Competency Standards for Caribbean Vocational Qualifications (CVQ)

CCPFM10107 Level I in Property and Facilities Maintenance (Building Maintenance)

Unit Number	Unit Title	Mandatory /Elective	Hours
ITICOR0011A	Carry out data entry and retrieval procedures	Mandatory	40
BCGCOR0001A	Carry out interactive workplace communication	Mandatory	20
BCGCOR0011A	Carry out OH&S requirements	Mandatory	40
BCGCOR0021A	Plan and organise work	Mandatory	20
MEMASY0071A	Assemble pipes and fittings for clients	Mandatory	40
BCGPAD1322A	Prepare surfaces for painting and decorating	Mandatory	40
BCGCAR0202A	Assemble simple partition frames	Mandatory	30
BCGCOR0041A	Carry out measurements and calculations	Mandatory	20
BCGCOR0051A	Use hand and power tools	Mandatory	20
BCGPAD1282A	Apply paint by brush/roller	Mandatory	80
BCGCOR0081A	Use simple levelling devices	Mandatory	10
BCGMAS0101A	Carry out concreting to simple forms	Mandatory	20
BCGMAS1232A	Rough cast and render flat surfaces	Mandatory	120
LMFFMK0081A	Hand make timber joints	Mandatory	60
LMFCOR0071A	Read and interpret work documents	Mandatory	40
LMFFMK0052A	Select and apply hardware	Mandatory	20
MEMCOR0071A	Use electrical/electronic measuring devices	Mandatory	10
MEMINS0011A	Install, terminate and connect electrical wiring	Mandatory	20
BCGMAS0181A	Mix cementitous materials (mortar and concrete)	Mandatory	10
MEMMRD0111A	Carry out routine servicing of coils, filters and room air conditioners	Elective	40
BCGTIL0121A	Prepare for wall and floor tiling	Elective	40
MEMMRD0251A	Carry out routine pool and fountain maintenance	Elective	20
MEMMRD0261A	Carry out routine maintenance of solar water systems	Elective	20
BCGMAS0141A	Prepare for dry wall plastering	Elective	40
BCGMAS0151A	Prepare for construction process (brick/block laying)	Elective	40
BCGCAR0161A	Prepare for carpentry construction	Elective	40
MEMMPO0011A	Perform daily operational maintenance of machines/equipment	Elective	20
MEMMRD0121A	Perform basic repair to electrical/electronic apparatus	Elective	40
MEMMRD0081A	Remove dismantle, assemble and replace basic engineering components	Elective	50
MEMFAB0051A	Perform brazing and/or silver soldering	Elective	20
MEMMRD0101A	Evacuate and dehydrate refrigeration systems	Elective	40
MEMINS0061A	Prepare for piping and tubing installation	Elective	20
BCGCAR0312A	Use static machines	Elective	30
MEMMRD0732A	Install and maintain mechanical pumps	Elective	20
MEMMRD0462A	Carry out routine maintenance of plumbing systems to sustain effective performance	Elective	20
BCGTIL1092A	Lay and repair wall and floor tiles	Elective	160
BSBSBM0012A	Craft personal entrepreneurial strategy	Elective	50
MEMMRD0592A	Test, evacuate and charge refrigeration systems	Elective	20

To be awarded this Caribbean Vocational Qualification (CVQ) all core competency standards must be achieved. Electives achieved with the qualification will be awarded unit statement of competency.

The nominal training hours are a guide for planning the delivery of Training Programmes.

ITICOR0011A: Carry out data entry and retrieval procedures

Competency Descriptor: This unit deals with the skills and knowledge required to operate computer to enter, manipulate and retrieve data and to access information and communicate via the Internet.

Competency Field: Information Technology and Communications - Operations

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Initiate computer system	1.1	Equipment and work environment are correctly checked for readiness to perform scheduled tasks.
		1.2	The hardware components of the computer and their functions are correctly identified.
		1.3	Equipment is powered up correctly.
		1.4	Access codes are correctly applied.
		1.5	Appropriate software is selected or loaded from the menu.
2.	Enter data	2.1	Types of data for entry correctly identified and collected.
		2.2	Input devices selected and used are appropriate for the intended operations.
		2.3	Manipulative procedures of Input device conform to established practices.
		2.4	Keyboard/mouse is operated within the designated speed and accuracy requirements.
		2.5	Computer files are correctly located or new files are created, named and saved.
		2.6	Data is accurately entered in the appropriate files using specified procedure and format.
		2.7	Data entered is validated in accordance with specified procedures.
		2.8	Anomalous results are corrected or reported in accordance with specified procedures.
		2.9	Back-up made in accordance with operating procedures.

3.	Retrieve data	3.1	The identity and source of information is established.
		3.2	Authority to access data is obtained where required.
		3.3	Files and data are correctly located and accessed.
		3.4	Integrity and confidentiality of data are maintained.
		3.5	The relevant reports or information retrieved using approved procedure.
		3.6	Formats to retrieved report or information conform to that required.
		3.7	Copy of the data is printed where required.
4.	Amend data	4.1	Source of data/information for amendment is established.
		4.2	Data to be amended is correctly located within the file.
		4.3	The correct data/Information is entered, changed or deleted using appropriate input device and approved procedures.
		4.4	The Integrity of data is maintained.
5.	Use document layout and data format facilities	5.1	Requirements for document are verified where necessary.
		5.2	The given format and layout are appropriately applied.
		5.3	Facilities to achieve the desired format and layout are correctly identified, accessed and used.
		5.4	Data manipulating facilities are used correctly.
		5.5	Format reflects accuracy and completeness.
6.	Monitor the operation of equipment	6.1	The system is monitored to ensure correct operation of tasks.
		6.2	Routine system messages are promptly and correctly dealt with.
		6.3	Non-routine messages are promptly referred in accordance with operating requirements.

		6.4	Error conditions within level of authority are dealt with promptly, and uncorrected errors are promptly reported.
		6.5	Output devices and materials are monitored for quality.
7.	Access and transmit information via the Internet	7.1	Access to the Internet is gained in accordance with the provider's operating procedures.
		7.2	Evidence of the ability to negotiate web sites to locate and access specified information and other services is efficiently demonstrated.
		7.3	E-Mail is sent and retrieved competently.
8.	Close down computer system	8.1	The correct shut down sequence is followed.
		8.2	Problem with shutting down computer is reported promptly.
		8.3	All safety and protective procedures are observed.
		8.4	The system integrity and security are preserved.
9.	Maintain computer equipment	9.1	Cleaning materials and/or solutions used meet specified recommendation.
		9.2	The equipment is cleaned as directed.
		9.3	Wear and faults identified are promptly reported to the appropriate personnel.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to using and maintaining basic computer equipment.

Equipment:

- install supplied computer
- install supplied peripherals

Work environment:

- equipment
- furniture
- cabling
- power supply

Input devices:

- keyboard
- mouse
- scanner
- microphone
- camera

Software systems to include for:

- word processing
- spread sheet
- internet access

Files save on:

- network
- magnetic media
- personal PC

Data:

- textual
- numerical
- graphical

File operations:

Naming, updating, archiving, traversing field and records in database, use of search, sort, print

Maintenance:

- cleaning: enclosures, screen, input devices, output devices
- checking cables, etc

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to accurately carry out basic data entry and retrieva l operations on a computer system 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 be observed in the following aspects:

- Initiate the use on the equipment.
- Use document layout and data format facilities.
- Locate and access data.
- Use file operations.
- Manipulate input devices.
- Key-in and format reports.
- Access to the internet.

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
knowledge of:

- safety for working with and around computers
- computer hardware and software systems
- procedure for initiating and closing down computer
- the operation of the data entry management system
- methods of locating files
- organisation's standards applicable to accessing files
- files operations and their applications
- file operation in database setting
- creating, locating and saving files
- using input devices
- using data checking devices
- formatting functions of software
- layout function of software
- graphic productions and manipulation
- regard for accuracy and security of information
- functions on the internet

Skills
The ability to:

- identify computer hardware
- manipulate data input devices
- access data
- use file operations
- key-in and format reports and letters
- retrieve data
- amend data
- print data
- save data
- search and receive data from the internet
- send and receive E-Mail

(4) Resource Implications

Files saved on network, magnetic media, personal Computer

Input devices: Keyboard, mouse, other selection 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.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level -	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level -	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCOR0001A: Carry out interactive workplace communication

Competency Descriptor: This unit deals with the skills and knowledge required to effectively perform interactive communication at the workplace, and applies to all individuals working in the construction industry.

Competency Field: General Construction

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 basic 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 are carried out according to procedures laid down by the company or supervisor.
	2.3	Relevant information is assessed and analysed from a range of sources.
	2.4	Information is selected and sequenced correctly.
3. Work with others	3.1	Suggestions and information are provided relevant to the planning/conduct of the activities.
	3.2	Communication carried out clearly, concisely and effectively so those messages are understood.
4. Participation in simple on-site meeting processes	4.1	Participation in on-site meetings is in accordance to predetermined procedures.
	4.2	Interaction carried out to achieve constructive outcome.

RANGE STATEMENT

This unit applies to 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 are not limited to:

- on-site direction signs
- common site warning signs
- facility or location signs
- traffic signs

Range of information sources may include:

- instructions: oral/memos
- signage
- work schedules/work bulletins
- charts and 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

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 statement relative to the work orientation.

(1) Critical Aspects and Evidence

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

- communications to include Occupational Health and Safety regulations applicable to work place operations, and organisational policies and procedures
- demonstrate appropriate communications processes prior to and during construction activities

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
knowledge of:

- workplace safety requirements
- types of onsite 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:

- follow instructions for working safely
- convey information in basic 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 relative to the task

(5) Method of Assessment

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

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

Competency shall be assessed while work is being done under general guidance, checking at various stages of the process and at the completion of the activity, against the performance criteria and specifications.

(6) Context of Assessment

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

Assessment shall include those aspects that are consistent with the work environment of this unit.

Competency shall be assessed while work is undertaken autonomously, within a team environment.

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.

Guidelines will be in line with statutory requirements, the specific policies, procedures and codes of practice of the enterprise.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills

BCGCOR0011A: Carry out OH&S requirements

Competency Descriptor: This unit deals with the skills and knowledge required to effectively perform work activities to conform to Occupational Health and Safety requirements, and applies to all individuals working in the construction industry.

Competency Field: General and Civil Construction

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 acc ordance with Statutory regulations for OH&S requirements 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 fitted 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 power lines 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 OH&S guidelines.
5	Use electrical power supply safely	5.1	Position of power pole/box identified for safe placemen t 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 electrical power supply.

6	Adhere to emergency procedures	6.1	Emergency equipment able to be located and used as required.
		6.2	Current work site 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 STATEMENT

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

Regulatory legislation may include:

- OH&S, Dangerous goods

Manual handling techniques used in accordance with current Occupational Health and Safety.

Emergency equipment and procedures include:

- fire fighting
- medical and first aid
- evacuation

Power connections include:

- isolation transformer
- power pole
- switch board area

Ladders and work platforms include:

- extension ladders
- step ladders
- trestle ladders
- simple work platforms

Safety responsibilities apply to:

- personal protection
- safe interactive work practices (duty of care)
- protection of public and environment

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 be 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
Knowledge of:

- workplace and equipment safety requirements
- materials
- Factory'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
- select material to requirements
- communicate effectively
- handle material

(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 being done 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 conc urrently, 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 should be assessed in the workplac e or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qual ifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criter ia	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and informat ion	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to us e the Critical Employability Skills.

BCGCOR0021A: Plan and organise work

Competency Descriptor: This unit deals with the skills and knowledge required to effectively plan and organise work assignments, and applies to all individuals working in the construction industry.

Construction Field: General Construction

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, equipment and materials	3.1	Personal protective equipment correctly identified and selected to suit job requirements.
		3.2	Tools, equipment and materials 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 and 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 STATEMENT

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, equipment and materials
- 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 poli cy and procedures.

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 statutory 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
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 should be assessed while work is bei ng done 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMASY0071A: Assemble pipes and fittings for clients

Competency Descriptor: This unit deals with the skills and knowledge required to effectively assemble pipes and fittings and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Read and understand job sheets	1.1	Job sheets/instruction are correctly interpreted and followed.
2.	Select and use pipe cutting and assembly tools	2.1	Tools are correctly selected and used.
3.	Select and use pipes, tools and fittings assembly equipment	3.1	Assembly equipment is selected in accordance with instructions on job sheet.
		3.2	Equipment is used in a safe manner according to standard operating procedure.
4.	Assemble fabrications	4.1	Assembly is produced following correct sequence of operations
		4.2	Assemblies/fabrications/fittings are joined according to specification using appropriate techniques.
		4.3	Assembly is tested/checked for compliance with job sheet requirements using standard operating procedures.
5.	Protect assembly from damage	5.1	Assemblies/fabrications/fittings are handled and stored in a safe manner least likely to cause damage using standard operating procedures.

RANGE STATEMENT

This unit recognises the commonality of skills and knowledge that exists for the unit as well as the additional specific outcome; which is to be reported on. Therefore, competency can be displayed on one, some or all of the following categories and in addition to the respective common underpinning knowledge associated with the selected specialisation.

Work processes may include but not limited to:

- identifying and selecting materials, fixtures and supplies
- identifying and selecting tools and equipment
- identifying and selecting pipes and fittings
- measuring, cutting and preparing plastic pipes for joining
- applying solvent cement weld to plastic pipes and fittings and joining pipes
- cleaning tools and work area
- preparing pipe ends for installation
- installing valves, regulators and metering devices
- positioning and installing kitchen/bath room fixtures plumbing fixtures
- soldering copper pipe fittings
- measuring and cutting steel pipes
- threading steel pipes
- joining steel/copper pipes
- welding steel/copper pipes
- brazing steel/copper pipes
- testing pipe joints
- excavating trenches
- chasing, boring and drilling concrete
- roughen-in pipe-work
- erecting and/or installing piers brackets and other supports
- flaring copper tubes

Preparation of materials would be minimal and may include but not limited to:

- preheating
- setting up jigs,
- setting up fixtures
- setting up clamps
- cleaning up material
- joint preparation

Location/condition may include but not limited to:

- workshops
- domestic complexes
- plants and commercial complexes
- in the field
- confined spaces
- elevated positions
- damp and wet situations
- on wall surfaces

Roughen-in may include but not limited to:

- kitchen fixtures
- bathroom fixtures
- laundry equipment
- specified chemical systems
- compressed air line
- specified steam line
- farming complex

Joining of pipes may be done by but not limited to:

- screwed method
- welding
- brazing
- soldering
- flanged method
- compression method
- solvent weld – (P.V.C cement)
- seaming
- bonding
- riveting

Tools and equipment may include but not limited to:

- hand and power saws
- pipe cutters
- threading machine
- pipe reamers
- pipe dies/taps
- tape measure
- jigs and fixtures
- ladders/scaffolding
- welding/brazing/soldering equipment
- masonry tools
- hammers/screwdrivers/hand tools
- hand brush
- pipe bending spring
- pipe vices/wrenches/tripod/benders

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively assembly pipes and fittings in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to assembling pipes and fittings and during the process
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate correct procedures in assembling pipes and fittings
- give particular attention to safety and elimination of hazards
- demonstrate safe handling of material
- interactively communicate with others to ensure safe operations
- demonstrate effective skills to produce designed outcome

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the assembly of pipes and fittings or other units requiring the exercise of the skills and knowledge covered by this unit.

(2) Pre-requisite Relationship of Units

- MEMCOR0141A Follow principles of occupational health and safety (OH&S) in work environment
- MEMCOR0161A Plan and undertake a routine task
- MEMCOR0171A Use graduated measuring devices
- MEMFAB0041A Carry out mechanical cutting operations - (basic)
- MEMCOR0091A Draw and interpret sketches and simple drawings
- MEMCOR0191A Use hand tools
- MEMCOR0111A Use power tools

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements including relevant OH&S legislation and regulations
- assembly methods
- assemble equipment
- hand tools and equipment
- jigs, fixtures, tools and measuring equipment relative to repairing, replacing and modifying fabrications
- materials preparation
- manual handling
- measurement
- drawings, sketches and instructions
- types and use of tools

Skills
The ability to:

- work safely to instructions
- plan to undertake a routine assembly task
- interpret relative drawings and instructions
- select and use tools and fittings related to assembly process
- select pipes and fixtures for the assembly process
- measure relative to the assembly processes
- communicate effectively
- assemble pipes and fittings efficiently

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- answer questions put by the assessor.
- identify supervisors/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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. 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.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGPAD1322A: Prepare surfaces for painting and decorating

Competency Descriptor: This unit deals with the skills and knowledge required to prepare surface for painting and decorating, and applies to individuals applying paints and other surface coating and decorating materials.

Competency Field: General Construction

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Select and prepare materials and equipment	1.1 Quality Assurance requirements of company's painting and decorating operations recognised and adhered to.
	1.2 Occupational Health and Safety (OH&S) requirements for preparing new and previously painted surfaces for painting and decorating are recognised and adhered to including lead and asbestos fibres.
	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 job requirements, 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. Erect work platform	2.1 Work platform erected where required to appropriate working height according to OH&S requirements.
3. Prepare new or un-coated surfaces for painting or clear finish	3.1 Specific substrate properties identified and precautions taken to ensure maximum adhesion of subsequent surface coatings.
	3.2 Surface prepared as per manufacturer's specification in compliance with substrate requirements, hazardous materials warnings and paint systems.
	3.3 Surface imperfections stopped, filled and sanded to a smooth finish ready for painting.

4	Prepare previously coated surfaces for painting or clear finish	4.1	Surface to be painted identified as either sound or unsound for painting.
		4.2	Where surface deemed to be unsound, removed using the most appropriate method.
		4.3	Where surface is deemed to be sound, prepare surface by most appropriate method.
		4.4	Surface imperfections corrected and cracks, filled and sanded to smooth finish ready for painting.
5.	Prepare surface for wallpaper	5.1	Determine condition and texture of surface and its su itability to wallpaper application.
		5.2	Where surface to be wallpapered deemed to be unsound, remove using the most appropriate method.
		5.3	Where surface deemed to be sound, prepare surface by most appropriate method.
		5.4	Surface imperfections corrected and cracks filled and sanded to smooth finish ready for application of wallpaper.
6.	Remove wallpaper and prepare surface for painting	6.1	Determine type of wallpaper to be removed.
		6.2	Wallpaper removed by dry stripping and/or soaking or by steam stripper observing all Occupational Health & Safety standards requirements.
		6.3	Where surface deemed to be sound, prepare surface by most appropriate method.
		6.4	Where surface deemed to be unsound, repair surface by most appropriate method.
		6.5	Surface imperfections stopped, filled and sanded to smooth finish ready for application of paint.
7.	Prepare surface for decorative painted finishes	7.1	Determine condition of surface and its suitability to decorative finishes.
		7.2	Where surface to be decorated deemed to be unsound, remove by most appropriate method.

	7.3	Where surface deemed to be sound, prepare surface by most appropriate method.
	7.4	Surface imperfections corrected, and cracks stopped, filled and sanded to a smooth finish read y for application of specified decorative paint finish.
8. Clean up	8.1	Area cleaned.
	8.2	Waste and unwanted material disposed of safely.
	8.3	Unused materials sealed and stored in a cool place.
	8.4	Equipment and machinery maintained and stored co rrectly.

RANGE OF VARIABLES

This unit applies to the preparation of surfaces for painting and decorating processes. It should be read in conjunction with the relevant requirements for the painting and decorating.

New surfaces to be prepared may includ e:

- all common profiles encompassing the full range natural timber products
- ply
- building boards fibre cement products
- iron and steel
- zinc coated steel products
- aluminium products
- copper
- brass
- lead
- masonry products
- clay bricks
- concrete blocks
- in-situ-concrete
- cement render
- set plaster
- plaster glass products
- paper-faced gypsum plaster board
- paintable products
- previously coated/treated surfaces

Horizontal or vertical surface application.

Previously coated surfaces in a sound condition may include:

- Painted surfaces in good condition or surfaces that are covered in a film of grease, dust, mould, mild efflorescence, mild chalking or smoke damaged

Previously coated surfaces in an unsound condition may include:

- Paint films which are blistering, flaking, pe eling or cracking

Preparation of previously coated surfaces in a sound condition may include:

- sanding
- washing down using soap
- solvents
- detergent
- use of water blaster

Preparation of previously coated surfaces in an unsound condition may include:

- burning off
- abrasive grit
- water blasting
- grinding
- sanding
- scraping (mechanical or hand)
- chemical stripping

Tools and equipment may include but not limited to:

- 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 pan/buckets
- brush-ware and brush-ware accessories
- roller frames
- covers
- buckets and roller accessories
- water blaster
- spray equipment
- sand blaster

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators including cartridge and supplied-air
- ear muffs/plugs
- caps
- overalls

Work platforms can include:

- ladders
- step ladders
- trestles
- planks
- hop-ups
- aluminium mobile scaffolding
- scissor-lift

Occupational Health & Safety (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”

EVIDENCE GUIDE

Competence is to be demonstrated by the safe and effective preparation of a range of sound and unsound surfaces for painting and decorating processes.

(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 surface preparation for painting and decorating processes
- identify requirements for surface preparation for specific examples in sound, unsound and wallpaper
- choose correct method of surface preparation in accordance with environmental, finish and substrate requirements
- remove corrosion by hand or mechanical means
- strip paint by heat removal
- remove paint by flame removal
- use solvent-based paint stripper
- wash surfaces prior to application of coatings
- dry and wet abrading by hand and mechanical application
- remove a range of wallpaper products from walls and/or ceilings
- stop, fill and sand surfaces to a smooth finish
- protect surrounding surfaces by drop sheets, masking or removal of objects
- identify surface defects and subsequent rectification of each
- identify surface coatings defects and subsequent rectification of each
- prepare surface prior to application of decorative finishes to a high standard

(2) Pre-requisite Relationship of Units

Pre-requisite skills:

- BCGCOR0061A Use plant and equipment

This unit may be assessed concurrently with:

- BCGCOR0191A Prepare for construction process (painting & decorating)
- BCGCOR0212A Prepare surfaces
- BCGPAD1282A Apply paint by brush/roller
- BCGPAD0772A Apply paint by spray
- BCGPAD0763A Apply decorative finishes
- BCGPAD1332A Apply wallpaper
- BCGPAD1302A Apply clear timber finish

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment as it relates to OH&S standards and requirements
- specifications interpretation
- hazards associated with lead, solvents, chemicals and dust
- variances in work carried out within sectors of painting and decorating industry and associated standards in relation to the preparation of surfaces:
  - 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
- surface coatings technology
- properties and surface preparation requirements of new substrates
- surface coatings defects – prevention and/or rectification procedures
- preparatory products
- capability and maintenance of hand and power tools
- differing procedures and products associated with removal of wallpaper
- differing procedures and products associated with removal of defective coatings
- differing procedures and products associated with preparation of sound surfaces
- corrosion process and protection of metals

Underpinning Knowledge and Skills (Cont'd)

Skills
The ability to:

- work safely, efficiently and effectively
- organise work
- interpret specifications
- take off dimensions, quantities, types of materials, position of materials, application requirements for a wide range of surfaces
- identify and select materials for surface preparation
- use tools equipment and materials
- prepare materials
- check prepared surface for defects
- remove corrosion by hand or mechanical means
- strip paint by heat removal
- remove paint by flame removal
- remove paint using solvent -based paint stripper
- wash surfaces prior to application of coatings by hand or using equipm ent
- abrade surfaces using dry and wet hand and mechanical methods
- remove range of wallpaper products from walls and/or ceilings
- stop, fill and sand prepared surfaces to a smooth finish
- protect surrounding surfaces by using drop sheets, masking or removal o f objects
- identify range of common surface defects and rectify each
- identify range of surface coatings defects and rectify each
- prepare surfaces for application of decorative finishes to high standard
- clean area and dispose of waste
- store materials/components
- respond to emergency situations

(4) Resource Implications

The following resources should be provided:

- workplace or simulated workplace location.
- tools and equipment appropriate to application processes
- materials relevant to application processes
- specifications relevant to surface preparation activities

(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 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 under limited supervision.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level -	
Plan and organise activities	Level 3	
Work with others and in team	Level -	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 2	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCAR0202A: Assemble simple partition frames

Competence Descriptor: This unit deals with the skills and knowledge required to effectively assemble simple partition frames from timber or metal, and applies to individuals working in the erection of framed building structures.

Competency Field: General Construction

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	Occupational Health & Safety 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 STATEMENT

This unit applies to the as sembling of simple partition wall frames.

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 Statutory Legislation and regulations and may include:

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

Material sections used for construction of frames include:

- timber
- light steel
- aluminium

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 fittings/fasteners to be used is dependent on type on material being joined may and 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 be 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 op erations

(2) Pre-requisite Relationship of Units

- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment
- BCGCAR0161A Prepare for carpentry construction

(3) Underpinning Knowledge and Skills

Knowledge
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 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 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 should be assessed while work is being done 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCOR0041A: Carry out measurements and calculations

Competency Descriptor: This unit deals with the skills and knowledge required to effectively carry out measurements and calculation of work to required tolerance, and applies to individuals working in the construction industry.

Competency Field: General Construction

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, /), are 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 be within + or – 10%.

RANGE STATEMENT

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

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)
- proportion

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 statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

It is essential that competence be 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
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 p rocess
- suitable work area appropriate to the activity
- suitable site plans/drawings and/or specifications
- measuring and calculating devices

(5) Method of Assessment

Competency should be assessed while work is being done under direct supervision with regu lar 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCOR0051A: Use hand and power tools

Competency Descriptor: This unit deals with skills and knowledge required to competently select and use appropriate hand and power tools of construction trades, and applies to individuals in the construction industry.

Competency Field: General Construction

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.
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	Occupational Health and Safety (OH&S) requirements for using power tools recognised and adhered to.
		4.2	Appropriate personal protective equipment selected, correctly fitted and used.

		4.3	Power tools and leads/hoses selected consistent with needs of job in accordance with conventional work practice.
		4.4	Power tools and leads/hoses visually checked for serviceability/safety in accordance with OH&S requirements and any faults reported to supervisor.
		4.5	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 power board 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 STATEMENT

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
- trowels and floats
- wire cutters
- paint brushes/rollers
- spatula/putty knives

Power supply to include but not limited to:

- electricity
- compressed air

Power tools include:

- drills
- nail guns
- staplers
- screwdrivers
- sanders
- angle grinders
- pneumatic wrenches
- circular saw
- jig saws
- planers
- routers

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 ope ration 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 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 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 c oncurrently based upon integrated project work using the following units:

• BCGCOR0011A	Carry out OH&S requirements
• BCGCOR0061A	Use plant and equipment
• BCGCOR0041A	Carry out measurements and calculations
• BCGCOR0111A	Handle construction materials and safe disposal of waste
• BCGMAS0121A-BCGPAD0191A	Prepare for the construction process (relative to work orientation)

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements and OH&S legislat ion
- 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 being done under direct supervision w ith 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures .

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These level s do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGPAD1282A: Apply paint by brush/roller

Competency Descriptor: This unit deals with the skills and knowledge required to prepare and apply paint to surface using brush/roller, and applies to individuals working in painting and surface finishing trades.

Competency Field: General Construction, Building Restoration

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	Occupational Health & Safety (OH&S) requirements for workplace environment preparing and applying paint by brush and roller are recognised and adhered to.
		1.3	Materials checked for conformity with specifications.
		1.4	Appropriate personal protective equipment selected, correctly fitted and used in accordance with safe working standards.
		1.5	Tools and equipment selected are consistent with the 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 material 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 when required, to manufacturer's specified ratio with drying time recognised.
3.	Prepare single pack material	3.1	Material thoroughly stirred or boxed to manufacture recommendation.
		3.2	Reducer or water added to adjust viscosity as required.

4.	Erect work platform (if required)	4.1	Work platform erected where required to appropriate working height and according to OH&S requirements.
5.	Examine and prepare surface for finishing	5.1	Surface examined and prepared as per manufacturer's specification in compliance with substrate requirements.
6.	Apply paint with brush/roller	6.1	Job location checked to ensure provision of adequate ventilation and precautions taken to prevent fire and/or explosion.
		6.2	Brush, roller or brush/roller combination selected for job as per surface profile, size of area and type of paint and finis h specified.
		6.3	Paint applied as per job/architect/paint manufacturer specifications to achieve required level of opacity, finish texture and sheen. - using appropriate technique
7.	Clean-up	7.1	Area cleaned of debris.
		7.2	Waste and unwanted materi al disposed of safely.
		7.3	Unused materials sealed and stored.
		7.4	Equipment cleaned safely, using the correct solvent in accordance with manufacturer's instructions.
		7.5	Equipment maintained and stored correctly.

RANGE OF STATEMENT

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 National Building Standard for the painting of buildings.

Types of paint include:

- solvent-borne (alkyd, urethane, urethane/aklyd, urethane oil or modified alkyd resins)
- latex (PVA, PVA/acrylic, acrylic and styrene acrylic)
- polyurethane clear/varnish
- paving paints
- roofing paints (latex and solvent -borne)
- bituminous paint

Paint products can be classified as:

- sealers
- primers/wash primers
- sealer/undercoats
- undercoats/intermediate coats
- finish coats
- thinner

- two-pack epoxy and polyurethane
- chlorinated rubber
- water-repellents for timber
- water repellents for concrete or masonry
- anti-graffiti paints
- roofing compound
- wood stains

Surfaces to be painted include:

- all common profiles encompassing the full range of natural timber products
- ply
- building boards (including MDF and particle board)
- fibre cement products
- iron and steel
- zinc coated/galvanised steel
- 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 but not limited to:

- 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 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 scaffolding
- scissor-lift

OH&S requirements can include:

- those associated with exposure to hazardous materials
- solvents
- lead
- chemicals
- fumes/gases
- asbestos fibres
- confined spaces

OH&S requirements can include:

- 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
- jackets
- overalls

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:

- BCGCOR0061A Use plant and equipment
- BCGCOR0212A Prepare surfaces

This unit may be assessed concurrently with:

- BCGPAD1322A Prepare surfaces for painting and decorating
- BCGPAD1293A Match specified paint colour
- BCGPAD1302A Apply clear wood finish
- BCGPAD0191A Prepare for painting and decorating

(3) Underpinning Knowledge and Skills

Knowledge
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 various types of paint.
- hazards associated with solvents, chemicals and dust
- tools and equipment
- variances in work carried out within sectors of the 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 should be while tasks are undertaken either individually or as part of a team under limited supervision.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 3	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 1	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCOR0081A: Use simple levelling devices

Competency Descriptor: This unit deals with the skills and knowledge required to competently select and use levelling devices, and applies to individuals working in the building and Construction industry.

Competency Field: General Construction

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan and prepare work	1.1	Occupational Health and Safety (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	Device 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 or 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 STATEMENT

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
- line level

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 may be carried out under supervision and 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 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 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

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
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 accurately
- 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 should be assessed while work is being don e, 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas o f generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGMAS0101A: Carry out concreting to simple forms

Competency Descriptor: This unit deals with the skills and knowledge required to effectively and safely carry out concreting to simple formwork, and applies to all individuals working in the preparation and placing of formwork and concrete.

Competency Field: General Construction

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 Occupational Health and Safety (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 denailed 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 the direction of supervisor.

4.	Place concrete	4.1 Formwork/excavation cleaned of excess material and debris prior to concrete placement.
		4.2 Concrete correctly proportioned and mixed and/or safely transported by wheelbarrow and placed under direction.
		4.3 Pump line/chute controlled and concrete placed as directed.
		4.4 Concrete spread as directed to specified leve ls.
		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 cleare d 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 STATEMENT

This unit applies to placing concrete to simpl e forms and excavations which includes:

- post holes
- trench foundations
- pad foundations
- slabs
- pathways
- simple concrete aprons
- channels
- garden edges

Formwork in this unit applies to edging forms where structural components would include:

- edge boards
- pegs
- struts
- bracing

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gum boots
- face masks
- waterproof pants and jacket

Concrete finishes include:

- wood floated
- steel floated
- broom brushed

Excess material and debris includes:

- excavated loose soil
- off cut timber
- paper
- rags
- sticks
- nails

Concrete placement methods include:

- shovel
- wheelbarrow
- chute
- pump line

Work is to be undertaken in a team situation or individually under supervision.

Reporting of faults may be verbal or written.

OH&S requirements are in accordance with Statutory requirements.

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 ran ge statement relevant to the work orientation.

(1) Critical Aspects and 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 including Quality Assurance requirements
- carry out correct procedures prior to and during construction processes
- demonstrate safe and effective operational use of tools, plant and equipmen t
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

- BCGCOR0011A Carry out OH&S requirements
- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- hand tools and equipment
- concrete and formwork materials
- materials handling
- measurement and proportion
- transporting and placing concrete
- levelling equipment
- simple formwork and reinforcement components
- select and handle materials appropriate to concreting processes

Skills
The ability to:

- work safely to instructions
- measure relative to the concreting process
- use power tools and hand tools
- mix concrete by hand
- 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, re inforcing 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 being done 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 inte grated 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGMAS1232A: Rough cast and render flat surfaces

Competency Descriptor: This unit deals with the skills and knowledge required to float and set coats to provide solid plaster finishes to flat surfaces, and applies to individuals working in masonry in the construction industry.

Competency Field: General Construction

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 Occupational Health and Safety (OH&S) requirements for workplace environment and preparing for and rendering surfaces recognised and adhered to.
	1.3 Delivered materials selected and checked against specifications/instructions for quantity and description.
	1.4 Appropriate personal protective equipment selected, correctly fitted and used.
	1.5 Tools and equipment selected consistent with requirements of applying float and setting coats for hard plaster to flat surfaces, checked for serviceability and any faults reported to supervisor.
	1.6 Safety hazards identified and correct procedures used to eliminate hazards and reduce risk to self and others according to OH&S legislation and company policy.
2. Prepare background of concrete, concrete block or brickwork surface	2.1 Background surface identified and wire-brushed if required.
	2.2 Dash coat mixed and applied liberally to wetted surface.
3. Apply float (using sand and cement) to flat surfaces	3.1 Applied coat roughcast (screeded) to plumb or level tolerance of +/- 2mm over 2.4 metres.
	3.2 Type of render used and applied to architect's specifications and relevant Building Standard Code.
	3.3 Floating cast coat applied and ruled off to screed.

		3.4	Surface finished plumb/level and/or to alignment tolerance of +/- 2mm over 3metres.
		3.5	Heads reveals and sills finished square off wall face and back into opening.
		3.6	All internal angles, ceiling and floor lines accurately cut.
4.	Apply rough cast to piers	4.1	Floating coat applied using floating rules/profiles, dove pins or hooks so that face of pier is plumb and ruled off.
		4.2	Face squared off to form returns, rules removed and a plough form bull nose applied to external angles.
5.	Apply floating cast within metal beading	5.1	Metal beading fixed to base surface to form a panel with expansion joint so that panel is plumb and square in specified position.
		5.2	Panels finished with plaster and lime to a smooth, flat, fine finish.
6.	Apply setting coat to flat surfaces	6.1	Background surface prepared and cleaned free of residue then wetted down thoroughly.
		6.2	Thin scratch coat applied, using 60% plaster and 40% lime to architect specification.
		6.3	Second coat applied, 2-3mm thick and worked until firm.
		6.4	Fine finish coat applied and steel trowelled to smooth even finish to architect's specification.
7.	Clean up	7.1	Area cleared to job specification.
		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 STATEMENT

This unit involves the application of floating and set coats to provide solid plaster finishes to flat surfaces which include, walls, reveals, sills, piers and columns.
Render mix to be in accordance with Building Standards – Internal Plastering on Solid Background

OH&S requirements to be in accordance with Statutory Legislation and Regulations and may include:

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

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

Tools and equipment may include but are not limited to:

- measuring tape/rule
- spirit level
- squares
- trowels
- floats
- brushes
- screed boards
- scaffolding
- straight edge
- grinder
- concrete mixer
- mortar boards and stands
- shovels
- wheelbarrows
- hawks (hand board)
- joint rules
- small tools
- plumb bob
- mason's square
- buckets
- sieve
- power leads

Personal protective equipment may include:

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

Background surfaces for application include:

- concrete
- concrete blockwork
- brickwork
- stonework
- timber or metal lathing

Application may be to horizontal or vertical surfaces:

Cleaning of surfaces may involve:

- wire brushing
- grinding
- blast cleaning
- chipping
- washing down

Dash coat may be applied using:

- trowel
- brush
- nozzle spray

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 the performance of applying both floating and setting coats to provide a finished surface to either one of the backgrounds listed in the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be demonstrated in the following aspects.

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace and solid plastering operations
- display selection and safe use of appropriate processes, tools and equipment
- apply organisational quality procedures and processes within context of floating and setting solid plaster-flat surfaces
- locate surfaces and inspect for bonding requirements prior to application of coats
- determine surface finish from specification or site inspection
- check render mix conforms to specification Internal Plastering on Solid Backgrounds
- interactively communicate with others to ensure safe and effective work procedures
- check surface is finished plumb/level to tolerance of +/- 2mm over 2.4metres
- finish reveals and returns square to wall surface
- apply setting coat to achieve texture or finish specified
- mix render coat and apply in accordance with Building Standard and architect's specifications
- identify faults and problems that occur and necessary action taken to rectify

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BCGCOR0051A Use hand and power tools
- BCGCOR0071A Erect and dismantle restricted height scaffolding
- BCGMAS0141A Prepare for construction process (solid plastering)
- BCGCOR0212A Prepare surfaces
- BCGCOR0242A Carry out levelling

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- mix composition
- render and setting coats
- additives including plasticisers, colour and waterproofing agents
- Building Code of Jamaica and Standard for materials and application
- materials
- tools and equipment
- calculation of material quantities

Skills
The ability to:

- work safely
- select and handle material safely
- organise work
- interpret drawings and specifications
- interpret documentation from a wide range of sources
- set out work
- use tools and equipment
- communicate effectively

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools, plant and equipment suitable for applying float and set coats to flat surface
- scaffolding
- appropriate materials

(5) Method of Assessment

Competency should be assessed while tasks are undertaken.

Competency should be assessed through direct observation of the application process and questions related to underpinning knowledge.

(6) Context of Assessment

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

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

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

LMFFMK0081A: Hand make timber joints

Competency Descriptor: This unit deals with the skills and knowledge required to construct and assemble the range of timber joints used in furniture making using hand and portable power tools.

Competency Field: Wood Furniture Manufacturing

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Plan and prepare for work	1.1	Workplace health and safety requirements, including personal protection needs, are observed throughout the work.
		1.2	Tools, equipment and materials are selected and checked prior to use to ensure that they are appropriate for the work, serviceable and in a safe condition.
		1.3	Product purpose, furniture style and joint type are identified from workplace documentation.
		1.4	Tools, adhesives and fasteners are selected to match the joint type.
2.	Make joint	2.1	Joint components are marked out according to joint type and dimensional specifications.
		2.2	Measurements and calculations are checked for accuracy to ensure quality outcomes.
		2.3	Joint components cut to specifications without spoilage.
			Joint dry fitted and confirmed as suitable to be assembled.
		2.4	Joint assembled and clamped using adhesives and/or fasteners, where required to make joints firm.
		2.5	Finished joint is checked against quality requirements.
3.	Complete housekeeping	3.1	Unused materials are stored or recycled as required.
		3.2	Tools and equipment are cleaned and stored appropriately.

3.3 Work area is cleaned and rubbish disposed of appropriately.

3.4 Workplace documentation and/or reports are completed.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between school shops and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

Work is carried out in accordance with statutory obligations, organisation insurance requirements, environment legislation, and manual handling procedures and relevant regulations.

Work involves the use of tools to create hand made timber joints.

The following variables may be present for this particular unit.

Joints to include:

- dowel
- mortise and tenon
- dovetail
- biscuit joint
- finger joint
- mitre
- housing joint
- bridle joints

Workplace health and safety requirements may include:

- H&S legislation
- material safety management systems
- hazardous and dangerous goods codes, and
- local safe operating procedures or equivalent

Tools and equipment may include:

- chisels
- mallets
- mortise gauges
- calipers
- vices
- dovetail saws
- tenon saws
- portable biscuit machines
- hand power planers
- hand power saws
- hand power sanders
- coping saws
- planes
- files
- hand drills
- power drills
- dowel jigs
- hand routers

Timbers may include

- indigenous
- imported

Personal protective equipment to include:

- safety boots
- dust mask
- coverall
- gloves
- safety helmet

Quality requirements include:

- alignment
- neatness
- firmness
- acceptable tolerances

Information and procedures:

- workplace procedures relating to the use and operation of tools
- production planning figures
- work instructions, including job sheets, plans, drawing and designs
- workplace procedures relating to reporting and communication
- manufacturers' instructions for the use of equipment and materials

EVIDENCE GUIDE

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

(1) Critical aspects of evidence

Interpret work order and locate and apply relevant information.

Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment.

Follow work instructions, operating procedures and inspection practices to:

- minimise the risk of injury to self or others
- prevent damage to goods, equipment and products
- maintain required production output and product quality

Select appropriate joint types for the furniture item.

Utilise at least two different adhesive types.

To produce a minimum of four different joint types as specified in the Range Statement in accordance with industry standards on tolerances with at least two produced substantially by hand operations.

Work effectively with others.

Modify activities to cater for variations in workplace context and environment.

(2) Pre-requisite Relationship of units:

Pre-requisites for this unit are:

- LMFFMK0031A: Use furniture making sector hand and power tools
- LMFFMK0021A: Operate basic woodworking machines

(3) Underpinning knowledge and skills

Knowledge
Knowledge of:

- characteristics, properties and selection criteria of adhesives used
- capabilities and limitations of tools used
- matching requirements of adhesives and fasteners to timbers/materials used
- workflow in relation to the furniture items being made or repaired

Skills
The ability to:

- collect, organise and understand information related to work orders, basic plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, co-ordination of work with supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including the preparation and layout of the work area and the obtaining of equipment and materials to avoid any back tracking, workflow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete measurements and estimate material requirements
- use pre-checking and inspection techniques to anticipate assembly problems, avoid reworking and avoid wastage
- use the limited workplace technology related to the lay out, cut and assembly joints, including tools, equipment, materials and measuring devices

(4) Resource implications

The following resources should be provided

- timber, chisels, mallets, mortise gauges, calipers, vices, dovetail saws, planes, files and drills

(5) Method of assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

(6) Context of assessment

Assessment may occur on the job or in a workplace simulated facility with relevant equipment, materials, work instructions and deadlines.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

LMFCOR0071A: Read and interpret work documents

Competency Descriptor: This unit deals with the skills and knowledge required to interpret work documents including cutting lists, standards, drawings and specifications to produce or repair furnishings and to install furnishing items.

Competency Field: Timber Furniture Manufacturing

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify document type and purpose	1.1 Key information is identified, such as title, version, scale, legend and keys.
	1.2 Any relevant explanatory or additional information needed to interpret the document is located.
	1.3 Clarification is sought to confirm the intention of information.
2. Read and interpret the document	2.1 Information such as symbols, abbreviations, acronyms and technical terms are identified and interpreted in terms of: • the work to be completed • any statutory requirements • the equipment and tools to be used • the items to be produced or repaired
	2.2 Document information is compared to component or supplier recommendations for use of the materials and, where appropriate, relevant statutory requirements.
	2.3 Design and style features shown in drawings are identified by industry recognised terms.
3. Plan own work sequence	3.1 Work sequence, required tools and equipment and tasks to be performed are identified from the documents.
	3.2 Work sequence is planned, identifying stages where checks against specifications must be made.
	3.3 Specifications noted in the work plan are checked for accuracy against the drawings and specifications, and any errors are rectified.

4.	Maintain document files	4.1	Plans and documents are handled carefully and maintained intact.
		4.2	Any explanatory documentation, additional information and/or modification information is kept with the work plan and original documentation according to workplace procedures.
		4.3	All documentation replaced in workplace filing or storage system for retrieval by others as required.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between school shops and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

Work is to be carried out in accordance with statutory obligations, environmental legislation, relevant health regulations, and organisation insurance requirements.

Work requires individuals to demonstrate some discretion, judgement and problem solving skills in the reading of work documents and the preparation of work plans.

The following variables may be present for this particular unit.

Competency may be determined in workplaces involved in the manufacture and or installation of:

- domestic furniture
- commercial furniture
- kitchen and bathroom cabinets
- furniture components, picture frames
- soft furnishings
- floor covering and finishing
- glass and glazing

OH&S requirements include:

- relevant statutory requirements
- material safety management systems
- hazardous substances and dangerous goods
- safe operating procedures

Work documents to be considered are to include but may not be limited to:

- standards
- drawings
- cutting lists
- job specifications and architects'/builders' plans or equivalent, and
- manufacturers' specifications and/or operating instructions
- Work documents are to include hard copy and may include computerised versions

Information and procedures:

- workplace plans, drawings and specifications applicable to all sectors of the industry
- relevant statutory requirements applicable to the industry sectors
- workplace procedures relating to the preparation of own work plans and the maintenance of work documentation
- suppliers' and manufacturer's technical data and information
- workplace procedures relating to reporting and communication

EVIDENCE GUIDE

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

(1) Critical Aspects of Evidence

- recognise and explain the meanings of symbols, technical terms and conventions of specifications and plans
- check accuracy of copied specifications
- maintain condition of documentation
- locate, read and interpret a minimum of 10 selected/specified work documents which must include:
  - . statutory requirements relevant to the sector
  - manufacturers' technical instructions and specifications
- real or simulated local work documents including:
- work plans
- material safety data sheets
- relevant building codes, where appropriate
- job procedures
- safe work instructions or equivalent
- work effectively with others
- modify activities to cater for variations in workplace context and environment

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- different types of work documents used in the furnishing industry, and their function
- conventions and symbols of plans, drawings and specifications
- workplace procedures for maintenance of documentation

Skills
The ability to:

- collect, organise and understand information related to the range of work documents relevant to the sector
- communicate ideas and information to enable confirmation of work requirements and specifications
- plan and organise activities to avoid any back tracking, work flow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise information management
- use mathematical ideas and techniques to correctly interpret the content of work documents
- identify alternative methods of accessing and sources of work information
- use workplace technology related to work documentation, its access and storage

(4) Resource Implications

- access to a range of drawings, standards, plans, specifications and cutting lists relevant to the work

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and questioning on underpinning knowledge.

Assessment should be conducted over time and generally be in conjunction with assessment of other units of competency.

(6) Context of Assessment

Assessment may occur on the job or in a workplace simulated facility with relevant process, equipment, materials, work instructions and deadlines.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

LMFFMK0052A: Select and apply hardware

Competency Descriptor: This unit deals with the skills and knowledge required to identify, select and fix hardware to furniture items, and applies to new and refurbished furniture.

Competency Field: Timber Furniture Manufacturing

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare work	1.1 Work instructions are used to determine job requirements, including design, colour, finish process and required hardware quality.
	1.2 Workplace health and safety requirements, including personal protection needs, are observed throughout the work.
	1.3 Types of hardware are identified and selected for the work.
	1.4 Tools, equipment and accessories for application are identified and checked for safe and effective operation.
	1.5 Surfaces are cleaned and prepared to enable accurate colour matching.
2. Apply/fit and install hardware	2.1 Hardware items are laid out/placed in the required design.
	2.2 Tools and equipment used in accordance with workplace procedures, including use of personal protective equipment.
	2.3 Fastening/securing process is undertaken according to workplace procedures.
	2.4 Adhesives, where used are applied according to workplace procedures and/or manufacturers' instructions.
	2.5 Work is checked against required quality standards.
3. Finalise operation and maintain equipment	3.1 Work area cleaned, hand and/or power tools and equipment are cleaned, maintained and stored in accordance with workplace procedures.
	3.2 Machinery is cleaned and left in a safe mode.

3.3 Faulty and/or defective equipment is tagged and reported in accordance with workplace practices.

3.4 Unused hardware is collected and stored for reuse or disposal following workplace procedures.

3.5 Waste and scrap materials are dealt with following workplace procedures.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between school-shops and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

Work is carried out in accordance with statutory obligations, environmental legislation, relevant health regulations, manual handling procedures and organisation insurance requirements.

Work requires individuals to demonstrate some discretion, judgement and problem solving skills in selecting and applying hardware.

The following variables may be present for this particular unit.

Hardware to be covered here is to include at a minimum:

- hinges
- handles
- drawer-runners
- metal drawer systems
- sliding rail systems,
- rotating storage systems
- slide-out storage systems

OH&S requirements include:

- relevant statutory requirements
- material safety management systems
- hazardous substances and dangerous goods
- safe operating procedures

Work to be carried out in workplaces involved in the manufacture of:

- solid timber furniture
- domestic furniture
- commercial furniture
- kitchen and bathroom cabinets
- furniture components

Materials to be used may include but are not limited to:

- timber
- manufactured board
- hinges
- hardware consumables
- cleaning chemicals and materials

Tools and equipment may include, but are not limited to:

- measuring tapes or rulers
- levelling devices
- hammers
- mallets
- squares
- bevels
- chisels
- planes
- hand saws
- power saws
- power drills/screwdrivers
- pneumatic tools
- clamps
- screwdrivers
- pincers

Personal protective equipment to include:

- coverall
- safety boots
- gloves
- dust mask
- safety helmet

Information and procedures

- workplace procedures relating to the use of tools and equipment
- work instructions, including job sheets, cutting lists, plans, drawings and designs
- workplace procedures relating to reporting and communication
- manufacturers' specifications and operational procedures

EVIDENCE GUIDE

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

(1) Critical aspects of evidence

Interpret work order and locate relevant information.

Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment.

Follow work instructions, operating procedures and inspection practices to:

- prevent damage to goods, equipment and products
- maintain required production output and product quality
- minimise the risk of injury to self or others

Select and apply each item in the range of hardware stipulated in the Range Statement.

Work effectively with others.

Modify activities to cater for variations in workplace context and environment.

(2) Pre-requisite Relationship of units:

Pre-requisites for this unit are:

- LMFFMK0031A: Use furniture making hand and power tools

(3) Underpinning knowledge and skills

Knowledge
Knowledge of:

- types, characteristics, uses and limitations of hardware
- the interpretation of plan representation of furniture design
- the preparation of drawings/set-outs
- identification of hand and/or power tools, materials, equipment, processes and procedures
- workflow in relation to furniture production

Skills
The ability to:

- collect, organise and understand information related to work orders, basic plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, co-ordination of work with shop supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including the preparation and layout of the work area and the obtaining of equipment and materials to avoid any back tracking, workflow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements
- use pre-checking and inspection techniques to anticipate application problems, avoid reworking and avoid wastage
- use the limited workplace technology related to the selection and application of hardware, including tools, equipment, calculators and measuring devices

(4) Resource implications

The following resources should be provided:

- access to plans, hand and/or power tools, equipment, hardware materials, woodworking machinery, and a work area

(5) Method of assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and questioning on underpinning knowledge.

Assessment should be conducted over time and may be in conjunction with assessment of other relevant units of competency.

(6) Context of assessment

Assessment may occur on the job or in a simulated workplace facility with relevant process equipment, materials, work instructions and deadlines.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMCOR0071A: Use electrical/electronic measuring devices

Competency Descriptor: This unit deals with the skills and knowledge required to perform electrical/electronic measurement using appropriate measuring devices in the metal, engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Use electro-measuring devices to measure variables	1.1	Appropriate device or equipment and setting are selected to achieve required outcome.
		1.2	Appropriate connections are made to achieve required outcome according to standard operating procedure.
		1.3	Readings are obtained and interpreted correctly and conversion into the units of measurement made where necessary.
2.	Maintain electro devices	2.1	Routine care and storage of devices undertaken to manufacturer's specifications or standard operating procedures.

RANGE STATEMENT

This unit applies to electrical/electronic measurements on AC and DC circuits up to 1000v, using appropriate measuring devices. Electrical/electronic measuring devices may require the connection or disconnection of circuitry. Adjustment of measuring devices may include zero and linear adjustment. Work may be undertaken under supervision or as part of a team.

Measurement may include not limited to:

- voltage
- current
- frequency
- resistance
- power
- temperature

Measuring devices may include but not limited to:

- analogue/digital multimeters
- tong testers
- oscilloscopes
- potentiometers
- digital devices

EVIDENCE GUIDE

Competency is to be demonstrated by the effective use of comparison and basic measuring devices in accordance with the range listed in the range of variables statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the taking of electrical/electronic measurements or other units requiring the exercise of the skills and knowledge covered by this unit.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to mmeasure and calculate manually
- demonstrate the ability to operate electrical/electronic measuring devices
- demonstrate the ability to rrecord measurement
- take responsibility for the quality of their own work
- perform all related tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures.

(2) Pre-requisite Relationship of Units

For simple measurement tasks such as reading of fixed devices, testing continuity, and tasks requiring the use of devices mounted in measuring jigs etc. Unit MEMCRI0051A (Measure with graduated devices) and/or Unit MEMCOR0041A (Use comparison and basic measuring devices) should be considered.

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- comparison measurements
- comparison devices
- comparative measurements
- measuring devices
- electrical/electronic measurements
- drawings and specifications
- reading
- writing English
- basic numeracy

Skills
The ability to:

- work safely to instructions
- use power tools and hand tools
- select equipment
- apply quality assurance
- read and interpret drawings and specifications
- measure and calculate manually
- record measurement
- operate electronic measurement calculating devices

(4) Resource Implications

The candidate will be provided with:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to.

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement.
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. The competencies covered by this unit would be demonstrated by an individual working undersupervision or as part of a team.

The assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMINS0011A: Install, terminate and connect electrical wiring

Competency Descriptor: This unit deals with the skills and knowledge required to install, terminate and connect electrical wiring applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare for electrical wiring installation, termination and connection	1.1 All work is undertaken safely and to workplace procedures and standard requirements.
	1.2 Materials are checked for correct specifications.
	1.3 Preparation of work is undertaken or checked/inspected for correct location and specifications eg: cable trays, brackets, trenches etc.
2. Install electrical wiring	2.1 Installations are made to specifications, manufacturers requirements and to safety and industry regulations
	2.2 All conduit, and wiring are fixed to specifications.
	2.3 All cables, wires, conductors and installations are marked/tagged and labelled to specification.
	2.4 All completed installations are tested for compliance.
	2.5 All reports, documentation are completed correctly to required specifications.
3. Connect electrical wiring	3.1 Terminations/connections are made to specifications manufacturers' requirements and to safety and industry requirements.
	3.2 All brackets, clamps, holders etc. are adjusted and fixed to specifications.
	3.3 All cables, wires, conductors and connections etc. are marked/tagged and labelled to specification

3.4 All completed wiring and connections are tested for compliance with specifications.

3.5 All reports and documentation are completed correctly to required specifications.

RANGE STATEMENT

This unit applies to installing, joining terminating and connecting electrical wiring. Work generally undertaken as part of team or under supervision. Work is to be undertaken in accordance with relevant regulations and/or legislation. .

Installation may include but not limited to:

- surface mount
- flush mount
- in PVC conduits up to 32mm
- in metal not exceeding 25mm
- using mechanical connectors
- clamping
- pin connection

Termination and connection includes the utilisation of a range of methods including

- plugs sockets
- clamping of cables and wires, sealing entry points where required
- soldered joints
- crimping
-

Types of joint may include:

- twist joints
- straight twist joints
- tee twist joints
- tee joints
- married joints
- straining point joints
- mechanical joints

Tools and equipment to include:

- combination pliers
- long nose pliers
- side cutting pliers
- solder ions
- crimping tools

All testing undertaken on completed circuits using appropriate methods include but not limited to:

- continuity and resistance checks.
- insulation test
- polarity test
- specifications obtained from electrical/electronic circuit drawings and data sheets.

Connection of wiring includes but is not limited to:

- termination and connection of cords
- termination and connection of cables
- excluding specialist cables, of all types, sizes and materials

Electrical services include but not limited to:

- power supplies
- control, wiring
- 0 - 220V ac/dc

EVIDENCE GUIDE

Competency is to be demonstrated by effectively terminating and connecting electrical wiring in accordance with the range listed in the range of variables statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling recording and reporting associated with the termination and connection of electrical wiring, or other units requiring the exercise of the skills and knowledge covered by 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.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to select and use appropriate tools and equipment
- demonstrate the ability to terminate and connect electrical wiring
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all related tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures.

(2) Pre-requisite Relationship of Units

Termination and connection of specialist cables such as mineral insulated, steel wire, armoured cables etc, is covered in Unit MEMINS0062A (Terminate and connect specialist cables).

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures
- industry standards JS21
- standards of quality
- installation tools and equipment
- materials used in installation
- connection of wiring
- bonding methods
- types of joints
- termination and connection methods
- installation methods

Skills
The ability to:

- work safely to instructions
- select and use appropriate tools and equipment
- use soldering tools and equipment
- handle materials
- select material and supplies
- join electrical wiring
- terminate electrical wiring
- apply quality assurance

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to orally, or by other methods of communication,

- answer questions put by the assessor.
- identify supervisors/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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

Competency shall be assessed on the job, off the job or a combination of both in accordance with workplace procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGMAS0181A: Mix cementitous materials (mortar and concrete)

Competency Descriptor: This unit deals with the skills and knowledge required to quantify and mix cementitous materials, and applies to individuals working in masonry trades.

Competency Field: General Construction

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 Occupational Health and Safety (OH&S) requirements for workplace environment and for mixing concrete/mortar identified and adhered to.
	1.3 Appropriate personal protective equipment selected, correctly fitted and used.
	1.4 Tools and equipment selected are consistent with requirements for batching and mixing concrete or mortar, are checked for serviceability and any faults identified reported to supervisor.
	1.5 Where required, surface for hand mixing concrete or mortar is prepared according to work instruction
2. Select and batch materials for mixing	2.1 The correct type and quality materials are identified and selected as instructed.
	2.2 Materials transported and handled in a manner to prevent wastage/cause health and safety hazards
	2.3 Materials are batched for mixing according to instruction given for quantity and ratio of mix.
	2.4 Materials for manual mixing are spread out on mixing bed according to type of mix required (concrete or mortar).
	2.5 Materials for machine mixing are placed in machine in accordance with recommended procedure –water in first.
	2.6 Sand for mortar mix is sifted with specified grade sieve wire

		2.7	Where required, additives are selected according to mi x requirements or as instructed.
3.	Mix concrete	3.1	The cement is uniformly mixed with aggregates and evenly distributed.
		3.2	The concrete meets specified slump test and workability.
		3.3	Wastage of materials is prevented or minimised during hand mixing process.
4.	Mix mortar	4.1	The mortar is uniformly mixed, has appropriate consistency, plasticity and is workable
		4.2	Mixing techniques applied prevented or minimised wastage of materials.
5.	Clean up	5.1	Area cleared and waste material disposed of safely.
		5.2	Tools and equipment cleaned, maintained and stored.

RANGE STATEMENT

This unit covers the mixing of both concrete and mortar for application to form masonry structures using both cement mixers and manual operations.

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
- specification of concrete mix
- specification of mortar mix

Materials:

- sand
- coarse aggregate
- Portland cement
- Additives
- Colouring (where appropriate)

OH&S requirements to be in accordance with Statutory 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
- safety hazards

Personal protective equipment may include:

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

Tools and equipment may include but are not limited to:

- wheel barrow
- shovel
- measuring box
- water hose
- motorised transporting machine

Types of mix:

- concrete
- mortar for block laying
- rough cast mortar
- rendering mortar
- pebble-dash mortar

EVIDENCE GUIDE

Competency is to be demonstrated by the batching and mixing of concrete and mortar by hand and machine.

(1) Critical Aspects of Evidence

Competence is to be observed in the following critical aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to worksite operations
- select and use appropriate tools and equipment for mixing cementitous materials
- apply organisational quality procedures and process within context of preparing concrete and mortar.
- Interpret work instructions with respect to proportion and ratio of mix
- 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 the mixing of concrete and mortar to work specifications

(2) Pre-requisite Relationship of Units

- BCGCOR0001A Carry out interactive communication
- BCGCOR0041A Carry out measurements and calculations
- BCGCOR0051A Use hand and power tools
- BCGMAS0061A Use small plant and equipment

This unit may concurrently be assessed with:

- BCGCOR0051A Use hand and power tools
- BCGMAS0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements including regulations, codes and standards
- hand tools and equipment for preparing concrete and mortar
- materials handling
- measurement and calculation relative to batching of materials
- mortar mix composition
- concrete constituents and ratio of mix
- range of mortar additives including plasticisers and their application
- workplace communications

Skills
The ability to:

- work safely
- read and interpret work instructions
- use tools and equipment
- select materials
- measure and calculate ratio and proportion
- communicate effectively
- organise work
- batch concrete and mortar
- mix concrete and mortar by hand
- mix concrete and mortar using machine

(4) Resource Implications

The following resources should be provided:

- workplace location
- tools, plant and equipment appropriate for mixing concrete and mortar
- materials for mixing concrete and mortar

(5) Method of Assessment

Competency should be assessed through direct observation of practical application 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 should be conducted while tasks are undertaken either individually or as part of a team under limited supervision.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level -	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employabilit y Skills

MEMMRD0111A: Carry out routine servicing of coils, filters and room air conditioners

Competency Descriptor: This unit deals with the skills and knowledge required to effectively carry out routine servicing of coils, filters and room air conditioners and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Undertake preventive maintenance checks on domestic air conditioning/refrigeration equipment	1.1	Visual inspection is carried out according to refrigeration/air conditioning principles, procedures and safety requirements.
		1.2	Preventative maintenance tasks are performed under supervision and in accordance to manufacturers' specifications using refrigeration/air conditioning techniques/practices.
		1.3	Equipment components identified correctly.
		1.4	The characteristics and operation of basic component is understood.
2.	Carry out routine servicing of coils	2.1	All joints in the piping connections to the coil are checked for tightness and leakage.
		2.2	All return bends and other joints in the makeup of the coil are checked for leakage.
		2.3	Leaks found are promptly reported to the appropriate personnel.
		2.4	Coils are cleaned according to the maintenance schedule and by an appropriate means.
3.	Carry out routine servicing of filters	3.1	Dirty cells/filters are thoroughly washed, allowed to dry, and properly treated before reuse.

		3.2 Oil used to treat the cells/filters is appropriate.
		3.3 Cells/filters designed for hose cleaning are maintained according to the manufacturer's recommendations
		3.4 Filters are treated as specified in the maintenance procedures.
4.	Carry out routine servicing of room air conditioners	4.1 Unit is removed carefully and is not damaged in the process.
		4.2 All safety precautions are observed during cleaning of the unit.
		4.3 Airflow through the unit is not restricted.
		4.4 Filters and coils are kept clean during the operating season.
		4.5 The refrigerant charge is monitored, and leaks detected are promptly reported to the appropriate personnel.
		4.6 The drip pan of the unit, coils, and fan blades are all cleaned according to the requirements of the maintenance schedule.
		4.7 Fan motors are checked for free turning, and service cord and connections are examined as required.
5.	Report faulty domestic refrigeration/air conditioning components	5.1 Faulty components found during servicing are identified, confirmed by inspection and are promptly reported to the appropriate personnel.
6.	Return to service domestic refrigeration/air conditioning equipment	6.1 Components are reassembled and tested for correct operation and assessed against specification.
		6.2 Correct operation of the equipment is verified using domestic refrigeration/air conditioning principles and system application techniques.
		6.3 Maintenance records/service reports are completed by appropriate designated means.
7.	Clean up	7.1 Materials/supplies/equipment are stacked /stored for re-use or disposal.

7.2 Work area is cleared.

7.3 Tools and equipment are cleaned and stored in a cool place.

7.4 Waste is disposed of using appropriate method according to National Environmental Protection Agency (NEPA) requirements and company's operating procedures.

RANGE STATEMENT

This unit applies servicing of domestic and light commercial refrigeration and air conditioning equipment and components.

Work is carried out under supervision or in a team environment.

Interpret drawings and diagrams of refrigeration and air conditioning equipment, and identify basic components of air conditioning system.

Types of room air conditioners:

- window
- floor or console

Work activities:

- disconnect and remove unit
- clean all coils
- clean condensate drains and check for easy run off
- clean filters
- check for noise or excessive vibration on unit
- check sight glass
- check thermostats
- record motor voltages
- tighten electrical connections
- check fan blades
- check for refrigerant leaks

Means of cleaning:

- mechanical
- chemical

Types of filters:

- cell type where the filtering medium is thrown away
- cell type where the medium is cleaned cell by cell and reused
- continuous-cleaning type
- electrostatic filter

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively perform routine servicing of coils, filters and room conditioners in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate the ability to set up tool and equipment to service components
- demonstrate correct procedures in servicing coils
- demonstrate correct procedures in servicing filters
- demonstrate correct procedures in room air conditioners
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies/equipment
- interactively communicate with others to ensure safe operations
- demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

- MEMCOR0171A Use graduated measuring devices
- MEMCOR0071A Use electrical/electronic measuring devices
- MEMCOR0091A Draw and interpret sketches and simple drawings
- MEMCOR0191A Use hand tools
- MEMCOR011A Use power tools

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety regulations
- basic tools/equipment for servicing of coils, filters and room conditioners
- principle of refrigeration and air-conditioning
- sensible and latent heat
- the concept of energy and types of energy
- principle of heat conversion
- the concept of heat and methods of heat transfer
- types of refrigeration and air-conditioning systems
- manufacturers standard specification
- standard application/ refrigeration system
- reading
- writing basic English
- basic numeracy

Skills
The ability to:

- follow safely to instructions
- use hand tools
- handle materials
- identify components
- apply quality assurance
- perform routine servicing of coils, filters and room conditioners

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGTIL0121A: Prepare for wall and floor tiling

Competency Descriptor: This unit deals with the skills and knowledge required to effectively carry out work in preparing the process for laying wall and floor tiles, and applies to all individuals involve in tiling.

Competency Field: General Construction

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Plan for the 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/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 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 the job requirements, checked for serviceability and any faults reported to supervisor.
		1.8	Fixing/fasteners selected consistent with job requirements, where applicable, 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	Material preparation carried out to satisfy requirements of application process.
3	Prepare work area suitable for construction process	3.1	Activities to be carried out in work area identified from type of tile, surface to be covered, method of application and access to surface.

		3.2	Work area prepared for the application process to specifications or 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 to job requirements.
		4.2	Hand and power tools used safely and effectively to carry out processes.
5	Prepare underlay/sheeting for floor and walls	5.1	Assistance with underlay preparation provided under instructions and supervision.
		5.2	Surface finished flat/level with joints flush and sealed.
6	Prepare background of brick, concrete or blockwork for solid plastering	6.1	Structure identified and surface wire and brushed to remove loose material and holes. Depressions and gaps filled with suitable patching material to supervisor's instructions.
		6.2	Materials for splash coat proportioned and mixed to instructions ready for application to wet surface.
7	Prepare for render surface for tiling	7.1	Horizontal/vertical surrounds prepared for tiling process in accordance with type of tile and specified finish, where applicable.
		7.2	Materials for render coat proportioned and mixed to instructions ready for application.
		7.3	Rendered surface scratched and dried to instructions in accordance with specifications.
8	Clean up	8.1	Materials stacked/stored for re-use or disposal.
		8.2	Work area cleared.
		8.3	Tools and equipment cleaned, maintained and stored.
		8.4	Waste disposed of using appropriate method to NEPA requirements.

RANGE STATEMENT

This unit applies to the preparation and construction processes carried out in preparing for the tiling of wall and floor surfaces.

Types of tiles include:

- ceramic
- marble
- stone
- granite
- terra cotta

Construction processes include:

- use of underlay material
- rendering to provide flat surface
- preparing of surfaces
- workplace preparation

Tools and equipment include but are not limited to:

- hammers
- saws
- measuring ruler/tape
- power saw
- power drills and screwdriver
- cement sheet cutters
- spirit levels
- concrete mixers
- shovels
- wheelbarrows
- wire brushes
- brooms
- power sander

Underlay materials include:

- plasterboard
- fibro cement

Fixing and fasteners include but are not limited to:

- plasterboard nails
- clouts
- soft sheet nails
- self tapping screws
- wall board adhesive

Surrounds for tiling include:

- extruded metal sections
- timber moulding

Patching materials include but are not limited to:

- plaster
- sand and cement
- cornice adhesive
- fillers (pre-mixed and mix)
- caulking compounds

Work is to be done under supervision with instructi ons being as part of supervisor's directions, consistent with job specifications.

Reporting of faults may be verbal or written.

OH&S requirements to be in accordance with Statutory Legislative regulations.

EVIDENCE GUIDE

Competency is to be demonstrat ed by carrying out the safe and effective preparation for tiling applications in accordance with the performance criteria using any of the processes and range of materials 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 Quali ty Assurance requirements
- carry out correct procedures prior to and during application of construction processes
- demonstrate safe and effective operational use of tools and equipment
- give particular attention to specified finish of surfaces ready for tili ng
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

- BCGCOR0011A Carry out OH&S requirements
- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- portable power tools
- hand tools and equipment
- materials relative to wall and floor tiling
- fixing and fasteners consistent with wall and floor tiling requirements
- workplace communications
- materials handling
- measurement relative to wall and floor tiling

Skills
The ability to:

- work safely to 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 materials relevant to wall and floor tiling preparation activities
- hand and power tools appropriate to wal l and floor tiling processes
- plant and equipment appropriate to wall and floor tiling processes
- suitable work area appropriate to wall and floor tiling activities

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direc t 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic compete ncy that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0251A: Carry out routine pool and fountain maintenance

Competency Descriptor: This unit deals with the skills and knowledge required to carry out routine pool and fountain maintenance as described in work instructions or apparatus manuals, and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare work to carry out service/ repair work	1.1 Service/repair work is prepared to ensure OH&S policies and procedures are followed.
	1.2 Appropriate personnel are consulted to ensure the work is co-ordinated effectively with others involved.
	1.3 Given maintenance schedules and specifications are checked against requirements.
	1.4 Materials needed to complete the work are obtained in accordance with established procedures.
	1.5 Tools and testing devices needed to carry out the work are checked for correct operation and safety.
2. Maintain pool	2.1 OH&S and or enterprise policies and procedures are followed.
	2.2 Pool is checked as being isolated where necessary using specified procedures.
	2.3 Pool is serviced in accordance with established procedures and repair routines.
	2.4 On-going checks of the quality of the work are undertaken in accordance with established procedures.
3. Maintain fountain	3.1 OH&S and or enterprise policies and procedures are followed.
	3.2 Fountain is checked as being isolated where necessary using specified procedures.
	3.3 Fountain is maintained in accordance with established procedures and repair routines.
	3.4 On-going checks of the quality of the work are undertaken in accordance with established procedures.

3.	Inspect and notify completion of work	3.1 Final inspections are undertaken to ensure the maintenance of pool and fountain conforms to given requirements.
		3.2 Work completion is notified in accordance with established procedures.

RANGE STATEMENT

Competency can be displayed on one, some or all of the following categories and in addition to the respective common underpinning knowledge associated with the selected specialisation. Candidate should be able to maintain pool and fountain accordingly.

Cleaning and servicing tools may include:

- telepoles
- leaf rake/skimmer
- wall and floor brush
- vacuum head and hose
- leaf vacuum and garden hose
- tile brush and tile soap
- spa vacuum
- pumic stones
- acid spotter
- water testing kits

Pool Cleaning Procedures:

- deck and cover cleaning
- surface skimming
- tiles
- water level
- equipment check
- vacuuming
- brushing
- water testing and application

Automatic Pool Cleaners:

- electric robot
- boosterless water pressure designs
- self-cleaning systems
- booster pump systems
- suction-side systems

Pool and fountain include:

- above ground
- below ground

EVIDENCE GUIDE

Competency will be demonstrated by having consistently performed across a representative range of applications which includes such things as daily pool operation, filters and water maintenance and the like relative to that required for the category undertaken within and relevant to this unit of competence under supervision and to requirements.

(1) Critical Aspects of Evidence

Achievement of this unit of competence is based on each of the following conditions being met:

- demonstrating consistent performance for each element of the unit in the related category and specialisation which is to be exhibited across a representative range of applications under supervision and to requirements
- meeting the performance criteria associated with each element of competence by employing the techniques, procedures, information and resources available in the workplace for each of the categories and areas of specialisation undertaken from those listed in the Range statement or Evidence guide
- demonstrating an understanding of the underpinning knowledge and skills identified for the categories and related specialisation undertaken in the section, of this unit titled 'Underpinning knowledge'

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.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to perform routine maintenance of pool(s) efficiently
- demonstrate the ability to perform routine maintenance of fountain(s) efficiently
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all repair tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures
- maintenance schedules and specifications
- cleaning and servicing tools & equipment
- standard pool cleaners
- automatic pool cleaners
- pool/fountain maintenance techniques
- fountain maintenance techniques
- pool cleaning procedures
- fountain cleaning procedures
- pool operation
- pool troubleshooting guide
- pool accessories and components
- water testing and application

Skills
The ability to:

- work safely to instructions
- follow maintenance schedules and specifications
- select and use appropriate tools and equipment
- use tools and testing devices
- handle materials
- select material parts and supplies
- perform maintenance of pool
- perform maintenance of fountain

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant standard specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

Competency will be determined on evidence of having consistently performed across a representative range of applications which includes such things as apparatus, circuits, wiring systems, plant, equipment, tools, accessories, components and the like relative to that required for the category undertaken within and relevant to this unit of competence, under supervision and to requirements. Equivalent evidence from other sources is also acceptable.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0261A: Carry out routine maintenance of solar water systems

Competency Descriptor: This unit deals with the skills and knowledge required to carry out routine maintenance of solar water as described in work instructions or apparatus manuals, and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare work to carry out service/ repair work	1.1 Maintenance work is prepared to ensure OH&S policies and procedures are followed.
	1.2 Appropriate personnel are consulted to ensure the work is co-ordinated effectively with others involved.
	1.3 Given maintenance schedules and specifications are checked against requirements.
	1.4 Materials needed to complete the work are obtained in accordance with established procedures.
	1.5 Tools and testing devices needed to carry out the work are checked for correct operation and safety.
2. Maintain solar water heater	2.1 OH&S and or enterprise policies and procedures are followed.
	2.2 Solar water heater is checked as being isolated where necessary using specified procedures.
	2.3 Water heater is maintained in accordance with established procedures and repair routines.
	2.4 On-going checks of the quality of the work are undertaken in accordance with established procedures.
3. Inspect and notify completion of work	3.1 Final inspections are undertaken to ensure the maintenance of pool and fountain conforms to given requirements.
	3.2 Work completion is notified in accordance with established procedures.

RANGE STATEMENT

Competency can be displayed on one, some or all of the following categories and in addition to the respective common underpinning knowledge associated with the selected specialisation. Candidate should be able to maintain solar water heater accordingly.

Types of solar collectors may include:

- flat plate collector
- integral collector-storage systems
- evacuated-tube solar collectors

Solar water heating system maintenance and repair may include:

- collector shading
- collector soiling
- collector glazing and seals
- plumbing ductwork and wiring connections
- piping duct and wiring insulation
- roof penetrations
- support structures
- pressure relief valve(on liquid solar heating collectors)
- dampers (in air heating systems)
- pumps or blowers
- heat transfer liquids
- storage systems

Types of active solar water heating systems may include:

- direct circulation system
- indirect circulation system

Maintenance techniques may include:

- periodic inspection
- visual checking
- periodic cleaning
- inspection for cracks
- inspection of seals
- inspection for fluid leaks
- inspection for damage or degradation of insulation
- inspection of nuts, bolts and hurricane straps
- inspection of valves and dampers
- check the operation of pumps and or blowers
- replacement of fluids

EVIDENCE GUIDE

Competency will be demonstrated by having consistently performed across a representative range of applications which includes such things as water heater operation and water heater maintenance and the like relative to that required for the category undertaken within and relevant to this unit of competence under supervision and to requirements.

(1) Critical Aspects of Evidence

Achievement of this unit of competence is based on each of the following conditions being met:

- demonstrating consistent performance for each element of the unit in the related category and specialisation which is to be exhibited across a representative range of applications under supervision and to requirements
- meeting the performance criteria associated with each element of competence by employing the techniques, procedures, information and resources available in the workplace for each of the categories and areas of specialisation undertaken from those listed in the Range statement or Evidence guide
- demonstrating an understanding of the underpinning knowledge and skills identified for the categories and related specialisation undertaken in the section, of this unit titled 'Underpinning knowledge'

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.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to perform routine maintenance solar water heaters efficiently
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all repair tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures
- maintenance schedules and specifications
- operation of solar water heaters
- construction of solar water heaters
- cleaning and servicing tools & equipment
- solar water heater maintenance techniques
- solar water heater inspection techniques
- solar water heater troubleshooting guide
- solar water heater accessories and components
- solar water system evaluation and testing

Skills
The ability to:

- work safely to instructions
- follow maintenance schedules and specifications
- select and use appropriate tools and equipment
- use tools and testing devices
- handle materials
- select material parts and supplies
- perform maintenance of solar water heaters

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant standard specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

Competency will be determined on evidence of having consistently performed across a representative range of applications which includes such things as apparatus, circuits, wiring systems, plant, equipment, tools, accessories, components and the like relative to that required for the category undertaken within and relevant to this unit of competence, under supervision and to requirements. Equivalent evidence from other sources is also acceptable.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGMAS0141A: Prepare for dry wall plastering

Competency Descriptor: This unit deals with the skills and knowledge required to effectively carry out the preparation process of dry wall plastering, and applies to individuals erecting dry wall plastering in the construction industry.

Competency Field: General Construction

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/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 in order to minimise risk to self and others.
	1.5 Materials selected to supervisor's instructions, safely handled and stored/located until ready for application.
	1.6 Appropriate personal protective equipment selected, correctly fitted and used.
	1.7 Tools and equipment selected consistent with the job requirements, checked for serviceability and any faults reported to supervisor.
	1.8 Fixtures/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 according to instruction.
	2.3 Material preparation carried out to satisfy the requirements of the 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 lined and height to be accessed.
		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 to job requirements.
		4.2	Hand and power tools used safely and effectively to carry out processes.
5.	Assist with sheet material installation	5.1	Sheet materials identified from stack and safely distributed to required location.
		5.2	Assistance provided with cutting sheets to job requirements.
		5.3	Assistance provided with placing and fixing sheets to job requirements.
6.	Clean-up	6.1	Materials stacked/stored for re-use or removal.
		6.2	Work area cleared of debris.
		6.3	Tools and equipment cleaned, maintained and stored.
		6.4	Waste disposed of using appropriate method according to the National Environmental Protection Act (NEPA) requirements.

RANGE STATEMENT

This unit applies to the preparation processes carried out to suppo rt the installing of plaster sheeting and cornicing to walls and ceilings which includes:

- plasterboard
- water resistant plasterboard

Background support of plaster sheeting includes:

- timber framework
- light steel framework
- metal furring channels
- timber battens

Work area preparation may include:

- clearing area
- preparing saw stools and planks
- work platform

Fixing and fasteners include but are not limited to:

- nails
- plasterboard nails
- clouts head nail
- self tapping screws
- wallboard adhesive
- cornice adhesive

Construction process includes:

- fixing of battens/furring channels
- worksite preparation
- fixing of sheeting
- fixing of cornice
- finish of surface

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- saws
- power drills and screwdrivers
- adhesive gun
- cutting knife
- scrapers
- saw stools and planks
- steel floats
- power leads

Material preparation may include:

- cutting corner bead to length
- identifying and marking sheets for location
- fixing material and fasteners located ready for use

Work is to be undertaken as part of a team under supervision, with instructions from supervisor and can either verbal or written.

Reporting of faults may be verbal or written.

OH&S requirements to be in accordance with statutory regulations.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation for dry wall plastering application in accordance with the performance criteria using any of the range of materials and processes 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 including Quality Assurance requirements
- carry out correct procedures prior to and during application of construction process
- demonstrate safe and effective operational use of tools, plant and equipment
- adopt and use correct procedures in handling plaster sheets
- interactively communicate with others to ensure safe and effective installation processes

(2) Pre-requisite Relationship of Units

- BCGCOR0011A Carry out OH&S requirements
- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- portable power tools
- hand tools and equipment
- materials relative to dry wall plastering
- materials handling
- measurement relative to dry wall plastering
- fixing and fasteners consistent with dry wall plastering requirements
- workplace communication

Skills
The ability to:

- work safely to instructions
- use hand and power tools
- handle material
- select material
- communicate effectively
- measure relative to the process

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to dry wall plastering
- hand and power tools appropriate to dry w all plastering process
- equipment appropriate to dry wall plastering process
- suitable work area appropriate to dry wall plastering activities

(5) Method of Assessment

Competency should be assessed while work is being done under direct supervision with r egular 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedu res.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGMAS0151A: Prepare for construction process (Brick/Block laying)

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare the construction process for laying concrete blocks/bricks, and applies to individuals working in masonry/concrete trades in the construction industry.

Competency Field: General Construction

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 and supervisor's instructions.
	1.3 Occupational Health and Safety (OH&S) requirements identified and adhered to according to 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 and ready for application.
	1.6 Appropriate personal protective equipment selected, correctly fitted and used.
	1.7 Tools and equipment selected are consistent with job requirements, checked for serviceability and any 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 remove 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 typ e of brick/block, planned layout of construction and access location.
		3.2	Work area prepared for construction process according to supervisor's instructions.
4.	Use tools, plant and equipment appropriate for construction process	4.1	Regular hand and po wer tools suitable for application process identified to job requirements.
		4.2	Hand and power tools used safely and effectively to carry out processes.
5.	Mix mortar/concrete by hand	5.1	Materials for mortar/concrete selected to instruction.
		5.2	Additives for mortar/concrete selected to mix requirements.
		5.3	Specified proportions of materials for mortar/concrete mixture prepared accurately in accordance with instruction.
		5.4	Mortar/concrete materials mixed to a workable consistency.
6.	Assist with brick/block works	6.1	Bricks/blocks selected, visually checked to ensure that specifications are met including colour matching surrounding area and distributed to location.
		6.2	Surface brushed/scraped/washed and clean.
7.	Clean-up	7.1	Materials 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 according to EPA requirements.

RANGE STATEMENT

This unit applies to the preparation processes carried out to support the laying of brickwork or block work.

Construction processes includes:

- worksite preparation
- preparation for brick/block laying
- finish brickwork/block work face

Tools and equipment include but are not limited to:

- hammer
- bolster
- shovel
- measuring tape/rule
- concrete mixer
- angle grinder
- masonry saw
- power leads
- hoses
- brushes and brooms
- wheelbarrows
- mortar boards
- bucket

Materials in addition to bricks/blocks include:

- cement and sand
- gravel
- adhesive
- brick/block reinforcement
- steel lintels
- mortar additives (workability and damp proofing)

Specifications for bricks/blocks should be part of Quality Assurance requirements and include:

- size
- shape
- sharp arises (where applicable)
- colour
- strength

Masonry units may include:

- wire cut bricks
- pressed bricks
- solid concrete blocks
- hollow concrete blocks

Materials preparation may include:

- cutting concrete blocks
- locating lintels ready for placement
- distributing vents
- cutting and distributing reinforcement
- preparing materials for batching for mortar and concrete

Work area preparation may include:

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

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

OH&S requirements to be in accordance with Statutory Legislation and regulations.

Reporting of faults may be verbal or writ ten.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation for the laying of bricks/blocks in accordance with the performance criteria using any of the listed range of variables with either brickwork or block work.

(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 processes
- demonstrate safe and effective operational use of tools, plant and equipment
- adopt and use correct procedures to handle and place materials
- interactively communicate with others to ensure safe and effective worksite operations

(2) Pre-requisite Relationship of Units

- BCGCOR0011A Carry out OH&S requirements
- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment
- BCGCOR0111A Handle construction material

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- portable power tools
- hand tools and equipment
- materials handling
- mortar and concrete constituents and ratio of mix
- measurement relative to brick/block work
- accessories associated with brickwork/block work 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
- mix mortar and concrete manually and with mixer
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- construction materials relevant to brick/block work
- hand and power tools appropriate to brick/block work processes
- plant and equipment appropriate to brick/block work processes
- suitable work area appropriate to construction process

(5) Method of Assessment

Competency shall be assessed while work is being done 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 integ rated 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 should be assessed in the workplace or simulated workplace environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCAR0161A: Prepare for carpentry construction

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare the process for carrying out construction work in carpentry, and applies to individuals working in the occupation.

Competency Field: General Construction

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	Occupational Health and Safety (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, stored/located and 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 of temporary security fence and site structures, building layout and workstation according to supervisor's instruction.
4.	Use tools and equipment appropriate for construction process	4.1	Regular hand and power tools suitable for appl ication process identified to job requirements.
		4.2	Hand and power tools used safely and effectively according 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 according to given instruction.
6.	Distribute components	6.1	Cut components distributed and stacked to suit job location and sequence.
7.	Erect temporary fencing	7.1	Posts are appropriately placed, aligned and firmly fixed.
		7.2	Stiles and cladding materials (metal/board) are firmly fixed.
		7.3	Entrance is of specified size and gate opens, swings and shuts without difficulty.
8.	Clean-up	8.1	Unused material stacked/stored for re-use.
		8.2	Work area cleared.
		8.3	Tools and equipment cleaned, maintained and stored.
		8.4	Waste disposed of using appropriate method according to the Environmental Protection Agency (NEPA) requirements.

RANGE STATEMENT

This unit applies to the preparation processes associated with carpentry construction work based on the construction of timber partition framing.

Tools and equipment may include but are not limited to:

- measuring tape/rule
- hammer
- docking saw
- jigs/stops
- saw stools
- work bench
- clamps
- squares

Personal protective equipment may include but not limited to:

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

Safety hazards may include but are not limited to:

- restricted access
- location of power leads
- dust
- off cut material
- lighting
- limited storage space

Construction processes includes:

- workplace preparation
- materials preparation
- assembling of partitions
- erecting and fixing of partitions

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 are to be in accordance with Statutory 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 m aterials 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 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 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

- BCGCOR0011A Carry out OH&S requirements
- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
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 should be assessed while work is being done 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 should be assessed in the workplace or simulated workpla ce environment in accordance with work practices and safety procedures.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employab ility Skills.

MEMMPO0011A: Perform daily operational maintenance of machines/equipment

Competency Descriptor: This unit deals with skills and knowledge required to competently perform daily operational maintenance of machines/equipment and applies to and applies to individuals in the industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Undertake programmed safety and maintenance checks	1.1	Checks are undertaken safely and to prescribed procedure.
		1.2	Status/report are recorded on check sheet or reported orally.
2.	Undertake programmed maintenance	2.1	Removal/replacement of consumable and components are undertaken to prescribed procedure and instructions are followed.
		2.2	Fluids and lubricants are replaced and/or topped up to prescribed schedule.

RANGE STATEMENT

Work undertaken under supervision or in a team environment to predetermined specifications.

Machines/equipment range includes manuals, semi-automatic and automatic machines of a stand-alone continuous production or process nature.

Consumable replacements include air filter, oil wipers, grease containers, tool tips, indicator globes, fluids and lubricants, guides and limit switch actuators.

Adjustments are of a limited nature and include safety guards, stops, wear pads and tool holders, nipping up of glands and adjustment of scrapers and aprons etc.

Hand tools may include but not limited to:

- hacksaws
- hammers
- punches
- screwdrivers
- sockets
- wrenches
- scrapers
- chisels
- gouges
- wood planes
- files of all cross-sectional shapes and types.

Applications may include hand tools used for

- adjusting,
- dismantling
- assembling
- finishing
- cutting
- scraping
- cleaning,
- lubricating,
- tightening
- simple tool repairs
- hand sharpening
- adjustments

Location/condition may include:

- workshops
- plants
- in the field
- confined spaces
- elevated positions
- damp and wet situations

Protective clothing may include:

- safety boots
- safety helmet
- welding helmet
- coverall
- leggings
- gloves

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively performing routine operational maintenance of machines/equipment in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to performing routine operational maintenance of machines/equipment
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate correct procedures in performing programmed maintenance checks
- demonstrate correct procedures in starting and stopping machines/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 engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

- MEMCOR0141A (Follow principles of occupational health and safety (OH&S) in work environment)
- MEMCOR0161A (Plan and undertake a routine task)

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety regulations
- basic measuring devices
- standard machines/equipment range
- standard consumable replacements
- standard machine/equipment adjustments
- reading
- writing basic English
- basic numeracy

Skills
The ability to:

- follow safely to instructions
- use power tools and hand tools
- use measuring devices
- adjust measurements
- handle materials
- select material
- apply quality assurance
- perform operational maintenance of machines/equipment

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0121A: Perform basic repair to electrical/electronic apparatus

Competency Descriptor: This unit deals with the skills and knowledge required to undertake basic repairs to electrical/electronic apparatus by following routines described in work instructions or apparatus manuals, and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare work to carry out basic repair	1.1 Repair work is prepared to ensure OH&S policies and procedures are followed.
	1.2 Appropriate personnel are consulted to ensure the work is co-ordinated effectively with others involved.
	1.3 Given maintenance schedules and specifications are checked against requirements.
	1.4 Materials needed to complete the work are obtained in accordance with established procedures.
	1.5 Tools and testing devices needed to carry out the work are checked for correct operation and safety.
2. Carry out basic repair work	2.1 OH&S policies and procedures are followed.
	2.2 Circuits are checked as being isolated where necessary using specified testing procedures.
	2.3 Apparatus is repaired in accordance with established procedures and repair routines.
	2.4 On-going checks of the quality of the work are undertaken in accordance with established procedures.
3. Inspect and notify completion of work	3.1 Final inspections are undertaken to ensure the repair of apparatus conforms to given requirements.
	3.2 Work completion is notified in accordance with established procedures.

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RANGE STATEMENT

Competency can be displayed on one, some or all of the following categories and in addition to the respective common underpinning knowledge associated with the selected specialisation. Candidate should be able to effect basic repairs to any one of the following systems

- computer systems
- electrical appliance
- electronics appliance
- refrigeration and air conditioning control systems
- data communications systems

Appliance and apparatus may include:

- electrical fans
- vacuum cleaners
- food mixers and food blenders
- electric irons
- modular appliances
- electric toasters and toaster ovens
- microwave ovens
- gas appliances/apparatus
- household/freezing apparatus
- dish washers
- laundry equipment
- ranges and ovens

Basic repairs may include:

- repairs to wiring systems
- repairs to circuits
- repairs to components
- removal and replacement of components
- removal and replacement of printed circuit boards
- installation and set up of system components
- using test equipment to locate and isolate causes of problems
- cleaning and restoring unit to specification
- repairing broken appliances cases

EVIDENCE GUIDE

Competency will be demonstrated by having consistently performed across a representative range of applications which includes such things as apparatus, circuits, wiring systems, plant, equipment, tools, accessories, components and the like relative to that required for the category undertaken within and relevant to this unit of competence under supervision and to requirements.

(1) Critical Aspects of Evidence

Achievement of this unit of competence is based on each of the following conditions being met:

- demonstrating consistent performance for each element of the unit in the related category and specialisation which is to be exhibited across a representative range of applications under supervision and to requirements
- meeting the performance criteria associated with each element of competence by employing the techniques, procedures, information and resources available in the workplace for each of the categories and areas of specialisation undertaken from those listed in the Range statement or Evidence guide
- demonstrating an understanding of the underpinning knowledge and skills identified for the categories and related specialisation undertaken in the section, of this unit titled 'Underpinning knowledge'

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.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to perform basic repair to electrical/electronic apparatus efficiently
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all repair tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures

(2) Pre-requisite Relationship of Units

- MEMFAB0011A Manual soldering/de-soldering - electrical/electronic components
- MEMCOR0091A Draw and Interpret sketches and simple drawings
- MEMCOR0071A Use Electrical/electronic measuring devices
- MEMCOR0191A Use hand tools

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures
- safety precautions three wire line plugs, cords and receptacles
- standards of quality
- maintenance schedules and specifications
- tools and testing equipment
- basic testing techniques
- basic electrical test
- basic electronic apparatus
- basic electronic circuits
- basic electronic components
- connection of wiring
- bonding/fixing methods
- appliance connectors
- types of cords, wire sizes and plugs
- termination and connection types
- termination and connection methods
- basic electrical/electronic faults (short circuit, open circuit, defective resistors etc)

Skills
The ability to:

- work safely to instructions
- follow maintenance schedules and specifications
- select and use appropriate tools and equipment
- use tools and testing devices
- handle materials
- select material parts and supplies
- perform basic repair to electrical/electronic apparatus

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant standard specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

Competency will be determined on evidence of having consistently performed across a representative range of applications which includes such things as apparatus, circuits, wiring systems, plant, equipment, tools, accessories, components and the like relative to that required for the category undertaken within and relevant to this unit of competence, under supervision and to requirements. Equivalent evidence from other sources is also acceptable.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0081A: Remove dismantle, assemble and replace basic engineering components

Competency Descriptor: This unit deals with the skills and knowledge required to effectively remove dismantle, assemble and replace engineering components and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Check engineering components	1.1 System components are identified correctly.
	1.2 The characteristics and basic operational function of each system component are understood.
	1.3 The operational function of each component are inspected and tested by supervisor.
2. Remove/replace engineering components	2.1 Engineering components are inspected by supervisor and task requirements analysed.
	2.2 Appropriate tools and equipment are selected and component/s are prepared for removal/replacement.
	2.3 Components are removed/replaced using standard operating procedures, tools and equipment.
	3.4 Engineering components are clearly marked to aid reassembly.
3. Dismantle engineering components	3.1 Engineering components are inspected by supervisor and task requirements analysed.
	3.2 Appropriate tools and equipment are selected and component/s prepared for dismantling.
	3.3 Components are dismantled using standard operating procedures, tools and equipment.
	3.4 Engineering components are clearly marked to aid reassembly.

4.	Replace faulty components	4.1	Specifications for components are obtained from appropriate source and verified by supervisor.
		4.2	Damaged or faulty components are assessed by supervisor against specifications.
		4.3	Faulty components are identified for repair, replacement or adjustment.
5.	Select replacement components	5.1	Where applicable, replacement and/or repaired parts are selected for reassembly.
6.	Assemble basic engineering components into assemblies or sub-assemblies	6.1	Appropriate techniques are applied in the preparation, assembly and adjustment of components.
		6.2	Correct lubrication, packing and sealing materials are applied correctly and in conformance to job specifications and supervisor instructions.
		6.3	Final component is assembly inspected, tested and adjusted as necessary for compliance with operational specifications.
		6.4	Final component is returned to use according to standard operating procedure.
7.	Clean up	7.1	Materials/supplies are stacked /stored for re-use or disposal.
		7.2	Work area is cleared.
		7.3	Tools and equipment are cleaned and stored in a cool place.
		7.4	Waste is disposed of using appropriate method according to National Environmental Protection Agency (NEPA) requirements and company's operating procedures.

RANGE STATEMENT

Work undertaken under supervision or in a team environment using predetermined standards of quality, safety and workshop procedures.

This unit involves the dismantling, inspection, replacement, assembling of engineering components.

All specifications interpreted from manufacturers' manuals, engineering drawings, detailed/technical sketches and associated data sheets.

Tasks are undertaken utilising engineering principles, designated procedures, appropriate tools, equipment and safe workshop practices.

Replacement parts are proved by supervisor and selected from manufacturers' catalogues, etc.

Appropriate techniques utilised in the assembly of component parts using fastening equipment and methods which ensure conformance to specifications, operational performance, quality and safety; this may include the straightforward removal and replacement of pre-manufactured bearings and seals.

Appropriate lubrication, packing, sealing materials are selected and applied in conformance to standard operating procedure.

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively removing, dismantling, assembling and replacing engineering components in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate correct procedures in removing/replacing engineering components
- demonstrate correct procedures in dismantling and assembling engineering components
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies
- interactively communicate with others to ensure safe operations demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

- MEMCOR0051A Use graduated measuring devices
- MEMCOR0091A Draw and interpret sketches and technical drawings
- MEMCOR0071A Use hand tools

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety regulations
- basic tools for removal, replacing, dismantling and assembling engineering system components
- standard characteristics of basic engineering system components
- standard removal/replacing tasks
- standard engineering system components
- standard operational test for basic engineering systems
- manufacturers standard specification
- standard application/operation of pneumatic system components
- reading
- writing basic English
- basic numeracy

Skills
The ability to:

- follow safely to instructions
- use hand tools
- handle materials
- select seals
- apply quality assurance
- perform removal and replacement of engineering system components

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) The candidate will be required to:

- 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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMFAB0051A: Perform brazing and/or silver soldering

Competency Descriptor: This unit deals with the skills and knowledge required to effectively perform brazing and /or silver soldering as applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare materials and equipment	1.1 Job requirements are determined from specifications and/ or instructions.
	1.2 Materials are correctly prepared using appropriate tools and techniques.
	1.3 Materials are correctly assembled/aligned to meet specifications as required.
	1.4 Distortion prevention measures are identified and appropriate action taken as required.
	1.5 Heating equipment is assembled and set up safely and correctly in accordance with standard operating procedures.
	1.6 Correct and appropriate consumables are selected and prepared.
	1.7 Test run undertaken and verified as required.
2. Braze and/or silver solder	2.1 Correct and appropriate processes are selected to meet specifications.
	2.2 Materials are preheated as required.
	2.3 Consumables are applied using correct and appropriate techniques.
	2.4 Jointing material is applied correctly and in appropriate quantities to meet job/specifications.
	2.5 Used correct temperature and appropriate techniques.

3	Inspect joints	3.1	Excess jointing materials are removed using correct and appropriate techniques.
		3.2	Inspection of joints is undertaken using standard operating procedures and meeting specifications.
		3.3	Inspection results are reported/recorded using standard operating procedures as required.

RANGE STATEMENT

Work undertaken in a production, engineering or maintenance environment using predetermined standards of quality, safety and work procedures. Work may be undertaken under supervision or within a team environment. All work undertaken to standard requirements

Appropriate assembly of heating equipment may include:

- cylinders
- connections
- hoses
- tips
- nozzles

Heating medium and appropriate consumables can include:

- oxyacetylene
- fuel gas
- fluxes (resin or powder)
- all types of silver solder and brazing rods

Materials:

- low carbon steel (mild steel) up to 10 gauge
- low carbon steel plate up to 5mm
- steel and galvanised pipes up to 50mm

Location/condition:

- workshop
- plant
- fieldwork at ground level
- elevated positions
- dry
- humid and wet conditions
- construction environment
- agricultural environment
- food processing environment

Work activities:

- measuring,
- marking,
- grinding
- lifting,
- welding
- cutting
- aligning,
- shaping,
- filing,
- general machining

Specification:

- welding procedure
- weld profile regular in width
- even/regular ripple formation
- uniform in appearance,
- free from excessive undulations
- smooth stop/starts, tack incorporated,
- adequate penetration
- no excess undercut
- no craters

Types of welding joints:

- fillet weld
- lap weld
- butt weld,
- single and multi-run

Welding position:

- flat,
- vertical
- horizontal
- overhead

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively performing routine oxyacetylene welding (fuel gas welding) in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to setting up oxy acetylene equipment and during the brazing and or silver soldering 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 brazing and or silver soldering technique to produce designed outcome

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling recording and reporting associated with brazing and/or silver soldering or other units requiring the exercise of the skills and knowledge covered by this unit.

(2) Pre-requisite Relationship of Units

- MEMCOR0141A Follow principles of occupational health and safety (OH&S) in work environment
- MEMCOR01611A Plan and undertake a routine task
- MEMCOR0191A Use hand tools

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements including relevant OH&S guidelines and regulations
- metal properties and classification
- heating medium/technique
- brazing/soldering processes
- oxy-fuel equipment identification, transportation and storage
- hand tools and equipment
- materials /consumables relative to brazing and silver soldering procedures
- materials preparation
- manual handling
- measurement
- drawings, sketches and instructions

Skills
The ability to:

- work safely to instructions
- communicate effectively
- interpret related drawings and instructions
- use brazing and soldering equipment
- identify/select material
- identify/select brazing soldering processes
- handle material, tools and equipment
- measure relative to brazing and or silver soldering processes
- identify/select materials relative to the brazing and or soldering process
- prepare materials relative to the brazing and or soldering process
- braze and or silver solder efficiently

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. 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.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0101A: Evacuate and dehydrate refrigeration systems

Competency Descriptor: This unit deals with the skills and knowledge required to effectively evacuate and dehydrate refrigeration systems and applies to all individuals working in the metal, engineering and maintenance industry.

Competency Field: Metal Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Assess refrigeration system operation	1.1 Basic refrigeration system operating principles and terminology are understood.
	1.2 All relevant information is obtained and correctly interpreted prior to the commencement of work on the refrigeration system.
	1.3 Refrigeration system checks are undertaken safely in accordance with standard operating procedures.
	1.4 Pressures and temperatures are correctly determined and recorded.
	1.5 The refrigeration system is checked for current operating condition.
2. Reclaim refrigerant and evacuate system	2.1 Equipment selected for use is appropriate for the evacuation method to be applied.
	2.2 Connections between the testing apparatus and the system are correctly located, sound and leak proof.
	2.3 The refrigeration system is evacuated in accordance with standard operating procedures, codes and regulations.
	2.4 Measurements taken during the process are carefully analysed and recorded as required.
	2.5 The refrigerant evacuated from the refrigeration system is contained/disposed of in accordance with the relevant codes and regulations.

3.	Clean up	3.1 Materials/supplies/equipment are stacked /stored for re-use or disposal.
		3.2 Work area is cleared.
		3.3 Tools and equipment are cleaned and stored in a cool place.
		3.4 Waste is disposed of using appropriate method according to National Environmental Protection Agency (NEPA) requirements and company's operating procedures.

RANGE STATEMENT

Work is undertaken under supervision or in a team environment using predetermined standards of safety, quality and workshop procedures.

Refrigeration systems may be associated with refrigeration and air conditioning applications including commercial, industrial and transport.

All work is to be undertaken in accordance with all relevant standard and regulatory requirements. Refrigerants include CFCs, HFCs, ammonia, etc.

Tools and equipment may include;

- vacuum pump
- high vacuum gauge
- recovery machine
- moisture indicator
- recovery/recycling machine

Working activities may include:

- connect manifold and gauges
- evacuate system to desired micron reading
- perform standing vacuum

Methods may include:

- triple vacuum method
- deep vacuum method

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively evacuating and dehydrating refrigeration system in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate the ability to set up tool and equipment to evacuate system
- demonstrate correct procedures in evacuating and dehydrating refrigeration system
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies/equipment
- interactively communicate with others to ensure safe operations
- demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

MEMCOR0171A	Use graduated measuring devices
MEMCOR0091A	Draw and interpret sketches and simple drawings
MEMCOR0191A	Use hand tools
MEMCOR0011A	Use power tools
MEMMRD0081A	Remove, dismantle assemble and replace basic engineering components

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety regulations
- basic tools/equipment for evacuating and dehydrating refrigeration system
- standard characteristics of basic refrigeration system components
- standard evacuating and dehydrating methods
- standard refrigeration system components
- standard operational test for refrigeration system
- manufacturers standard specification
- standard application/ refrigeration system
- reading
- writing basic English basic numeracy

Skills
The ability to:

- follow safely to instructions
- use hand tools
- handle materials
- select correct equipment/tools
- apply quality assurance
- perform evacuating and dehydrating of refrigeration system

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMINS0061A: Prepare for piping and tubing installation

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare the process for carrying out installation of piping and tubing and applies to individuals working in metal engineering and maintenance industry.

Competency Field: Metal Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan for installation process	1.1 Quality Assurance requirements of engineering /maintenance operations are recognized and adhered to.
	1.2 Preparation and planning requirements are identified from drawings/work location and/or supervisor's instructions.
	1.3 OH&S requirements are identified and adhered to in accordance with application tasks and workplace environment.
	1.4 Safety hazards are identified and correct procedures adopted to minimise risk to self and others.
	1.5 Materials are selected according to supervisor's instructions, safely handled and stored for application.
	1.6 Appropriate personal protective equipment are selected, correctly fitted and used.
	1.7 Tools and equipment selected is consistent with the job requirements.
	1.8 Tools and equipment is checked for serviceability and any faults reported to supervisor
	1.9 Materials/components selected are consistent with the job requirements and checked for damage.
2. Prepare materials selected for installation process	2.1 Activities for material preparation are identified from specifications or supervisor's instructions.
	2.2 Material preparation is carried out to satisfy requirements of installation process.

3.	Prepare work area suitable for installation process	3.1	Activities to be carried out in work area are identified from installation technique, method of installation and access to area.
		3.2	Work area is prepared for installation process according to supervisor's instructions.
4.	Use tools, plant and equipment appropriate for installation process	4.1	Regular tools/measuring devices are suitable for application and process identified.
		4.2	Regular tools/measuring devices are used safely and effectively to carry out processes where applicable.
5.	Prepare background of surfaces/environment for piping and tubing installation	5.1	Surfaces/environment are identified for preparation.
		5.2	Surface where appropriate is chassed/chopped/prepared.
		5.3	Excavations are carried out where appropriate.
6.	Select materials and cut components	6.1	Materials are obtained as per instruction.
		6.2	Correct manual handling techniques are used to move and place materials.
		6.3	Materials are safely moved to work area.
		6.4	Appropriate techniques used to accurately cut/bent/fabricate/secure components to same length and to given instruction.
7.	Distribute components	7.1	Components are distributed and stacked to suit job location and sequence.
8.	Clean up	8.1	Materials are stacked/stored for re-use or disposed of.
		8.2	Work area is cleared.
		8.3	Tools and equipment are cleaned, maintained and stored.

RANGE STATEMENT

This unit applies to the preparation processes carried out in preparing for the installation of piping and tubing as per instructions.

Background surfaces for installation of piping and tubing include but not limited to:

- concrete
- concrete block work
- brickwork/stonework
- pavements
- underground

Installation process includes:

- preparation of pipes and tubing
- preparation of surfaces
- finish of surfaces
- workplace preparation

Personal protective equipment may include:

- overalls
- waterproof pants and jacket
- boots
- water (rubber) boots
- gloves
- dust masks/respirators
- hard hat/cap
- safety goggles

Working conditions may include but are not limited to:

- domestic/commercial new and existing
- at height as per industry standards
- in confined space
- temperature variation
- damp and wet conditions
- indoors and out doors

Tools and equipment to include:

- hand and power hack saws
- stock dies
- pipe threading machine
- pipe wrenches
- pipe cutters
- cold chisels
- soldering and brazing equipment
- wenches
- tube cutter
- flaring tool
- screwdrivers
- shovels
- pickaxes
- hand drills
- pipe reamers
- swaging tools
- files
- heavy duty hammer drill
- hammers

Identification and application of tools for:

- marking out
- measuring
- cutting
- shaping
- drilling
- installing
- threading
- tapping
- finishing
- dismantling
- assembling
- reaming

Fabrication techniques may include but not limited to:

- marking out
- cutting
- bending
- clamping
- plugging
- drilling/punching
- screwing/bolting
- cutting mitres
- adhesion
- threading

Representative range of applications may include such things as

- fixtures
- equipment
- valves
- regulators
- metering devices

Installation techniques:

- surface mount
- underground
- PVC piping
- metal
- on masonry
- on steel
- in pavements
- with clamps
- with saddles
- on/in walls
- in floors
- overhead
- access ways
- wood

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

Reporting of faults may be verbal or written.

OH&S requirements to be in accordance with the regulations.

EVIDENCE GUIDE

Competency is to be demonstrated by carrying out the safe and effective preparation for piping and tubing installation in accordance with performance criteria using any of the range of materials and processes 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
- demonstrate the ability to prepare for piping and tubing installation
- demonstrate the ability to apply appropriate principles/techniques to installation environment
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- demonstrate the ability to carry out specific measurement and preparation procedures
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- use accepted engineering techniques, practices, processes and workplace procedures.
- carry out correct procedures prior to and during application of installation processes
- demonstrate safe and effective operational use of tools, measuring devices and equipment
- interactively communicate with others to ensure safe and effective workplace operations

(2) Pre-requisite Relationship of Units

- MEMCRI0021A (Apply principles of Occupational Health and safety (OH&S) in work environment)
- MEMCRI0071A (Use hand tools)

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- measuring devices
- hand tools and equipment
- materials relative to installation process
- materials handling
- measurement relative to installation process
- installation techniques consistent with piping and tubing installation
- workplace communications

Skills
The ability to:

- work safely to instructions
- use hand tools
- use measuring devices
- handle material
- select material
- communicate effectively
- measure relative to process
- prepare for piping and tubing installation

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- 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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activity

(6) Context of Assessment

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

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BCGCAR0312A: Use static machines

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare and use various types of static machines, and applies to individuals working with carpentry/joinery/masonry/ancillary equipment in the construction industry.

Competency Field: General Construction

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify static machines, their operation and safety requirements	1.1	Types and functions of static machines used in offsite production identified.
		1.2	Method of operation for `machines identified and understood.
		1.3	Occupational Health and Safety (OH&S) requirements for guarding and switches identified.
		1.4	Occupational Health and Safety (OH&S) requirements for personal protective equipment associated with using machines identified.
		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 in position.
		2.4	Safety guards/shields checked and adjusted where required according to the National OH&S standards.

3.	Operate machine	3.1	Machine start up procedure is carried out to manufacturer's recommendations.
		3.2	Material fed to machine, where applicable, in accordance with manufacturer's recommendations and safe handling procedures.
		3.3	Material set up and fixed in place, where applicable for mobile machine in moving table operations, in accordance with manufacturer's recommendations.
		3.4	Machine operated in accordance with 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.
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.
		4.4	Cutters/blades and attachments fitted and secured to manufacturer's specifications.
5.	Clean up	5.1	Machine cleaned and waste material disposed of safely.
		5.2	Cutters, blades and attachments cleaned, checked and stored.

RANGE STATEMENT

This unit applies to the use of static machines, which are those affixed to a set l ocation for their operation.

OH&S requirements to be in accordance with Statutory and Regulations and may include:

Static machines include but are not limited to:

- rip saws
- band saws
- docking saws
- vertical and horizontal drills
- dimensional saws
- thicknessers
- buzzers
- spindle moulders
- morticers
- multi borers
- table sanders
- grinders
- polishers
- multi functional cutter/grinder/polisher
- shapers
- diamond saws
- travelling beam saws
- multi bladed 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
- workplace environment and safety
- protective clothing and equipment
- safety switches on machi nery
- maintenance of machines
- use of tools and equipment
- handling and feeding of materials
- guarding on machinery
- safe use of machines

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

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

EVIDENCE GUIDE

Competency is to be demonstrated by the safe and efficient setting up and operating of at least three (3) separate types of machines from those listed in the rang e 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 and machine operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements within the context of carrying out machining operations
- identify and appropriately apply manufacturer's recommendations in use of machine
- identify and correctly apply machine guard in operating machine
- carry out correct setting up procedures prior to use in accordance with carrying out machine operations
- carry out correct start up procedures
- demonstrate safe and effective operational use of machine
- carry out correct shut down/switch off procedures
- give attention to procedures for cleaning and maintaining of machine to requirements
- use of safe and correct procedures to place or remove cutters and blades

(2) Prerequisite Relationship of Units

- BCGCOR0051A Use hand and power tools
- BCGCOR0061A Use small plant and equipment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements including relevant statutory regulations
- types of machines and their operation
- safety considerations for operating of machinery
- maintenance of machines
- cutter, blades and associated accessories
- tools and equipment
- materials
- materials handling

Skills
The ability to:

- work safely to instructions
- set up for machine operation
- operate machine
- use hand tools and equipment
- handle material
- stack material
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workshop location
- access to a range of static machines
- materials appropriate to work orientation machinery

(5) Method of Assessment

Competency should be assessed while work is being done under direct supervision.

Assessment may involve:

- observation of application work
- 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 task associated with setting up and using machine.

(6) Context of Assessment

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

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level -	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0732A: Install and maintain mechanical pumps

Competency Descriptor: This unit refers to the skills and knowledge required for the installation and maintenance of all pumps, compressors and blowers and the installation of which requires no more than basic alignment as applied to the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare for the work	1.1 Work requirements are identified from request/work orders or equivalent clarified/confirmed with appropriate parties or by site inspection.
	1.2 Work requirements are clarified/confirmed with appropriate parties or by site inspection.
	1.3 Occupational health and safety standards are identified, applied and monitored throughout the work procedure.
	1.4 Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications.
	1.5 Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan.
	1.6 Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications.
	1.7 Work is planned in detail including sequencing and prioritizing for the maintenance of plant security and capacity.
	1.8 Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work.
	1.9 Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures.

2.	Remove pumps for maintenance	2.1	Required isolations are confirmed where appropriate in accordance with site requirements.
		2.2	Pump is disconnected in accordance with the work plan.
		2.3	Pump is removed in a manner, which will assist in replacement in accordance with the work plan.
		2.4	Pump is inspected for abnormalities in accordance with the work plan.
3.	Maintain pumps	3.1	Maintenance is performed in accordance with manufacturers' specifications and site procedures.
		3.2	Pump is dismantled for maintenance in accordance with manufacturers' specifications and site procedures.
		3.3	Sketches are made, data noted and components marked for identification and/or re-assembly in accordance with job requirements and site procedures.
		3.4	New components are obtained and inspected for compliance with manufacturers specifications.
		3.5	Dimensional inspection is performed with precision measuring devices to ensure compliance with specifications and results recorded in accordance with job requirements and site procedures.
		3.6	Pump is reassembled applying appropriate principles and techniques in accordance with manufacturers' specifications and site requirements.
		3.7	Modifications/alterations are undertaken in accordance with site requirements.
4.	Replace/install pumps	4.1	Site is prepared for pump replacement in accordance with the work plan.
		4.2	Pump is replaced in accordance with the work plan and manufacturers specifications.
		4.3	Pump is levelled, aligned, coupled and connected in accordance with the work plan.

		4.4 All fastenings are torqued in accordance with manufacturers specifications and site requirements
		4.5 Machinery/plant and pump are test run, monitored and adjusted as required in accordance with manufacturers' specifications and site requirements.
5.	Complete the work	5.1 Work is completed and appropriate personnel notified in accordance with site/enterprise requirements.
		5.2 Work area is cleared of waste, cleaned, restored and secured in accordance with site/company procedures.
		5.3 Plant, tools and equipment are maintained and stored in accordance with site/company procedures.
		5.4 Work completion details are finalised in accordance with site/company procedures.

RANGE STATEMENT

Pumps may include:

- single stage,
- centrifugal,
- screw and gear,
- positive,
- non-positive,
- partial and variable displacement,
- vane,
- diaphragm,
- roots and pistons

Pump drives may include:

- electrical,
- internal combustion,
- hydraulic,
- pneumatic or steam

Tools may include:

- micrometers,
- verniers,
- dial test indicators,
- slip gauges,
- hand tools,
- hydraulic spanners,
- customised mandrels,
- digital height gauges,
- internal micrometers,
- depth gauges,
- air grinders,
- jigs and fixtures,
- customised spanners,
- thermal blankets,
- induction heaters,
- thermal crayons,
- digital thermometers,
- oxyacetylene gear and appropriate lifting devices

Work completion details may include:

- plant and maintenance records,
- job cards,
- check sheets,
- on device labelling updates and reporting and/or documenting equipment defects

Isolations can refer to:

- electrical/mechanical
- other associated processes

Details of maintenance may be clarified by:

- diagnosis and workplace inspection

Maintenance can include:

- repair,
- inspection,
- modification,
- lubrication,
- servicing,
- test running,
- identifying and replacing defective components

Plant and equipment may include:

- jigs for dismantling and oxyacetylene heating equipment

Work site environment may be affected by nearby plant or processes e.g.

- chemical,
- heat,
- dust,
- noise and oil

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively carrying out the installation and maintenance of mechanical pumps in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to installation and maintenance of mechanical valves
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate correct procedures in performing installation of mechanical pumps
- demonstrate correct procedures in maintaining mechanical pumps
- give particular attention to safety and elimination of hazards
- demonstrate safe handling of material
- interactively communicate with others to ensure safe operations
- demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

- MEMCOR0141A Follow principles of occupational health and safety (OH&S) in work environment
- MEMCOR0161A Plan and undertake a routine task
- MEMMAH0071A Perform manual handling and lifting

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Pumps and compressors
- Measuring equipment
- Seals and gaskets
- Bearings
- Occupational health and safety standards
- Quality assurance/quality control
- Specialised tools and jigs
- Levelling and alignment
- Rigging and lifting equipment
- Materials and components of pumps
- Fluid dynamics
- Torque techniques
- Technical drawings and data
- Data recording techniques
- Hand and portable power tools
- Diagnostic and testing techniques
- Protective coatings; Heating techniques
- Defined tolerances and fits
- Balancing techniques
- Isolation procedures
- Communication principles

Skills
The ability to:

- identify and use precision measuring equipment
- manufacture and install seals and gaskets
- apply fluid dynamics principles
- install bearings
- use specialised tools and jigs
- level and align
- use technical drawings and data
- identify and select materials and components
- apply data analysis techniques and tools
- use hand and portable power tools
- apply diagnostic and testing techniques
- use heat application equipment
- apply dismantling and reassembling techniques
- work to defined tolerances
- apply occupational health and safety procedures
- recognise worn/damaged components
- apply effective maintenance procedures
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials.

(5) The candidate will be required to:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of installation and maintenance activities in which applicant has contributed, or worked on
- training courses on the installation and maintenance of mechanical pumps
- examples of authenticated assessments and/or assignments from formal education courses
- simulation
- self assessment reports

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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0462A: Carry out routine maintenance of plumbing systems to sustain effective performance

Competency Descriptor: This unit deals with the skills and knowledge required to routinely maintain plumbing systems to sustain effective performance and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare for routine maintenance	1.1 Work instructions/information are accurately interpreted and the task is organized accordingly.
	1.2 The correct size, type and quantity of material components and location are selected and prepared.
	1.3 Plumbing system components are identified and routinely maintained according to the maintenance specifications/work instructions.
	1.4 Instructions/information are communicated to appropriate personnel and confirmed as understood.
	1.5 System components are not damaged and where deficiencies are observed appropriate corrective action is taken.
	1.6 Where required, plumbing system components are maintained according to specifications/instructions, and all connections are mechanically sound, air and water tight.
2. Maintain plumbing system	2.1 Maintenance routines comply with manufacturers' recommendations (or other authorised recommendations) for required tests, checks for correct operation.
	2.2 Maintenance activities are carried out in a systematic and logical sequence of operations.
	2.3 Where components are not meeting performance expectations these are cleaned, repaired or replaced with components of equal technical capability.

	2.4	Components are maintained using appropriate cleaning agents and equipment.
	2.5	Plumbing fixtures/lines/equipment are maintained using appropriate tools/equipment/chemical agents/enzymes.
	2.6	Where cleaning agents are hazardous, appropriate protective clothing is worn.
	2.7	System functions efficiently after maintenance procedure is carried out and items handled are not damaged.
	2.8	Work activities are carried out in accordance with health and safety regulations and codes of practice.
3. Inspect and notify completion of work	3.1	Work is completed within acceptable time.
	3.2	Tools and equipment cleaned, sanitized, maintained and stored.
	3.3	Work area is left clean and tidy.

RANGE STATEMENT

Safety:

- personal safety
- chemical
- gas
- steam and electrical hazards,
- hand and power tools
- operating procedure

Appropriate personnel:

- apprentices
- trades man
- supervisor
- clients

Replacement parts to include:

- seals
- washers
- seats

Sources of information:

- Manufacturers recommendations and specifications
- oral/written work instructions
- maintenance schedules
- maintenance manuals

Systems:

- domestic
- commercial
- industrial
- agricultural

Tools and equipment:

- hand and power tools appropriate for the job
- specialized plumbing system maintenance tools

Range of valves and fittings to include:

- gate,
- globe
- check,
- ball
- stop
- float valve
- solenoid
- mixers & faucets
- saunders valve
- PO plug
- traps
- outlet
- pressure reducing and safety valves
- pipes and fittings.
- pipe taps
- butterfly valve

Components/fixtures/equipment to include:

- kitchen and bathroom fixtures
- gas and electric water heaters
- gas, cooking range
- garbage disposal
- pressure tanks
- laundry equipment
- boilers
- lift and boost pumps
- pneumatic systems
- irrigation systems

Components/fixtures/equipment to include:

-
- valves
- burners
- heating elements,
- thermostats
- diaphragms

Materials and supplies:

- appropriate cleaning agents

EVIDENCE GUIDE

(1) Critical Aspects of Evidence

Achievement of this unit of competence is based on each of the following conditions being met:

- demonstrating consistent performance for each element of the unit in the related category and specialisation which is to be exhibited across a representative range of applications; autonomously and to requirements
- meeting the performance criteria associated with each element of competence by employing the techniques, procedures, information and resources available in the workplace for each of the categories and areas of specialisation undertaken from those listed in the Range statement or Evidence guide
- demonstrating an understanding of the underpinning knowledge and skills identified for the categories and related specialisation undertaken in the section, of this unit titled 'Underpinning knowledge'

Critical Aspects of Evidence (Cont'd)

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to routinely maintain plumbing systems to sustain effective performance
- 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

(2) Pre-requisite Relationship of Units

- MEMINS0061A Prepare for piping and tubing installation
- MEMASY0071A Assemble pipes and fittings for clients
- MEMINS0041A Install and maintain piping and tubing for clients

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures:
- standards of quality
- maintenance tools and equipment
- materials used in maintenance
- components and fixtures
- maintenance techniques
- range of plumbing systems and applications

Skills
The ability to:

- handle ladders
- identify potential workplace hazards; preventative measures
- work with hand tools
- read and interpret sketches drawings manuals etc.
- measure accurately
- communicate effectively
- routinely maintain plumbing systems to sustain effective performance
- test system to ensure equipment are functional and being installed properly

(4) Resource Implications

The following resources should be made available:

- 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

(5) Method of Assessment

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.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

Competency shall be assessed on the job, off the job or a combination of both in accordance with workplace procedures

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the critical employability skills.

BCGTIL1092A: Lay and repair wall and floor tiles

Competency descriptor: This unit deals with the skills and knowledge required to lay and repair wall and floor tiles, and applies to individuals involved in tile laying in the construction industry.

Competency Field: General Construction

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Plan and prepare work	1.1	Quality Assurance requirements of company's tiling operation s recognised and adhered to.
	1.2	Occupational Health & Safety (OH&S) requirements for workplace environment and preparing for and laying and repairing tiled surfaces identified and adhered to.
	1.3	Materials checked for conformity against drawings and specifications and, where applicable, sample tile.
	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.
2. Set out tiling job	2.1	Prepare area to be tiled to requirements of specifications.
	2.2	Tile work set out to be symmetrical, balanced and involves minimal waste to specifications and Standards for the Installation of Ceramic Tiles.
	2.3	Waterproof membrane fitted and laid in wet areas to local government regulations.
3. Cut tiles as required	3.1	Tiles cut without jagged or flayed edges.
	3.2	Recess hole or curve cut by hand or machine to shape and size within 1mm.
	3.3	Tile jolly-edged to form a mitre so that biscuit is not exposed at the joint.

4.	Fix wall tiles	4.1	Mortar and/or adhesive prepared, where applicable, and applied to tile/surface in accordance with manufacturer's recommendations.
		4.2	Tiles prepared and fixed with pad t iles set to level alignment.
		4.3	Horizontal joint checked for straightness and tile edges and surface alignment checked.
		4.4	Tiles fixed to alignment maintaining designed pattern to specification.
		4.5	Even margins shown around openings, frames and fittings where feasible.
		4.6	Bottom and side course cut and fixed to rake, if required.
		4.7	Splayed, manufactured, formed or aluminium covers fixed, as required.
		4.8	All vertical tiles finished plumb and true to square corners.
		4.9	All joints maintained straight and uniform in width with due allowance for tolerance of tile.
		4.10	Expansion gaps built in accordance with specifications.
		4.11	Mitre joints made, maintaining glazing on mitre with no chips and uniform mitre.
5.	Grout tile face	5.1	Joints cleaned and prepared to receive grout according to manufacturer's specifications.
		5.2	Grout mixed and applied to manufacturer's specifications.
		5.3	Tiles cleaned and polished to specifications, removing all dust from surface and joints.
6.	Fix vertical mosaic sheets	6.1	Surface rendered to manufacturer's specifications and standards for mosaic.
		6.2	Sheets pre-grouted if required and paper faced and mesh backed mosaics fixed to background with adhesive.

		6.3	Adjustments made to ensure spacing uniform and pattern and alignment maintained.
		6.4	Area finished with mosaics level to line, if applicable, surface straight and flat and grout finished to specifications.
7.	Lay floor tiles using screeded mortar	7.1	Floor checked for level/falls square and membranes and reinforcing installed if required.
		7.2	Surface prepared free from contaminants and residues to receive screeded mortar.
		7.3	Cement mortar prepared to appropriate consistency and floor slurried as per specifications.
		7.4	Floor area tiled to specifications. Expansion gaps inserted as specified by manufacturer.
		7.5	Grout mixed and applied to job and manufacturer's specifications.
		7.6	Finished tile work polished and cleaned to specifications.
8.	Lay floor tiles using adhesives	8.1	Adhesive correctly matched with tile type according to usage and climatic conditions.
		8.2	Surface prepared free from residue and protrusions.
		8.3	Adhesive mixed to manufacturer's specifications, where applicable.
		8.4	Tiles fixed to manufacturer's specifications and to Building Standards. Expansion gaps left as specified between walls and tiles.
		8.5	Grout mixed and applied to clean joints and surface according to manufacturer's specifications.
		8.6	Finished tile work polished and cleaned to specifications.
9	Fix slate	9.1	Slate prepared by dusting or washing tiles to specifications.
		9.2	Colours/characteristics identified as per architect's drawings and specifications.

		9.3	Slate laid, maintaining bond if applicable, with joints uniform in size and surface as flat as practicable.
		9.4	Grout or mortar applied and slate surface cleaned and sealed to manufacturer's specifications.
10	Tile treads, risers, steps and thresholds	10.1	Rises and goings calculated according to the Building Code or determined from formed concrete steps/stairs.
		10.2	Steps set out for uniform rise and take even cut on both sides.
		10.3	Packing or render support fixed where applicable and riser tiles fixed to true alignment.
		10.4	Treads infill and thresholds fixed in line with the top edge of risers within -1mm.
		10.5	Grout applied to wet joints and finished flush with tiles to a smooth finish.
		10.6	Finished tile-work cleaned polished and free of pitted, chipped, cracked or scratched tiles resulting from work.
11	Repair damaged tile-work	11.1	Damaged tiles/s carefully removed avoiding damage to surrounding tiles.
		11.2	Old bedding cleaned and cleared to allow placement of replacement tile.
		11.3	Replacement tiles selected and cut where applicable to match existing face and pattern.
		11.4	Tiles fitted and fixed to maintain alignment with joints to uniform spacing.
		11.5	Grouting carried out and tile face cleaned to specified finish.
12	Clean up	12.1	Area cleared to specification.
		12.2	Waste and unwanted material disposed of safely.
		12.3	Unused materials stored/stacked.
		12.4	Tools and equipment cleaned, maintained and stored.

RANGE STATEMENT

This unit applies to the laying and fixing of floor and wall tiles.

Repair work to include heritage tiling.

Applies to walls, floors steps and includes the following types of tiles:

- ceramic
- terra cotta
- granite
- slate
- mosaics

Laying and fixing of ceramic tiles to be in accordance with:

- Standards Adhesives for fixing ceramic tiles
- Standards for the installation of ceramic tiles

Surfaces to which tiles may be fixed include:

- plasterboard
- fibre cement sheet
- brickwork
- block-work
- concrete
- rendered face

Personal protective equipment may include:

- safety goggles/glasses
- boots
- gloves
- respirators/dust masks
- knee pads
- ear plugs/muffs
- hard hats

Tools and equipment may include but are not limited to:

- tile cutters and scribers
- masonry drill bits
- measuring tape/rule
- trowels
- straight edge
- levels
- wet saw
- scrapers

Quality Assurance requirements may include:

- condition of tile
- quality of prepared surfaces
- quality of materials
- setting out procedures
- application procedures
- specified finish
- attention given to specifications of work
- workplace operations and procedures

OH&S requirements to be in accordance with Statutory Legislation and regulations and may include:

- protective clothing and equipment
- use of tools and equipment
- handling of materials
- hazardous materials
- use of tools and equipment
- working platforms

Methods of fixing tiles include:

- adhesives
- cement mortar
- cement mortar with adhesive additive

EVIDENCE GUIDE

Competence is to be demonstrated by carrying out both wall and floor tiling on both solid and sheet backgrounds using at least three separate types of tiles, one of which is to be mosaics, from 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 and tiling operations
- select and use appropriate processes, tools and equipment
- apply organisational quality procedures and processes within context of laying and repairing wall and floor tiles
- inspect background surface for conformity with requirements of job and specified adhesives
- set tiles symmetrical and accommodate fittings and fixtures where possible
- mark and cut holes and curves accurately to required locations
- cut tiles to conform to size and shape to ensure consistent joint size is achieved
- ensure tiles finished to line, level, square and flush face
- identify faults and problems that occur and necessary action taken to rectify

(2) Pre-requisites Relationship of Units

Pre-requisites for this unit are:

- BCGCOR0051A Use hand and power tools
- BCGCOR0081A Use simple levelling devices
- BCGTIL0121A Prepare for construction process (wall and floor tiling)
- BCGCOR0212A Prepare surfaces
- BCGCOR0242A Carry out levelling

This unit may be concurrently assessed with:

- BCGTIL1103A Tile corners

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- drawings and specifications
- preparation of surfaces
- setting out and levelling
- types of tiles and material characteristics
- adhesives and methods of application
- mortar composition
- hazards associated with solvents, adhesives and cement/epoxy based grouts
- tools and equipment
- cutting of tiles
- finishing techniques
- calculation of material requirements

Skills
The ability to:

- work safely
- interpret drawings and specifications
- organise work
- set-out work area
- use tools and equipment
- lay and fix tiles
- calculate material quantities
- communicate effectively
- cut tiles
- grout

(4) Resource Implications

The following resources should be provided:

- workplace location with surface/s prepared for tasks
- tools and equipment appropriate to tile laying and fixing processes
- tiles and materials appropriate to proposed tasks
- 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.

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

Competency 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 should be while tasks are undertaken individually under limited supervision.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 3	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

BSBSBM0012A: Craft personal entrepreneurial strategy

Competency Descriptor: This unit deals with the skills and knowledge required to craft an entrepreneurial strategy that fits with the attitudes, behaviours, management competencies and experience necessary for entrepreneurs to meet the requirements and demands of a specific opportunity.

Competency Field: Small Business Operations

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Demonstrate knowledge of the nature of entrepreneurship	1.1 Concepts associated with entrepreneurship are clearly defined.
	1.2 Factors which influence entrepreneurship in and outside of Jamaica are correctly identified and explained.
	1.3 The importance of entrepreneurship to economic development and employment is explained clearly.
	1.4 The findings of research conducted on entrepreneurial ventures and successes in the Caribbean region are clearly presented in an appropriate format.
	1.5 Differences between wage employment and entrepreneurial ventures are correctly stated.
2. Identify and assess entrepreneurial characteristics	2.1 Relevant research is carried out and required entrepreneurial characteristics identified.
	2.2 Entrepreneurial characteristics identified are assessed and ranked.
	2.3 An understanding of the process and discipline that enable an individual to evaluate and shape choices and to initiate effective action is correctly demonstrated.
	2.4 Factors that will help an entrepreneur to manage the risk and uncertainties of the future, while maintaining a future orientated frame of mind, are identified.

3.	Develop self-assessment profile	3.1	Self-assessment tools/methods to identify personal entrepreneurial potential are identified and properly used.
		3.2	The ability to apply creativity, problem-solving techniques and principles to solve business related problems are demonstrated.
		3.3	Feedback from others for the purpose of becoming aware of blind spots and for reinforcing or changing existing perceptions of strengths/ weaknesses is appropriately obtained.
4.	Craft an entrepreneurial strategy	4.1	A profile of the past that includes accomplishments and preferences in terms of life and work styles, coupled with a look into the future and an identification of what one would like to do is developed.
		4.2	Commitment, determination and perseverance; orientation towards goals; taking initiative and accepting personal responsibility; recognizing management competencies and identifying areas for development are determined.
		4.3	Written guidelines to obtain feedback that is solicited, honest, straightforward, and helpful but not all positive or negative are developed to facilitate reviews.
		4.4	Framework and process for setting goals which demand time, self-discipline, commitment, dedication and practice are developed.
		4.5	Goals established are specific and concrete, measurable, relate to time, realistic and attainable.
		4.6	Priorities, including identifying conflicts and trade-offs and how these may be resolved are established.
		4.7	Potential problems, obstacles and risks in meeting goals are identified.
		4.8	Specified action steps that are to be performed in order to accomplish goals are identified.
		4.9	The method by which results will be measured is indicated.

4.10 Milestones for reviewing progress and tying these to specific dates on a calendar are established.

4.11 Sources of help to obtain resources are identified.

4.12 Evidence of the ability to review process and periodically revise goals is demonstrated.

RANGE STATEMENT

At this stage of the entrepreneurial process the entrepreneur must be able to conduct a self-assessment profile, examine the frame work for self assessment, develop a personal entrepreneurial strategy, identify data to be collected in the self-assessment process and learn about receiving feedback and setting goals.

Concepts associated to include:

- risk
- entrepreneurship
- macro-screening
- micro-screening
- competition
- wage employment

Influencing factors to include:

- market conditions
- markets – demand/supply
- global trends
- level of economic activities
- funding
- economic stability
- social stability
- resources availability

The entrepreneur must be able to:

- understand the extreme complexity in predicting or aligning him/herself to specific careers in an environment of constant change
- determine the kind of entrepreneur he or she wants to become based on attitudes, behaviours, competencies, experience and how these fit with the requirements and demands for a specific opportunity
- evaluate thoroughly his or her attraction to entrepreneurship
- effectively develop personal plan
- utilize available information that will enhance his or her ability to achieve success

The entrepreneur may encounter setbacks if the planning process is not effectively pursued.

Pitfalls may include:

- proceeding without effective planning which may result in commitment to uncertainty
- commitment to a premature path with the desirability of flexibility can lead to disaster
- personal plans fail for the same reasons as business plans including frustration if the plan appears not to be working immediately and the challenges of changing behaviour from an activity-oriented routine to one that is goal oriented
- developing plans that fail to anticipate obstacles, and those that lack progress milestones and reviews

EVIDENCE GUIDE

Competency is to be demonstrated when the entrepreneur is able to undertake a personal entrepreneurial assessment exercise to determine if he or she possesses the necessary credentials to be a successful entrepreneur. This stage of the entrepreneurial process is critical since experience has shown that the founder is one of the deciding forces if the venture is to succeed and prosper.

(1) Critical Aspects of Evidence

The entrepreneur will be assessed by his/her action in developing an orchestrated plan in order to effectively pursue the business concept.

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- personal entrepreneurial profile systems
- effective management systems: marketing, operations/productions, finance, administration, law
- how to measure feedback
- the method of developing a personal plan
  and a business plan
- understanding the difference between entrepreneurial culture and management culture

Skills
The ability to:

- determine barriers to entrepreneurship
- minimize exposure to risk
- exploit any available resource pool
- tailor reward systems to meet a particular situation
- effectively plan and execute activities
- use computer technology to undertake assessments

(4) Resource Implications

The following resources should be made available:

Personal computer with access to the internet and appropriate software that will enable one to conduct the necessary analysis using the internet

(5) Method of Assessment

A useful method of assessment is to determine if the venture can stand up to the test of critical evaluation.

(6) Context of Assessment

This stage of the entrepreneurial process is assessed when comparisons are made between actual outcomes and plans/projections.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

MEMMRD0592A: Test, evacuate and charge refrigeration systems

Competency Descriptor: This unit deals with the skills and knowledge required to effectively test evacuate and charge refrigeration systems and applies to all individuals working in the metal, engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Assess refrigeration system operation	1.1 Basic refrigeration system operating principles and terminology are understood.
	1.2 All relevant information is obtained and correctly interpreted prior to the commencement of work on the refrigeration system.
	1.3 Refrigeration system checks are undertaken safely in accordance with standard operating procedures.
	1.4 Pressures and temperatures are correctly determined and recorded.
	1.5 The refrigeration system is checked for current operating condition.
2. Test system and components	2.1 Equipment selected for use is appropriate for the testing method to be applied.
	2.2 Equipment selected for use is appropriate for the type of refrigerant in the system.
	2.3 Connections between the testing apparatus and the system are correctly located, sound and leak proof.
	2.4 The appropriate test is conducted on both sides of the equipment/compressor.
	2.5 All leaks are correctly detected and their sources correctly identified.
3. Evacuate and charge system	3.1 Equipment selected for use is appropriate for the evacuation method to be applied.
	3.2 Equipment selected for use is appropriate for the charging method to be applied.

	3.3	Connections between the testing apparatus and the system are correctly located, sound and leak proof.
	3.4	The refrigeration system is evacuated in accordance with standard operating procedures, codes and regulations.
	3.5	The refrigeration system is charged in accordance with standard operating procedures, codes and regulations.
	3.6	Measurements taken during the process are carefully analysed and recorded as required.
	3.7	The refrigerant evacuated from the refrigeration system is contained/disposed of in accordance with the relevant codes and regulations.
4. Clean up	4.1	Materials/supplies/equipment are stacked /stored for re-use or disposal.
	4.2	Work area is cleared.
	4.3	Tools and equipment are cleaned and stored in a cool place.
	4.4	Waste is disposed of using appropriate method according to National Environmental Protection Agency (NEPA) requirements, industry standards and company's operating procedures.

RANGE STATEMENT

Work is undertaken under supervision or in a team environment using predetermined standards of safety, quality and workshop procedures.

Refrigeration systems may be associated with refrigeration and air conditioning applications including commercial, industrial and transport.

All work is to be undertaken in accordance with all relevant standard and regulatory requirements. Refrigerants include CFCs, HFCs, ammonia, etc.

Tools and equipment may include:

- vacuum pump
- high vacuum gauge
- recovery machine
- moisture indicator
- recovery/recycling machine
- pressure gauges

Methods may include:

- triple vacuum method
- deep vacuum method

Charging tools:

- charging cylinder
- digital scales
- vacuum pump
- vacuum indicator
- compound gauge
- amprobe
- mobile vacuum and charging station

Charging method:

- weight the charge in
- volume charging
- charging using a sight glass
- charging using a charging chart
- using a frost line

Working activities may include:

- connect manifold and gauges
- testing system
- evacuate system to desired micron reading
- perform standing vacuum
- charging system

Test methods may include:

- leak testing with soap solutions
- leak testing with halide torch
- leak testing with litmus paper

Purging/evacuating method may include:

- deep vacuum
- triple evacuation method

EVIDENCE GUIDE

Competency is to be demonstrated by safely and effectively evacuating and dehydrating refrigeration system in accordance with the range 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
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools, plant and equipment
- demonstrate the ability to set up tool and equipment to evacuate system
- demonstrate correct procedures in testing refrigeration system
- demonstrate correct procedures in evacuating and dehydrating refrigeration system
- demonstrate correct procedures in charging refrigeration system
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies/equipment
- interactively communicate with others to ensure safe operations
- demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

- MEMCOR0171A Use graduated measuring devices
- MEMCOR0091A Draw and interpret sketches and simple drawings
- MEMCOR0191A Use hand tools
- MEMCOR011A Use power tools
- MEMMRD0081A Remove, dismantle assemble and replace basic engineering components

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety regulations
- basic tools/equipment for evacuating and dehydrating refrigeration system
- basic tools/equipment for testing refrigeration system
- basic tools/equipment for charging refrigeration system
- standard characteristics of basic refrigeration system components
- standard testing, evacuating and charging methods
- standard refrigeration system components
- standard operational test for refrigeration system
- manufacturers standard specification
- standard application/ refrigeration system
- reading
- writing basic English
- basic numeracy

Skills
The ability to:

- follow safely to instructions
- use hand tools
- handle materials
- select correct equipment/tools
- apply quality assurance
- perform testing of refrigeration system
- perform evacuating and dehydrating of refrigeration system
- perform charging of refrigeration system

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

Resource Implications (Cont'd)

The candidate will be required:

- 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.

Evidence of competence may be obtained through a variety of methods including:

- observation
- oral questioning
- examination of assessee's portfolio/CV
- supporting statement from section engineer, supervisor or equivalent
- examples of related activities to which applicant has contributed, or worked on
- training courses on material related to range of variables and or knowledge requirement
- examples of authenticated assessments and/or assignments from formal education courses
- simulation

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be assessment environment should not disadvantage the candidate.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
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Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.