes for dowels where applicable, and placement of wedges or packers for adjustment.. |
| | 3.3 | Initial stone manoeuvred, placed and adjusted in position to be fixed level, to line and plumb. |
| | 3.4 | Base course of stone components placed and fixed to lines, level, aligned on face and plumb to specifications. |
| | 3.5 | Fixing connections installed during location of each stone component to align and tie components together, adjusted and secured to specifications. |
| | 3.6 | Corners of stone façade joined and fixed to designed junction, to specifications. |
| | 3.7 | Stone façade installed to engineer's specifications. |
| | 3.8 | Lifting gear/rigging equipment removed from stone façade upon engineer's or site authority's approval of fixing. |
| 4 | Caulk/seal/flash stone façade | |
| | 4.1 | Stone façade caulked/sealed and/or flashed in accordance with job drawings and engineer's specifications. |
| 5 | Clean Up | |
| | 5.1 | Area cleaned to specification. |
| | 5.2 | Waste material removed and placed into job waste bins. |
| | 5.3 | Tools and equipment cleaned, inspected, maintained and stored. |

RANGE OF VARIABLES

This unit applied to the fixing of stone to provide finished facades to single and multi-storey structures. This unit applies to the attaching of stone slabs and panels to a structural framework.

Types of structures may include:

- in situ reinforced concrete
- pre-cast reinforced concrete
- structural steel frame
- brick/concrete masonry walls.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- lifting equipment, cranes and hoists

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- hard hat

Tools and equipment may include but are not limited to:

- measuring tape/rule
- squares
- hammers
- spirit level
- masonry chisels
- scaffolding
- rollers
- power drills including impact
- power grinder
- rubber mallet
- air compressor and hoses
- power leads
- clogging tool
- screw cramp and wedges
- string line

- chalk line
- lifting gear and equipment

Hazards may include but are not limited to:

- obstructions to clear access for supply
- barricades
- other work personnel
- excessive noise nearby
- wind
- power leads
- dust

Fixing connections for supporting and tying stone components together may include but are not limited to:

- pin bracket
- corbel plate bracket
- slotted bracket
- turned end cramp
- back cramp
- fish tailed cramp
- "s" hook
- dog cramp

Methods of securing stone to structure may include but are not limited to:

- mechanical masonry anchor
- chemical masonry anchor
- metal bracket for connection to steel frame

Work to be undertaken in a team situation and supported by crane and plant operators in accordance with legislative and regulatory requirements and Worksafe Australia Standards for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competency is to be demonstrated by working with a team and plant operators to place and fix a stone façade to one of the types of structures from those listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes, tools and equipment to carry out tasks
- apply organisational quality procedures and processes within the context of setting and anchoring stone facades. demonstrate sound techniques in the dressing of both hard and soft stone.
- select stone consistent with specification for material and colour.
- accurately set out and install fixing brackets
- give attention to safe handling practices in moving and placing stone
- give particular attention to fixing stone to position and structure
- fix stone to line, level and plumb with clamps securing components
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete stone façade to specification.

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008A Use simple leveling devices
- BCG1011A Handle construction materials and safely dispose of waste
- BCF3067A Dress stone manually
- BCF2009A Carry out load slinging of off-site materials
- BCF2017A Lay stone

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- types of stone and characteristics
- methods of fixing stone to structure
- Building Code of Australia and Australian Standard 3850
- lifting equipment
- tools, plant and equipment
- scaffolding
- measuring, leveling and calculations
- worksite communication.

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use plant, equipment, hand and power tools
- measure and set out work
- select materials specific to requirements
- calculate quantities
- handle materials safely
- fix materials
- communicate effectively.

(4) Resource Implications

The following resources should be made available

- work location for installation of stone
- tools, plant and equipment appropriate to installation processes
- construction materials relevant to proposed activity
- appropriate communication of documentation relevant to task

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge..

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specification.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	2	1	1	2

BCF3066A: Split stone manually

DESCRIPTOR

This unit applies to splitting stone using a range of methods for both hard and soft stone.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's stone masonry operations recognised and adhered to.
		1.2	OH&S requirements for application to tasks and workplace environment, recognised and adhered to.
		1.3	Job requirements identified from drawing and specifications or detailed sketches and instructions provided by supervisor.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Safety and protective requirements for work personnel, public and environment determined and used.
		1.6	Tools, measuring and marking instruments, equipment and work space selected to carry out processes consistent with job requirements.
		1.7	Drawings, specifications, plans and schedules for job adhered to.
		1.8	Equipment inspected for serviceability, maintenance undertaken and adjustments made (as required by job) prior to operation.
2	Use a range of methods for splitting stone	2.1	Alternative methods identified for drilling and splitting stone.
		2.2	Stone split and squared by drilling and using plugs and feathers.
		2.3	Holes set out to line and spacings and drilled to depths as specified for type and size of stone.
		2.4	Guillotine principles applied and used for splitting various thicknesses of slabbed stone as required by job or organisation.
		2.5	Stone split using natural lines of cleavage.
3	Clean up work	3.1	Stone surfaces finished as required by job and specifications.

- 3.2 Work cleaned on completion with fresh water and brushes if necessary.
- 3.3 Waste materials disposed in an appropriate manner and in accordance with EPA requirements

RANGE OF VARIABLES

Methods used to split stone may include but are not limited to:

- freezing
- v-cut and wedging
- hydra splitting
- expanding grout
- plugs and feathers

Supervisor's instruction may be verbal or written.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- procedures in splitting stone

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

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

Tools and equipment used to split and shape stone may include but are not limited to:

- bush hammers
- chisels
- poky
- spalling hammers
- axes
- patent axes
- splitting wedges
- plugs and feathers

- masonry drills
- sledge hammers

Material may include both hard and soft stones such as:

- limestone
- sandstone
- granite
- basalt (blue stone)
- slate
- porphyry
- locally available stone

EVIDENCE GUIDE

Competency may be assessed by splitting both with and against the grain (eg. flag stones split to thickness then to size by splitting across the grain).

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- apply organisational quality procedures and processes within context of splitting stone
- select and use appropriate processes, tools and equipment to carry out tasks
- split both hard and soft stone
- sequence appropriate tasks associated with splitting of stone
- adopt and use safe and effective procedures with use of power tools and splitting of stone

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Organise work
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction material and safe disposal of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of stone and their characteristics
- methods of splitting stone
- workplace and equipment safety requirements including relevant statutory regulations
- workings drawings and specifications relevant to stonework
- material handling associated with stonework
- regulations related to safe disposal of waste and dust suppression
- tools and equipment relevant to preparing stone
- measuring and marking relevant to splitting stone

Skills

The ability to:

- work safely

- interpret drawings
- use hand tools
- handle material safely
- measure and set out work relative to preparing stone
- effectively communicate verbally with others, working in a team environment

(4) Resource Implications

The following resources should be provided:

- workplace location
- hand tools and equipment appropriate to splitting stone processes
- stone appropriate to activity
- drawings and specifications/documentation relevant to activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Evidence should be collected over time allowing for demonstration in a range of workplace activities.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment should be while tasks are undertaken under limited and intermittent supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	2	2	2	-	-	1

BCF3067A: Dress stone manually

DESCRIPTOR

This unit applies to the dressing of stone manually using methods of working stone and tools dependant upon the type of stone. This competency applies to both hard and soft stone.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Plan and prepare work	1.1	Quality Assurance requirements with company's stonemasonry operations, recognised and adhered to.
		1.2	OH&S requirements in accordance with application tasks and workplace operations, recognised and adhered to.
		1.3	Information relating to size, shape and finish of stone obtained from drawings/sketches and specifications/instructions.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	Stone selected in accordance with type and colour of stone, where applicable and checked for defects or natural inclusions inappropriate for job.
		1.7	Stone checked for dimensions to allow dressing to produce final design.
2	Dress stone	2.1	Stone marked out in a manner appropriate to job plan and specifications at each progressive stage of dressing.
		2.2	Rough block primarily dressed to establish an oversized stone appropriate to job plan and specifications.
		2.3	Face of stone dressed to flat surface.
		2.4	Sides of stone dressed off face in accordance with job plan and specifications.
		2.5	Cylinder dressed in accordance with job plan and specifications.
		2.6	Sphere dressed in accordance with job plan and specifications.
3	Clean up	3.1	Surfaces finished to a standard appropriate to job plan

and specifications.

- 3.2 Stone cleaned using water and brush or other appropriate non-corrosive method.
- 3.3 Work area cleared and cleaned and waste material disposed of safely.
- 3.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Hand tools and methods of working stone will depend on type of stone being used and designed shape to be produced.

This unit applies to both hard and soft stone.

Methods of dressing stone may include:

- drilling
- splitting
- hand sawing
- axing
- pitching
- punching
- chiseling

Instructions on related information on finish details of stone include:

- verbal instructions
- written notes
- sketches

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include:

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

- leather apron

Tools and equipment may include but are not limited to:

- measuring tape/rule
- scribe
- spirit level
- squares
- straight edge
- axes
- range of chisels
- spalling hammers
- drills (power or hand)
- plugs and feathers
- splitting 'gads'
- hand saws
- mallets and hammers
- pitchers
- punches
- drags
- cocks combs
- bevels
- koblars
- tooth chisels

EVIDENCE GUIDE

Competency is to be demonstrated by dressing both hard and soft stone using appropriate tools and methods of those listed in the range of variables.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with OH&S regulations applicable to workplace operations
- application of organisational quality procedures and processes within context of dressing stone
- selection and use of appropriate processes, tools and equipment to carry out tasks
- demonstrate sound and safe techniques to produce dressed face on stone
- attention given to accurate setting out of each side and end of stone
- selection of appropriate sequencing of tasks associated with the shaping of stone
- safe and effective procedures adopted and used to dress stone
- regular checking of dressing process to ensure working to set out and size
- stone dressed and finished to specification

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Organise work
- BCG1005A Use hand and power tools
- BCG1011A Handle construction materials and safe disposal of waste
- BCG2012A Make set outs

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- types of stone and their characteristics
- methods of dressing stone
- workplace and equipment safety requirements including relevant statutory regulations
- working drawings and specifications
- material handling related to stonework
- regulations related to safe disposal of waste and dust suppression
- tools and equipment relevant to dressing stone
- measuring and marking related to shaping of stone

Skills

The ability to:

- work safely
- plan and organise work
- interpret drawings and specifications
- use tools and equipment
- handle material
- measure and set out work
- dress stone
- effectively communicate verbally with others within a team environment

(4) Resource Implications

The following resources should be made available

- workplace location
- hand tools and equipment appropriate to setting out and dressing processes
- stone appropriate to activity
- drawings and specifications/documentation relative to activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Evidence should be collected over time allowing for demonstration in a range of workplace activities.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment should be while tasks are undertaken under limited and intermittent supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	2	1	2	2	1

BCF3069A: Styles of architecture

DESCRIPTOR

This unit applies to the identifying of architectural design trends and features that applied to historic periods of stonemasonry construction and relevant to our local built environment.

ELEMENT OF COMPETENCY

PERFORMANCE CRITERIA

1	Identify styles of architecture	1.1	Styles of architecture to historical periods, identified.
		1.2	Styles in terms of local architecture, recognised and related to historic styles.
2	Identify structural elements	2.1	Structural elements in relation to Classical styles of architecture identified.
		2.2	Structural elements in relation to Gothic styles of architecture identified.
		2.3	Structural elements identified in relation to their structural function and aesthetics (eg light and shade).
3	Identify and list mouldings and decorative features	3.1	Various types of mouldings identified and related to their relevant styles of architecture.
		3.2	Set out using geometrical principles, a range of structural elements and decorative features
		3.3	Various types of decoration identified and listed.
		3.4	Ornamental types to the principle styles of architecture, identified with respective styles.

RANGE OF VARIABLES

This unit applies to the types of buildings, structures relevant to local and regional styles and the built environment relevant to historical aspect.

Styles of architecture may include but are not limited to:

- Greek orders
 - Roman orders
 - Gothic
 - Colonial
 - Victorian
 - Federation
 - Post war
- } Renaissance

Types of construction or buildings may include:

- housing
- commercial/industrial buildings

- government building
- civic building
- single storey to multi storey buildings
- bridges
- tunnels
- churches and cathedrals

Structural elements may include but are not limited to:

- walls
- arches and vaults
- columns and beams

Types of decoration include but are not limited to:

- figurative
- foliage
- embellished mouldings

EVIDENCE GUIDE

Competency is to be demonstrated by the effective identification of period architecture and its relationship to local environment relevant to the work orientation.

(1) Critical Aspects Evidence

It is essential that competence is observed in the following aspects:

- identification of characteristics and decorative styles relative to the classical architectural order
- identification of particular styles of architecture with relevant periods of history
- identification of relationship between period architectural styles and current local structures

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCG2012A Make set outs

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- types of buildings/structures
- different periods and architectural styles
- symbols, dimensions and terminology relevant to architectural styles
- elements of structures
- methods of construction

Skills

The ability to:

- communicate effectively
- interpret architectural sketches and photographs
- sketch features

(4) Resource Implications

The following resources should be made available:

- suitable documentation, drawings, photographs including sketches, appropriate to the activity tasks
- literature and documentation relevant to tasks

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks.

Assessment may involve:

- observation of application to tasks
- questioning related to underpinning knowledge
- reproducing drawings

Assessment may be by intermittent checking at various stages of the task application in accordance with the performance criteria, or it may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed while tasks are undertaken under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	3	1	2	1	1	2

**OFF-SITE CONSTRUCTION
COMPETENCY STANDARDS
June 2000**

General Construction Competency Standards

Code	Title
BCG1000A	Carry out interactive workplace communication
BCG1001A	Carry out OH&S requirements
BCG1002A	Plan and organise work
BCG1003A	Read and interpret plans
BCG1004A	Carry out measurements and calculations
BCG1005A	Use hand and power tools
BCG1006A	Use small plant and equipment
BCG1007A	Erect and dismantle restricted height scaffolding
BCG1008A	Use simple levelling devices
BCG1009A	Carry out excavation and install support
BCG1010A	Carry out concreting to simple forms
BCG1011A	Handle construction materials and safely dispose of waste
BCG1016A	Prepare for construction process (carpentry)
BCG1018A	Prepare for construction process (steelwork)
BCG1019A	Prepare for construction process (painting & decorating)
BCG2000A	Assemble simple partition frames
BCG2001A	Prepare surfaces
BCG2002A	Oxy/LPG acetylene cutting
BCG2003A	Carry out general demolition
BCG2004A	Carry out levelling
BCG2007A	Operate elevated work platforms (EWPs)
BCG2008A	Use explosive power tools (EPTs)

Code	Title
BCG2009A	Carry out concrete work
BCG2010A	Remove/replace door and window furniture
BCG2012A	Make set outs
BCG3011A	Carry out basic setting out
BCG3012A	Construct and erect timber wall framing
BCG3016A	Install sub floor framing
BCG3041A	Undertake dogging
BCG3045A	Apply paint by spray
BCG3050A	Renovate and restore stone work
BCG3053A	Produce reconstituted stone
BCG3056A	Construct stone arches
BCG3068A	Construct battered masonry surfaces
BCG3069A	Construct fireplace and chimney
BCG3071A	Assemble fabricated components
BCG3074A	Carry out profile work
BCG3075A	Machine stone
BCG3081A	Apply/install waterproofing and damproofing
BCG3083A	Apply gilding to stone
BCG3084A	Install framed ceiling (sheet and boards)
BCG3096A	Apply paint by brush/roller
BCG3104A	Install curtain walling
BCG3115A	Lay segmental/unit paving

BCG3104A: Install curtain walling

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and installing curtain walling, recognised and adhered to.
		1.3	Design of curtain walling and structural connections identified from site drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.6	Location of curtain wall installation connections set out to job drawings and specifications.
		1.7	Area below construction face cleared and isolated with designed barricade to OH&S and job requirements.
		1.8	Surface of structure to receive curtain walling inspected for conformity and prepared to receive fixings according to job detail drawings and specifications.
		1.9	Scaffolding erected in accordance with job requirements and OH&S regulations.
		1.10	Slings, clutches and other pre-determined lifting gear and equipment selected to job requirements and inspected for serviceable condition.
2	Install curtain walling	2.1	Curtain wall fixing brackets installed correctly to set out points in accordance with manufacturer's specifications and site structural drawings.
		2.2	Curtain walling sections lifted and raised to installation location by crane operations.
		2.3	Curtain walling located and fixed into correct position in accordance with job drawings, specifications and manufacturer's requirements.
		2.4	Installed curtain walling plumbed/levelled aligned and finally fixed into place to specifications.
		2.5	Junctions between placed sections of curtain walling fitted and secured to specifications for fixing.

		2.6	Curtain wall trims installed in accordance with manufacturer's specifications and detail drawings, where applicable.
3	Caulk seal curtain walling	3.1	Installed curtain walling and trims caulk sealed in accordance with job specifications, where applicable.
4	Clean Up	4.1	Area cleaned to specification.
		4.2	Waste materials removed and placed into waste bins.
		4.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the fitting and fixing of curtain walling facades to multi-storey structures

Curtain wall types include:

- fabricated framework and metal cladding
- fabricated framework and glass panels
- pre-cast concrete panels
- manufactured and natural stone panels

Types of structures include:

- structural steel
- in-situ reinforced concrete
- pre cast concrete

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to work specifications
- crane operations and procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs

- dust masks/respirators
- gloves
- hard hat

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- levelling equipment
- squares
- spanners
- power grinder
- explosive power tool
- power drills including impact drills
- wedges
- power leads

Preparation to structure for fixings may include:

- drilling of holes
- installing masonry anchors
- fixing of brackets to steelwork
- trimming of concrete surfaces for flatness

Support plant and equipment may include

- cranes
- compressors, hoses and fittings
- winches
- elevating work platforms
- scaffolding
- welding equipment

Work to be carried out in a team situation working with plant operators.

Plant to be run by operators with appropriate credentials and in accordance with Worksafe Australia Standards for Users and Operators of Industrial Equipment.

Reporting of faults should be in accordance with organisation's worksite procedures and may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of working as part of a team with plant operators to install a curtain walling system.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations and State/Territory legislation applicable to workplace operations
- indicate compliance with organisational policies and procedures including quality assurance requirements
- select and use appropriate processes, tools and equipment to carry out tasks
- apply organisational quality procedures and processes within context of installing curtain walling
- check external surfaces receiving fixings for conformity with tolerances for plumb and line

- accurately set out and fix supporting and securing brackets or fittings
- adopt and use safe and effective procedures to place and fix sections
- identify faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective installation operations
- complete installation and finish to specifications

(2) Pre-requisite Relationship of Units

Prerequisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG2001A Prepare surfaces
- BCG2004A Carry out levelling
- BCG2007A Operate elevating work platforms

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- curtain walling systems
- drawings and specifications
- tools and equipment
- plant and equipment
- structures
- crane and general plant operations
- scaffolding
- materials and fixing methods
- basic signalling
- measuring and levelling

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- set out work
- use power tools and hand tools
- fix materials
- work to levels and alignment
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace location for installation activity
- tools, plant and equipment appropriate to installation processes
- scaffolding required for activity
- materials or components relevant to curtain walling installation
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace.

Assessment shall be while task is undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	2	2	2	2	2

BCG1000A: Carry out interactive workplace communication

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Receive and convey information	1.1	Verbal/written instructions received and responded to with correct actions.
		1.2	Instructions conveyed and work signage responded to with correct action.
		1.3	Information conveyed in simple English so that messages are understood.
2	Carry out face-to-face routine communication	2.1	Routine instructions, messages and schedules are given or followed.
		2.2	Workplace procedures carried out to company or supervisor's laid down procedures.
		2.3	Relevant information assessed and analysed from a range of sources.
		2.4	Information selected and sequenced correctly.
3	Work with others	3.1	Suggestions and information provided relevant to planning/conduct of activities.
		3.2	Communication carried out clearly, concisely and effectively so messages are understood.
4	Participate in simple on-site meeting processes	4.1	Correct process for on-site meetings carried out to pre-determined or agreed procedures.
		4.2	Negotiations conducted to achieve a constructive outcome.

RANGE OF VARIABLES

This unit applies to carrying out all communication requirements associated with working with other persons at a site location and carrying out tasks under supervision.

Verbal/written instructions include directions or instructions related to a simple job/task.

Signage may include but is not limited to:

- on-site direction signs
- common site warning signs
- facility or location signs
- traffic signs

Range of information sources may include:

- instructions
- signage
- work schedules
- work bulletins
- charts
- memos
- maps

On-site meeting process may take the form of formal or informal meetings and may include:

- notification (time, place, purpose)
- item discussion
- negotiation outcome

Site location involving work application may involve:

- new construction site
- existing building being renovated or extended
- existing building subject to service restoration or maintenance
- manufacturing workshop

On site locations may involve the following types of work application:

- excavating
- concreting
- carpentry
- brick or block laying
- painting and decorating
- stonemasonry
- floor or wall tiling
- plastering
- plumbing
- gasfitting
- roofing and wall cladding
- mechanical services
- air ventilation
- urban irrigation
- drainage
- fire protection
- demolition

Workshop or off-site locations may involve the following types of work application:

- stonework
- signwriting
- shopfitting fabrication
- timber frame and truss fabrication
- portable or relocatable building fabrication
- stair construction
- welding and metal work
- plaster moulding
- precast concrete
- joinery
- machining

EVIDENCE GUIDE

Competency is to be demonstrated by the effective use of methods of communication relating to instructions, information sources and meeting procedures listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- communications to include Occupational Health and Safety regulations applicable to work place
- operations and organisational policies and procedures
- appropriate communications processes demonstrated prior to and during construction activities

(2) Pre-requisite Relationship of Units

Nil

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace safety requirements
- types of on-site meetings and their procedures
- how work schedules, charts, work bulletins and memos are used
- how instructions are conveyed in the workplace

Skills
The ability to:

- work safely to instructions
- convey information in simple English to invoke correct actions

(4) Resource Implications

The following resources should be made available:

- suitable work area appropriate to the construction process
- appropriate communication documentation relevant to the task

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based upon integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1001A: Carry out OH&S requirements

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare for safe work practices	1.1	Quality assurance requirements associated with company's safety operations recognised and adhered to.
		1.2	Appropriate personal protective equipment selected, correctly fitted and/or made ready for use.
		1.3	Tools and equipment selected consistent with safe work practice requirements of job, checked for serviceability and any faults reported to supervisor.
		1.4	Appropriate barricades, hoardings and signage erected, where applicable, at required job location.
2	Use safe work practices to carry out work	2.1	Work carried out safely and in accordance with State/Territory OH&S legislation and company policy.
		2.2	Safety hazards and workplace accidents/incidents identified in course of work and reported in accordance with company policy.
		2.3	Industry/site safety responsibilities known and applied.
		2.4	Fire fighting equipment selected and operated correctly according to type of fire.
		2.5	Current site emergency and first aid procedures known and followed.
		2.6	Signals/sirens for blasting operations recognised and adhered to.
3	Assume responsibility for safety of self and others	3.1	Appropriate protective equipment correctly selected and used.
		3.2	Safe manual handling techniques used and guidelines for lifting and placing followed.
		3.3	All safety signs, symbols and alarms adhered to.
		3.4	Safety procedures for pre-use check and operation of specified power tools/plant, machinery and equipment followed.
		3.5	Recommended safe practices in handling chemical and potentially hazardous materials followed.
4	Work from ladder and work platforms	4.1	Ladder and work platforms safely erected in planned location.

		4.2	Care taken to avoid overhead powerlines and other obstructions.
		4.3	Head and base of ladder or work platform support secured against accidental movement.
		4.4	Work safely performed from ladder and work platform.
		4.5	Appropriate fall arrest equipment utilised in accordance with current Worksafe Australia guidelines.
5	Use 240v power supply safely	5.1	Position of power pole/box identified for safe placement of leads.
		5.2	Framework support positioned to keep leads at correct height and prevent hazards.
		5.3	Power board visually checked for damage, water entry and stability. Area surrounding board checked for potential hazards.
		5.4	Leads checked for tags and visual damage. Earth leakage protection checked for serviceability.
		5.5	Work safely performed using 240v power supply.
6	Adhere to emergency procedures	6.1	Emergency equipment able to be located and used as required.
		6.2	Current worksite emergency/evacuation procedures adhered to.
7	Carry out general housekeeping	7.1	Waste material disposed of safely in accordance with requirements of site and regulatory legislation.
		7.2	Unused equipment and materials safely and correctly cleaned, maintained and stored.
		7.3	Requirements of site, regulatory bodies and Occupational Health and Safety requirements observed.

RANGE OF VARIABLES

OH&S requirements will vary in accordance with type of work site location which may be:

- new construction site
- existing building being renovated or extended
- existing building subject to service restoration or maintenance
- manufacturing workshop

Safe work practices in accordance with OH&S requirements will vary in accordance with conditions which may include:

- working at heights
- working in excavations

- confined spaces
- unstable construction
- previously occupied site
- working with machinery

Quality Assurance requirements may include:

- working environment
- adverse weather conditions
- protection of work personnel
- protection of public

Personal protective equipment may include but is not limited to:

- overalls
- boots
- jacket
- gloves
- safety glasses/goggles
- hard hat
- cap
- dust masks/respirator
- gum boots
- ear plugs/muffs

Regulatory legislation which may be State/Territory specific may include:

- OH&S
- EPA
- Dangerous goods

Manual handling techniques used in accordance with current Worksafe Australia Standards.

Emergency equipment and procedures include:

- fire fighting
- medical and first aid
- evacuation

Ladders and work platforms include:

- extension ladders
- step ladders
- trestle ladders
- simple work platforms

Power connections include:

- ELCB systems
- isolation transformer (safe-T-pack)
- power pole/B4
- switch board area

Safety responsibilities apply to:

- personal protection
- safe interactive work practices (duty of care)
- protection of public and environment (EPA)

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively carrying out safe work practices within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- demonstrate application of organisational policies and procedures including Quality Assurance requirements where applicable
- carry out correct procedures prior to and during construction process
- safe and effective operational use of tools, plant and equipment
- carry out appropriate applications in accordance with regulatory and legislative requirements

(2) Pre-requisite Relationship of Units

Nil

(3) Underpinning Knowledge and Skills

Knowledge

A broad application of the knowledge of:

- workplace and equipment safety requirements
- materials and MSDS
- OH&S Act
- other relevant acts, regulations and codes of practice
- company policy

Skills

The ability to:

- work safely to instructions
- use power and hand tools
- handle material
- select material to MSDS requirements
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- suitable work area appropriate to the construction process
- appropriate equipment, materials and documentation to comply with OH&S legislation and/or company policies
- hand and power tools, plant and equipment appropriate to the construction process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based upon integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1002A: Plan and organise work

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify work requirements	1.1	Instructions for work schedule and performance and quality assurance requirements received, understood and clarified where necessary.
2	Plan process to complete work	2.1	Work identified, prioritised and sequenced to achieve effective completion of work. Major construction process/sequence identified.
3	Select tools and equipment	3.1	Personal protective equipment correctly identified and selected to suit job requirements.
		3.2	Tools and equipment selected to suit job requirements.
		3.3	Key functions of major construction plant and equipment identified.
4	Demonstrate safe and efficient sequence of work	4.1	Work performed safely in a logical and efficient sequence.
		4.2	Worksite kept clean and clear of debris.
		4.3	Tools and equipment safely located when not in immediate use.
5	Modify plan	5.1	Workplace modified to overcome unforeseen developments that occur as work progresses.
		5.2	Modifications to work plan, based on experience, are identified and incorporated into successive work activities.
6	Report outcomes	6.1	Verbal report provided on completed activities.
7	Clean up	7.1	Unused materials safely stacked for removal.
		7.2	Debris and waste material removed from job location.
		7.3	Worksite left clean, safe and secure on completion.
		7.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Work organisation sequence may range from receiving instructions, to carrying out task, to cleaning up task.

Work plan may be either written or verbal and may include the following:

- preparation of work area
- selections of tools and equipment
- handling of materials, tools and equipment
- housekeeping requirements

Work schedule may be carried out in a singular application or in a team situation.

Work schedule and performance may have to adhere to Quality Assurance policy and procedures.

Work application may involve:

- excavating
- concreting
- carpentry
- brick or block laying
- painting and decorating
- stonework
- floor or wall tiling
- plastering
- plumbing
- gasfitting
- roofing
- wall cladding
- installing ducting
- urban irrigation
- drainage
- fire protection
- demolition
- signwriting
- fabrication work
- welding
- stair construction
- plaster moulding
- precast concrete work
- shopfront construction
- wall frame and truss construction
- portable or relocatable building construction

EVIDENCE GUIDE

Competency is to be demonstrated by safe and effective preparation using any of the range of work sequences listed within the range of variables statement relative to the work environment.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- indicate compliance with Occupational Health and Safety regulations applicable to workplace operations including relevant State/Territory regulations and legislation
- indicate compliance with organisational policies and procedures including Quality Assurance requirements

- carry out correct procedures prior to and during the application of construction process
- communicate to enable efficient individual/organisational planning of work

(2) Pre-requisite Relationship of Units

Nil

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials appropriate to the task
- materials handling
- Quality Assurance

Skills

The ability to:

- work safely to instructions
- use power tools and hand tools
- handle material
- select material
- apply Quality Assurance

(4) Resource Implications

The following resources should be made available:

- general construction materials appropriate to the particular construction process
- hand and power tools appropriate to the construction process
- suitable work area appropriate to the construction process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based upon integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
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1	1	1	1	1	1	1
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BCG1003A: Read and interpret plans

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify types of drawings and their functions	1.1	Main types of plans and drawings used in construction industry identified.
		1.2	Key functions of each type of drawing identified.
		1.3	Key users of these drawings identified.
2	Recognise commonly used symbols and abbreviations	2.1	Commonly used symbols and abbreviations recognised.
		2.2	Function of legend understood and explained.
3	Locate and identify key features on a site plan	3.1	Key features and dimensions of site identified and located.
		3.2	Orientation of site identified.
		3.3	Access from roadways to worksite located and identified.
		3.4	Services identified.
4	Identify and locate key features from sectional details and elevations	4.1	Specific key features identified correctly from sectional details and elevations.
		4.2	Structural features and horizontal and vertical measurements located.
5	Recognise amendments	5.1	Title panel checked. Verification that drawing used is latest amendment.
6	Read and interpret specifications	6.1	Purpose of specifications identified.
		6.2	Types of details identified from specifications.

RANGE OF VARIABLES

Types of drawings include:

- site plans
- elevations
- floor plans
- sectional plans/elevations
- details and specification providing illustrations and dimensions

Key features of site plans may involve:

- shape of site
- proposed building/s
- roads
- easements
- existing buildings/structures
- services
- dimensions

Key features of plans and elevations may involve:

- type of structure – structural members
- shape of building/structure
- type of construction
- layout of rooms
- service requirements
- location of plant or machinery
- vertical and horizontal measurements

Types of structures include:

- single storey buildings
- double storey buildings
- multi storey buildings
- bridges
- fabricated towers
- **relocatable buildings**

Types of construction include but are not limited to:

- structural steel framed
- light steel framed
- timber framed
- reinforced concrete
- pre-cast concrete
- solid brick
- brick veneer

Services may include:

- drainage
- sewerage
- gas
- water
- electricity

Types of details include but are not limited to:

- footings
- structural steelwork
- timber framework
- brickwork
- concrete work
- plastering
- service installation
- plant installation

- roofing and flashing

Orientation of site includes:

- relationship to 'north'
- location of roads
- relationship to roads and neighbouring sites

EVIDENCE GUIDE

Competency is to be demonstrated by effectively reading and interpreting drawings to locate or identify nominated features or functions in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- identify and understand various types of drawings
- identify dimensions, symbols, abbreviations and key features
- identify title panel and reference date as to up-to-date copy of drawings
- indicate sound understanding of purpose of specifications in accordance with the work orientation.

(2) Pre-requisite Relationship of Units

Nil

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- a range of drawings
- materials relative to drawings/specifications
- measurements and calculations
- symbols, dimensions and terminology

Skills

The ability to:

- read and interpret drawings
- measure accurately
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- Suitable range of drawings and specifications

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based upon integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1004A: Carry out measurements and calculations

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Obtain measurements	1.1	Accurate measurements obtained to job instruction using rule, tape and/or square.
		1.2	Quality Assurance requirements associated with company's construction operations recognised and adhered to.
2	Perform simple calculations	2.1	Simple calculations involving length, perimeter, mass and volume using four basic operations (+, -, x, /), carried out.
3	Estimate approximate quantities	3.1	Measurements or quantities estimated (approximately) on site or from job instruction.
		3.2	Information obtained correctly from job instruction.
		3.3	Measurements correctly identified/recorded without error.
		3.4	Quantities of materials suitable for work undertaken are calculated and recorded to job instructions.
		3.5	Costs for a simple project estimated to within + or – 10%.

RANGE OF VARIABLES

This unit applies to simple projects applicable to:

- timber frames
- structural steelwork
- concrete
- brick/block work
- joinery
- tiling
- sheeting/panelling
- plastering
- final finishes
- fences
- formwork
- excavation work
- pipe laying
- gasfitting
- roof or wall sheeting
- signwriting
- stairs or steps
- duct work

- stonemasonry

Materials include all materials utilised in construction of commercial, industrial/domestic and civil construction projects, including hardware items.

Calculations to include:

- area
- perimeter
- volume
- mass
- scales
- ratios (ingredients/elements and triangulation)

Job instruction may involve:

- verbal direction/instruction
- written instruction
- provision of job drawing and details

EVIDENCE GUIDE

Competency is to be demonstrated by the effective calculation of measurements and calculations of materials in accordance with the range listed in the range of variables statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- communicate effectively to enable accurate calculations and measurements
- demonstrate effective use of measuring devices
- accurate measurements taken and recorded
- perform simple calculations to specifications
- estimate quantities and costs to requirements

(2) Pre-requisite Relationship of Units

Nil

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- drawings and specifications
- materials relevant to the construction process
- basic operations in simple geometry, measurement and calculations
- costing relative to the construction process

Skills

The ability to:

- read and interpret drawings
- measure and calculate manually
- record measurements
- operate electronic calculating devices
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- information on construction materials appropriate to the relevant construction process
- suitable work area appropriate to the activity
- suitable site plans/drawings and/or specifications
- measuring and calculating devices

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based upon integrated project work.

Assessment may be intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1005A: Use hand and power tools

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify hand and power tools	1.1	Regular power tool applications in workshop operations recognised.
		1.2	Types of hand and power tools and their functions identified.
		1.3	Sources of power supply recognised.
		1.4	OH&S requirements for using power tools recognised and adhered to.
2	Select hand tools	2.1	OH&S requirements for using hand tools recognised and adhered to.
		2.2	Appropriate personal protective equipment selected, correctly fitted and used.
		2.3	Hand tools selected consistent with needs of job.
		2.4	Tools checked for serviceability and safety and any faults reported to supervisor.
		2.5	Equipment selected to hold or support material for power tools application where applicable.
3	Use hand tools	3.1	Material located and held in position for hand tool application.
		3.2	Hand tools safely and effectively used according to their intended use.
		3.3	Hand tools safely located when not in immediate use.
4	Select power tools	4.1	Appropriate personal protective equipment selected, correctly fitted and used.
		4.2	Power tools and leads/hoses selected consistent with needs of job in accordance with conventional work practice.
		4.3	Power tools and leads/hoses visually checked for serviceability/safety in accordance with OH&S requirements and any faults reported to supervisor.
		4.4	Equipment selected to hold or support materials for power tool application where applicable.

5	Establish power supply to work location	5.1	Route identified for safe placement of leads/hoses clear of hazards.
		5.2	Electric power leads run out to power supply and supported overhead clear of traffic or covered if presenting possible trip hazard.
		5.3	Electric power leads connected to supply and powerboard or direct to power tool.
		5.4	Air hoses run out to compressed air supply and covered if presenting possible trip hazard.
		5.5	Hose connected to power tool and air supply.
6	Use power tools	6.1	Material located and held in position for power tool application where applicable.
		6.2	Power tools safely and effectively used in application processes.
		6.3	Power tools safely located when not in use.
7	Clean up	7.1	Power tools cleaned, maintained and stored.
		7.2	Power leads/hoses cleaned, visually checked and stored.
		7.3	Equipment cleaned, maintained and stored.
		7.4	Work area cleared and waste removed.

RANGE OF VARIABLES

Hand tools include, but are not limited to:

- adjustable spanners
- bars (crow and pinch)
- bolt cutters
- brooms
- chisels
- hacksaws
- handsaws
- hammers
- measuring tapes
- nips
- picks/mattocks
- pliers
- sealant gun
- shovel/spades
- sledge hammers
- spanners and wrenches
- spirit level, straight edge
- string lines

- snips
- soldering irons
- scribes
- pop riveters
- cold chisels
- prick punches
- rubber mallets
- tile cutter
- trowels and floats
- wire cutters
- paint brushes/rollers
- spatula/putty knives

Power supply to include:

- electricity
- compressed air

Power tools include:

- drills
- nail guns
- staplers
- screwdrivers
- sanders
- angle grinders
- pneumatic wrenches
- circular saw
- jig saws
- planers
- routers
- hammer drills
- nibbler
- sheet metal shears
- stirrers
- sand blasting
- airless spray equipment

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gloves
- ear plugs/muffs
- face masks/respirators

OH&S requirements may include:

- workshop/worksite safe working practices
- use of tools and equipment
- use of power tools
- safe handling and storage of materials

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective operation of particular power and hand tools listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to and during use of hand tools and power tools
- demonstrate safe and effective operational use of tools and equipment
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

Competency in this unit may be determined concurrently based upon integrated project work using the following units:

- BCG1001A Carry out OH&S requirements
- BCG1006A Use plant and equipment
- BCG1004A Carry out measurements and calculations
- BCG1011A Handle construction materials and safe disposal of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements and OH&S legislation
- portable power tools
- hand tools and equipment
- materials
- materials handling whilst operating tools

Skills

The ability to:

- work safely to instructions
- apply appropriate hand-eye co-ordination in the use of tools
- handle/hold materials during operation of tools
- select appropriate tools for material usage
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- general construction materials
- hand and power tools appropriate to the construction process
- plant and equipment appropriate to the construction process
- suitable work area appropriate to the construction process
- appropriate OH&S safety resources

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with Work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1006A: Use small plant and equipment

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Identify plant and equipment, their operations and safety requirements	1.1	Types and function of plant/equipment used in construction process identified.
		1.2	Method of operation of plant/equipment identified and understood, relative to manufacturer's recommendations.
		1.3	OH&S requirements for guarding and cut off switches identified.
		1.4	OH&S requirements for personal protective equipment associated with using machines identified.
2	Select plant and equipment	2.1	OH&S requirements for operating and using plant and equipment recognised and adhered to.
		2.2	Appropriate personal protective equipment selected, correctly fitted and used.
		2.3	Plant and equipment selected consistent with needs of job.
		2.4	Plant and equipment checked for serviceability/safety and faults reported to supervisor.
3	Use plant and equipment	3.1	Plant and equipment safely and effectively used.
		3.2	Site hazards identified in use of plant and equipment and correct procedures used to eliminate or minimise risk.
		3.3	Plant and equipment safely located when not in immediate use.
4	Clean up	4.1	Plant and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Plant and equipment includes but is not limited to:

- air compressor and hoses
- concrete mixer
- industrial wet and dry vacuum cleaner
- pallet trolley
- rollers
- compactors

- pumps and hoses
- pneumatic picks/spades
- brick/masonry saw
- terrazzo grinders
- ladders
- trestles and planks
- wheelbarrows
- clamps
- blow torch
- guillotines
- benders
- presses

Types of small plant and equipment will vary in accordance with the work orientation which may be:

- excavating
- concreting
- brick or block laying
- pipe laying
- painting and decorating
- stonework
- floor and wall tiling
- plastering
- plumbing
- gasfitting
- roofing
- wall cladding
- duct work
- drainage
- fire protection
- demolition
- signwriting
- metal fabrication work
- timber fabrication work
- timber construction and finishing
- roof tiling

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gloves
- ear plugs/muffs
- face masks/respirators
- gum boots
- waterproof clothing

OH&S requirements are to be in accordance with State/Territory legislation and regulations which may include:

- workshop/worksite safety practices
- control of noise and dust
- use of ladders and working platforms
- control of exhaust emission
- isolation of work areas

- timbering of excavations

Reporting of faults may be written or verbal.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective operation of particular plant and equipment listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of processes
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate and show understanding of manufacturer's specifications and recommendations
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-Requisite Relationship of Units

Competency in this unit may be determined concurrently based upon integrated project work using the following units:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1004A Carry out measurements and calculations
- BCG1011A Handle construction materials and safely dispose of waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools applicable to the construction process
- hand tools and a range of plant and equipment
- materials handling relevant to plant and equipment use
- workplace communication processes

Skills

The ability to:

- work safely to instructions
- use power tools, hand tools, plant and equipment applicable to the construction process
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- hand and power tools appropriate to the construction process
- plant and equipment appropriate to the construction process
- suitable work area appropriate to the construction process
- appropriate OH&S safety resources

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1007A: Erect and dismantle restricted height scaffolding

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements for tasks and workplace environment recognised and adhered to.
		1.2	Location and scope of scaffolding/equipment determined from job drawings or supervisor's instructions.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.5	Scaffolding/equipment components selected consistent with requirements of job.
2	Erect safety barriers	2.1	Safety barriers erected, where applicable, to isolate site work area.
		2.2	Relevant signage installed where required to OH&S requirements where required.
3	Erect scaffolding	3.1	All work undertaken safely and to supervisor's prescribed procedures.
		3.2	Erection site prepared to meet job requirements.
		3.3	Necessary signage prepared to meet job requirements.
		3.4	Scaffolding/equipment erected to plan in accordance with safe work practices, OH&S and manufacturers requirements.
4	Dismantle scaffold	4.1	Work undertaken safely and to reverse procedures for erecting.
		4.2	Scaffolding/equipment dismantled in accordance with site procedures and critical structural safety requirements.
5	Clean up	5.1	Site cleaned and cleared of all tools, excess material and waste and left in safe condition.
		5.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the erection of scaffolding up to 4m in height which must be constructed in accordance with:

- AS4576 Guidelines for Scaffolding, and
- AS1576.1 Scaffolding Part 1 – General Requirements

The range of scaffolding equipment associated with this unit includes:

- standing prefabricated tower scaffolds
- tube and fitting scaffolds to 4 metres height
- fall protection devices
- catch platforms
- bracket scaffolds

Work application related to use of scaffolding may involve but is not limited to:

- brick and block laying
- plastering
- stonemasonry work
- roofing
- wall cladding
- roof tiling
- wall tiling
- plumbing
- formwork
- concreting
- duct work
- painting and decorating
- timber and metal frame construction
- service plant installation and maintenance
- signwriting

Personal protective equipment may include:

- overalls
- jacket
- boots
- hard hat
- safety glasses
- gloves
- ear plugs/muffs
- dust masks

Tools and equipment may include:

- spanners
- shovels
- hammers
- picks
- crow bars
- ladders

Work is to be undertaken in accordance with State/Territory regulatory and legislative requirements for Occupational Health and Safety.

Work undertaken with supervision in a team.

Supervision instruction may involve:

- verbal direction/instruction
- written instruction
- provision of sketch/drawing and details

Reports of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective erection and dismantling of different types of restricted height scaffolding listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of construction process
- demonstrate safe and effective operational use of scaffolding tools and equipment
- erect scaffolding plumb and brace for stability
- interactively communicate with others to ensure safe and effective erection and dismantling operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- scaffolding and basic working platforms
- hand tools
- materials
- materials handling
- vertical and horizontal concepts

Skills

The ability to:

- work safely to instructions
- use hand tools
- handle material
- select material

- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials appropriate for scaffolding
- hand tools and equipment appropriate to the construction process
- suitable work area appropriate to the construction process
- information on OH&S requirements

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1008A: Use simple levelling devices

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements recognised and adhered to in accordance with application tasks and workplace environment.
		1.2	Requirements of job identified from drawings or instructions.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.5	Quality Assurance requirements recognised and adhered to in accordance with company's construction operations.
2	Set up and use levelling device	2.1	Heights to be transferred, identified from given instructions or drawings.
		2.2	Work assembled and filled with water to required level with air bubbles removed.
		2.3	Height transferred to required locations to a tolerance of + or - 5mm over 3 metres.
3	Transfer heights with straight edge and spirit level	3.1	Heights to be transferred identified from given instructions/drawings/given marked level.
		3.2	Height transferred to required location to + or - 5mm over 3 metres.
4	Maintain given level or specified slope with boning rods	4.1	Heights of each end of line to be boned established to given levels.
		4.2	End of boning rods securely fixed to required heights.
		4.3	Heights of intermediate points sighted and marked with boning rods to a tolerance of + 10mm.
5	Clean up	5.1	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to using simple levelling devices to carry out basic exercises in transferring levels and/or maintaining a line of a slope.

Levelling and lining devices include:

- water level
- spirit level
- boning rods

Heights or levels may be given by:

- drawing/sketch indicating mark
- verbal or written instruction indicating level or mark
- datum/survey peg fixed into ground
- chalk or nail mark on paved/concrete surface
- mark on vertical surface

Associated tools and equipment include:

- string line
- wooden/steel pegs
- straight edge
- hammer
- chalk line

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses
- dust jacket
- masks/respirators

Work orientation related to use of simple levelling devices include:

- timber construction and finishing
- concreting
- brick and block laying
- stonework
- plastering
- painting and decorating
- roof tiling
- floor and wall tiling
- plumbing and gasfitting
- irrigation
- pipe laying
- duct work
- signwriting
- roofing and wall cladding
- shopfitting
- metal frame construction

Work may be carried out under supervision in a team situation or individually.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the effective application of the different types of levelling devices listed within the range statement relative to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of levelling and boning processes
- demonstrate safe and effective handling and operational use of levelling device
- indicate care in accurately transferring levels to other locations
- interactive communication with others to ensure safe and effective levelling operations.

(2) Pre-requisite Relationship of Units

BCG1002A Plan and organise work

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace and equipment safety requirements
- hand tools
- measurement and calculation
- Quality Assurance
- range of levelling devices
- horizontal/vertical concepts

Skills
The ability to:

- work safely to instructions
- measure
- use hand tools
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- general construction materials appropriate to levelling
- hand tools appropriate to levelling and lining
- equipment appropriate to the activity processes
- suitable work area appropriate to the activities
- suitable plans/drawings and specification

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit should be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1009A: Carry out excavation and install support

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements recognised and adhered to in accordance with application tasks and workplace environment.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment requirements identified to supervisor's instructions, consistent with needs of job.
2	Locate excavation and erect safety equipment	2.1	Excavation located from instruction.
		2.2	Site pegs installed, service markers identified and excavation limits marked.
		2.3	Safety barricades, signs and lights erected in positions as required by OH&S requirements.
3	Select tools and equipment	3.1	OH&S requirements associated with use of tools and equipment recognised and adhered to.
		3.2	Personal protective equipment items selected in accordance with excavation method and conditions and correctly fitted and used.
		3.3	Hand tools and equipment selected consistent with the needs of the job, checked for serviceability and any faults reported to supervisor.
4	Dig excavations by hand	4.1	Temporary drainage system established to divert surface and subsurface water to storm water drainage system. Surface holes and depressions filled.
		4.2	Excavations safely dug with hand tools under direction.
		4.3	Service markers or taped areas identified.
		4.4	Damage or interference with underground services (power, water, gas, telephone) avoided during excavation process.
		4.5	Excavations cleaned out with hand tools, free from loose material.

5	Assist machine excavation operations	5.1	Machine operator assisted with excavation by verbal and trimming support, ensuring it is to line and depth.
		5.2	Excavation cleaned out by hand to job requirements and instructions.
6	Install excavation support	6.1	Excavation works carried out in accordance with regulatory authority's requirements.
		6.2	Trench/excavation support installed to instruction to OH&S regulations.
7	Clean up	7.1	Site cleaned and cleared of unwanted excavated material.
		7.2	Tools cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to excavations carried out by hand and/or assisting excavator operators with their operation.

This unit applies to trench/excavation depth not exceeding 1.5m excavation and includes but is not limited to:

- post holes
- pits
- pad excavations
- trenches
- levelling of work area

Excavations may be designed to provide concrete footings or bases for:

- construction of buildings
- installation of steel structures
- installation of services plant
- construction of walls
- installation of signs
- construction of monuments

Quality assurance requirements may include:

- workplace procedures
- safety requirements
- control of handling procedures
- specifications of work
- support to excavations

O.H&S requirements to be in accordance with State/Territory legislation and regulations may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- protection of public
- emergency procedures

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses or goggles
- gum boots
- face masks
- waterproof pants and jacket
- gloves

Tools and equipment may include but are not limited to:

- picks
- fencing bars
- shovels
- spades
- hammers
- sledge hammers
- saws
- saw stools
- wheel barrows
- rule or measuring tape
- pneumatic picks

Regulatory authorities are those under State/Territory legislation governing:

- water
- sewerage
- gas
- electricity
- telephone
- buildings and structures
- cemetery monuments

Work is to be undertaken in a team situation or individually under supervision.

Reporting of faults may be written or verbal.

Support to an excavation will vary in accordance with characteristics of soil type and stability of ground.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective excavation and/or support of at least two different types of excavations from those listed within the range of variables statement, relevant to the work orientation.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during excavation processes

- identify and understand instruction relevant to the location of excavation

- demonstrate safe and effective operational use of tools and equipment
- interactively communicate with others to ensure safe and effective operations.

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- hand tools and equipment
- handling of materials relevant to excavation processes
- measurement and calculations
- workplace communications
- regulatory authority's requirement for excavation/support
- range of inground services and relevant markers/identifiers

Skills

The ability to:

- work safely to instructions
- use hand tools and equipment
- handle material
- measure relevant to excavation process
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- general construction materials for excavation support
- hand tools appropriate to excavation processes
- plant and equipment appropriate to the excavation process
- work area appropriate for the excavation activities
- appropriate OH&S safety resources to suit excavation location

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1010A: Carry out concreting to simple forms

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Select tools and equipment	1.1	Quality Assurance requirements recognised and adhered to in accordance with company's construction operations.
		1.2	OH&S requirements recognised and adhered to in accordance with application tasks and workplace environment.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to instructions consistent with job requirements, checked for serviceability and any faults reported to supervisor.
2	Erect and strip simple formwork	2.1	Design of formwork identified from drawings/supervisors instructions.
		2.2	Formwork safely erected on commencement and stripped on completion under direction of supervisor.
		2.3	Stripping agent applied to erected formwork, where appropriate.
		2.4	Timber components dewatered following stripping of formwork.
		2.5	All components cleaned, stacked and stored for re-use or bundled for removal.
3	Place and tie reinforcement	3.1	Reinforcing components safely handled and carried to required position.
		3.2	Reinforcing bars, rods, stirrups and mesh positioned under supervisor's directions.
		3.3	Bar chairs and spacers located in place, checking minimum edge cover under direction of supervisor.
4	Place concrete	4.1	Formwork/excavation cleaned of excess material and debris prior to concrete placement.
		4.2	Concrete safely transported by wheelbarrow and placed under direction.
		4.3	Pump line/shute controlled and concrete placed as directed.
		4.4	Concrete spread as directed to specified levels.

	4.5	Concrete consolidated under direction and screeded to finished levels as directed.
	4.6	Surface of concrete finished as directed to specified finish.
5	Clean up	
	5.1	Formwork components removed from site.
	5.2	Pour site and surrounds cleared of concrete spills and other debris and surface left in safe condition.
	5.3	Worksite cleared of debris and unused materials.
	5.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to placing concrete to simple forms and excavations which includes:

- post holes
- trench foundations
- pad foundations
- slabs
- pathways
- simple concrete aprons
- channels
- garden edges
- bases for sign or steel erection
- footings for monuments
- footings or bases for fabricated frame installation
- footings for external stairs

Concrete placement methods include:

- shovel
- wheelbarrow
- chute
- pump line

Quality assurance requirements may include:

- workplace procedures
- safety requirements
- control of handrailing procedures
- quality of materials
- specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations may include:

- worksite environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- emergency procedures

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gum boots
- face masks
- waterproof pants and jacket
- gloves

Tools and equipment may include but are not limited to:

- hammers
- pinch bars
- rule or measuring tape
- shovels
- wheel borrows
- brooms
- brushes
- timber or metal screeds
- wood float
- steel float
- hose

Concrete finishes include:

- wood floated
- steel floated
- broom brushed

Formwork in this unit applies to edging forms where structural components would include:

- edge boards
- pegs
- struts
- bracing

Work is to be undertaken in a team situation or individually under supervision.

Reporting of faults may be verbal or written.

Excess material and debris includes:

- excavated loose soil
- off cut timber
- paper
- rags
- sticks
- nails

EVIDENCE GUIDE

Competency is to be demonstrated by the safe installation of formwork, reinforcement and concrete using any two of the simple forms listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during construction processes
- demonstrate safe and effective operational use of tools, plant and equipment
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

Pre-requisites in this unit are:

- BCG1001B Carry out OH&S requirements
- BCG1005B Use hand and power tools
- BCG1006B Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- hand tools and equipment
- materials associated with concrete work
- handling of materials relevant to concrete processes
- measurement relevant to concrete work
- transporting, placing concrete
- levelling equipment
- simple formwork and reinforcement componentry

Skills

The ability to:

- work safely to instructions
- measure relative to the concreting process
- use power tools and hand tools
- use simple levelling equipment
- communicate effectively
- select and handle materials appropriate to concreting processes

(4) Resource Implications

The following resources should be made available:

- general construction materials relevant to forming, reinforcing and placement of concrete
- hand tools and power tools appropriate to construction process
- tools and equipment appropriate to construction process
- suitable work area appropriate to concreting process
- information relevant to OH&S requirements

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1011A: Handle construction materials and safely dispose of waste

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements associated with application tasks and workplace environment recognised and adhered to.
		1.2	Appropriate personal protective equipment selected, correctly fitted and used.
		1.3	Quality Assurance requirements associated with company's construction operations recognised and adhered to.
		1.4	Tools and equipment for handling materials/goods, non-toxic waste, selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
2	Correctly manual handle, sort and stack construction material	2.1	Common construction materials recognised and selected for sorting and stacking/stockpiling to supervisor's instructions and/or specifications.
		2.2	Handling characteristics of materials identified and appropriate handling techniques applied.
		2.3	Specific handling requirements for hazardous materials applied.
		2.4	Materials stored, stacked/stockpiled and protected, clear of trafficways, so they are easily identified, retrieved and not damaged.
		2.5	Appropriate signage and barricades erected where applicable to isolate stored materials from workplace traffic or access.
		2.6	Correct manual handling techniques used.
3	Prepare for mechanical handling of materials	3.1	Materials stacked/banded for mechanical handling in accordance with type of material and plant/equipment to be used.
		3.2	Dogman/rigger assisted with loading, unloading, moving, locating and/or installing materials.
		3.3	Materials safely handled with assistance of pallet trolley, forklift or hoist.

4	Handle and remove waste safely	4.1	Waste materials handled correctly and safely according to MSDS and requirements of regulatory authorities.
		4.2	Hazardous material identified for separate handling.
		4.3	Non-toxic materials removed using correct procedures.
		4.4	Dust suppression procedures used to minimise health risk to work personnel and others.
5	Clean up	5.1	Tools and equipment cleaned, maintained, and stored.
		5.2	Unused materials safely stacked/stockpiled stored.
		5.3	Waste materials disposed of safely.
		5.4	Site cleaned and cleared of debris and unwanted material.

RANGE OF VARIABLES

Tools and equipment includes but is not limited to:

- brooms
- hoses
- shovels
- rakes
- wet and dry industrial vacuum cleaners
- wheelbarrows
- pallet trolley
- materials hoists
- forklifts

Construction materials include but are not limited to:

- bricks and concrete masonry
- mortar components – cement, coarse aggregate, sand
- timber
- structural steel sections/components
- concrete
- scaffolding components, pipe sections
- plywood and particle board
- metal sheeting
- steel reinforcement
- insulation
- glass
- paints and sealants
- plaster sheeting
- copper and P.V.C piping
- lead sheet
- roof sheeting

- roof tiles
- ducting, guttering and downpipes

Protection of stacked/stored materials may include:

- covering
- tying or banding
- barricades
- signs
- locked away (hazardous materials)

Dust suppression procedures may include:

- spraying with water
- covering
- use of vacuum cleaner

Waste material and debris include but are not limited to:

- banding straps
- packing pieces
- broken or damaged goods
- cardboard
- plastic
- paper
- loose material

Removal of materials to include processes of recycling and salvage where applicable.

OH&S requirements to be in accordance with State/Territory legislation and regulations.

Work to be undertaken as part of a team or individually under supervision of appropriately certificated persons where applicable.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the effective handling and storing/stacking of appropriate construction materials listed within the range of variables statement, relevant to the work orientation.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations and State/Territory legislation applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of materials handling processes
- demonstrate safe and effective operational use of tools and equipment
- demonstrate safe application in the process of cleaning up
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry Out OH&S Requirements

- BCG1002A Plan and Organise Work

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant codes and regulation
- hand tools and equipment
- materials
- materials handling
- Quality Assurance
- range of communication mediums (verbal and non-verbal)

Skills

The ability to:

- work safely to instructions
- use hand tools
- handle materials
- select material
- measure
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- general construction materials relative to construction processes
- plant and equipment appropriate to handling processes
- hand tools appropriate to handling processes
- suitable work area appropriate to construction process
- MSDS information

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1016A: Prepare for construction process (carpentry)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan for construction process	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	Preparation and planning requirements identified from drawings and/or supervisor's instructions.
		1.3	OH&S requirements identified and adhered to in accordance with application tasks and workplace environment.
		1.4	Safety hazards identified and correct procedures adopted to minimise risk to self and others.
		1.5	Materials selected to supervisor's instructions, safely handled and stored/located ready for application.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.8	Fixing/fastenings selected to instructions consistent with job requirements.
2	Prepare materials selected for construction process	2.1	Activities for material preparation identified from specifications or supervisor's instructions.
		2.2	Material preparation carried out to satisfy requirements of construction process.
3	Prepare work area suitable for construction process	3.1	Activities to be carried out in work area identified from drawing details of proposed construction and supervisor's instructions.
		3.2	Work area prepared for construction process to supervisor's instruction
4	Use tools and equipment appropriate for construction process	4.1	Regular hand and power tools suitable for application process identified to job requirements.
		4.2	Hand and power tools used safely and effectively to instruction to carry out construction processes.

5	Select materials and cut components	5.1	Material obtained from stack to instruction.
		5.2	Correct manual handling techniques used to move and place materials.
		5.3	Materials safely moved to work area.
		5.4	Docking/drop saw used to accurately cut one or multiple components to same length to instruction.
6	Distribute components	6.1	Cut components distributed and stacked to suit job location and sequence.
7	Clean up	7.1	Unused material stacked/stored for re-use or removal.
		7.2	Work area cleared.
		7.3	Tools and equipment cleaned, maintained and stored.
		7.4	Waste disposed of using appropriate method to EPA requirements.

RANGE OF VARIABLES

This unit applies to the preparation processes associated with carpentry construction work based on the construction of timber partition framing.

Construction processes includes:

- workplace preparation
- materials preparation
- assembling of partitions
- erecting and fixing of partitions

Personal protective equipment may include:

- overalls
- jacket
- boots
- gloves
- safety goggles/glasses
- ear plugs/muffs
- dust masks/respirators
- hard hat/cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- docking saw
- jigs/stops
- saw stools

- work bench
- clamps
- squares

Safety hazards may include but are not limited to:

- restricted access
- location of power leads
- dust
- off cut material
- lighting
- limited storage space

Material preparation may include:

- stacking of material
- measuring and marking
- cutting and distributing

Work area preparation may include:

- cleaning of area
- setting up for docking saw
- material storage

Fixing/fasteners may include:

- nails
- screws
- bolts
- masonry anchors
- drive/masonry nails

Work is to be undertaken as part of a team under supervision with instruction being part of a supervisor's directions, either verbal or written.

OH&S requirements to be in accordance with State/Territory legislation and regulations.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation of materials and work area for the installation of partition framing in accordance with the listed range of variables.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- correct procedures carried out prior to and during application of construction process
- demonstrate safe and effective operational use of tools, plant and equipment
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

- BCG1001B Carry out OH&S requirements
- BCG1005B Use hand and power tools
- BCG1006B Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials relevant to construction process
- materials handling
- measurement relative to construction process
- drawings and specifications
- fixing and fasteners consistent with construction requirements
- workplace communication
- Quality Assurance

Skills

The ability to:

- work safely to instructions
- interpret drawings
- use power tools and hand tools
- handle material
- select material
- measure relative to processes
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to proposed construction
- hand and power tools appropriate to construction processes
- plant and equipment appropriate to construction processes
- suitable work area appropriate to proposed activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit should be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1018A: Prepare for construction process (steelwork)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan for construction process	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	Job requirements identified from drawings/work location and/or supervisor's instructions.
		1.3	OH&S requirements identified and adhered to in accordance with application tasks and workplace environment.
		1.4	Safety hazards identified and correct procedures adopted to minimise risk to self and others.
		1.5	Materials selected to supervisor's instructions, safely handled and stored/located ready for application.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.8	Fixing/fastenings selected to instructions consistent with job requirements.
2	Prepare materials selected for construction process	2.1	Activities for material preparation identified from specifications and/or supervisor's instructions.
		2.2	Material preparation carried out to satisfy requirements of construction process.
3	Prepare work area suitable for construction process	3.1	Activities to be carried out in work area identified from drawing details of proposed construction and supervisor's instructions.
		3.2	Work area prepared for construction process to supervisor's instruction.
4	Use tools and equipment appropriate for construction process	4.1	Regular hand and power tools suitable for application processes identified to job requirements.
		4.2	Hand and power tools used safely and effectively to instruction to carry out construction processes.

5	Select materials and cut components	5.1	Materials obtained from stack/store to instruction.
		5.2	Correct manual handling techniques used to move and place material.
		5.3	Materials safely moved to work area.
		5.4	Abrasive 'cut off' saw used to accurately cut one off or multiple components to the same length to instruction.
		5.5	Sharp edges of cut material ground off for safety in handling and preparation for joining.
6	Distribute components	6.1	Cut components distributed and stacked to suit job location and sequence of work application.
7	Clean up	7.1	Unused and offcut materials stacked/stored for re-use or disposal.
		7.2	Work area cleared.
		7.3	Tools and equipment cleaned, maintained and stored.
		7.4	Waste disposed of using appropriate method to EPA and OH&S requirements.

RANGE OF VARIABLES

This unit applies to the preparation processes associated with structural steel work based on the construction of metal fabricated components.

Construction processes includes:

- worksite preparation
- materials preparation
- constructing fabricated components
- assembling of fabricated components

Fabricated units incorporating the assembly of components include but are not limited to:

- frame structure
- support stands for equipment
- structural columns and beams
- framework for ducting
- communications towers

Quality Assurance requirements may include:

- workplace procedures
- safety requirements
- control of handling
- quality of materials
- specifications of work

OH&S requirements are to be in accordance with State/Territory legislation and regulations and may include:

- worksite environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- emergency procedures

Hazards may include but are not limited to:

- pathway obstacles
- off-cut material
- movement of other work personnel

Personal protective equipment may include:

- coveralls
- safety boots
- gloves
- hard hat/cap
- safety glasses/goggles
- ear plugs/muffs

Materials would involve rolled steel sections.

Tools and equipment may include but are not limited to:

- measuring tape/rule
- squares
- abrasive cut off saw
- power grinders
- trolleys
- clamps
- support stands
- vertical drills
- block and chain
- work bench

Fittings and fastenings may include but are not limited to:

- bolts and nuts
- self tapping screws

Material preparation may include:

- measuring and marking
- cutting to lengths
- grinding of edges
- drilling of holes
- stacking of material

Work area preparation may include:

- clearing area
- setting up equipment
- material storage

Work is to be undertaken as part of a team under supervision with instructions being part of a supervisor's directions, either verbal or written.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation of materials to construct a nominated fabricated structural steel unit in accordance with the listed range of variables.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of construction preparation processes
- demonstrate safe and effective operational use of tools, plant and equipment
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001B Carry out OH&S requirements
- BCG1005B Use hand and power tools
- BCG1006B Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials relevant to steelwork
- materials handling
- measurement relevant to steelwork construction
- drawings and specifications
- fixing and fasteners consistent with steelwork requirements
- workplace communication

Skills

The ability to:

- work safely to instructions
- interpret drawings
- use power tools and hand tools
- handle material
- select material
- measure relative to the processes
- prepare materials for steelwork

- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to steelwork
- hand tools and power tools appropriate to steelwork processes
- plant and equipment appropriate to steelwork processes
- suitable work area appropriate to steelwork activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG1019A: Prepare for construction process (painting and decorating)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan for construction process	1.1	Quality Assurance requirements of company's painting and decorating operations recognised and adhered to.
		1.2	Preparation and planning requirements identified from drawings and/or plans.
		1.3	OH&S requirements determined and adhered to in accordance with application tasks and workplace environment.
		1.4	Safety hazards identified and correct procedures adopted to minimise risk to self and others.
		1.5	Materials selected to supervisor's instructions, safely handled and stored/located ready for application.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.8	Fixing/fasteners selected consistent with job requirements and checked for serviceability.
2	Prepare materials selected for construction process	2.1	Activities for material preparation identified from specifications or supervisor's instructions.
		2.2	Fasteners/fixing prepared for installation to instruction.
		2.2	Material preparation carried out to satisfy requirements of construction process.
3	Prepare work area suitable for construction process	3.1	Activities to be carried out in work area identified from surfaces to be finished and height to be accessed.
		3.2	Work area prepared for construction process to supervisors instructions.
4	Use tools, plant and equipment appropriate for construction process	4.1	Regular hand and power tools suitable for application process identified with job requirements.
		4.2	Hand and power tools used safely and effectively to carry out processes.

5	Assist with initial preparation of surfaces for painting and decorating	5.1	Sound surfaces prepared by either sanding or washing down using sugar soap, solvents or detergent.
		5.2	Unsound surfaces prepared by scraping and/or sanding
6	Assist with preparing surfaces for final finish	6.1	Stopping/filling material applied to a flush and even finish.
		6.2	Sanded surface prepared by hand.
		6.3	Primer/sealer/undercoats applied to surface by brush and/or roller.
7	Clean up	7.1	Materials stacked /stored for re-use or disposal.
		7.2	Work area cleared.
		7.3	Tools and equipment cleaned and stored.
		7.4	Waste disposed of using appropriate method to EPA requirements.

RANGE OF VARIABLES

This unit applies to the work undertaken in a team environment for the preparation and subsequent coating of general building surfaces.

Construction process includes:

- worksite preparation
- surface preparation
- application of prime and intermediate coatings

Tools and equipment may include:

- scrapers
- filling
- knives/blades
- putty knives
- duster brushes
- hand sanders
- mechanical sanders
- paint stirrers
- drop sheets
- wire brushes
- hammer
- nail punches
- paint pots/buckets
- brush-ware accessories
- roller frames
- covers
- buckets

- roller accessories
- ladders
- step ladders
- trestles
- planks
- hop-ups
- aluminium mobile scaffold

Materials may include:

- preparatory products
- paints – solvent-borne (alkyd, urethane, urethane/alkyd, urethane oil or modified alkyd resins) and latex (PVA, PVA/acrylic, acrylic and styrene acrylic)

Surfaces to be painted may include common profiles encompassing:

- ply
- building boards (including MDF and particle board)
- fibre cement products, iron and steel
- zinc coated and zinc alloy coated steel products
- masonry products
- clay bricks
- concrete blocks
- in-situ-concrete
- cement render
- set plaster
- plaster glass products
- paper-faced gypsum plaster board
- previously coated/treated surfaces

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective preparation of materials using the processes listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures carried out prior to and during application of construction process
- use tools, plant and equipment safely and effectively
- communication processes comply with preparation of surfaces for final finish – painting and decorating

(2) Pre-requisite Relationship of Units

- BCG1001B Carry out OH&S requirements
- BCG1005B Use hand and power tools
- BCG1006B Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials relevant to painting and decorating
- materials handling
- measurement and calculation
- interpreting plans
- fixing and fasteners consistent with painting and decorating requirements
- workplace communication requirements

Skills

The ability to:

- work safely to instructions
- use power tools and hand tools
- handle material
- select material
- communicate effectively
- measure relative to the process

(4) Resource Implications

The following resources should be made available:

- general construction materials relevant to painting and decorating
- hand tools and power tools appropriate to painting and decorating process
- plant and equipment appropriate to painting and decorating process
- suitable work area appropriate to painting and decorating process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2000A: Assemble simple partition frames

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements recognised and adhered to in accordance with application tasks and workplace environment.
		1.3	Material requirements identified from instructions/job drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.6	Fixing/fastenings selected to specifications and job requirements.
2	Select materials and cut components	2.1	Materials obtained from store or stack to quantity and specification requirements.
		2.2	Required lengths accurately marked or machine stops set to requirements of cutting list.
		2.3	Docking/drop saw used to accurately cut one or multiple components to length.
		2.4	Cut components distributed and stacked to suit job location and sequence of construction.
3	Assemble frames/partitions	3.1	Locations for frame member connections marked/prepared to designed measurement spacings.
		3.2	Fixing/fastenings installed securing each junction of frame members tight together, flush on partition face and within + or – 2mm of set-out marks.
		3.3	Frame/partition assembled and secured square to specification.
		3.4	Pre-assembled frames/partitions distributed to appropriate location to instructions.
		3.5	Components of frames/partitions impractical to pre-assemble distributed to location as directed by supervisor.

4	Clean up	4.1	Area cleaned free of debris.
		4.2	Waste and unwanted material disposed of safely.
		4.3	Unused materials stored/stacked.
		4.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the assembling of simple partition wall frames.

Material sections used for construction of frames include:

- timber
- light steel
- aluminium

Quality Assurance requirements may include:

- safe working operations
- quality of materials
- control of handling procedures
- attention to specifications

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment
- protective clothing
- working platforms
- use of tools and equipment
- hazard control
- handling of materials

Personal protective equipment may include:

- overalls
- boots
- gloves
- safety goggles/glasses
- ear plugs/muffs
- dust masks/respirators
- hard hat/cap
- jacket

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- docking saw/drop saw
- jigs/stops
- power drills/screwdrivers
- saw stools
- clamps
- squares

- pop riveter
- nail gun

Types of fixings/fasteners to be used dependent of type on material being joined may include:

- nails
- screws
- self tapping screws
- pop rivets

Work is to be undertaken as part of a team under indirect supervision, with instructions being verbal or written as part of supervisor's directions.

Report of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective preparation and assembly of partition frames using any two of the separate types of different materials listed within the range statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulation applicable to workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to and during application of assembling processes
- demonstrate safe and effective operational use of tools, plant and equipment
- show particular attention to accuracy of marking, cutting and assembling members
- interactively communicate with others to ensure safe and effective work operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- portable power tools
- hand tools and equipment
- materials relevant to frame assembly
- materials handling
- measurement and calculation
- fixing and fasteners consistent with framework requirements
- workplace communication

Skills

The ability to:

- work safely to instructions
- interpret drawings and specifications
- use power tools and hand tools
- handle material
- select material
- measure relative to the process
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to frame construction
- hand tools and power tools appropriate to frame assembly process
- plant and equipment appropriate to frame assembly process
- suitable work area appropriate to frame assembly process
- plans and specifications appropriate to construction activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under limited supervision with regular checks, but may include some autonomy when working as part of a team.

Competency in this unit may be determined concurrently, based on integrated project work.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2001A: Prepare surfaces

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	Preparation requirements identified from drawings work area and instructions/specifications extract.
		1.3	OH&S requirements recognised and adhered to in accordance with the application tasks and workplace environment.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of job, checked for serviceability and any faults reported to supervisor.
		1.6	Safety hazards identified and correct procedures used to minimise risk to self and others in accordance with OH&S workplace operations.
		1.7	Materials appropriate to job application selected, safely handled and stored/located ready for application.
2	Prepare work area for application processes	2.1	Hazards and attachments safely removed where applicable or arranged for removal from area.
		2.2	Work area prepared for preparation application processes in accordance with finish material manufacturer's specifications.
3	Prepare surface by sanding/grinding	3.1	Correct abrasive disk/sheet or wheel selected in accordance with surface condition and work to be undertaken and fitted to sander/grinder.
		3.2	Sander/grinder used and applied safely to surface in accordance with manufacturer's specifications and relevant OH&S requirements.
		3.3	All loose or protruding material removed by sander /grinder and brushing so that surface is prepared to specification.
4	Patch holes	4.1	Method of patching hole determined from type of material surface, size of hole, compatibility of materials and planned specified finish.
		4.2	Patching materials selected to suit material surface and, where applicable, mixed to requirements of

		manufacturer's specifications.
	4.3	Color patching materials checked to ensure to color matching surrounding area, where applicable.
	4.4	Material applied to job and material manufacturer's specifications using appropriate application method.
	4.5	Where applicable to type of patching material, patched areas, sanded to provide flush, flat finish to surface.
	4.6	Surface brushed/scraped/washed clean of surplus material in accordance with type of patching material and material surface
	4.7	Patched areas sealed by application of prime or sealing coat, where applicable, to suit requirements of specified finishes.
5	Stop and fill surface	
	5.1	Correct stopping material selected for specified surface, where applicable.
	5.2	Imperfections prepared and material applied to a flush and even finish, where applicable to proposed additional surface application processes.
	5.3	Excess filler removed without damaging or marking surface.
	5.4	Surface fine-sanded and cleaned free of dust, where applicable for proposed applied finishes.
6	Clean up	
	6.1	Area cleaned free of debris.
	6.2	Waste and unwanted material disposed of safely using appropriate method to Environment Protection Act (EPA) requirements.
	6.3	Unused materials stored.
	6.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the preparation of different material surfaces for the application of applied surface finishes or the abutting or attaching of a construction to that surface.

Surface preparation will vary in accordance with the types of materials to be applied to finish or seal surface and the type of construction which is to abut or be attached to the surface.

Surface preparation for application finishes includes the preparation for:

- wall and floor tiling
- terrazzo

- segmental paving
- pre-cast cladding
- waterproofing/dampproofing
- painting
- solid plastering
- wall papering
- clear timber finishes
- stone veneer
- sheet plastering or lining material

Surface preparation for construction applications of abutting or attaching to surfaces includes the preparation for:

- curtain walling fixing
- brick or block laying
- timber partition walls
- light steel partition walls
- formwork construction
- stair installation
- attachment of steel brackets or fabricated units
- aluminium framework fixing
- roof tiling and slating

Material surfaces include:

- timber
- plasterboard/plasterglass
- masonry
- brick
- metal (ferrous and non-ferrous)
- concrete
- solid plaster

Surfaces may be new or established material surfaces including both painted and unpainted surfaces.

Personal protective equipment may include:

- overalls
- waterproof pants and jacket
- boots
- gumboots
- gloves
- hard hat/cap
- safety goggles
- ear plugs/muffs
- dust masks/respirators

Tools include but are not limited to:

- scrapers
- paint brushes
- wire brushes
- brooms
- sponges
- sanding blocks
- shovels
- power sanders

- power grinders
- filling blades
- chisels
- hammers

Equipment includes but is not limited to:

- electrical leads
- elevated work platforms
- trestles
- planks
- ladders
- buckets
- sanders
- hose and water spray

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment
- protective clothing and equipment
- working platforms
- use of tools and equipment
- control of hazardous substances
- hazard control

Work area preparation may include:

- clearing area
- setting up equipment for operation
- erecting scaffolding
- disconnecting and removing attachments from or against walls

Patching materials include but are not limited:

- cellulose/plaster proprietary fillers
- plaster
- sand and cement
- cornice adhesive
- putty
- plastic wood
- fibreglass
- caulking compounds
- sheet material

Waste and debris may include:

- spilt patching material
- cleared or scraped old paint
- discarded abrasive discs/sheets
- cardboard
- paper
- dirt and dust
- disused containers

Work is to be undertaken either as part of a team or individually under indirect supervision with instructions being verbal or written as part of supervisor's directions.

Instructions and reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective preparation of at least three separate types of material surfaces from those listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to and during application of preparation
- processes
- interactively communicate with supervisor to clarify directions and procedures where applicable
- demonstrate finished patching of holes is flush and straight with surface within tolerances applicable to work orientation
- demonstrate safe and effective operational use of tools, plant and equipment
- interactively communicate with others to ensure safe and effective workplace operations
- prepare surface to specification or instruction requirements

(2) Pre-requisite Relationship of Units

Prerequisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1007A Erect and dismantle restricted height scaffolding

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials relevant to patching and preparation of surfaces
- materials handling
- measurement and calculation
- drawings and written instructions
- workplace communication

Skills

The ability to:

- work safely to instructions
- interpret drawing and instructions
- use power tools and hand tools
- handle material
- select material
- measure relative to the process
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- general construction and patching materials relevant to surface preparation
- hand tools and power tools appropriate to application processes
- plant and equipment appropriate to application processes
- suitable work area appropriate to surface preparation process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision with regular checks, but may include some autonomy when working as part of a team.

Competency should be assessed through direct observation of application to tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2002A: Oxy/LPG acetylene cutting

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Set up	1.1	OH&S requirements for oxy acetylene tasks and workplace environment recognised and adhered to.
		1.2	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Equipment selected in accordance with application tasks, checked for serviceability and any faults reported to supervisor.
		1.5	Hazards identified and removed and correct fire extinguisher made readily accessible prior to commencing operations.
		1.6	Regulators attached to both oxy and acetylene bottles using current safety procedures in accordance with manufacturer's specifications and OH&S regulations.
		1.7	Equipment tested for leaks and corrective action undertaken or faults reported to supervisor.
		1.8	Correct pressures and cutting tips used in accordance with material to be cut and manufacturer's specifications.
		1.9	Lines correctly purged prior to lighting up to manufacturer's recommendations.
		1.10	Material marked accurately and, where applicable and where required, clamped ready for cutting.
2	Cut material	2.1	Torch correctly and safely lit according to manufacturer's specifications and recommendations.
		2.2	Setting of flame correctly adjusted for cutting to manufacturer's recommendations.
		2.3	Correct cutting position adopted.
		2.4	Material safely and correctly cut to set out mark.
3	Shut down	3.1	Correct closing down procedures used to switch off torch and shut off gas supply.
4	Clean up	4.1	Debris and unwanted materials removed safely from worksite.

4.2 Equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the use of oxy acetylene equipment to carry out basic cutting of steel which includes:

- cutting up waste for salvage
- cutting reinforcement steel
- cutting holes in plate

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- use of oxy acetylene equipment
- safety hazards and hazard control
- protective clothing and equipment
- handling of materials

Quality Assurance requirements may include:

- work procedures
- safety requirements
- control of handling
- use of plant and equipment

Personal protective equipment may include but is not limited to:

- coveralls
- boots
- hard hat/cap
- leather apron
- safety goggles
- leather gloves

Equipment may include but is not limited to:

- cylinders
- regulators
- gas tubing
- cutting blowpipe
- flint lighters
- measuring tape/rule
- clamps
- support stands

Hazards may include but are not limited to:

- flammable materials
- pathway obstacles
- off cut material

Debris and unwanted material may include:

- off cut material
- empty containers
- cardboard

- paper

Work is to be undertaken under supervision.

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated safely and effectively cutting material in accordance with the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to setting up oxy acetylene equipment and during the cutting process
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate correct procedures in setting up and shutting down oxy acetylene equipment
- give particular attention to safety and elimination of hazards
- demonstrate safe handling of material
- interactively communicate with others to ensure safe operations
- demonstrate effective cutting to produce designed cut material

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant OH&S legislation and regulations
- oxy acetylene equipment
- hand tools and equipment
- materials relative to oxy-acetylene cutting procedures
- manual handling
- measurement
- drawings, sketches and instructions

Skills

The ability to:

- work safely to instructions
- interpret relative drawings and instructions
- use power tools and hand tools
- select material
- measure relative to cutting processes

- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials relative to oxy-acetylene cutting
- oxy-acetylene equipment appropriate to cutting operations
- hand tools and related equipment appropriate to cutting process
- suitable work area appropriate to application activities

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Assessment may be by direct observation of application to tasks or by questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2003A: Carry out general demolition

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements recognised and adhered to in accordance with demolition tasks and workplace environment.
		1.2	Site plan/work plan/sketch accurately interpreted and job requirements identified.
		1.3	Appropriate personal protective equipment selected in accordance with job requirements, correctly fitted and used.
		1.4	Tools, plant and equipment selected consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.5	Appropriate barricades, hoardings and signage erected where applicable for protection of public and isolation and identification of site.
		1.6	Disconnection of all previously existing services confirmed through supervisor and regulatory authorities.
		1.7	Scaffolding erected to OH&S regulations, where required.
		1.8	Body harness safely used and correctly anchored/secured while working at heights.
2	Demolish building /structure	2.1	Designated area safely and sequentially demolished under instruction in a team situation.
		2.2	Demolition procedures carried out with safe processes of dismantling/demolishing and removing materials from location.
		2.3	Materials safely handled using appropriate handling techniques in accordance with type of material and OH&S requirements.
		2.4	Safety measures introduced to reduce dangerous situations of fire risk, dust and created hazards.
		2.5	Materials for salvaging identified, safely handled and stacked ready for transport.
3	Clean up	3.1	Site cleared free from all waste and debris.
		3.2	Equipment and tools cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the demolition of buildings and structures using hand tools and equipment. Work is undertaken in a team situation under supervision where instruction is part of supervisor's direction either verbal or written.

Types of buildings and structures include:

- single and double storey commercial buildings
- single and double storey residential buildings
- partition walling
- small buildings
- retaining walls and fences

Types of construction include:

- brickwork
- blockwork
- brick veneer
- timber framed
- light steel framed

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- operation of demolition sites
- safety of public
- protective clothing
- protective equipment
- safety hazards and hazard control
- working from scaffolding
- use of tools and equipment

Personal protective equipment may include but is not limited to:

- overalls
- jacket
- boots
- hard hat
- safety glasses/goggles
- gloves
- dust masks/respirators
- ear plugs/muffs
- body harness

Tools, plant and equipment may include but is not limited to:

- pinch bars
- crow bars
- picks
- shovels
- sledge hammers
- wheelbarrows
- scaffolding
- brooms
- pneumatic picks, rock breakers
- air compressors
- power saws and leads

Previous existing services may include:

- electricity
- water
- gas
- telephone

Safety measures to reduce dangerous situations may include but are not limited to:

- removal of combustible material
- use of dust suppression blankets
- spraying water
- maintaining clearways for traffic
- removal of demolished material before serious build up
- hazardous materials removed singularly

Waste and debris separate from main demolished materials may include but are not limited to:

- loose material
- small material items
- empty containers
- cardboard
- paper

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by working with a team and carrying out the demolition of at least one of the types of buildings listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to demolition and workplace operations
- show compliance with organisational policies and procedures within the context of demolition work
- adopt and carry out correct procedures prior to and during demolition process
- demonstrate safe and effective operational use of tools, plant and equipment
- indicate careful attention given to maintaining safety and carrying out measures to minimise risks
- display correct and safe handling techniques with handling materials
- interactively communicate with others and supervisor to ensure safe and effective demolition operations

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1007A Erect dismantle restricted height scaffolding

Competency in this unit may be determined concurrently, based upon integrated project work using these units of competence.

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- demolition operations
- protection of public and environment
- hand and power tools
- plant and equipment
- materials relevant to demolition work
- materials handling
- measurement
- drawings, sketches and instructions
- workplace communications
- State/Territory regulatory authority requirements for general demolition
- scaffolding

Skills

The ability to:

- work safely to instructions
- use power tools and hand tools
- use plant and equipment
- handle material
- measure
- demonstrate application of State/Territory regulatory authority requirements for general demolition
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- demolition site or simulated site situation
- construction materials relevant to support work for demolition
- hand tools and power tools appropriate to general demolition process
- plant and equipment appropriate to general demolition process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team, in order to achieve outcomes within time constraints.

Assessment should be by direct observation of application to tasks and questioning on underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2004A: Carry out levelling

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements associated with application tasks and worksite environment recognised and adhered to.
		1.2	Requirements of job identified from drawings and/or instructions.
		1.3	Relevant reduced levels obtained from given drawings/sketches and/or instructions
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Levelling equipment and tools selected consistent with needs of job, checked for serviceability and any faults reported to supervisor.
2	Maintain given level or specified slope with boning rods	2.1	Heights of each end of line to be boned are established to levels from given drawings and/or instructions.
		2.2	End boning rods securely fixed to required heights.
		2.3	Heights of intermediate points sighted with boning rods and marked where applicable, to + 10mm.
3	Set up and use levelling devices	3.1	Heights to be transferred/established are identified from given drawings/sketches and/or instructions.
		3.2	Level correctly set up for use in accordance to recommendations from manufacturer's operating manual.
		3.3	Levels shot and heights marked and/or recorded to job requirements to +/- 1mm over 10m.
4	Clean up	4.1	All equipment and tools cleaned, maintained and returned to store.
		4.2	Levelling equipment placed and secured in manufacturer's provided container.

RANGE OF VARIABLES

This unit applies to the use of levelling equipment to read and record levels in accordance with a given level, and to the use of boning rods to maintain or mark a set slope or level line.

Work is to be undertaken working with a partner under limited supervision.

Levelling equipment or devices include but are not limited to:

- dumpy level
- automatic level
- tilting level
- rotating laser level
- boning rods

Work applications are simple levelling tasks such as:

- shooting levels for concrete slabs
- recording ground levels at respective corners of a setout
- recording slab or pad levels for placement of steel columns
- recording or checking levels in shallow drainage excavation
- boning for alignment on ground or in drainage excavation

Heights or levels may be given by:

- drawing/sketch indicating mark
- verbal or written instruction indicating level or mark
- datum/survey peg fixed into ground
- chalk or nail mark on paved/concrete surface

OH&S requirements to be in accordance with State/Territory legislation and regulations which may include:

- worksite environment and safety
- use of tools and equipment
- use of laser equipment
- protective clothing and equipment

Personal protective equipment may include:

- overalls
- boots
- jacket
- hard hat
- safety glasses/goggles
- dust masks
- gloves

Associated equipment and tools may include but are not limited to:

- staff
- measuring tape/rule
- string line
- wooden/steel pegs
- laser target and staff
- hammer

Reporting of faults and given instructions may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out safe and effective nominated levelling and boning exercises using any two of the types of levels listed within the range of variables statement related to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to and during levelling and boning processes
- demonstrate safe and effective operational use of tools, plant and equipment
- indicate particular attention to accurately reading and recording staff readings
- show particular care of equipment in handling, setting up and storing on completion
- interactively communicate with others to ensure safe and effective site operations

(2) Pre-requisite Relationship of Units

Competency in this unit may be determined concurrently with other work orientation units based upon integrated project work.

Pre-requisites for this unit are:

- BCG1004A Carry out measurements and calculations
- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- hand tools
- levelling equipment
- use of levelling devices
- measurement and calculation
- drawings, sketches and instructions
- workplace communications

Skills

The ability to:

- work safely to instructions
- use levelling equipment
- use hand tools
- communicate effectively
- read and record measurements
- measure accurately

(4) Resource Implications

The following resources should be made available:

- levelling equipment appropriate to levelling processes
- appropriate tools and associated equipment to support leveling processes
- suitable work area appropriate to levelling activities
- suitable plans/drawing and specifications/instructions

(5) Method of Assessment

Competency shall be assessed while work is undertaken under supervision with regular checks, but may include some autonomy when working as part of a team.

Assessment should be by direct observation of tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2007A: Operate elevated work platforms (EWP)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements associated with operating elevating work platforms and workplace environment recognised and adhered to.
		1.2	Workplace operations plan identified in accordance with job requirements and surrounding activities and environment.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Equipment selected consistent with job requirements and checked for serviceability to manufacturer's specifications.
		1.5	Safety hazards identified and correct procedures used to minimise risks to self and others.
		1.6	Materials selected in accordance with job drawings and/or specifications/supervisor's instructions.
2	Conduct routine checks of platform	2.1	Power source determined where applicable and connected to platform equipment to manufacturer's specifications.
		2.2	Routine pre-operational equipment checks carried out in accordance with checklist from operator's manual.
		2.3	Equipment switched on in accordance with start up procedures and controls checked for correct operation and ease of movement.
		2.4	Emergency safety devices checked to instructions from operator's manual.
		2.5	Work location checked for level ground and floor surface to determine stabilising and safe working area requirements.
3	Locate equipment in place for work application	3.1	Platform located in position for work application and stabilisers engaged to set equipment base level into place.
		3.2	Barricades and signage erected to isolate safe working area where applicable.
		3.3	Tools, equipment and materials placed into bucket/platform to job application requirements.

4	Elevate platform to work location	4.1	Controls operated to manufacturer's recommendations and platform elevated to work position.
		4.2	Power switched off and locking devices engaged to operator's manual.
		4.3	Work carried out to job specification and safety requirements of operator's manual.
5	Lower platform and shut down	5.1	Controls operated to manufacturer's recommendations and platform lowered to down position.
		5.2	Shut down procedures carried out to operator's manual and equipment switched off.
6	Clean up	6.1	Waste material removed and disposed of safely.
		6.2	Unused materials sealed and stored/stacked.
		6.3	Tools and equipment removed, cleaned, maintained and stored.
		6.4	Stabilisers disengaged, equipment stored and secured and unit removed from location.
		6.5	Routine post-operational checks carried out in accordance with checklist from operator's manual and any faults reported to supervisor.

RANGE OF VARIABLES

This unit applies to mobile hydraulic and mechanical platforms not exceeding 11 metres in lift capacity which may be operated from ground, pavement or floor surfaces.

Elevating work platforms include but are not limited to:

- scissor type
- extending arm (cherry picker)

Work applications may include but are not limited to:

- painting
- erecting signs
- fixing steelwork
- minor repair work to buildings

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- operation of mechanical equipment
- protective clothing and equipment
- worksite environment and safety
- handling of materials
- emergency procedures

Personal protective equipment may include:

- coveralls
- safety boots
- hard hat/cap
- gloves
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirator

Safety hazards may include but are not limited to:

- obstacles in pathway or on face of walls
- limited space
- other activities within vicinity
- weather conditions

Work is to be undertaken in a team situation under supervision where instructions would be part of supervisor's directions. Instructions and reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective operation of any of the EWP's listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to, during and after use of elevating work platform
- demonstrate safe and effective operational use of plant, tools and equipment
- demonstrate safe and effective work application while in set elevated position
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Competency in this unit may be determined concurrently with other units relevant to the work orientation, based upon integrated project work.

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
A knowledge of:

- workplace and equipment safety requirements relative to EWP's
- a range of EWP's

- operation and maintenance of equipment
- use of hand and power tools
- drawings and specifications
- communication processes – verbal and signalling
- materials and material fixing

Skills

The ability to:

- work safely to instructions
- interpret drawings and specifications
- use hand tools
- use plant and equipment
- fix materials
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- appropriate elevating work platform
- plant and equipment appropriate to EWP
- hand tools and materials appropriate to work application from EWP
- suitable work area appropriate to operation of EWP
- appropriate operation and manufacturer's specification manual

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Assessment should be by direct observation of tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2008A: Use explosive power tools (EPT)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	OH&S requirements associated with application tasks and workplace environment recognised and adhered to.
		1.3	Job requirements assessed to determine access and appropriate fastener and charge to suit material and base to be fixed.
		1.4	Explosive power tools, attachments and equipment selected consistent with requirements of job, checked for serviceability and any faults reported to supervisor.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Safety hazards identified and correct procedures used to minimise risk to self and others.
		1.7	Scaffolding erected, where applicable, to OH&S requirements.
		1.8	Explosive power tool operations carried out in accordance with manufacturer's recommendations and AS1873.
2	Set out for fasteners	2.1	Material or base set out for location of fasteners in accordance with detailed drawings and specifications.
		2.2	Minimum distances from edge of material adhered to in accordance with AS1873.
		2.3	Material located and temporarily held or fixed into designed position of detailed drawings.
3	Use explosive power tools	3.1	Fastener selected to requirements of job.
		3.2	Charge selected to assessed requirements for material, base and penetration.
		3.3	Attachments and/or accessories installed to explosive power tool in accordance with manufacturer's specifications.
		3.4	Explosive power tool checked for operation to manufacturer's specifications.

- 3.5 Fastener and charge located in explosive power tool to manufacturer's specification.
- 3.6 Personal protective equipment fitted and worn in accordance with AS1270, AS1337 and manufacturer's recommendations.
- 3.7 Explosive power tool operated safely and fastener fixed into place.
- 3.8 Fastening penetration checked and determined for appropriate depth into material.
- 3.9 Power regulating device adjusted for conditions where required.
- 3.10 Misfire procedures carried out where required to manufacturer's recommendations and AS1873.
- 4 Clean up
 - 4.1 Temporary holding/fixing removed without damage to material.
 - 4.2 Explosive power tool cleared, attachments removed and tool and attachments cleaned.
 - 4.3 Charges stored in designated container in accordance with AS1873 and used charges recorded.
 - 4.4 Unused fasteners, explosive power tool and attachments stored in carry case to manufacturer's recommendations.
 - 4.5 Area cleared and waste material disposed of safely.
- 5 Maintain explosive power tool and kit
 - 5.1 Safety features of tool checked for serviceability in accordance with manufacturer's operating manual.
 - 5.2 Tool cleaned and lubricated to manufacturer's recommendation.
 - 5.3 Periodic maintenance service carried out to manufacturer's specifications.
 - 5.4 Log book checked and maintenance recorded to manufacturer's recommendations.
 - 5.5 Diminished stocks of charges and fasteners replenished to designed effectiveness of power tool kit.

RANGE OF VARIABLES

This unit applies to both direct action and indirect action explosive powered fastening tools used to fasten materials or fix fasteners to bases of:

- concrete
- masonry
- steel

Use of these tools is to be in accordance with relevant State/Territory legislation requirements and:

- AS1873 Explosive-Powered Hand Held Fastening Tools, Fasteners and Explosive Charges

Quality Assurance requirements may include:

- workplace operations and work procedures
- safety requirements
- quality of materials
- application relevant to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- use of explosive power tools
- isolation of working areas
- use of tools and equipment
- protective clothing and equipment
- working from scaffolding
- emergency procedures

Personal protective equipment is to incorporate requirements of:

- AS1270 Acoustics – Hearing Protection
- AS1337 Eye Protection for Industrial Application

In addition to ear plugs/muffs and safety glasses/goggles, other personal protective equipment may include:

- gloves
- boots
- hard hat
- overalls
- dust mask/respirator

Safety hazards may include but are not limited to:

- Obstacles close to operation location
- Other activities within vicinity
- Limited space

Reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective operational use of an EPT in applications to the various types of bases listed within the range of variables statement relative to the work orientation and appropriate legislation requirements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to explosive power tools and workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of fixing/fastening process
- demonstrate safe and effective operational use of explosive power tools and equipment
- show correct interpreting of manufacturer's manual and reporting procedures
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

Competency in this unit may be determined concurrently with other relevant units based upon integrated project work relative to the work orientation.

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant OH&S statutory regulations
- explosive power tools
- hand tools and equipment
- materials relevant to the operation of explosive power tools (EPT's)
- measurements and calculations
- drawings and specifications
- Quality Assurance
- operational procedures in accordance with manufacturer's specifications and relevant Australian Standards
- maintenance of equipment
- fixing of materials

Skills

The ability to:

- work safely to instructions
- use hand and power tools
- measure relative to fixing of materials
- demonstrate operational procedures for EPT
- communicate effectively
- identify drawing details relevant to operation of EPT
- maintain accurate records

(4) Resource Implications

The following resources should be made available:

- explosive power tool and complete kit

- general construction materials relevant to operation applications of EPT
- hand and power tools and supportive equipment appropriate to operation applications of EPT
- suitable work area appropriate to operation applications of EPT
- manufacturer's manual of operations and copy of AS1873

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision.

Assessment should be by direct observation of tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of each process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	1	2	1	1

BCG2009A: Carry out concrete work

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan work	1.1	Quality Assurance requirements for company's concrete operations recognised and adhered to.
		1.2	OH&S requirements with application tasks and workplace environment recognised and adhered to including identification of hazardous material.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected, to carry out processes consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.5	Procedures and the individual's role is identified through the supervisor in team operation to place concrete.
2	Carry out concrete placement	2.1	Assistance provided with undertaking of relevant concrete tests.
		2.2	Concrete transported correctly with wheelbarrow and discharged into formwork using correct manual handling techniques.
		2.3	Concrete placed to instruction minimising spillage.
		2.4	Concrete compacted to specification and instruction using immersion vibrator or other specified method.
		2.5	Concrete screeded to specified levels/grades as per instructions.
		2.6	Concrete finished to instruction to specified surface finish.
		2.7	Curing process identified and applied to instruction.
		2.8	Concrete surface adequately covered with appropriate material to support curing process and protect from damage.
3	Clean up site	3.1	Site cleaned free of debris.
		3.2	Waste and unwanted material disposed of safely.
		3.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

Concrete work includes placement of concrete into:

- foundation
- slab on ground
- simple retaining walls

Work is undertaken as part of a team under supervision.

Tools and equipment may include:

- shovels and rakes
- wooden floats
- steel floats
- bull floats
- immersion vibrator or vibrating table
- tarpaulins/covers
- curing agent applicator
- steam generator
- wheelbarrow
- concrete kibble
- tamping rods
- screed boards
- edging tool
- brooms

Quality Assurance requirements may include:

- workplace operations and work procedures
- quality of material
- control of placement, compaction and finish of concrete
- use and maintenance of tools, plant and equipment
- specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- protective clothing and equipment
- workplace environment and safety
- working platforms
- use of tools and equipment
- emergency procedures

Relevant concrete tests include:

- slump test for water content
- preparing cylinders for compaction testing

Waste material and debris may include:

- concrete spillage
- excess concrete
- pieces of timber
- empty containers
- cardboard and paper

Personal protective equipment may include:

- safety goggles/glasses
- respirators
- ear muffs and safety boots
- gum boots
- water proof pants and jacket

Concrete may be transported to formwork and placed by the following methods:

- directly from pre-mix truck
- crane and kibble
- wheelbarrow

Concrete may be finished by:

- steel float
- bull floats
- wood float
- broom

Concrete may be cured by:

- atmospheric conditions
- applied moisture
- steam or applied agents

Instructions would be part of supervisor's directions. Instructions and reporting of faults may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective placement and finish of concrete using any of the conditions and types of structures listed within the range of variables statement relevant to the work orientation.

(1) Critical Aspects and Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to concrete work and workplace operations
- show compliance with organisational policies and procedures including Quality Assurance requirements
- carry out correct procedures prior to and during application of concreting process
- demonstrate safe and effective operational use of tools, plant and equipment
- interactively communicate to support team and ensure safe and effective workplace operations
- give particular attention to placement and compaction processes

(2) Pre-requisite Relationship of Units

Competency in this unit may be determined concurrently, based upon integrated project work using the following units of competence:

- BCG2005A Erect and strip formwork for concrete work
- BCG2006A Carry out steelfixing

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1010A Carry out concrete work to simple forms

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- concrete construction
- hand tools and equipment
- materials relating to the concreting process
- materials handling
- measurement relevant to concrete work
- drawings/specifications
- transporting, placing concrete
- levelling equipment
- simple formwork and reinforcement componentry

Skills

The ability to:

- work safely to instructions
- use power tools and hand tools
- handle materials
- select equipment appropriate to concreting process
- measure relative to concreting process
- communicate effectively
- use simple levelling equipment

(4) Resource Implications

The following resources should be made available:

- hand tools and power tools appropriate to concreting process
- plant and equipment appropriate to concreting process
- suitable prepared formwork with placed reinforcement appropriate to concreting process

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team, in order to achieve outcomes within time constraints.

Assessment shall be by direct observation of tasks and questioning related to underpinning knowledge.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the process.

(6) Context of Assessment

Competency shall be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	1	1	1	1	1	1

BCG2010A: Remove/replace door and window furniture

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements recognised and adhered to.
		1.2	OH&S requirements for removing and replacing door/window furniture recognised and adhered to.
		1.3	Door and window furniture requirements assessed in accordance with finish schedule to specifications.
		1.4	Personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected consistent with job requirements, checked for serviceability and any faults reported.
		1.6	Safety hazards identified and correct procedures used to reduce hazards to self and others.
2	Remove doors, shutters and furniture	2.1	Ladders or scaffolding erected, where required, to OH&S regulations.
		2.2	Fly wire screens and fittings carefully removed and stored safely.
		2.3	Window furniture carefully removed and located or stored safely.
		2.4	Window shutters and sashes, where applicable and practical, carefully removed and handled safely to location for finishing.
		2.5	Door furniture carefully removed and located or stored safely.
		2.6	Doors carefully removed, identified and handled safely to location for finishing.
3	Replace doors, shutters and furniture	3.1	Doors carefully handled and located back into original place.
		3.2	Door furniture fitted and fixed back into place to specifications without marking door or surrounds.
		3.3	Where removed window shutters and sashes located back into original place.
		3.4	Window furniture fitted and fixed back into place to specifications without marking window surfaces or surrounds.

	3.5	Fly wire screens carefully replaced and secured in position without damage to surrounds.
4	Clean up	4.1 Area cleared.
	4.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the practical application finishes to doors and windows requiring removal thereof or the removal of furniture.

Door furniture includes:

- hinges
- locks
- latches
- handles
- closers
- safety chains

Window furniture includes:

- catches
- handles
- stays
- hinges
- locks
- brackets

Hinges and brackets may be designed to be painted over or kept in own natural finished state.

EVIDENCE GUIDE

Competency is to be demonstrated by removing furniture from both a nominated door and a nominated window for the purpose of painting, replacing and refitting doors/shutters, where applicable.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- compliance with Occupational Health and Safety regulations applicable to workplace operations
- compliance with organisational quality procedures and processes for removing and/or painting of doors and windows
- identification of location and details of door and window to be removed/refurbished
- selection and use of appropriate processes, tools and equipment
- safe and effective procedures used to remove furniture and door
- appropriate attention given to locating furniture safely for replacing
- safe and effective procedures used to replace door and replace respective furniture
- identification of typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Prerequisites for this unit are:

- BCG1005A Use hand and power tools

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- doors and windows
- door and window furniture
- tools and equipment

Skills

The ability to:

- work safely
- organise work
- use tools and equipment

(4) Resource Implications

The following resources should be made available:

- installed door
- installed window

(5) Method of Assessment

Competency shall be assessed while tasks are undertaken under indirect supervision.

Assessment may involve:

- observation of the application process
- inspection of the completed work
- questioning related to underpinning knowledge

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken under indirect supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	2	-	-	1	1

BCG2012A: Make set-outs

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare for set-out	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements determined and adhered to in accordance with application tasks and workplace environment.
		1.3	Design and dimensions of unit determined from written instructions and drawings.
		1.4	Type of set out to be undertaken, determined.
		1.5	Material selected consistent with set-out requirements and prepared for marking.
		1.6	Tools and instruments selected to carry out processes consistent with set-out requirements
2	Make set-out for unit	2.1	Overall dimensions of unit and lines representing material thickness accurately marked on set out.
		2.2	Details of cross sectional dimensions of integral members accurately marked on set-out, where applicable.
		2.3	Methods of joining marked on set-out where applicable.
		2.4	Set-out of cross sectional members of profiles cut accurately to form template shapes where applicable.
		2.5	Set-out identified by marking description/code of unit onto completed set-out.
3	Store set-out	3.1	Set-out stored in identifiable and retrievable location.
		3.2	Area cleared and waste removed.
		3.3	Tools and instruments cleaned and stored.

RANGE OF VARIABLES

This unit applies to the making of set-outs to produce a product in accordance with the relevant work orientation.

Units to be set out are to be standard or basic type units of stock material produced by an organisation in any of the following production areas:

- timber joinery
- aluminium joinery
- fitments
- shopfronts
- stairs
- stonework
- glasswork
- pre-cast concrete work

Setouts include:

- full size dimensional illustrations
- full size sectional plans and elevations
- profiles of sections
- machining details
- lettering or decorative features

Quality assurance requirements may include:

- workplace operations and procedures
- attention to specifications of work
- making of set outs and templates

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Tools and instruments may include but are not limited to:

- measuring tape/rule
- squares
- scribes
- dividers/steel wing compasses
- straight edge
- curved templates
- set squares
- T squares

Written instructions and drawings include:

- elevation and plan drawings
- provided specifications
- isometric drawings
- sketches
- typed or hand written notes
- verbal instructions

Material for setouts include:

- plywood
- particleboard
- paper
- cardboard
- zinc sheet
- aluminium sheet
- plastic sheet

Preparation of material for set-out include:

- cutting sheet material to practical size
- taping paper to backing base
- sanding off previous setout or marks

EVIDENCE GUIDE

Competency is to be demonstrated by making a set -out complete and accurate in detail whereby from which all parts/components of a unit can be produced and marked.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of making set-outs
- indicate understanding of interpreting drawings and instructions
- select and use appropriate processes, tools and instruments for set-out task
- accurately set-out detailed set out information
- demonstrate correct use of instruments and tools in setting out angles and curves
- demonstrate accurate cutting of set-out shape, where applicable

(2) Prerequisite Relationship of Units

Pre-requisites for this unit are:

- BCG 1003A Read and interpret drawings
- BCG 1004A Carry out measurements and calculations

(3) Underpinning Knowledge and Skills

Knowledge

A Knowledge of:

- workplace and equipment safety requirements
- working drawings and specifications
- set outs relevant to work orientation
- measuring and marking
- use of drawing/drafting equipment
- organisation's Quality Assurance requirements
- manufacturing processes
- tools and instruments
- set-out materials

Skills

The ability to:

- understand and interpret information from drawings and instructions
- use basic instruments and tools
- prepare for work application
- apply sound measuring and marking techniques
- set-out material
- record or mark identifying information
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace space to carry out processes
- set-out bench and set-out material
- measuring and marking instruments
- tools and equipment for holding and cutting

(5) Method of Assessment

Competency shall be assessed while work is undertaken under indirect supervision.

Assessment may be by intermittent checking at the various stages of the job application in accordance with the performance criteria, or may be at the completion of the set-out process.

(6) Context of Assessment

Competency shall be assessed in the normal or simulated workplace environment and in accordance with work and safety procedures.

Guidelines will be in line with statutory agreements and enterprise specific policies and procedures.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	-	2	1	-

BCG3011A: Carry out basic setting out

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	OH&S requirements for setting out processes on developed/undeveloped sites recognised and adhered to.
		1.3	Building/structure to be set out identified in details from site drawings.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability.
		1.6	Materials for pegs and hurdles selected and cut to determined lengths.
2	Identify and indicate site boundaries	2.1	Survey pegs at corners of site located and identified.
		2.2	String lines set accurately into position to identify boundaries of site in accordance with site plan and survey pegs.
3	Set out first line for building	3.1	Measurements of building line from boundary or existing building determined from site drawings.
		3.2	Approximate position and length of line plus 1.5m clearance at each end determined for hurdle location.
		3.3	Pegs and hurdles installed so that hurdles approximately level across and between one another with adequate provision to mark footing width on hurdle.
		3.4	Location for line accurately marked with nails on hurdles and line set taut into position to true alignment with boundary.
4	Set out right angled corner	4.1	Corner of building determined on set building line to true measurement from adjacent boundary and marked with peg.
		4.2	Right angle set up to line from corner peg using the 3, 4, 5, principle.

		4.3	Hurdles installed to approximate level of other hurdles and line set taut to right angled alignment.
5	Install other building lines	5.1	Hurdles for remaining building lines installed to appropriate locations approximately level with established hurdles.
		5.2	Measurement for remaining building lines accurately marked and nailed on hurdles to dimensions from site drawings.
		5.3	String lines set taut into position to nailed locations on hurdles.
6	Check for square	6.1	Diagonals of main rectangle checked to ensure square and where discrepancy more than 5mm over minimum diagonal length of 5m, lines adjusted to provide square relationship within 5mm.
7	Clean up	7.1	Unused materials stored/stacked.
		7.2	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the setting out of buildings or structures with straight lines and square corners.

It applies to the set out of regular plan shaped buildings which may be of the following construction:

- timber framed
- brick veneer
- block veneer
- steel framed
- solid brick
- solid stone

Quality assurance requirements may include:

- workplace operations and procedures
- use and maintenance of equipment
- attention to specifications and measurements

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment

Personal protective equipment may include:

- boots

- hard hat
- safety glasses
- ear plugs/muffs
- dust mask/respirator
- jacket

Tools and equipment may include but are not limited to:

- measuring tape/rule
- sledge hammer
- hammers
- power saw
- hand saw
- nail bag
- string lines

Site boundaries may be marked by:

- survey pegs
- fence built on line
- building built on line

Fence built on boundary may need to be checked for:

- true line of boundary
- centre of fence line
- face of fence

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of setting out, and establishing hurdles/profiles and building lines for a nominated 'L' shaped building on a building block.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational quality procedures and processes within the context of setting out the location of a building
- identify location and details of building and site for set out
- select and use appropriate processes, tools and equipment
- use accurate and effective procedures to establish initial building line
- give attention to accuracy in setting line up square to initial line
- apply accurate and appropriate procedures to establish hurdles/profiles for all building lines
- give attention to ensure hurdles/profiles approximately level
- identify typical faults and problems that occur and necessary action taken to rectify
- set-out completed to all requirements and accurate measurements
- interactively communicate with working partner to ensure safe and effective work procedures

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret plans
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills**Knowledge**

A knowledge of:

- workplace and equipment safety requirements
- working drawing and specifications
- tools and equipment
- measuring
- levelling
- setting out procedures
- construction of hurdles/profiles

Skills

The ability to:

- work safely
- organise work
- read and interpret drawings
- use tools and equipment
- measure accurately
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- building site and appropriate drawings for activity
- tools and equipment appropriate for setting out process
- materials appropriate for setting out processes

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- inspection of completed set out
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or while working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	3	1	1	3	1

BCG3012A: Construct and erect timber wall framing

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and construction and erection of timber wall framing recognised and adhered to.
		1.3	Materials and quantity requirements determined from job drawings and specifications in accordance with AS1684
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with the requirements of job, checked for serviceability and any faults reported to supervisor.
2	Set out wall plates	2.1	Location of walls set out to dimensions from job drawings and marked on floor joists, flooring or slab.
		2.2	Material selected for straightness of wall plates to ensure as straight as practical.
		2.3	Wall plates marked and cut to length as pairs allowing for wall junction and joints to job assembly requirements and specifications.
		2.4	Top and bottom plates temporarily nailed together and placed in location position ready for setting out.
		2.5	Position of studs and openings set out on wall plates to dimensions from job drawings, specifications for spacing and to suit brickwork if required.
		2.6	Door and window openings set out to schedule of door and window widths with allowance for clearance of + 10mm each side.
3	Set out and prepare studs and trimmers	3.1	Walls constructed and erected in accordance with requirements of Section 4 AS1684.
		3.2	Trenching/housing in wall plates for studs carried out where required to allow for irregular plate thickness.
		3.3	Stud length determined in accordance with specified ceiling height.
		3.4	Opening and intermediate studs selected for straightness and cut to length to specification.

- 3.5 Studs for door and window openings set out to heights for door and window sizes with clearance allowance at head of +10mm.
 - 3.6 Studs for wall frames checked for straightness and bows/springs to one face of wall.
 - 3.7 Housing, notching, drilling of studs to accommodate trimmers, lintels and services carried out to requirements of AS1684.
 - 3.8 Trimmers and short studs marked and cut to lengths to specifications.
 - 3.9 Standard spacing size noggings cut to length.
- 4 Construct walls
 - 4.1 Wall plates, studs, trimmers and short studs assembled and fixed in accordance with Section 6 - AS1684.
 - 4.2 Lintels, headers and ledgers above opening in walls installed in accordance with Section 4 - AS1684.
 - 4.3 Noggings installed on flat in rows at 1.350m maximum centres or closer if cladding required and staggered not more than their own width.
 - 4.4 Walls squared and braced with braces fixed to walls in accordance with AS1684 and manufacturer's specifications.
 - 4.5 Wall framing around chimneys constructed to clear brickwork/blockwork by minimum 25mm.
- 5 Erect walls
 - 5.1 Walls erected into location and temporarily braced into vertical position.
 - 5.2 Top wall plate junctions joined in accordance with specifications.
 - 5.3 Bottom wall plate fixed to location and line to specifications.
 - 5.4 Walls plumbed to + or – 2mm over 2.4 metres with wall bracing permanently fixed to specification.
 - 5.5 Corners blocked, where required, to tie junction studs together to specifications.
- 6 Clean up
 - 6.1 Area cleared free of debris.
 - 6.2 Waste and unwanted materials disposed of safely.
 - 6.3 Unused materials stored/stacked.
 - 6.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to walls constructed of stress graded, seasoned or unseasoned timber which may be prefabricated or built on site.

All work to be carried out in accordance with AS1684 National Timber Framing Code.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- nail bag
- chisels
- hand saws
- saw stools
- power saws
- nail gun
- air compressor and hoses
- power leads

Top wall plates may be joined by:

- halving
- lapping
- metal connections

Floor bases for wall installation include:

- timber joists of sub floor framing
- steel joists of sub floor framing
- sheeting on sub floor framing
- concrete slab

Wall bracing materials include:

- timber
- metal tension straps
- metal angle sections
- plywood
- fibre cement sheet
- hardboard

Waste and debris may include:

- off cut materials
- nails
- empty containers
- timber packing and strapping
- cardboard paper

Work to be undertaken in a team situation.

Reporting of faults should be in accordance with company's workplace procedures and may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by setting out, constructing and erecting walls for a nominated building involving door and window openings and at least one internal wall.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational quality procedures and processes within the context of constructing and erecting timber walls
- identify location and details of wall construction for proposed building
- select and use appropriate processes, tools and equipment
- accurately set out and mark wall plates in compliance to AS1684
- give particular attention to setting out for door and window frames and clearance allowance
- use safe and effective procedures to set out, prepare material, assemble and fix components for each wall
- adopt safe and effective procedures to erect walls and brace assembled structure
- give particular care and attention given to plumbing walls and fixing bracing
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective operations with wall erection
- complete wall framing construction and erection processes to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1002A Plan and organise work
- BCG1003A Read and interpret drawings
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices

- BCG2000A Assemble simple partition frames

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- working drawing and specifications
- AS1684 - National Timber Framing Code
- materials
- wall construction and bracing methods
- tools and equipment
- plant and equipment
- fixing and fasteners
- calculation of material requirements

Skills

The ability to:

- work safely
- read and interpret drawings and specifications
- organise work
- interpret documentation from a wide range of sources
- set out material
- use tools and equipment
- communicate effectively
- calculate material quantities

(4) Resource Implications

- prepared floor structure or slab for proposed activity
- tools and equipment appropriate for construction processes
- suitable materials appropriate for construction activity
- drawings and specifications of proposed activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of the application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team operation.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	2	2	1	2	2

BCG3016A: Install sub floor framing

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and construction of sub floor framing recognised and adhered to.
		1.3	Materials and quantity requirements identified from job drawings, specifications and in accordance with AS1684 for timber construction.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements, checked for serviceability and any faults reported to supervisor.
		1.6	Termite protections installed as required in accordance with AS3660.1 and for AS1684.
		1.7	Damp proof barriers installed to specifications and AS2904.
2	Install timber bearers	2.1	Bearer material selected with bows/springs up, marked and cut to lengths for joining and specifications where required.
		2.2	Bearers located and fixed in a straight and parallel line in accordance with AS1684, job drawings and specifications.
3	Install timber floor joists	3.1	Location for floor joists set out to spacings from job drawings and specifications.
		3.2	Material lengths for floor joists selected with bows/springs placed upwards, where applicable.
		3.3	Outside floor joists selected for straightness, located, fitted and fixed to line and level to specifications and AS1684.
		3.4	String lines used to determine levels and alignment of tops of floor joists over bearer positions.
		3.5	Floor joists prepared, located and securely fixed to bearers to line and level in accordance with AS1684 and specifications.

- | | | | |
|---|---|-----|---|
| | | 3.6 | Block or herringbone strutting installed to deep floor joists in accordance with AS1684. |
| | | 3.7 | Trimmed openings constructed using half housing joints, mortice and tenon joints or metal connections to specifications and AS1684. |
| 4 | Install steel bearers and joists/ladder frames | 4.1 | Bearers positioned on supporting structure/piers, marked and cut to length, where applicable. |
| | | 4.2 | Bearers installed straight and level using approved packing to job specifications. |
| | | 4.3 | Joists installed straight and level to specified spacing and fixing. |
| | | 4.4 | Ladder frames positioned on bearers to specified spacing and fixed to specification. |
| | | 4.5 | Continuous angle trim fixed to end of ladder frames to manufacturers' and job specifications. |
| 5 | Install bearers and 'drop-in' joists | 5.1 | Bearers set out according to length of drop in joists. |
| | | 5.2 | Bearers cut to length as required, located and packed over supports to achieve level plane. |
| | | 5.3 | Drop-in joists positioned and fixed to bearers to specification. |
| 6 | Install site assembled bearers and joists (long span) | 6.1 | Bearers positioned to the required spacings and cut to length. |
| | | 6.2 | Bearers located to specifications. |
| | | 6.3 | 'C' section joists set out to required spacings and fixed to specification. |
| | | 6.4 | Bearers packed using approved packing to achieve level plane. |
| 7 | Clean up | 7.1 | Area cleared and waste material disposed of safely. |
| | | 7.2 | Unused materials stored/stacked. |
| | | 7.3 | Tools and equipment cleaned, maintained and stored. |

RANGE OF VARIABLES

This unit applies to timber and/or steel sub floor framing construction.

Subfloor framed construction may include:

- timber bearer and joists
- steel beams for bearers
- steel bearers and joists
- steel ladder frames

Sub floor types of construction support includes:

- square or round timber stumps
- concrete stumps
- masonry base with piers
- steel posts on concrete pedestals/base

All timber floor construction to be carried out to requirements of AS1684 National Timber Framing Code.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include but is not limited to:

- safety goggles, glasses
- ear plugs/muffs
- boots
- gloves
- respirators/dust masks

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- power drills
- levelling equipment
- squares
- nail bags
- chisels
- hand saws
- saw stools
- power saws
- nail gun

- string lines
- air compressor and hoses
- power leads

Termite protections to be in accordance with AS3660.1 Protection of Buildings from Subterranean Termites – New Buildings.

Damp proof barriers to be in accordance with AS 2904 Damp Proof Courses and Flashings

Timber construction connections may include:

- nails/spikes
- bolts and nuts
- metal rods
- metal connections

Steel construction connections may include:

- bolts
- screws
- self tapping screws
- welding
- patent metal connecting plates

Structure may be to receive structural strip or sheet/panel flooring or flooring boards.

Reporting of faults should be in accordance with company's workplace procedures and may be verbal or written.

Work is to be undertaken in accordance with OH&S statutory regulations where welding and/or crane operations are involved in construction process.

Work may be undertaken working with a partner or in a team.

EVIDENCE GUIDE

Competency is to be demonstrated by installing bearers and joists or ladder frames for sub floor framing to a nominated building project.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organisational quality procedures and processes within the context installing sub floor framing
- identify location and details of sub floor framing members, sizes, spacings, and established bearer base
- select and use appropriate processes, tools and equipment
- adopt and use safe and effective procedures to prepare bearers and joists and to fix to position
- give attention to timber construction details to conform to AS1684 requirements
- give attention to ensure installation to line and level
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure work carried out safely and effectively
- complete sub floor frame installation to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1003A Read and interpret drawings
- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG1011A Handle construction materials and safe disposal of non-toxic waste
- BCG1016A Prepare for construction process (carpentry)
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- working drawings and specifications
- AS1684 - National Timber Framing Code
- types of sub floor construction
- materials
- fixing and fasteners
- tools and equipment
- measuring and leveling
- calculation of material requirements

Skills

The ability to:

- work safely
- organise work
- read and interpret drawings and specifications
- interpret documentation from a wide range of sources
- use tools and equipment
- set-out material
- communicate effectively
- calculate material quantities
- carry out measuring and leveling

(4) Resource Implications

The following resources should be provided:

- established sub floor base for proposed construction
- tools and equipment appropriate to construction processes
- construction materials appropriate to construction processes
- drawings and specifications of proposed activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of application processes
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or while working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	2	2	2	1	1	1

BCG3041A: Undertake dogging

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements for workplace environment and crane and dogging operations recognised and adhered to.
		1.2	Site information obtained as necessary.
		1.3	Hazards in immediate work environment identified and action taken to minimise risk.
		1.4	Co-ordination and communication requirements with other site personnel determined from site operational procedures.
		1.5	Job method determined to include hazard prevention and controls, job safety plan and safety procedures, relevant Australian Standards, codes of practice and manufacturer's specifications.
		1.6	Barricades/warning signs/overhead protection erected to requirements of State/Territory regulatory, road traffic authorities and local governments.
		1.7	Mass of loads to be lifted calculated using manufacturers specifications/tables or known weights of common construction materials.
		1.8	Positions of centres of gravity estimated.
2	Select equipment	2.1	Lifting equipment selected consistent with requirements of lift and manufacturer's tables/charts.
		2.2	Lifting gear inspected and damaged/worn items labelled, rejected and placed separate from operating equipment.
		2.3	Personal protective equipment selected, correctly fitted and used to requirements of OH&S regulations.
3	Sling loads	3.1	Load and slings protected with suitable packing to prevent damage.
		3.2	Moving/loose parts of load securely lashed to prevent movement.
		3.3	Slings correctly attached to load, positioned and adjusted to requirements of lift.
		3.4	Slings attached and secured to hook with hoist wire vertical.

		3.5	Tail ropes attached to load where necessary in order to control lateral movement.
		3.6	Test lift by dogman's directions to ensure correct placement, tensioning and angles of slings, packing and hoist wire vertical.
4	Move load	4.1	Load destination prepared to accept load.
		4.2	Lifting or pulling device assembled and erected where appropriate.
		4.3	Load safely moved to required destination and secured in position to client's specification.
		4.4	Standard communication signals used to co-ordinate safe movement of the load.
5	Remove gear	5.1	Lifting/moving gear and packing safely removed from load and collected/lowered to ground.
		5.2	Equipment cleaned, inspected for wear and damage, maintained, usage and condition recorded and stored.

RANGE OF VARIABLES

This unit applies to the application of slinging techniques including selection and inspection of lifting gear and the directing of crane/hoist operation in the movement of load.

Work may include:

- movement of plant and equipment
- steel erection
- hoist erection
- placement of pre-cast concrete
- movement of material

and work associated with:

- safety nets and static lines
- mast climbers
- perimeter safety screens/shutters
- cantilevered crane loading platforms

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include but is not limited to:

- boots
- safety glasses/goggles
- dust masks
- gloves
- hard hat

Potential hazards may include:

- overhead powerlines
- trees
- overhead service lines
- underground services
- uneven or unstable ground
- allowable floor loading
- other workers and persons
- surrounding buildings, structures or equipment
- hazardous materials
- corrosive substances
- barricades
- inadequate lifting
- radio interference

Equipment used may include but is not limited to:

- sling-leg slings
- four leg slings
- chain slings
- synthetic webbing slings
- ropes
- shackles and eye bolts
- spreader beams and equalising gear clamps
- cradle timbers
- chocks and wedges
- packers
- fishplates and bolts
- rigging screws
- turfers and turn buckles

Signals for load moving may be given using any of the following methods:

- verbal
- hand signals
- whistles/hooters
- two-way radios/telephones
- light signals

All signalling other than verbal communication should be in accordance with Australian Standards as per AS2550 Cranes – Safe Use.

Work to be undertaken to legislative and regulatory requirements and in accordance with Worksafe Australia Standard for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of carrying out dogging processes with a crane in the moving of plant and materials on a nominated project.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to worksite and dogging operations
- show compliance with organisational quality procedures and processes within the context of handling materials and valuable equipment
- identify detail or program of work involving handling and relocating of items
- select and use appropriate processes, tools and equipment
- estimate load, centre of gravity and selection of equipment
- apply safe and correct procedures to the slinging of loads
- conduct safe and effective communication with crane operator in carrying out operations
- identify typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1001A Carry out OH&S requirements
- BCG1006A Use plant and equipment
- BCG1011A Handle construction materials and safe disposal of non-toxic waste

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- crane operations
- design and function of lifting gear
- load calculations
- lifting gear and associated equipment
- hand tools
- methods of signalling
- worksite communications

Skills

The ability to:

- work safely
- organise work
- calculate loads
- handle materials
- use tools and equipment
- use signalling methods
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- worksite operation
- crane operation
- lifting gear and equipment appropriate to supporting dogging processes

- schedule of crane operations

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency may be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken under direct supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	1	2	2	3	2	2

BCG3045A: Apply paint by spray

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	OH&S requirements for applying sprayed painted finishes and of workplace environment recognised and adhered to.
		1.2	Quality Assurance requirements of company's painting and decorating operations recognised and adhered to.
		1.3	Materials checked for conformity against specifications and finishes schedule.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected consistent with job requirements, checked for serviceability and ant faults reported to supervisor.
		1.6	Safety hazards identified and correct procedures used to reduce risk to self and others.
2	Prepare materials, unit and application area	2.1	Area set up for application processes to suit unit or application area.
		2.2	Adequate ventilation to application area provided.
		2.3	Measures taken to ensure dust free area.
		2.4	Paint mixed and viscosity adjusted to allow for application process.
		2.5	Unit/area prepared, where applicable, by covering, removing and/or masking off to specification areas not to be painted.
		2.6	Erect and dismantle scaffold, where applicable, to job and OH&S requirements.
3	Set up and test spray equipment	3.1	Compressor or airless spray unit set up in designed operating location, where applicable.
		3.2	Correct fluid tip, air cap, hoses, filters and tips selected and fitted.
		3.3	Fittings checked for secure fitting.
		3.4	Safety devices checked to ensure operational.
		3.5	Equipment tested and defects corrected to operational and manufacturer's requirements.

4	Apply paint by spray	4.1	Spray gun set up approximate distance from surface and operated to designed requirement.
		4.2	Paint applied by spray to surface using correct technique to achieve an even finish with opacity and sheen level to specification or Australian Standard 2311 – The Painting of Buildings.
		4.3	Defects in coating identified and corrective action taken.
5	Clean up and store equipment	5.1	Spray equipment dismantled, cleaned and maintained.
		5.2	Fittings and equipment cleaned with correct solvent without damage and stored safely to manufacturer's specifications.
		5.3	Area cleaned and waste disposed of safely.
		5.4	Unused materials sealed and stored.

RANGE OF VARIABLES

This unit applies to the application of pigmented coatings by spray and should be read in conjunction with Australian Standard 2311 – The Painting of Buildings.

Spray application includes both air atomised-spray applications and airless spray units.

Quality Assurance requirements may include:

- quality of materials
- preparation of surfaces
- application techniques
- cleanliness of application areas
- specified finish
- maintenance of equipment
as per Australian Standard 2311 – The Painting of Buildings

OH&S requirements may include:

- protective clothing
- protective equipment
- hazardous materials
- workplace conditions and isolating areas
- use of plant and equipment
- emergency procedures

Paint coatings may include:

- solvent-borne (alkyd, urethane, urethane/alkyd, urethane oil or modified alkyd resins)
- latex (PVA, PVA/acrylic, acrylic and styrene acrylic)
- paving paints
- roofing paints (latex and solvent-borne)
- two-pack epoxy and polyurethane

- chlorinated rubber
- water-repellents for timber
- water-repellents for concrete or masonry
- anti graffiti paints

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators including cartridge and supplied-air
- ear muffs/plugs
- caps
- jacket
- overalls

Tools and equipment may include:

- spray guns
- sanders
- air compressor
- hoses, tips, filters and other fittings
- brushes
- vacuum cleaner
- drop sheets
- masking equipment
- diaphragm or piston airless spray unit (electrical/pneumatic/petrol)
- scaffold including planks, trestles, stepladders and aluminium mobile

Reporting of faults to be in accordance with organisation's worksite procedures and may be verbal or written.

EVIDENCE GUIDE

Competency is to be demonstrated by the performance of applying a painted finish by spray that is free from defects and is of the specified thickness, sheen, opacity and colour.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational quality procedures and processes within the context of applying paint using spray equipment
- select and use of appropriate process, tools and equipment
- inspect fittings and hoses for serviceability prior to connection to pressure lines for spray equipment
- use safe and effective applications for spray application of paint
- clean gun and fittings immediately after task completed
- protect adjoining surfaces by dropsheets and/or masking
- apply accurate and efficient sealing if masking abutted surfaces
- identify typical faults and problems that occur and necessary action taken to rectify
- prepare surface as per manufacturer's specification in compliance with substrate requirements
- interactively communicate with others to ensure safe and effective work procedures
- calculate quantity of materials

(2) Pre-requisite Relationship of Units

Pre-requisites to this unit are:

- BCG1006A Use plant and equipment
- BCG2001A Prepare surfaces

This unit may be assessed concurrently with:

- BCG2019A Prepare for construction process (painting and decorating)
- BCG3100A Prepare surfaces for painting and decorating
- BCG3097A Match specified paint colour
- BCG3098A Apply clear wood finish

(3) Underpinning Knowledge and Skills

Knowledge

A Knowledge of:

- workplace and equipment safety requirements
- specifications
- spray equipment
- paint and preparatory materials
- spray application and procedures
- tools and equipment
- hazardous materials
- maintenance of equipment
- measuring, marking and masking

Skills

The ability to:

- work safely
- interpret specifications
- organise work
- measure and mask work
- use spray equipment
- apply paint
- use tools and equipment
- communicate effectively
- clean equipment

(4) Resource Implications

The following resources should be provided:

- workplace location
- spray equipment
- spray booth for air-atomised spray application
- tools and equipment
- specifications and appropriate materials for activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment should involve:

- observation of work processes
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team operation under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	3	2	1	2	3

BCG3050A: Renovate and restore stone work

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements for company's construction operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment, recognised and adhered to.
		1.3	Material requirements assessed against drawings, work location and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to minimise risk to self and others.
		1.7	Working platform/scaffolding erected in accordance with OH&S regulations.
2	Locate damaged section of natural stone moulding	2.1	Damaged section located, clearly identified and confirmed with architect's requirements.
		2.2	Extent of damaged section and overall dimensions of replacement stone correctly determined.
3	Install lifting/lowering equipment	3.1	Appropriate lifting equipment installed and tested to OH&S regulations and job requirements.
4	Remove damaged stone	4.1	Damaged section accurately and safely cut out to predetermined dimensions without damage to surrounding stone.
		4.2	Waste materials safely lowered and removed from site in accordance with job and OH&S requirements.
		4.3	Bedding planes to support replacement stone accurately formed to minimise size of replacement stone.
5	Select matching stone	5.1	Colour and type of existing stone identified and matched with replacement stone to architect's specifications.

6	Replace stone	6.1	Dimensions and profile of replacement stone correctly determined and appropriate templates made.
		6.2	Replacement stone accurately worked to match dimensions and profile.
7	Fix replacement stone	7.1	Replacement stone drilled/slotted for dowels/brackets in accordance with fixing specifications.
		7.2	Replacement stone correctly handled and raised to position for placement.
		7.3	Stone placed, fixed and bedded in location with adhesive or mortar according to specification.
		7.4	Vertical joints filled with mortar or sealant, where applicable, to specifications.
		7.5	Stonework cleaned using dry, liquid or chemical means in accordance with type of stone laid.
8	Clean up	8.1	Area cleared of waste material, equipment and scaffolding.
		8.2	Waste and unwanted material disposed of safely.
		8.3	Unused materials stored/stacked.
		8.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit covers both face and structural stonework which may be plain and flat or ornamental.

Types of stone may include but are not limited to:

- marble
- granite
- ashlar
- sandstone

Lifting equipment may include but is not limited to:

- gin poles
- shear legs
- mechanical hoists
- elevating work platforms

Other means of raising stone include:

- forklifts
- cranes

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- boots
- safety goggles/glasses
- ear plugs/muffs
- dust mask/respirators
- gloves
- hard hat

Tools and equipment may include:

- measuring tape/rule
- hammers
- spirit level
- squares
- masonry chisels
- scaffolding
- rollers
- power drills including impact
- power grinder
- air compressor and hoses
- power leads

Work to be undertaken and supported in accordance with legislative and regulatory requirements and Worksafe Australia Standards for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out safe and effective restoration of damaged masonry work by replacing a nominated section.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes, tools and equipment
- apply organisational quality procedures and processes within the context of installing stonework to facades
- adopt and use safe and effective procedures to remove damaged stone

- give particular attention to accuracy of measurements and templates for replacement stone
- select stone consistent with specification for material and colour
- use safe handling practices in moving and placing stone
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete renovation process to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1008A Use simple levelling devices
- BCG2001A Prepare surfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- types of stone and characteristics
- fixing of stone
- mortar mix composition
- range of mortar additives including plasticiser/s and/or application
- Building Code of Australia and AS3700 masonry in buildings
- lifting equipment
- plant, tools and equipment
- measuring and levelling
- templates for stonework

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use plant, equipment, hand and power tools
- measure and set out work
- select materials specific to requirements
- handle materials in safe manner
- erect scaffolding
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- work location for renovation activity
- tools, plant and equipment appropriate to renovation and replacement processes
- construction materials relevant to the activity
- appropriate communication of documentation relevant to task
- scaffolding appropriate to location and activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency of this unit may be determined concurrently, based upon project work.

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	3	2	3	2	1

BCG3053A: Produce reconstituted stone

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Select and prepare materials and equipment	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for application to tasks and workplace environment recognised and adhered to.
		1.3	Materials selected and checked against specifications for stone mix.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability.
		1.6	Safety hazards identified and correct procedures used to minimise risk to self and others.
2	Produce reconstituted stone	2.1	Forms/moulds constructed or cleaned and prepared for placement of mix to specifications.
		2.2	Aggregates measured and proportioned to design mix and mixed to specifications.
		2.3	Mould filled with mix and light vibration applied to consolidate material and eliminate/minimise voids.
		2.4	Level of filled mould screeded/floated to flat surface.
		2.5	Stone mix cured in accordance with specifications for curing and stripping from mould.
		2.6	Reconstituted stone section removed from mould, carefully handled and placed on table ready for grinding process.
		2.7	Surface ground thoroughly to expose aggregate and exposed voids filled evenly with matching colour cement mortar.
		2.8	Surface polished flat and free from blemish.
3	Clean up	3.1	Area cleared of waste material, dust and equipment.
		3.2	Waste and unwanted material disposed of safely.
		3.3	Unused materials stored/stacked.
		3.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit covers all types of reconstituted stone produced by mixing a designed proportion of aggregates both fine and coarse, to produce a designed result in stone composition and colour.

Materials used in reconstituted stone may include but are not limited to:

- river gravel
- basalt (blue stone)
- igneous rocks
- sand
- coloured cement

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- quality of finish

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms
- use of mechanical plant and equipment

Personal protective equipment may include:

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

Tools plant and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- spirit level
- shovel
- concrete mixer
- screed boards
- floats
- wheelbarrow
- grinding machine
- polishing machine
- gantry crane
- forklift

Work to be undertaken in accordance with legislative and regulatory requirements and Worksafe Australia Standards for Users and Operates of Industrial Equipment.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective production of reconstituted stone using any of the materials listed in the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes tools and equipment to carry out tasks
- attention to the accurate setting up of forms or moulds for placement of mix
- apply organisational quality procedures and process within the context of producing reconstituted stone
- select stone materials consistent with specification of job required
- correct proportioning of materials carried out to specification for mix
- give attention to safe handling and placement procedures
- adopt and use safe and effective procedures to apply grinding and polishing processes
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete produced stone to specifications for mix and finish

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices
- BCG1010A Carry out concrete work to simple forms

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- formwork and moulds for concrete
- materials and characteristics
- proportioning of materials for concrete mixes
- placement and compaction of concrete
- polishing and grinding processes
- plant, tools and equipment
- handling of materials
- worksite communication
- measuring, levelling and calculations

Skills

The ability to:

- work safely
- read and interpret drawings
- organise work

- use tools and equipment
- calculate materials
- place concrete
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- work area suitable to task
- tools, plant and equipment appropriate to the application processes
- moulds on material for formwork appropriate to activity
- materials required for composition of proposed mix
- drawings and specifications relevant to proposed task

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of each task application or at the end of each task in accordance with the performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCG3056A: Construct stone arches

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Job material and equipment requirements determined from drawings and specifications.
		1.4	Safety and protection requirements determined for work personnel, public and environment,.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.7	Scaffolding erected to job requirements and in accordance with OH&S regulations.
2	Set out and prepare archwork	2.1	Location of arch set out on base/footing for stone construction to job drawings and specifications.
		2.2	Wall/columns constructed to specifications to level of springing line of arch.
		2.3	Arch centre raised, located and supported to specified height, level across springing line and level across crown.
		2.4	Supports designed for ease of release without jarring stonework.
3	Construct arch to regular cut stone	3.1	Voussoirs/wedge stones delivered pre-cut and checked for conformity to design and order.
		3.2	Mortar, where applicable, mixed to specifications and AS3700 Masonry in Buildings.
		3.3	Central keystone established for gauged arch and voussoir laid over centre to form arch to specification.
		3.4	Regular stone laid to form courses and maintain bond to specification.
		3.5	Stones cut or precut stones used to complete course and abut arch stones.

		3.6	Joints made within tolerance of specifications maintaining alignment and plumb of stone face.
4	Construct arch with irregular voussoirs forming stepped estrados	4.1	Voussoirs/wedge stones delivered precut and checked for conformity to design and order.
		4.2	Keystone of archway positioned centrally and designed voussoirs laid around centre to form arch.
		4.3	Regular stones laid where voussoirs designed to correspond with courses.
		4.4	Random regular stones laid where voussoirs not designed for regular gauged courses.
5	Construct arch with irregular stones	5.1	Stones precut or stones set out and cut to suit shape of designed arch.
		5.2	Keystones laid at crown and other arch stones laid over centre to form arch to specifications.
		5.3	Wall constructed of random rubble or random regular to overlapping bond to abut arch stones to specifications.
		5.4	Joints made with mortar with stones selected and matched close to abutting stones and bond strength maintained.
		5.5	Joints made to specifications with wall maintained in alignment and plumb.
		5.6	Mortar joints struck and finished in accordance with specifications for finish.
6	Clean up	6.1	Stonework cleaned, area cleared of waste, materials and equipment removed.
		6.2	Waste and unwanted materials disposed of safely.
		6.3	Unused materials stored/stacked.
		6.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the construction of all stone arches which may vary in shape from a semi-circle to an apex or may be designed from a combination of symmetrical arcs.

Arches may be designed for walls of:

- regular gauge

- random regular
- random rubble

Joints in stone arches may be:

- dry
- cement mortar

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- boots
- safety glasses/goggles
- ear plugs/muffs
- dust masks/respirators
- gloves
- leather apron

Tools plant and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- spirit level
- square
- chisel
- hand saws
- power saws
- masonry saws
- straight edge
- power leads
- concrete mixer
- shovels
- string line
- trowels
- mortar board
- gin poles
- shear legs

EVIDENCE GUIDE

Competency is to be demonstrated by constructing at least two separate types of arches to each of any two types of wall structures listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use tools and equipment to carry out construction process
- apply organisational quality procedures and process within the context of constructing stone arches to walls or columns
- adopt and use safe and effective procedures to set out and set up arch centre to specification
- give particular attention to support of centre and method of lowering when arch complete
- identify and where applicable, mark each cut stone for arch location
- use safe and effective procedures to handle and place each stone
- form arch to specification and, where applicable, apply mortar to joints
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete arch construction including finish to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1007A Erect and dismantle restricted height scaffolding
- BCG1008A Use simple levelling devices

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- design of arches
- stone construction of arches
- methods of constructing arches
- mortar mix composition
- range of mortar additives including plasticiser/s and/or their application
- Building Code of Australia and AS3700 Masonry in Buildings
- types of stone and characteristics
- cutting of stone
- measuring and levelling
- plant, tools and equipment
- scaffolding and lifting equipment
- worksite communications

Skills

The ability to:

- work safely
- organise work
- read and interpret drawings

- use plant, tools and equipment
- measure and set out work
- lay stone
- handle materials safely
- communicate effectively

(4) Resource Implications

The following resources should be provided

- site location for proposed activity
- materials relevant to proposed activity
- hand/power tools, plant and equipment appropriate to construction processes
- drawings and specifications relevant to proposed activity
- Scaffolding appropriate to construction processes

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCG3068A: Construct battered masonry surfaces

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and laying masonry to sloping surfaces recognised and adhered to.
		1.3	Job material and equipment requirements determined from drawings and specifications.
		1.4	Safety and protection requirements determined for work personnel, public and environment.
		1.5	Appropriate personal protective equipment selected, correctly fitted and used.
		1.6	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
2	Prepare base for masonry or stone	2.1	Battered slope compacted and finished to specification.
		2.2	Rock or stone slope faced with cohesive soil and reinforcing to form flat base or rendered to specification.
		2.3	Crushed rock spread to thickness of 50mm and compacted to form base to specification.
		2.4	Steep slopes and mortar bedded masonry and stone bases finished to flat surface with sprayed concrete over reinforcement sheets.
		2.5	Impervious or permeable membrane laid, where required, in accordance with specifications.
3	Lay masonry or stone to sand bedding	3.1	Bedding sand laid and screeded to specified depth.
		3.2	Layout of masonry or stone determined and set out in accordance with drawings and specifications.
		3.3	First stone or masonry unit laid into place to proposed face and alignment of batter to specifications.
		3.4	Stone or masonry units laid individually into position maintaining pattern or bond and surface alignment to specifications.
		3.5	Joints maintained to tolerance in accordance with

			specifications.
		3.6	Random shaped stones selected in accordance with abutting stones and maximum specified joints.
4	Lay masonry or stone to mortar bed	4.1	Mortar materials proportioned and mixed to specifications.
		4.2	Layout of masonry or stone determined and set out in accordance with drawings and specifications.
		4.3	Stone laid into place to pattern/bond and surface alignment to specifications.
		4.4	Mortar joints struck or raked in accordance with specifications.
5	Clean up	5.1	Masonry surface cleaned free of waste.
		5.2	Area cleared and waste material disposed safely.
		5.3	Unused materials stored/stacked.
		5.4	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the facing of battered surfaces using masonry units.

Masonry units may include but are not limited to:

- clay bricks/pavers
- concrete blocks
- concrete pavers
- slate
- stone (regular and random)

Joints may be:

- dry
- brush sanded
- mortar

Mortar used should be in accordance with AS1316 Masonry cement

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment

- use of tools and equipment
- handling of materials
- working platforms

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators/dust masks

Tools and equipment may include but are not limited to:

- measuring tape/rule
- concrete mixer
- wheelbarrows
- masonry saws
- trowels
- mortar boards
- shovels
- straight edge
- spirit level
- hammers
- string lines
- power leads
- buckets

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation and laying of at least two separate types of masonry materials to construct battered masonry surfaces, using any of those listed within the range of variables statement.

(1) Critical Aspects of Evidence

Competence should be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes, tools and equipment to carry out tasks
- apply organisational quality procedures and process within the context of masonry work
- prepare base to specification requirements
- select masonry units and mortar consistent with specifications of job required
- apply safe and effective procedures to set out and lay masonry units to specifications
- lay bricks/blocks/pavers/stones/ to line and gauge where applicable
- identify typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG3011A Carry out basic setting out

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- drawings and specifications
- brick expansion and growth
- control and articulation joints
- characteristics of masonry materials
- workplace and equipment safety requirements
- mortar mix composition
- range of mortar additives including plasticiser/s and or their application
- Building Code Of Australia
- laying of masonry
- tools and equipment

Skills

The ability to:

- work safely
- interpret drawings and specifications
- use hand and power tools
- measure and calculate quantities appropriate to task
- select materials appropriate to task
- set out work
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- battened surface appropriate to proposed activity
- tools, plant and equipment appropriate to construction processes
- appropriate communication of documentation relevant to task
- construction materials relevant to tasks

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Assessment may be by intermittent checking at various stages of each task application in accordance with the performance criteria or may be at the completion of the process.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	2	3	3	2

BCG3069A: Construct fireplace and chimney

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and constructing chimneys and fireplaces recognised and adhered to.
		1.3	Materials and quantity requirements determined from job drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	Materials and quantities checked for conformity to ordered quantities and specification.
2	Set out and prepare base	2.1	Footing checked for conformity to dimensions and location as per job drawings and specifications and in accordance with AS2870 Residential Slabs and Footings – Construction.
		2.2	Fireplace base set out to correct measurements and location in association with adjoining wall if applicable, to job drawings.
3	Construct base	3.1	Mortar mixed and bricks/blocks/stone laid to set out for base, to specifications.
		3.2	Bricks/stone laid to line and level and constructed in accordance with AS3700 Masonry in Buildings.
		3.3	Bricks/stone laid to job drawings and specifications.
4	Construct hearth and firebox	4.1	Damp proof courses built in to specifications and in accordance with AS2901 Damp-proof Courses and Flashings
		4.2	Bricks/blocks/stone laid to form hearth to designed shape, pattern and specifications.
		4.3	Brick/stone laid to job drawings and specifications.
5	Construct fire box and face brickwork	5.1	Specified stone for fire box and face brickwork where different, selected to specifications.

		5.2	Firebox constructed with stone laid to form curvature and shape of rear and side walls to specifications.
		5.3	Face brickwork laid to form shape of openings to designed dimensions and finish of drawings and specifications.
		5.4	Lintel, where applicable, installed to specifications.
		5.5	Facework laid to bond/pattern/colour finish to wall and aligned to specification.
		5.6	Protrusions and/or mantelpiece formed and finished to designed shape and specifications.
		5.7	Plumb and level maintained for straight work.
6	Form throat and chimney shaft	6.1	Throat formed, rendered and shaped to design and specifications for fire box and chimney.
		6.2	Parging to flue completed to specifications.
		6.3	Brick/stone laid to build outer skin and form chimney shaft to specifications.
		6.4	Baffles built in, where designed, to location and specifications.
7	Complete chimney	7.1	Chimney constructed to extend minimum 600mm above the highest roof ridge or point.
		7.2	Head of chimney completed to designed finish to drawings and specifications.
		7.3	Scaffolding erected as required in accordance with job requirements and OH&S regulations.
8	Rake/rule joints	8.1	Joints to laid brickwork/blockwork/stonework raked or ruled to designed depth in accordance with the job specifications.
		8.2	Joints to laid brickwork/blockwork/stonework raked out for provision of apron and stepped flashing at roof line.
		8.3	Brickwork/blockwork/stonework brushed down prior to drying using appropriate brushing tool.
9	Clean up	9.1	Area cleaned and waste, materials and equipment removed.
		9.2	Unused materials stored/stacked.

- 9.3 Waste and unwanted material removed and placed into job waste bins or rubbish stockpile.
- 9.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit covers the construction of open fireplaces and chimneys constructed in timber, brick/block veneer and solid brick/block/stone wall structured buildings.

All construction should comply with:

- AS1316 Masonry Cement
- AS2699 Wall Ties For Masonry Construction
- AS1904 Damp-Proof Courses and Flashings
- AS3700 Masonry in Buildings

Brick/block types may include:

- clay wire cut bricks
- clay pressed bricks
- fire-rated concrete blocks

Stone sections may be:

- regular size
- random size

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- brick/block laying operation and procedures

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- cap
- respirator/dust masks

Tools and equipment may include:

- measuring tape/rule

- concrete mixer
- wheelbarrows
- masonry saws
- trowels
- mortar boards
- shovels
- spirit level
- string lines
- straight edge
- hammers
- pointing and raking tools
- brushes
- hoses

EVIDENCE GUIDE

Competence is to be demonstrated by carrying out the safe and effective construction of a fireplace and chimney using any of the materials listed within the range of variables.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes, tools and equipment consistent with requirement of activity
- apply organisational quality procedures and process within the context of constructing masonry fireplaces and chimneys
- demonstrate accurate measuring and setting out techniques
- determine chimney and fireplace location and set out accurately
- select bricks/blocks/stones and mortar consistent with specification or job required
- lay bricks or blocks to line, level and gauge
- apply safe and effective procedures in erecting scaffolding
- give attention to correct forming and size of throat related to fireplace
- identify typical faults that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective construction operations
- complete chimney and fireplace to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG3011A Carry out basic setting out

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- site drawings and specifications
- brick expansion and growth
- characteristics of masonry materials
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- mortar mix composition

- range of mortar additives including plasticiser/s and/or application
- Building Code of Australia and Australian Standards 2870, 3700,2699 and 1316
- use of tools and equipment
- scaffolding
- measuring, levelling and calculations

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- use tools and equipment
- measure and calculate quantities
- select materials appropriate to the task
- set out work
- lay bricks or blocks or stone
- erect scaffolding
- communicate effectively

(4) Resource Implications

- workplace location
- tools plant and equipment appropriate to construction processes
- materials relevant to activity
- scaffolding
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency in this unit may be determined concurrently, based upon integrated project work.

Competency should be assessed under general guidance checking at various stages of the process and at the completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	1	3	3	2

BCG3071A: Assemble fabricated components

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's fabrication operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and assembling fabricated components recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
2	Identify assembly method and construct jigs if required	2.1	Assembly method identified and jigs constructed from engineering drawings according to workshop practice, where required.
		2.2	Distortion prevention/control techniques correctly applied.
3	Check all components to be assembled are available	3.1	All components checked against drawings and materials list for conformity to design specifications.
4	Select tools and fixtures for fabrication assembly	4.1	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability.
5	Assemble fabricated components	5.1	Materials and/or fabricated components correctly positioned for assembly.
		5.2	Jigs, fixtures, tools and measuring equipment correctly adjusted and applied.
		5.3	Datum line correctly determined if necessary.
		5.4	Assembled components checked for square, level and alignment to specified tolerance.
		5.5	Temporary fixing/joining techniques applied to hold components together, as necessary.
		5.6	Assembly checked for compliance with job drawing.
		5.7	Relevant codes/standards applicable to unit assembly interpreted and applied.
6	Clean up	6.1	Waste and unwanted material disposed of safely.
		6.2	Unused material stored.
		6.3	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the assembling of fabricated components in preparation for welding processes to construct a structural unit.

Applies to general fabricated components in either:

- plate
- pipe
- section
- sheet

Typical applications are:

- transitions
- pipeworks
- pipeworks and simple structural fabrication
- ductwork
- general jobbing work
- fired and unfired pressure vessels

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- wedges
- spirit level
- straight edge
- weights
- string lines
- jigs
- clamps

EVIDENCE GUIDE

Competence is to be demonstrated by the assembling of two separate types of components from those applications listed in the range of variables in either sheet or plate materials.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- apply organisational quality procedures and processes within the context of the assembly of fabricated components
- select and use appropriate processes, tools and equipment
- use safe and effective procedures to assemble components
- identify faults and problems and necessary action taken to rectify
- complete assembly to all requirements of drawings and specifications

(2) Pre-requisite Relationship of Units

There are no pre-requisites for this unit

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- jointing methods of a range of material
- Australian Standards relevant to welding and pressure vessels etc
- fabricated components and materials
- tools and equipment

Skills

The ability to:

- work safely
- organise work
- interpret drawings and specifications
- use tools and equipment
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools and equipment to carry out assembling processes
- fabricated parts and sections appropriate to component assembling process
- drawings and specification of proposed constructed unit

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance, checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Assessment should be while tasks are undertaken either individually or as part of a team under limited supervision.

Competency may be assessed in the work place or simulated workplace setting.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	-	3	1	3	-	2

BCG3074A: Carry out profile work

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Job requirements and scope of work identified from working drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with needs of job and checked for serviceability.
		1.6	Stone section identified and checked for conformity to overall dimensions and colour to specifications.
2	Transfer dimensions from an engineering drawing to work	2.1	Specifications and work requirements determined in accordance with material and drawings.
		2.2	All marking off of material carried out to requirements for profile work to specifications.
		2.3	Datum points correctly established on stone for application of profile set-out.
3	Develop patterns	3.1	Consideration of dressing procedures analysed and most appropriate development method chosen and applied.
		3.2	Calculations carried out and accurately performed to develop true shape of profile mould.
		3.3	Patterns set out accurately for profile mould, reverse mould and bed mould to dimensions and specified shapes.
		3.4	Allowances for fabrication processes with guide/roller working off template, correctly determined and transferred to bed mould.
4	Use hand or hand held power cutting tool	4.1	Tool adjusted for operation in consideration of application work.
		4.2	Hand tool or power cutting tool used safely and correctly to cut patterns for templates.

	4.3	Materials cut to size in accordance with drawings and job requirements, minimising wastage.
	4.4	Templates trimmed to set out, where required, to specifications.
5	Shape and form stone	
	5.1	Equipment set up and adjusted to meet job requirements and standard operating procedures.
	5.2	Stone located and fixed into place on table ready for machine operation.
	5.3	Appropriate cutter set to machine to carry out initial cutting processes and cutters changed as required during overall process.
	5.4	Bed template located and aligned with stone and machine operation to requirements of job and manufacturer's specifications.
	5.5	Machine start up and shut down operations carried out in accordance with standard operating procedures to manufacturer's specifications.
	5.6	Machine set up and operated with allowances for thickness of template and gauges.
	5.7	Machine operated and stone shaped and formed to designed requirements, to specifications.
	5.8	Material checked for accuracy against required dimensions and shape, to specifications.
6	Clean up	
	6.1	Finished stone removed and stored.
	6.2	Machine and allied equipment cleaned and maintained.
	6.3	Waste and unwanted material disposed of safely.
	6.4	Unused material stored/stacked.
	6.5	Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to machining processes carried out in profile work to produce stone to a designed shape and form.

Operations may include:

- sawing
- grinding
- bevelling

Types of stone include but are not limited to:

- marble
- granite
- sandstone
- basalt (blue stone)
- igneous rock

Profiling follows straight or curved lines.

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms
- use of machinery

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- dividers/wing compasses
- scribe
- squares
- power grinder
- portable cutter/grinder
- cutter/grinder machine
- jigs
- clamps
- travelling arm saw
- power leads
- diamond cutters
- carborundium cutters

Templates may be made of:

- cardboard
- zinc sheet
- aluminium sheet

- plastic sheet
- plywood

EVIDENCE GUIDE

Competence is to be demonstrated by carrying out profiling work using at least three of the tools/equipment processes listed within the range of variables.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- select and use appropriate tools, equipment and processes consistent with requirements of the activity
- apply organisational quality procedures and processes within the context of profiling work
- transfer critical dimensions and reference points to work accurately
- develop required patterns, accurate to job details
- accurately produce templates for job requirements
- apply correct procedures with use of templates to set up machines and equipment with stone to carry out machining processes
- adopt and use safe and effective procedures to cut and shape stone
- carry out safe and effective operations with use of equipment and machines
- complete profile work to accuracy of shape and specifications

(2) Prerequisite Relationship of Units

Prerequisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use small plant and equipment
- BCG2012A Make set outs
- BCF3035A Dress stone manually
- BCG3075A Machine stone

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations and codes
- types of stone and their characteristics
- methods of dressing stone
- working drawings and specifications
- material handling
- regulations related to safe disposal of waste and dust suppression
- tools and equipment
- use of machinery and equipment
- measuring and marking
- templates for stonework

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work

- use tools and equipment
- machine material
- handle material
- measure and set out work
- apply templates to machinery processes
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location with access to machinery
- tools and equipment appropriate to proposed profile work
- stone relevant to proposed activity
- materials appropriate to setting out processes
- drawings and specifications relevant to proposed activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance, checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competence may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	-	2	-	2	2	2

BCG3075A: Machine stone

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Appropriate personal protection equipment selected, correctly fitted and used.
		1.4	Stone machining/shaping requirements determined from drawings and specifications or instructions.
		1.5	Machine, tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	Equipment correctly set up and adjusted for operation to standard operating procedures.
		1.7	Water provision checked for connection and operation with machine.
2	Operate stone machining equipment	2.1	Stone machining equipment safely started up and shut down to standard operating procedures in accordance with manufacturer's specifications.
		2.2	Materials and safety guards correctly positioned, fitted and used to designed applications.
		2.3	Stone machining equipment operated, monitored and adjusted to achieve specified size, shape and finish.
		2.4	Measurements and/or tolerances checked for consistency with job requirements and specifications.
3	Operate static diamond saw	3.1	Stone located on movable table aligned with saw blade in accordance with designed cut.
		3.2	Stone fixed or secured into position on table by use of wedges or nailed timber sections to provide stability for sawing.
		3.3	Cutting blade adjusted for depth of first cut in accordance with type of blade and hardness of stone.
		3.4	Safety considerations in location of operator and other persons recognised and carried out.
		3.5	Water turned on for operating of machine.

- 3.6 Saw started up and operated in accordance with manufacturer's safe working and operating procedures.
 - 3.7 Stone moved by table movement so that blade cutting is at efficient rate without affecting designed operating revolutions of machine.
 - 3.8 Additional cuts made by lowering of saw after each cut and then cutting on return movement of table, until complete.
 - 4 Operate travelling beam saw
 - 4.1 Stone located on adjustable table and fixed into stable position.
 - 4.2 Table adjusted to align designed cut with saw blade.
 - 4.3 Settings for operation designed for length of stone plus width of blade carried out on digital panel.
 - 4.4 Blade set to initial cut for operation.
 - 4.5 Machine switched on and automatically operated in accordance with manufacturer's specifications.
 - 5 Operate multi-functional cutter/grinder/polisher
 - 5.1 Machine and equipment set up with appropriate head/plate fitted and secured to operating spindle according to work application.
 - 5.2 Stone fixed into location on table to requirements for machining processes.
 - 5.3 Template set into place, where applicable, for profile work and cutting and moulding operations.
 - 5.4 Machinery set up with cutting head set to initial cut and aligned with template in accordance with manufacturer's specifications for setting up and operating machine.
 - 5.5 Machinery operations carried out to machine manufacturer's specifications and job processes for dressing stone to requirements.
 - 6 Carry out grinding and polishing
 - 6.1 Appropriate grinding plate selected and fitted to machine according to machine manufacturer's specifications and stone surface to be cut and polished.
 - 6.2 Machine set up for grinding operations and operated in accordance with job and machine manufacturer's specifications.
 - 6.3 Polishing processes carried out using change of grit abrasive pads fitted in accordance with type of stone being finished.

	6.4	Machine operations monitored and water support maintained to cutting and polishing applications.	
7	Shut down machine operations	7.1	Machine shut down procedures carried out to machine manufacturer's specifications.
	7.2	Supporting material, wedges and clamps removed from stone and machine table.	
	7.3	Finished or machined stone removed carefully without damage and stored.	
	7.4	Machine and supporting equipment and accessories cleaned, maintained and checked for wear or deterioration in accordance with manufacturer's specifications.	
8	Clean up	8.1	Waste material disposed of safely.
	8.2	Unused material stored/stacked safely.	
	8.3	Tools and equipment cleaned, maintained and stored.	
	8.4	Work area left clean.	

RANGE OF VARIABLES

This unit applies to the use of machinery in the cutting, dressing and finishing of stone.

Operations may include:

- drilling
- sawing
- grinding
- bevelling
- polishing

Types of machines include but are not limited to:

- static diamond circular saws
- travelling beam circular saws
- frame or gang saws
- block squaring machines
- multi blade saws
- slab splitting machines
- multi head static polishers
- "Jenny Lind" type polishers
- multi functional cutter/grinder/polisher (Jenny Lind type)
- drilling machines
- shaping machines
- planing machines

Blades and cutters may be:

- diamond
- carborundium

Types of stone include but are not limited to:

- marble
- granite
- sandstone
- limestone
- basalt
- igneous rock

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work
- machinery operations

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- working platforms and scaffolding
- guarding of machines
- use of machinery
- cutting of stone

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- dust masks/respirators
- cap

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- squares
- spanners
- clamps
- jigs
- wedges
- brushes
- brooms
- shovels

Work undertaken in accordance with AS4024 Safeguarding of Machinery and Worksafe Australia Standards for Users and Operators of Industrial Equipment.

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and effective operation of appropriate machines to carry out the following processes to designed requirements:

- sawing
- cutting or moulding
- grinding
- polishing

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace and machinery operations
- apply organisational quality procedures and processes within the context of machining stone
- select and use appropriate tools, equipment and processes to set up stone and machine for machining activity
- select appropriate machine to carry out required processes
- check and/or adjusted guards prior to operating machinery
- check and carry out start up and shut down procedures to manufacturer's specifications
- give attention to initial depth of cut for sawing or moulding
- adopt and use safe and effective procedures to operate machinery
- identify typical faults or problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective workplace operations
- complete machinery process with stone finished to specifications
- carry out safety check and clearing operation to manufacturer's specifications.

(2) Prerequisite Relationship of Units

This competency may be assessed concurrently with:

- BCG3074A Carry out profile work

Pre-requisites for this unit are:

- BCG1006A Use small plant and equipment
- BCG1008A Use simple levelling devices
- BCG1011A Handle construction materials and safe disposal of waste
- BCF2020A Use static machines

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- drawings and specifications
- types of machines
- machine operations
- maintenance and sewing of machinery
- types of stone and characteristics
- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- application of a range of cutting and finishing equipment
- stone grain and the influence on machining techniques
- tools and equipment
- hydraulics
- measuring and levelling

Skills

The ability to:

- work safely
- organise work
- operate machinery
- set up for machine operations
- place and level stone
- use tools and equipment
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location with access to machines
- tools and equipment appropriate to supporting machining processes
- stone relative to machinery processes
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision.

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance, checking at various stages of the process and at completion of the activity against performance criteria and specifications

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
1	-	2	-	1	1	2

BCG3081A: Apply/install waterproofing and damproofing

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and the preparation and application of waterproofing processes identified and adhered to.
		1.3	Type of waterproofing material identified in accordance with job specification, state of structure and job safety requirements.
		1.4	Area of structure to be water proofed identified from job drawings and specifications or diagnosed damp fault area.
		1.5	Area of structure to be water proofed inspected for defects and soundness in accordance with job and manufacturer's specifications.
		1.6	Appropriate personal protective equipment selected, correctly fitted and used.
		1.7	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.8	Hazardous materials stored in accordance with OH&S legislation.
2	Maintain safe working area	2.1	Safe working area maintained in accordance with MSDS directions where applicable and OH&S regulations.
		2.2	Safety hazards identified and correct procedures used to minimise risk to self and others.
3	Prepare surface	3.1	Defects including caulking corrected and made good to requirements of manufacturer's specifications.
		3.2	Surface of structure to be water proofed, prepared to manufacturer's specification.
		3.3	Prepared surface of structure prime coated to manufacturer's specification, where applicable.
4	Apply waterproofing membrane	4.1	Waterproofing membrane applied to primed surface of structure to correct thickness in accordance with manufacturer's job specification.

- 4.2 Sheeting membrane laid and lapped to location with joints taped or welded to job and manufacturer's specifications.
 - 4.3 Sprayed material applied to location to a consistent thickness cover to job specifications.
 - 4.4 Membrane applications turned up or over, wherever applicable, in accordance with job specifications.
 - 4.5 Waterproofing membrane cured to structure in accordance with manufacturer's specification.
 - 4.6 Waterproofing membrane protected using methods and materials consistent with manufacturer's specification.
- 5 Apply waterproofing to walls/floor/roof
 - 5.1 Materials prepared for application to manufacturer's recommendations.
 - 5.2 Waterproofing material applied to surface in accordance with manufacturer's recommendations.
 - 5.3 Sheeted materials laid, lapped and welded or joined to manufacturer's specifications.
 - 5.4 Sprayed material applied to face using appropriate equipment and producing a consistent thickness cover to manufacturer's and job specifications.
 - 5.5 Spread and applied compounds screeded and floated or rolled to manufacturer's and job specifications.
 - 5.6 Moisture barrier material turned up or down as applicable to job specifications.
 - 5.7 Moisture barrier installed to internal or external surface to manufacturer's specifications.
- 6 Apply waterproofing through injection method to damp proof course
 - 6.1 Materials prepared for application to manufacturer's recommendations.
 - 6.2 Equipment prepared and set up for injection process to manufacturer's recommendations.
 - 6.3 Damproof course made water resistant using injection method to specifications.
- 7 Clean up
 - 7.1 Surface cleaned and area cleared to specification.
 - 7.2 Waste materials removed and placed into job waste bins or to requirements of MSDS.
 - 7.3 Unused materials stored/stacked.

7.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to waterproofing materials applied on site to concrete and masonry structures which may be existing or new and under construction.

Waterproofing and damproofing application, where applicable, should be in accordance with:

- AS2904 Damp proof courses and flashings
- AS4347 Damp proof courses and flashings - Method of Test
- AS4200 Pliable building membranes and underlays
- AS4201 Pliable building membranes and underlays - Method of Test
- AS99 Bituminous felt roofing

Types of construction include:

- brickwork
- blockwork
- stonework
- reinforced in situ concrete
- pre-cast concrete

Waterproofing applications include:

- concrete roofs
- wall surfaces
- floor surfaces
- basements (tanking)
- damp proof through walls

Waterproofing materials include but are not limited to:

- polyethylene sheeting
- bitumenous sheeting
- bitumen
- plastic strip
- aluminium strip
- liquid sealants
- mastic sealants
- mortar additives

Surface preparation may include but are not limited to:

- filling holes or depressions
- washing down
- chipping or scraping of protrusions
- cleaning free of dust
- priming or sealing of surface
- removing sharp edges

Liquid waterproofing material applications include:

- spraying
- brushing
- rolling
- pressure injection
- floated or screeded

Quality Assurance requirements may include:

- work procedures
- safety requirements
- control of handling
- condition of material
- application procedures
- specification finish

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- protective clothing
- protective equipment
- working platforms
- working from scaffolding
- safety hazards
- use of plant and equipment
- hazardous materials

Material preparation may include:

- mixing
- stirring
- batching and mixing
- cutting sheet material to length
- heating material

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- masks
- respirators

Tools and equipment may include but are not limited to:

- air compressors and spray equipment
- trowels
- rollers
- brushes
- angle grinders
- electric drills
- shovels
- concrete mixer
- wheelbarrows
- knives or cutting blades
- hammers
- brooms
- vacuum cleaner

EVIDENCE GUIDE

Competence is to be demonstrated by applying waterproofing to both horizontal and vertical surfaces using a membrane in one situation and a separate material application for the other, and applying of waterproofing to a mortar joint.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects.

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- apply organisational quality procedures and process within context of installing or repairing waterproofing to a building
- identify location and details of waterproofing materials and application
- select and use appropriate processes, tools and equipment to carry out tasks
- use safe and effective procedures to handle materials
- use safe and effective procedures to prepare surfaces for application
- seal or weld joints between materials in accordance with manufacturer's specifications
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective operations
- complete waterproofing application to job specifications

(2) Pre-requisites Relationship of Units

Pre-requisites for this unit are:

- BCG1005A Use hand and power tools
- BCG1006A Use plant and equipment
- BCG1011A Handle construction materials and safe disposal of waste
- BCG2001A Prepare surfaces

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- drawings and specifications
- construction of buildings
- requirements in waterproofing of buildings
- waterproofing methods
- materials and characteristics
- tools and equipment
- plant and equipment
- Australian Standards 2904, 4347, 4200 and AS99

Skills

The ability to:

- work safely
- organise work
- prepare surfaces
- set out work
- use tools and equipment
- use plant
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools, plant and equipment appropriate to application processes
- materials relevant to the proposed activity
- appropriate documentation relevant to work activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of application process
- inspection of completed work
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency may be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
3	1	3	2	2	2	2

BCG3083A: Apply guilding to stone

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Quality Assurance requirements of company's stonemasonry operations recognised and adhered to.
		1.2	OH&S requirements for application tasks and workplace environment recognised and adhered to.
		1.3	Appropriate personal protective equipment selected, correctly fitted and used.
		1.4	Tools and equipment selected to carry out processes consistent with job needs and checked for serviceability.
2	Prepare background surface	2.1	Correct equipment selected and used for removing excess material so that surface is finished flat and even to specification.
		2.2	Surface made suitable for treatment as per specifications for setting out and cutting of letters.
		2.3	Protection to surrounds applied where lettered face is recessed or raised with surrounding surface.
		2.4	Surface painted with weak water based paint to specification for ease of marking out of letters and shapes.
3	Identify and draw to scale various type of lettering, insignias and monograms	3.1	Drafted designs set out and drawn to appropriate scale.
		3.2	Designs transferred to prepared surface either directly or by using templates ensuring balanced with centre of stone.
		3.3	Designs marked accurately by pencil or scribe to stencil/template or direct set out.
4	Use hand and/or power tools for cutting letters	4.1	Material safely held in most suitable position ready for cutting and/or shaping operation.
		4.2	Stone, less than 30mm thick, fixed to larger section of stone to minimise risk of breaking.
		4.3	Tools/equipment selected for cutting/shaping process.
		4.4	Tools/equipment adjusted correctly for standard operating procedure.
		4.5	Start up and shut down procedures used with equipment in accordance with standard operating procedure.

	4.6	Letters cut to shape, size and depth specified in accordance with specifications for lettering.
5	Applying gilding to stone	
	5.1	Painted surface cleaned off by use of cuttlefish and water or other approved method to specifications.
	5.2	Base for gilding prepared by mixing 1 part of goldsize with 3 parts of artist colour to specifications.
	5.3	Paint carefully applied to lettering with appropriate size brush in accordance with specifications and two coat applications.
	5.4	Gilding material handled carefully and cut to required size and shape as specified.
	5.5	Application of gilding determined by checking paint still sticky in accordance with specifications.
	5.6	Gilding material applied to surface by use of fine bristle brush and excess material trimmed and removed at edges to specifications.
	5.7	Appropriate cleaning procedure and materials selected and applied to stone surface.
6	Clean up	
	6.1	Waste and unwanted material disposed of safely.
	6.2	Re-usable and recyclable materials salvaged and stored.
	6.3	Tools and equipment cleaned, maintained and stored.
	6.4	Personal protective equipment removed, inspected, cleaned and stored.

RANGE OF VARIABLES

This unit applies to the gilding of letters and designed insignias or monograms.

Types of stone include but are not limited to:

- marble
- granite
- sandstone
- basalt (bluestone)
- igneous rock

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

- workplace environment and safety
- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- mallets
- squares
- drawing equipment
- lettering chisels
- pneumatic lettering chisels
- fillet and moulding chisels
- scriber
- straight edge
- paint brushes
- guilding brushes
- sanders
- chisels

Suitable position for cutting of letters may be:

- inclined surface
- level surface

Templates or stencils may be made from:

- paper
- zinc plate
- aluminium plate
- cardboard

EVIDENCE GUIDE

Competency should be demonstrated by carrying out guilding to lettering or shapes carved in stone.

(1) Critical Aspects of Evidence

It is essential that competence is demonstrated in the critical aspects of:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations

- select and use appropriate tools, equipment and processes consistent with requirements of activity
- apply organisational quality procedures and processes within context of applying gilding
- prepare stone surface to specifications prior to setting out processes
- reproduce accurate designs and lettering to finished sizes
- check spelling and balance of lettering prior to cutting of letters
- adopt and use safe and effective procedures to cut letters and designs accurately
- apply correct procedures to mixing of paint and application without overmarking or spillage
- give attention to handling and application of gold leaf for gilding
- identify typical faults and problems that occur and necessary action taken to rectify
- complete gilding and finish of stone to specifications

(2) Pre-requisite Relationship of Units

- BCG1005A Use hand and power tools
- BCG1004A Carry out measurements and calculations
- BCF3035A Dress stone manually

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- types of stone and their characteristics
- dressing of stone
- gilding techniques
- materials
- effect of various metals on the human body and organs
- traditional and contemporary font styles
- measurement and balancing of lettering
- tools and equipment
- hazardous materials

Skills

The ability to:

- work safely
- interpret drawings and specifications
- organise work
- set out work including drafting
- dress stone
- use tools and equipment
- apply gilding
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools and equipment appropriate to setting out and application processes
- stone and appropriate materials required for activity
- drawings and specifications relevant to proposed activity

(5) Method of Assessment

Competency should be assessed through direct observation and questions related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency should be demonstrated in guilding as required in the workplace.

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	2	-	2	1	2

BCG3084A: Install framed ceiling (sheet and boards)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Prepare for installation	1.1	Quality Assurance requirements of company's construction operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and installing a framed ceiling recognised and adhered to.
		1.3	Materials and quantities checked for conformity against drawings and specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used.
		1.5	Tools and equipment selected to carry out processes consistent with job requirements and checked for serviceability.
		1.6	Unwanted material and obstructions removed to make work area safe.
		1.7	Existing works protected by covering or laying sheets against, where applicable.
2	Erect scaffolding	2.1	Appropriate rigid frame/mobile scaffolding or trestles erected and planked to OH&S regulations.
		2.2	Ceiling heights established to specifications.
3	Set out	3.1	Ceiling grid set out as shown on drawings and in accordance with manufacturer's specifications or job specifications.
		3.2	Alignment levels for ceiling set out on walls to dimensions from drawings and specifications.
4	Install supporting framework	4.1	Method of joining framework identified and provision for joints carried out prior to commencement of installation.
		4.2	Framework members against wall fixed to line by appropriate fixing to wall.
		4.3	Timber/steel ceiling framework members measured and cut/prepared to length for assembling and fixing.
		4.4	Timber/steel framework assembled and fixed into place to designed straight line or curve within +/- 2mm over any 3 metre length.
		4.5	Bridging framework fixed to both sides of service ducts.

- 4.6 Battens/furring channels or rows of trimmers fitted and fixed to line, where specified, to provide fixing for sheets or boards.
- 5 Fix sheets
- 5.1 Designed layout of sheets and requirements for cutting and joining identified from materials and specifications.
- 5.2 Sheets measured, marked and cut where applicable for joints to occur on centre of framework members.
- 5.3 Sheets fixed to abutting joints by nails or screws to recommended centres with adhesive applied in accordance with manufacturer's instructions.
- 5.4 Sheets fixed to specifications and to design pattern as shown on drawings.
- 5.5 Sheets cut/dressed to abut neatly against other elements, where required. Longitudinal butt joints backblocked between framing members, where applicable.
- 5.6 Joints flush finished where required with approved taping or filling material and jointing compounds to provide finished surface to specification.
- 5.7 Panelled ceilings finished with cover straps or beams fitted and fixed to specifications.
- 5.8 Openings provided for lighting, diffuser, hatches, sprinkler heads and the like as shown on drawings and in specifications.
- 5.9 Fibreglass insulation blanket or batts installed to specified thickness above ceiling sheets, where applicable.
- 6 Fix boards to ceiling framework
- 6.1 Designed layout for lining boards and requirements for cutting and end joining identified from specifications.
- 6.2 Lining boards installed to line with closed longitudinal and butt joints and fixed to framework to specifications.
- 7 Clean up
- 7.1 Scaffolding removed and area cleaned.
- 7.2 Waste and unwanted material disposed of safely.
- 7.3 Unused materials stored/stacked.
- 7.4 Tools and equipment cleaned, maintained and stored.

RANGE OF VARIABLES

This unit applies to the installation of framed ceilings to existing rooms or buildings by fixing of framework to face of walls.

Framework for ceiling may be fixed to:

- timber framed wall
- steel framed wall
- brickwork
- blockwork
- reinforced concrete

Material applications are to be in accordance with:

- plasterboard to AS2589.1 Gypsum Plasterboard
- plywood and blockboard to AS2270 Plywood and Blockboard for Internal Use
- plasterglass to AS2590 Glass Fibre Reinforced Gypsum Plasterboard
- fibre cement to manufacturer's instructions
- strawboard to manufacturer's instructions
- adhesive to AS2753 Adhesives - Mastic - for bonding gypsum plaster linings to wood and metal framing members
- lining boards to manufacturer's instructions

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to specifications of work

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammers
- spirit level
- levelling equipment
- squares

- chisels
- hand saws
- saw stools
- power saws
- power drills including impact drills
- power planer
- nail gun
- air compressor and hoses
- power leads
- string lines
- chalk lines
- scaffolding

Fixing to walls may involve:

- nails
- screws
- self tapping screws
- masonry nails
- masonry anchors
- coach screws
- nail gun
- explosive power tools

EVIDENCE GUIDE

Competence is to be demonstrated by the performance of installing a framed ceiling to a nominated room area and fixing out using a sheeted material of those listed in the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects.

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational quality procedures and processes within context of installing a framed ceiling to a room area
- identify location and details of framed ceiling to be installed
- select and use appropriate processes, tools and equipment
- accurately set out levels for ceiling structure
- use safe and effective procedures to construct ceiling and fix and finish ceiling lining
- identify typical faults and problems that occur and necessary action taken to rectify
- interactively communicate with others to ensure safe and effective work procedures
- complete installation of framed ceiling to specifications

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCG1007A Erect and dismantle restricted height scaffolding
- BCG2004A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations, codes and standards
- working drawings and specifications
- framed ceiling construction
- Australian Standards 2270, 2589.1, 2590 and 2753
- materials and their characteristics
- wall construction
- tools and equipment
- scaffolding
- measuring and levelling
- calculation of material requirements

Skills

The ability to:

- work safely
- read and interpret drawings
- organise work
- set out work
- use tools and equipment
- construct framework
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location appropriate to activity
- scaffolding
- tools and equipment appropriate to construction and installation processes
- materials required to carry out activity
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Assessment may involve:

- observation of application process
- questioning related to underpinning knowledge

Assessment may be by intermittent checking at various stages of each task application or at the completion of each task in accordance with the performance criteria.

(6) Context of Assessment

Competency should be assessed in the normal or simulated workplace environment.

Assessment should be while tasks are undertaken either individually or while working with a partner.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	3	2	1	1	1

BCG3096A: Apply paint by brush/roller

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Select and prepare materials and equipment	1.1	Quality Assurance requirements of company's painting operations recognised and adhered to.
		1.2	OH&S requirements for workplace environment and preparing and applying paint by brush and roller are recognised and adhered to.
		1.3	Materials checked for conformity against specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used in accordance with safe working standards.
		1.5	Tools and equipment selected consistent with requirements of job, checked for serviceability and any faults reported and/or rectified.
		1.6	Safety hazards identified and correct procedures used to reduce risk to self and others.
2	Prepare two-pack material	2.1	OH&S requirements for preparing and applying two-pack paint by brush and roller recognised and adhered to.
		2.2	Each component thoroughly stirred using separate stirring sticks.
		2.3	Correct amounts of each material mixed in a third container to manufacturer's specified ratio with drying time recognised.
3	Erect work platform (if required)	3.1	Work platform erected where required to appropriate working height and OH&S requirements.
4	Prepare surface for finishing	4.1	Surface prepared as per manufacturer's specification in compliance with substrate requirements.
5	Apply paint with brush/roller	5.1	Job location checked to ensure provision of adequate ventilation and precautions taken to prevent fire and/or explosion.
		5.2	Select brush, roller or brush/roller combination for job as per surface profile, size of area and type of paint and finish specified.
		5.3	Paint applied as per job/architect/paint manufacturer specifications to achieve required level of opacity, finish texture and sheen.

6	Clean up	6.1	Area cleaned.
		6.2	Waste and unwanted material disposed of safely.
		6.3	Unused materials sealed and stored.
		6.4	Equipment cleaned safely using the correct solvent in accordance with MSDS instructions. Equipment maintained and stored correctly.

RANGE OF VARIABLES

This unit applies to the application of surface coatings by brush, roller or a combination of brush and roller and should be read in conjunction with Australian Standard 2311 – The Painting of Buildings.

Types of paint include:

- solvent-borne (alkyd, urethane, urethane/alkyd, urethane oil or modified alkyd resins)
- latex (PVA, PVA/acrylic, acrylic and styrene acrylic)
- polyurethane clear
- paving paints
- roofing paints (latex and solvent-borne)
- bituminous paint
- two-peak epoxy and polyurethane
- chlorinated rubber
- water-repellents for timber
- water repellents for concrete or masonry
- anti-graffiti paints

Paint products can be classified as:

- sealers
- primers
- sealer/undercoats
- undercoats/intermediate coats
- finish coats

Surfaces to be painted include:

- all common profiles encompassing the full range natural timber products
- ply
- building boards (including mdf and particle board)
- fibre cement products
- iron and steel
- zinc coated
- zinc alloy coated steel products
- aluminium products
- copper and brass
- lead
- masonry products
- clay bricks
- concrete blocks
- in-situ-concrete
- cement render
- set plaster
- plaster glass products

- paper-faced gypsum plaster board
- paintable plastic products
- previously coated/treated surfaces in a sound or unsound condition.

Horizontal or vertical surface application.

Tools and equipment may include:

- scrapers
- filling knives/blades
- putty knives
- duster brushes
- hand sanders
- mechanical sanders
- paint stirrers
- drop sheets
- heat and flame paint removal equipment
- wire brushes
- hammer
- nail punches
- paint pots/buckets
- brush-ware and brush-ware accessories
- roller frames
- covers
- buckets
- roller accessories

Work platforms can include:

- ladders
- step ladders
- trestles
- planks
- hop-ups
- aluminium mobile scaffold
- scissor-lift
- cherry picker

OH&S requirements can include:

- those associated with exposure to hazardous materials
- solvents
- lead
- chemicals
- fumes/gases
- asbestos fibres
- confined spaces
- manual handling
- falling objects
- electrical
- fire
- equipment and machinery faults
- faults associated with work access platforms
- faults related to poor "house keeping"

Personal protective equipment may include:

- safety goggles/glasses

- boots
- gloves
- respirators including cartridge and supplied-air
- ear muffs/plugs
- caps
- jacket
- overalls

Australian Standard 2311 – The Painting of Buildings. This standard provides a guide to procedures for the painting of buildings for general construction, commercial and (light) industrial use. This Standard should be consulted in the absence of an architect's specification or job specification as a guide to accepted procedures and products used in the painting and decorating industry.

EVIDENCE GUIDE

Competence is to be demonstrated by the application of a range of surface coatings under working conditions and over time including solvent borne, latex and two-pack to a range of surfaces using brushes, rollers and a combination of brush/roller.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- select and use appropriate processes, tools and equipment
- apply organisational quality procedures and process within context of painting
- mix paint thoroughly prior to use
- protect surrounding surfaces by drop sheets or masking or removal of objects
- prepare surface as per manufacturer's specification in compliance with substrate requirements
- check colour and finish against specifications before applying paint
- choose correct paint system in accordance with environment, finish and substrate requirements
- identify faults and problems that occur and necessary action taken to rectify
- calculate quantities of materials

(2) Pre-requisite Relationship of Units

Pre-requisite skills:

- BCG1006A Use plant and equipment
- BCG2001A Prepare surfaces

This unit may be assessed concurrently with:

- BCG3100A Prepare surfaces for painting and decorating
- BCG3097A Match specified paint colour
- BCG3098A Apply clear wood finish
- BCG1019A Prepare for construction process (painting and decorating)

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- specifications

- surface coatings technology including specification of paint systems for interior and exterior painting projects to maximise durability, protection and aesthetic considerations
- compatibility of preparatory materials and paint systems
- hazards associated with solvents, chemicals and dust
- tools and equipment
- variances in work carried out within sectors of painting and decorating industry
 - new building (residential/commercial/high rise)
 - maintenance/renovation/refurbishment
 - shop-fitting
 - restoration
 - conservation
 - industrial/protective coatings
- responsibilities with regard to:
 - heritage listed buildings
 - conservation areas
 - environmental requirements

Skills

The ability to:

- work safely, efficiently and effectively
- organise work
- interpret specifications
- take off dimensions, quantities, types of materials, position of materials and application requirements
- identify and select materials for application
- use tools equipment and materials
- prepare materials
- apply materials
- check finished work
- clean an area and dispose of waste
- store materials/components
- respond to emergency situations
- communicate effectively

(4) Resource Implications

- workplace or simulated workplace location.
- tools and equipment appropriate to processes
- paint and material required for activity
- specification for proposed tasks

(5) Method of Assessment

Competency should be assessed through direct observation and questions related to underpinning knowledge.

Competency should be assessed under general guidance checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	-	3	-	3	1	2

BCG3115A: Lay segmental/unit paving

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Define soil type and determine paving material	1.1	Quality Assurance requirements of company's paving operations recognised and adhered to.
		1.2	Area and location of paving identified from job drawings.
		1.3	Sub-soil and footing type identified and classified according to AS1289 – Methods of Testing Soils for Engineering Purposes.
		1.4	Base material selected according to type of paver, manufacturer's specifications and identified substrate.
		1.5	Paving material selected to specification in accordance with required finish of surface and paving/stonework pattern.
		1.6	Bedding sand selected free from deleterious material likely to cause efflorescence or reduce skid resistance.
		1.7	Required quantity of materials calculated from details from project drawings/site location and specifications.
2	Prepare to lay paving	2.1	OH&S requirements for workplace environment and processes of preparing base and laying pavers identified and adhered to.
		2.2	Appropriate personal protective equipment selected, correctly fitted and used.
		2.3	Tools and equipment selected to carry out processes consistent with requirements of job and checked for serviceability.
		2.4	Safety hazards identified and correct procedures used to eliminate hazards and reduce risks to self and others.
3	Construct paving	3.1	Location and shape of paving area set out to dimensions from job drawings.
		3.2	Excavation carried out to required depth, allowing for base and thickness of unit and specified finished level.
		3.3	Drainage pipes positioned in sub soil to local regulations or specification requirements.
		3.4	Mortar for masonry paving mixed to specifications and AS3700 – Masonry in Buildings, where applicable.
		3.5	Base material spread and compacted to specifications, where applicable.

- | | | |
|---|----------|---|
| | 3.6 | Bedding material spread and screeded to designed level and alignment, where applicable. |
| | 3.7 | Edge boards positioned to set out and specifications, where applicable. |
| | 3.8 | Where drainage is necessary, paving surface is graded to fall evenly without ponding to outlets or surface run-off system provided. |
| | 3.9 | Paving units/segments cut and laid to designed pattern and specifications. |
| | 3.10 | Initial starting line of laying pavers determined and pavers laid to designed line conforming with specified pattern. |
| | 3.11 | Paving units/segments laid with joints to specifications and surface finish aligned. |
| | 3.12 | Finished level maintained across junctions between different finishes. |
| | 3.13 | Paving installation completed with joints finished to specifications. |
| | 3.14 | Paving surface cleaned on completion to requirements of specifications. |
| 4 | Clean up | |
| | 4.1 | Area cleared to specification with waste, materials and equipment removed. |
| | 4.2 | Waste and unwanted material disposed of safely. |
| | 4.3 | Unused materials stored/stacked. |
| | 4.4 | Tools and equipment cleaned, maintained and stored. |

RANGE OF VARIABLES

This unit covers the laying of all types of segmental paving to both level and inclined surfacing, where the paving material may be:

- clay bricks
- clay pavers
- stone segments
- slate (random and regular)
- concrete blocks
- concrete pavers

Areas for paving may include:

- footpaths
- roads
- cycle and walking tracks
- malls
- podiums

- sports arenas
- platforms
- ramps
- inclined surfaces

Pavers may be laid on different substrates which include:

- compacted crushed rock
- concrete

Bedding of pavers may be of:

- bedding sand
- cement mortar
- adhesives
- mortar with adhesive additive

Finishing of joints of pavers may be:

- closed joints
- closed with sand brushed in
- mortar joints

Quality Assurance requirements may include:

- workplace operations and procedures
- quality of materials
- control of handling procedures
- use and maintenance of equipment
- attention to work specifications
- finishing of paved surfaces

OH&S requirements to be in accordance with State/Territory legislation and regulations and may include:

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

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators
- knee pads

Tools and equipment may include but are not limited to:

- measuring tape/rule
- rakes
- vibrating plate
- concrete mixer
- wheelbarrows
- masonry saws
- trowels
- screed board

- shovels
- mallets
- string lines
- hammers
- spirit level
- power leads

EVIDENCE GUIDE

Competency is to be demonstrated by laying two separate types of segmental/unit paving from those listed in the range of variables, one to be laid to mortar bedding and the other to sand.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace and paving operations
- select and use appropriate processes, tools and equipment to carry out tasks
- apply organisational quality procedures and processes within context of laying segmental/unit paving
- adopt and use safe and effective procedures to prepare substrate and bedding material
- ensure pattern consistent with drawings and specification
- give attention to levels and ensuring no ponding on paved area
- finish paved areas to even surface and to line either level or to specified gradient
- identify typical faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are

- BCG1005A Use hand and power tools
- BCG1006A Use plant and equipment
- BCG1010A Carry out concrete work to simple forms
- BCG2004A Carry out levelling
- BCG3011A Carry out basic setting out

(3) Underpinning Knowledge and Skills

Knowledge

A knowledge of:

- workplace and equipment safety requirements
- types of pavement units and material characteristics
- methods of laying pavement units
- working drawings and specifications
- mortar mix specification
- range of mortar additives including plasticisers, colours and waterproofing agents
- base preparation and materials
- tools, plant and equipment
- calculation of material requirements
- measuring and levelling

Skills

The ability to:

- work safely
- organise work

- interpret drawings and specifications
- set out area
- operate basic plant and equipment
- use tools and equipment
- communicate effectively
- calculate material quantities

(4) Resource Implications

The following resources should be provided:

- workplace location for proposed activity
- tools and equipment appropriate to installation processes
- materials relevant to proposed installation
- drawings and specifications relevant to activity

(5) Method of Assessment

Competency should be assessed through direct observation of application to tasks and questions related to underpinning knowledge.

Competency should be assessed under general guidance, checking at various stages of the process and at completion of the activity against performance criteria and specifications.

(6) Context of Assessment

Competency may be assessed in the workplace or simulated workplace setting.

Assessment shall be while tasks are undertaken either individually or as part of a team under limited supervision.

KEY COMPETENCIES

Collecting, analysing and organising ideas and information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Solving problems	Using mathematical ideas and techniques	Using technology
2	2	3	2	3	1	2

**OFF-SITE CONSTRUCTION
COMPETENCY STANDARDS
June 2000**

Other Industry Competency Standards

Code	Title
TDT1097A	Operate a forklift
MEM5.15AA	Weld using manual metal arch welding process (MMAW)
MEM2.5c11A	Measure with graduated devices
MEM5.17AA	Weld using gas metal arc welding (GMAW)
MEM5.21AA	Weld using oxy acetylene welding (OAW)
MEM5.10AA	Undertake fabrication, forming, bending and shaping

TDTD1097A Operate a forklift

DESCRIPTOR

Knowledge and skills to operate a forklift safely, including systematic and efficient control of all vehicle functions and effective management of hazardous situations.

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Check forklift condition	1.1	Condition of forklift is checked for compliance with enterprise requirements for warning devices, operation to specifications and the nature of the load shifting exercise.
		1.2	Attachments are checked to ensure appropriate adjustment and operation.
		1.3	Mirrors and seats are adjusted for safe operation by the driver.
		1.4	Logs are checked and appropriate workplace documentation completed.
2	Drive the forklift	2.1	Forklift is started, steered, manoeuvred, positioned and stopped in accordance with traffic regulations and manufacturers instructions.
		2.2	Engine power is managed to ensure efficiency and performance and to minimise engine and gear damage.
		2.3	Driving hazards are identified and/or anticipated and avoided or controlled through defensive driving. The forklift is driven in reverse, maintaining visibility and achieving accurate positioning.
		2.4	The forklift is parked, shut down and secured in accordance with manufacturer's specifications, traffic regulation and company procedures.
3	Operate a forklift to handle loads	3.1	The lifting task to be undertaken is appropriately planned and the correct lifting truck and attachments are selected.
		3.2	The load is lifted, carried, lowered and set down in accordance with Occupational Health and Safety legislation, manufacturer's specifications and company procedures.
4	Monitor site conditions	4.1	When selecting the most efficient route, hazards and traffic flow are identified and appropriate adjustments are made.
		4.2	Site conditions are assessed to enable safe operations

and to ensure no injury to people or damage to property, equipment , loads or facilities occurs.

5	Monitor and maintain forklift performance	5.1	Performance and efficiency of vehicle operation is monitored during use.
		5.2	Defective or irregular performance and malfunctions are reported to the company.
		5.3	Forklift records are maintained/updated in accordance with company procedures and legislative requirements.

RANGE OF VARIABLES

(1) General context

- work is performed under some supervision, generally within a team environment
- may be internal or external
- enterprises may comprise large, medium or small worksites
- work may be undertaken in various work environments

(2) Worksite environment may include

- operations conducted by day or night
- work conducted in restricted spaces or exposed conditions or controlled or open environments
- exposure to chemicals, dangerous or hazardous substances and movements of equipment, goods and vehicles
- warehousing forklift operations including counterbalance trucks, reach trucks, pallet trucks and straddle trucks

(3) Sources of information/documents may include

- goods identification number and codes
- manifests
- picking slips, merchandise transfers, stock requisitions and bar codes
- manufacturer's specifications
- company operating procedures and policies
- supplier and /or client instructions
- materials safety data sheets
- phone, Electronic Data Interchange, fax, e-mail, Internet, radio, oral, aural or signed communications
- codes of practice
- legislation and regulations
- award, enterprise bargaining agreement, other industrial arrangements
- standards and certifications requirements
- quality assurance procedures
- Australia Standard 2359 - Industrial Truck Code

(4) Workplace context may include

- work organisations procedures and practices

(5) Conditions of service, legislation and industrial agreements including

- workplace agreements and awards
- occupational health and safety
- State, Federator Territory Legislation

(6) Consultative processes may involve

- staff members
- management
- union representatives
- industrial relations, OH&S specialists
- other professional or technical staff

(7) Applicable State/Territory/Commonwealth regulation and legislation may include but are not limited to

- Occupational Health and Safety
- workplace relations
- workers compensation
- license, patent or copyright arrangements
- water and road use license arrangements
- dangerous goods and air freight regulations
- export/import/quarantine/bond requirements
- marine orders
- environmental protection legislation
- emergency procedures

EVIDENCE GUIDE

(1) Critical aspects of evidence to be considered

Assessment must confirm appropriate knowledge and skills to

- locate, interpret and apply relevant information
- provide customer, client service
- work effectively with colleagues
- convey information in written and oral form
- maintain workplace records
- use workplace colloquial and technical language and communication technologies in the workplace context
- handle loads and drive defensively
- manage forklift controls, read instruments and adjust engine power to site requirements
- drive safely in warehouse environment
- meet as a minimum requirements of (any) relevant legislation

Interdependent assessment of unit

This unit of competency may be assessed in conjunction with other units that form part of a job role or function

(2) Required knowledge and skills

Displays the following knowledge and skills in terms of job or role function

- focus of operation of work systems, equipment, management and site operating systems
- impact of job on enterprise and individual performance
- application of relevant industrial or other legislative requirements
- identification and correct use of equipment, processes and procedures

- modifying activities dependant on differing workplace contexts and environment
- application of regulations and company operating procedures on forklift load shifting operation
- identification of points of balance and safe lifting position on a range of loads

Resource implications

Access to forklifts, attachments where appropriate and load to be shifted

(3) Consistency in performance

Applies knowledge and skills when

- establishing plans
- describing consequences
- completing tasks
- identifying improvements
- applying safety precautions relevant to the task
- follows company and regulatory requirements for forklift in all operations
- loads safely and economically lifted, shifted and located without damage to equipment
- relocated material is restacked appropriately for the transport method, safe height, weight loading, size and crushability of the goods.

(4) Shows evidence of application of relevant workplace procedures including

- hazard policies and procedures including Codes of Practice
- issue resolution procedures
- job procedures and work instructions
- relevant guidelines relating to the safe use of equipment
- quality assurance procedures (where existing)
- security procedures
- following recognised housekeeping processes
- waste, pollution and recycling management processes
- reporting of unsafe or damaged equipment

Action taken promptly - accidents and incidents reported in accordance with Statutory requirements and enterprise procedures.

Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among staff and other.

Work completed systematically with attention to detail without damage to goods, equipment or personnel

(5) Context for assessment

Assessment may occur on the job or in a simulated workplace

MEM5.15AA Weld using manual metal arc welding process (MMAW)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Prepare materials for welding	1.1	Weld requirements identified from specifications and/or drawings.
		1.2	Material is correctly prepared using appropriate tools and techniques.
		1.3	Materials assembled/aligned to specification where required.
2	Select welding machine settings and electrodes	2.1	Welding machine and electrodes identified against pre determined welding procedures and specification and/or technical drawings.
3	Assemble and set up welding equipment	3.1	Welding equipment assembled and set up safely and correctly in accordance with standard operating procedures.
		3.2	Test runs undertaken and verified in accordance with specifications.
4	Identify distortion prevention measures	4.1	Distortion prevention measures identified.
		4.2	Appropriate action taken to minimise and rectify distortion.
5	Weld materials by correct process to quality described in Australian Standard 1554 General Purpose or equivalent	5.1	Welds deposited correctly in flat, horizontal and vertical position to specifications.
		5.2	Distortion, preventative action taken where required.
		5.3	Joints cleaned to specifications using correct and appropriate tools and techniques.
6	Inspect welds	6.1	Weld joints visually inspected against specifications .
		6.2	Weld defects identified.
7	Correct faults	7.1	Defects removed with minimum loss of sound metal using correct and appropriate techniques.

RANGE OF VARIABLES

This work would be carried out using a range of material for heavy or light fabrication. The person would work autonomously or within a team environment using predetermined standards of quality, safety, work and welding procedures and the skills applied to a range of fabrication activities. Weld quality meets Australian Standard 1554 General Purpose or equivalent (single pass). Materials used may include carbon steel or stainless steel etc. Preparation of materials may include preheating, setting up of jigs, fixtures, clamps etc. Weld procedures may include amperage setting, earthing, electrode flux condition etc. Remedial action using thermal processes may include amperage setting, earthing, electrode flux condition etc. Remedial action using thermal processes may include oxyacetylene and air arc equipment. Grinding devices may also be used. Where thermal processes, hand and/or power tools are required the appropriate specialisation units should be accessed. Where welding is carried out in the overhead position, then Unit 5.16A (Perform advanced welding using manual metal arc welding process (MMAW)), should also be selected.

EVIDENCE GUIDE

(1) Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

(2) Critical aspects

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the manual metal arc welding process or other competencies requiring the exercise of the skills and knowledge covered by this unit.

(3) Assessment conditions

The candidate will have access to:- All tools, equipment, materials and documentation required. The candidate will be permitted to refer to the following documents:- Any relevant workplace procedures. :- Any relevant product and manufacturing specifications. :- Any drawings, specifications, catalogues, manuals, codes, standards and information relevant to the work. The candidate will be required to :- Orally, or by other methods of communication, answer questions put by the assessor. - Identify colleagues who can be approached for the collection of competency evidence where appropriate. - Present evidence of credit for any off-job training related to this unit. Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(4) Special notes

During assessment, the individual will:- demonstrate safe working practices at all times; - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment; - take responsibility for the quality of their own work; - plan tasks in all situations and review task requirements as appropriate; perform all tasks in accordance with standard operating procedures; - perform all tasks to specification; - use accepted engineering techniques, practices, processes and workplace procedures. Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

MEM2.5C11A Measure with graduated devices

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Use a range of graduated devices to measure/determine dimensions or variables	1.1	Selects appropriate device or equipment to achieve required outcome.
		1.2	Correct and appropriate measuring technique used.
		1.3	Measures accurately to finest graduation of instrument.
2	Maintain graduated devices	2.1	Routine care and storage of devices undertaken to manufacturer's specification or standard operating procedure.
		2.2	Checks and makes routine adjustments to devices eg: "zeroing".

RANGE OF VARIABLES

Work undertaken autonomously or part of a team environment. Work undertaken in field, work station, workshops. This unit covers measurement skills requiring straightforward application of the measuring device and may utilise the full range of graduations of measuring devices. Examples may include measurements using verniers, feeler gauges, micrometers, dial indicators, thermometers, and similar graduated devices. Measurements undertaken may include: length, squareness, flatness, angle, roundness, clearances or any other measurements that can be read off analog, digital or other graduated device. Electrical/electronic devices used are those not requiring the connection or disconnection of circuitry. Measurements may include metric and imperial measurement. All measurements undertaken to standard operating procedures. Adjustment of measuring devices is through external means and includes zero and linear adjustment. For straightforward use of comparison or basic measuring devices Unit 12.1A (Use comparison and basic measuring devices) should be accessed.

EVIDENCE GUIDE

(1) Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

(2) Critical aspects

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the use of graduated measuring devices or other units requiring the exercise of the skills and knowledge covered by this unit. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

(3) Assessment conditions

The candidate will be provided with:- All tools, equipment, materials and documentation required. The candidate will be permitted to refer to the following documents : - Any relevant workplace procedures. - Any

relevant product and manufacturing specifications. - Any relevant codes, standards, manuals and reference materials. The candidate will be required to: - Orally, or by other methods of communication, answer questions put by the assessor. - Identify colleges who can be approached for the collection of competency evidence where appropriate. - Present evidence of credit for any off-job training related to this unit. Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(4) Special notes

During assessment, the individual will:- demonstrate safe working practices at all times; - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment: - take responsibility for the quality of their own work:; - plan tasks in all situations and review task requirements as appropriate; perform all tasks in accordance with standard operating procedures; - perform all tasks to specification; - use accepted engineering techniques, practices, processes and workplace procedures. Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

MEM5.17AA Weld using gas metal arc welding process (GMAW)

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Prepare materials for welding	1.1	Weld requirements identified from specifications and/or drawings.
		1.2	Material is correctly prepared using appropriate tools and techniques
		1.3	Materials assembled/aligned to specification where required.
2	Select welding machine settings and electrodes	2.1	Welding machine settings and consumables selected against job requirements, welding procedures, specifications and/or technical drawings.
3	Assemble and set up welding equipment	3.1	Welding equipment and set up safely and correctly in accordance with standard operating procedures
		3.2	Test runs undertaken and verified in accordance with specifications
4	Identify distortion prevention measures	4.1	Distortion prevention measures identified
		4.2	Appropriate action taken to minimise and rectify distortion
5	Weld joints to Australia Standard 1554 General Purpose	5.1	Welds deposited correctly in flat, horizontal and vertical position to specifications.
		5.2	Distortion is minimised.
		5.3	Joints cleaned to specifications using correct and appropriate tools and techniques
6	Inspect welds	6.1	Weld joints visually inspected against specifications.
		6.2	Weld defects identified
7	Correct faults	7.1	Defects removed with minimum loss of sound metal using correct and appropriate tools and techniques
8	Maintain weld records	8.1	Weld records maintained in accordance with specifications and standard operating procedures.

RANGE OF VARIABLES

This work would be carried out using a range of material for heavy or light fabrication. The person would work autonomously or within a team environment using predetermined standards of quality, safety, work and welding procedures and the skills applied to a range of fabrication activities. Weld quality meets Australia Standard 1554 General Purpose or equivalent. Most common materials used are low carbon steel and stainless steel. Preparation of materials would include amperage setting, earthing, secondary circuits, electrode gouging with selection conditioning etc. Remedial action using thermal processes may include oxyacetylene and air arc equipment. Grinding devices may also be used. Where welding is carried out in the overhead position, then Unit 5.18A (Perform advanced welding using gas metal arc welding process (GMAW)), should also be selected.

EVIDENCE GUIDE

(1) Assessment context

This unit may be assessed on the job, off the job, or a combination of both on and off the job. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

(2) Critical aspects

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the gas metal arc welding process or other units requiring the exercise of the skills and knowledge covered by this unit. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

(3) Assessment conditions

The candidate will have access to :- All tools, equipment, materials and documentation required. The candidate will be permitted to refer to the following documents :- Any relevant product and manufacturing specifications :- Any relevant workplace procedures . - Any relevant codes, standards, manuals and reference materials. The candidate will be required to :- Orally, or by other methods of communication, answer questions put by the assessor. - Identify colleagues who can be approached for the collection of competency evidence where appropriate. - Present evidence of credit for any off-job training related to this unit. Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(4) Special notes

During assessment the individual will:- demonstrate safe working practices at all times. - communicate in formation about processes, events or tasks being undertaken to ensure a safe and efficient working environment: - take responsibility for the quality of their own work: - plan tasks in all situations and review task requirements as appropriate : - perform all tasks in accordance with standard operating procedures: - perform all tasks specification: - use accepted engineering techniques, practices, processes and workplace procedures. Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

MEM5.21AA Weld using oxyacetylene welding process (OAW) fuel gas welding

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Prepare materials for welding	1.1	Weld requirements identified from specifications and/or drawings.
		1.2	Material is correctly prepared using appropriate tools and techniques.
		1.3	Materials assembled/aligned to specifications where required.
2	Assemble and set up welding equipment	2.1	Welding equipment assembled and set up safely and correctly in accordance with standard operating procedures
		2.2	Test runs undertaken and verified in accordance with specifications.
3	Select welding equipment, settings and consumables	3.1	Welding settings and consumables selected against job requirements, welding procedures, specifications and/or technical drawings.
4	Identify distortion prevention measures	4.1	Distortion prevention measures identified.
		4.2	Appropriate action taken to minimise and rectify distortion.
5	Weld joints to Australian Standard 1554 General Purpose or equivalent	5.1	Welds deposited correctly in flat and vertical position to specifications and to Australian Standard 1554 General Purpose (or equivalent).
		5.2	Correct action undertaken to minimise distortion.
		5.3	Joints cleaned to specifications using correct and appropriate tools and techniques.
6	Inspect welds	6.1	Weld joints visually inspected against specifications .
		6.2	Weld defects identified.
7	Correct faults	7.1	Take remedial action where required.
		7.2	Defects removed with minimum loss of sound metal using correct and appropriate techniques.

RANGE OF VARIABLES

This work would be carried out using a range of material for heavy or light fabrication. The person would work autonomously or within a team environment using predetermined standards of quality, safety, work and welding procedures and the skill applied to a range of fabrication activities. Weld quality meets Australian Standards 1554 General Purpose or equivalent outcomes. Materials used may include low carbon steel, cast iron etc. Preparation of materials would include preheating, setting up of jigs, fixtures, clamps etc. Remedial action using thermal processes may include the correct connection of hoses, blowpipes, regulators etc. and correct setting of gas mixtures. Where welds are performed in the overhead position then Unit 5.22A (Perform advanced welding using oxyacetylene welding process (OAW)), should also be selected.

EVIDENCE GUIDE

(1) Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

(2) Critical aspects

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the oxyacetylene welding process or other competencies requiring the exercise of the skills and knowledge covered by this unit.

(3) Assessment conditions

The candidate will have access to:- All tools, equipment, materials and documentation required. The candidate will be permitted to refer to the following documents:- Any relevant workplace procedures. :- Any relevant product and manufacturing specifications. :- Any drawings, specifications, catalogues, manuals, codes, standards and information relevant to the work. The candidate will be required to :- Orally, or by other methods of communication, answer all questions put by the assessor. - Identify colleagues who can be approached for the collection of competency evidence where appropriate. - Present evidence of credit for any off-job training related to this unit. Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(4) Special notes

During assessment, the individual will:- demonstrate safe working practices at all times; - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment: - take responsibility for the quality of their own work; - plan tasks in all situations and review task requirements as appropriate; perform all tasks in accordance with standard operating procedures; - perform all tasks to specification; - use accepted engineering techniques, practices, processes and workplace procedures. Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

MEM5.10AA Undertake fabrication, forming, bending and shaping

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Select and set up forming/shaping equipment for a specific operation	1.1	Most appropriate tools and equipment selected
		1.2	Equipment correctly set up and adjusted for operation to standard operating procedures
		1.3	Allowances for shrinkage, thickness, inside/outside measurements correctly made.
2	Operate forming/shaping equipment	2.1	Machine safely started up and shut down to standard operating procedure
		2.2	Material and safety guards correctly positioned
		2.3	Equipment correctly operated and adjusted
3	Form and shape material	3.1	Material levelled, straightened, rolled, pressed or bent to specifications/drawings
		3.2	Correct hot or cold forming procedures followed
		3.3	Final form/shape checked for compliance to specification and adjusted as necessary to standard operating procedure

RANGE OF VARIABLES

Work may be undertaken autonomously or as part of a team. Predetermined standards of quality and safety are observed and work is carried out following standard operation procedures. Forming, shaping and bending operations conducted on either plate, section.

EVIDENCE GUIDE

(1) Assessment context

This unit may be assessed on the job, off the job, or a combination of both on and off the job. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

(2) Pre-requisite Relationship of Units

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the forming and shaping of fabricated components or other units requiring the exercise of the skills and knowledge covered by this unit. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

(3) Assessment conditions

The candidate will have access to :- All tools, equipment, materials and documentation required. The candidate will be permitted to refer to the following documents. :- Any relevant workplace procedures. - Any relevant product and manufacturing specifications. - Any relevant codes, standard, manuals and reference materials. The candidate will be required to:-Orally, or by other methods of communication, answer questions put by the assessor. - Identify colleagues who can be approached for the collection of competency evidence where appropriate. - Present evidence of credit for any off-job training related to this unit. Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

(4) Special notes

During assessment the individual will:- demonstrate safe working practices at all times: - communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment; - take responsibility for the quality of their own work; - plan tasks in all situation and review task requirements as appropriate; - perform all tasks in accordance with standard operating procedures; - perform all tasks to specification; - use accepted engineering techniques, practices, processes and workplace procedures. Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.