

22309VIC

Course in Fibrous Plastering (Shopwork)

Version 1



For office use only

Accredited by	Victorian Registration and Qualifications Authority
From	1 January 2016
To	31 December 2020
Course Code	22309VIC

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Section A: Copyright and course classification information



Section A: Copyright and course classification information

1. Copyright owner of the course	Copyright of this material is held by the Department of Education and Training, Victoria. © State of Victoria (Department of Education and Training) 2015
2. Address	Executive Director Training System Performance and Industry Engagement Higher Education Skills Group Department of Education and Training GPO Box 4367 MELBOURNE VIC 3001 Day-to-day contact: Curriculum Maintenance Manager - Building and Construction Holmesglen Institute PO Box 42 HOLMESGLEN VIC 3148 Email: teresa.signorello@holmesglen.edu.au (T): 03 9564 1987 (F): 03 9564 1538
3. Type of submission	This course is submitted for reaccréditation and replaces and is not equivalent to 22137VIC Certificate III in Fibrous Plastering (Shopwork).
4. Copyright acknowledgement	Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Education and Training) 2015.
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6. Course accrediting body	Victorian Registration and Qualifications Authority (VRQA) Website: www.vrqa.vic.gov.au http://www.vrqa.vic.gov.au/

Section A: Copyright and course classification information

7. AVETMISS information	ANZSCO (OCCUPATIONAL TYPE) CODES	333211 Fibrous Plasterer
	ASCED (FIELD OF EDUCATION) CODE	0403 Building
	National course code	22309VIC
8. Period of accreditation	1 January 2016 to 31 December 2020	

Section B: Course information



Section B: Course information

<p>1. Nomenclature</p> <p>1.1 Name of the qualification</p> <p>1.2 Nominal duration of the course</p>	<p>Course in Fibrous Plastering (Shopwork)</p> <p>560 hours</p>
<p>2. Vocational or educational outcomes</p> <p>2.1 Purpose of the course</p>	<p>The 22309VIC Course in Fibrous Plastering (Shopwork) provides an accredited training program and vocational outcomes for a person wishing to gain the skills and knowledge required to undertake architectural/modern/heritage restoration works within the building and construction industry. This course does not align with any specific AQF level.</p> <p>On completion of the 22309VIC Course in Fibrous Plastering (Shopwork) participants will have the skills and knowledge to:</p> <ul style="list-style-type: none"> • cast architectural features in plaster and cement • produce moulds • make up models • restore architectural features.
<p>3. Development of the course</p> <p>3.1 Industry/enterprise/community needs</p>	<p>The fibrous plastering field is a small, yet valuable component of the building and construction industry. Traditionally associated with the preservation of aged and heritage listed buildings, fibrous plastering skills are being used increasingly in modern contexts. The interiors of commercial premises, such as casinos and shopping centres, and new residential houses that reflect period features, are emerging markets for this skill base.</p> <p>There is growing concern within industry, however that the fibrous plastering skill set is deteriorating. State wide consultation with urban and regional businesses confirmed the view that a lack of domestically trained fibrous plasterers in the short term may negatively impact industry's ability to service consumer demand for architectural/modern/heritage restoration work into the future. These employers, together with the Association of Wall and Ceiling Industries of Australia and New Zealand Inc. expressed strong support for the preservation of this skill.</p> <p>During consultation for the development of this course, it also became evident that there was not enough recognition within the broader building and construction industry of the specialised and significant nature of this particular industry sector.</p> <p>The skill of the fibrous plasterer is unique and differs to that of traditional trades. They are considered artisans who have a flair for design and an appreciation of history, period features and styles. Their work involves design, drawing and sculpting for architectural modelling, mould making and casting. While some new materials, such as rubber and silicon, have recently been introduced to the trade, methods and techniques have remained fairly static over time.</p>

3.2 Review for re-accreditation

Fibrous plasterers utilise particular conservation methods according to the Burra Charter to adhere to strict quality standards for restoration and repair. Due to the significant heritage and building conservation legislation now in place, industry confirmed the need for best practice restoration to be completed by industry trained specialists.

The determination of course need should therefore encompass both the cultural value of this skill, the specialist skill and knowledge required of the trade and economic/student demand.

Target group for the course

The course is aimed at solid plastering apprentices and qualified tradespeople looking to expand their skill base. Participants who complete the Course in Fibrous Plastering (Shopwork) will have the skills and knowledge necessary to plan and undertake architectural/modern/heritage restoration work in a variety of buildings.

A Project Steering Committee (PSC) was formed to oversee the accreditation of the course consisting of:

- Mr Dave Robinson, Regency Plaster Contracting (Chair)
- Mr Shane Bruce, Picton Hopkins & Sons
- Mr Mark Toy, Association of Wall and Ceiling Industries of Australia and New Zealand Inc.
- Mr Chris Kefalas, Melbourne Polytechnic
- Mr Robert Page/Steve Falla, Northern Plasterboard
- Mr Liam O'Hearn, Construction, Forestry, Mining and Energy Union

In attendance:

- Ms Teresa Signorello, Curriculum Maintenance Manager (CMM), Building and Construction, Holmesglen Institute
- Ms Susan Fechner, Project Officer, Holmesglen Institute

The Course in Fibrous Plastering (Shopwork) does not duplicate existing training products.

This application is being made for a reaccreditation on behalf of the Department of Education and Training.

The current course 22137VIC Certificate III in Fibrous Plastering (Shopwork) is due to expire on 31 December 2015.

The 22137VIC Certificate III in Fibrous Plastering (Shopwork) has experienced poor student enrolment as a stand-alone qualification since its accreditation in 2010. Discussions with the four RTO's registered to provide the 22137VIC Certificate III in Fibrous Plastering (Shopwork) confirmed that low, or in some cases, no enrolments resulted in the course not being offered.

The Course in Fibrous Plastering (Shopwork) has been redeveloped to meet a specialised need that was not addressed in an existing Training Package.

Transition arrangements.

Table 1 on the following page maps the existing course structure to the new course. 22309VIC Course in Fibrous Plastering (Shopwork) replaces and is not equivalent to 22137VIC Certificate III in Fibrous Plastering (Shopwork).

Table 1: Transition arrangements

22309VIC Course in Fibrous Plastering (Shopwork)		22137VIC Certificate III in Fibrous Plastering(Shopwork)		Relationship
Unit code	Unit title	Unit code	Unit title	
		CPCCOHS1001A	Work safely in the construction industry	Deleted
		CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry	Deleted
VU21851	Make up models	VU20519	Make up models	Equivalent
VU21852	Produce moulds	VU20520	Produce moulds	Equivalent
VU21853	Cast architectural features in plaster	VU20521	Cast architectural features in plaster	Equivalent
VU21854	Cast architectural features in cement	VU20522	Cast architectural features in cement	Equivalent
VU21855	Restore architectural features	VU20523	Restore architectural features	Equivalent
		CPCCCM2006A	Apply basic levelling procedures	Deleted
		CPCCCM1004A	Conduct workplace communication	Deleted
		CPCCSP2001A	Handle solid plastering materials	Deleted
		CPCCSP2002A	Use solid plastering tools and equipment	Deleted
		CPCCCM1002A	Work effectively and sustainably in the construction industry	Deleted
		CPCCCM1003A	Plan and organise work	Deleted
		CPCCCM1005A	Carry out measurements and calculations	Deleted
		CPCCCM2001A	Read and interpret plans and specifications	Deleted

<p>4. Course outcomes</p> <p>4.1 Qualification level</p> <p>4.2 Employability skills</p> <p>4.3 Recognition given to the course (if applicable)</p> <p>4.4 Licensing/regulatory requirements (if applicable)</p>	<p>The 22309VIC Course in Fibrous Plastering (Shopwork) meets an identified industry and community need but does not have the breadth, depth and volume of learning of a qualification.</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>Participants who visit a construction site will require a Construction Induction Card (CIC) issued by Work Safe Victoria. Further information is available at www.worksafe.vic.gov.au.</p> <p>There are no licensing requirements for this course.</p>
<p>5. Course rules</p> <p>5.1 Course structure</p>	<p>To be awarded the 22309VIC Course in Fibrous Plastering (Shopwork) participants must successfully complete all five units of competency.</p> <p>Where the full course is not completed a Statement of Attainment will be issued for any completed unit.</p>

Unit of competency/ module code	Field of Education code (six-digit)	Unit of competency/module title	Pre-requisite	Nominal hours
Core units				
VU21851	040317	Make up models	Nil	200
VU21852	040317	Produce moulds	Nil	180
VU21853	040317	Cast architectural features in plaster	Nil	100
VU21854	040317	Cast architectural features in cement	Nil	40
VU21855	040317	Restore architectural features	Nil	40
Total nominal hours				560

5.2 Entry requirements

To undertake the Course in Fibrous Plastering (Shopwork) you must be a qualified plasterer or plastering apprentice.

The following is a general guide to entry in relation to the language, literacy and numeracy skills of learners aligned to the Australian Core Skills Framework (ACSF), details of which can be accessed from:

http://www.industry.gov.au/skills/ForTrainingProviders/AustralianCoreSkillsFramework/Documents/ACSF_Document.pdf
http://www.industry.gov.au/skills/ForTrainingProviders/AustralianCoreSkillsFramework/Documents/ACSF_Document.pdf

Learners are best equipped to achieve the course outcomes in the Course in Fibrous Plastering (Shopwork) if they have minimum language, literacy and numeracy skills that are equivalent to Level 2 of the ACSF.

Learners with language, literacy and numeracy skills at a lower level than suggested will require additional support to successfully undertake the course in.

6. Assessment

6.1 Assessment strategy

Standard 10 AQTF Standards for Accredited Courses

All assessment will be consistent with the AQTF Essential Conditions and Standards for Initial/Continuing Registration Standards 1.2/1.5.

or

Standard 1: Clauses 1.1 and 1.8 of the Standards for Registered Training Organisations (SRTOs) 2015.

See:

<https://www.comlaw.gov.au/details/F2014L01377>.

The nature of work undertaken in this industry is hands-on and practical. Assessment strategies should therefore reflect this.

It is recommended that the assessment strategy for the Course in Fibrous Plastering (Shopwork) includes:

- oral or written questioning related to underpinning knowledge
- the practical demonstration of activities which combine a number of learning outcomes to provide depth and context to the training
- holistic assessment that reflects realistic job tasks.

Assessment must be consistent with the evidence guide statements within individual units.

Assessment may occur in a workplace, simulated workplace or classroom that has access to the appropriate resources as detailed in section 7.2.

6.2 Assessor competencies	<p>Standard 12 AQTF Standards for Accredited Courses</p> <p>Assessor competencies for this course are consistent with the requirements of the AQTF Standards for Registration Standard 1.4 that requires trainers and assessors to:</p> <ul style="list-style-type: none"> • have the training and assessment competencies determined by the National Skills Standards Council (NSSC) or its successors, • have the relevant vocational competencies at least to the level being delivered or assessed, and; • continue to develop their vocational and training and assessment competencies to support continuous improvements in the delivery of RTO services. <p>See AQTF User Guide to the Essential Conditions and Standards for Initial/Continuing Registration or Standard 1: Clauses 1.13, 1.14, 1.15, 1.16 and 1.17 of the Standards for Registered Training Organisations (SRTOs) 2015.</p>
7. Delivery 7.1 Delivery modes	<p>Some areas of content may be common to more than one element or more than one unit and therefore integration may be appropriate. The course aims to develop practical competencies within an industry setting. Practical demonstrations and opportunity for application are considered to provide the most suitable strategy to reflect the objectives of the course.</p> <p>The units may be delivered singularly, or they may be integrated holistically with a number of units. The units have been developed to support a variety of applications within the context of the suggested range of conditions. This particularly involves the use of practical industry-based activities and/or projects to develop knowledge and skills.</p> <p>Practical exercises may take the form of realistic, holistic projects to provide the participants with 'real work' experience.</p> <p>Appropriate projects may include:</p> <ul style="list-style-type: none"> • restorations • redevelopments • practical tasks within simulated work environments. <p>Units of competency may be contextualised to meet the needs of different groups of students.</p>
7.2 Resources	<p>Resources include teachers/trainers who meet the Australian Quality Training Framework Essential Conditions and Standards for Initial/Continuing Registration Standard 1.4 or Standard 1: Clauses 1.13, 1.14, 1.15, 1.16 and 1.17 of the Standards for Registered Training Organisations (SRTOs) 2015.</p> <p>Personal protective equipment (PPE) is identified in each of the specific units. The use of these OHS resources and the safe use of tools and equipment are implicit in every unit within the course and must be incorporated with the introduction of any new task or activity.</p>

	<p>The following resources are required:</p> <ul style="list-style-type: none"> materials, tools and equipment relevant to casting architectural features in plaster and cement, making models, mould production and creation and/restoration of architectural features specifications and work instructions workshop facilities to allow the proper curing of cast items relevant documentation and legislation pertinent to fibrous plastering (shopwork). <p>Refer to the individual units for specific tool and equipment requirements.</p>
<p>8. Pathways and articulation</p>	<p>There is no formal articulation or credit transfer arrangements into other VET or higher education qualifications.</p>
<p>9. Ongoing monitoring and evaluation</p>	<p>The Curriculum Maintenance Manager for Building and Construction is responsible for the ongoing monitoring and evaluation of the Course in Fibrous Plastering (Shopwork).</p> <p>A formal review will take place once, during the period of accreditation, and will be informed by feedback from the users of the curriculum and will consider at a minimum:</p> <ul style="list-style-type: none"> any changes required to meet emerging or developing needs <p>Any significant changes to the courses will be notified to the VRQA.</p>



Appendix 1 – Skills and knowledge profile

Skills and knowledge outcomes

A skills and knowledge survey was developed to identify current skills and knowledge requirements in the industry. Key organisations within industry were consulted as part of a job analysis workshop, where the skills and knowledge required by fibrous plasterers were identified and a skills and knowledge profile was drafted.

It was recognised that operators in the shopwork sector of the fibrous plastering industry produce architectural items in Plaster of Paris for the fitting out and finishing of rooms. Typical products, known as ‘trade items’ made by this sector include ceiling roses, cornices, corbels and other decorative and functional features.

Creating new products is also required and involves developing an initial design, the sculpting of specific models, the making of moulds using a number of different techniques and finally the casting and finishing of trade items from the moulds. Fibrous Plasterers (Shopwork) require broad skill, ability and knowledge to be able to create the range of products they are called on by industry to produce.

This profile information was used to develop the units of competency for the course.

Qualification outcomes

This is a ‘Course in’ and as such does not have an AQF level applied.

Knowledge outcomes

- Different sources of information for undertaking research
- Fibrous plastering terminology commonly used in practice
- Material and component types, characteristics, applications and limitations
- Measurement and calculation, including mixing ratios, relevant to the making of moulds, models and casting
- Tools and equipment used in fibrous plastering, and procedures for their safe use, operation and maintenance
- Relevant sections of the Burra charter for restoration and preservation works
- Architectural styling as it applies to commercial, heritage and new housing work
- Types of restoration and architectural modelling and moulding techniques, including carving and casting techniques
- Types of casting methods for cement and plaster
- Types of mould and modelling methods
- Workplace procedures and appropriate use and implementation
- OHS requirements, policies and procedures used in the construction industry including respiratory apparatus and hand signalling
- Drawing techniques to design or interpret sketches of trade items.

Skills outcomes

- Casting skills to produce architectural features in plaster and cement
- Design skills to interpret sketches or produce drawings for restoration works and trade items
- Application of OHS requirements, policies and procedures in the construction industry including the use of respiratory apparatus and hand signals
- Make models to meet design requirements
- Reproduction techniques to produce moulds and prototypes
- Make moulds to meet the requirements of the selected manufacturing process
- Renovate or replicate heritage plaster features
- Select manufacturing processes appropriate for making trade items
- Use tools and materials sustainably with minimal wastage
- Communication skills to:
 - discuss and interpret work requirements
 - report variations to workplace and OHS/WHS procedures
- Literacy skills to:
 - research information for restoration projects
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - apply a range of appropriate mathematical calculations
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
- Problem solving skills to recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials or process
- Move and store materials and components
- Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling.

Section C: Units of competency

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VU21851 Make up models	38
VU21852 Produce moulds.....	47
VU21855 Restore architectural features.....	56



VU21853

Cast architectural features in plaster

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to cast a range of architectural features in plaster using appropriate materials and casting methods. Casting involves the identification of the most appropriate casting method, casting materials and mixing ratio to produce long lasting, high definition finished products.

Employability Skills

This unit contains employability skills.

Pre-requisite unit(s)

Nil.

Application of the Unit

This unit supports the attainment of skills and knowledge to cast architectural features in plaster. The casting of architectural features in plaster applies to a known workplace environment with established parameters and under general supervision.

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

1. Plan and prepare for casting in plaster

- 1.1 **Work instructions** including plans, specifications, quality requirements and operational details are obtained from relevant **sources**, interpreted and applied to the **scope of work** performed.
- 1.2 **Occupational Health and Safety (OHS)/Work Health and Safety (WHS)** requirements are followed in accordance with safety plans, workplace policies and procedures.
- 1.3 **Tools and equipment** selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.
- 1.4 **Casting methods** are considered and selected according to the given casting activity.
- 1.5 **Materials** selected to carry out tasks are suited to the requirements of the job.

ELEMENT	PERFORMANCE CRITERIA
	<p>1.6 Environmental requirements are identified and applied to the job in accordance with the organisation's environmental plan and statutory and legislative authority obligations.</p>
<p>2. Prepare moulds for casting</p>	<p>2.1 Appropriate mould is selected to produce the required number of castings.</p> <p>2.2 Mould is checked for serviceability and identified flaws are repaired in accordance with work instructions.</p> <p>2.3 Mould is prepared for casting using appropriate type and amount of release agent.</p>
<p>3. Produce casts of architectural features</p>	<p>3.1 Correct plaster to water ratio is selected to achieve appropriate material characteristics and volume.</p> <p>3.2 Appropriate mixing techniques are demonstrated to achieve a homogenous lump free blending of casting material.</p> <p>3.3 Architectural features are cast using appropriate casting techniques and a solid product is produced, free of voids or blemishes.</p>
<p>4. Carry out de-moulding of cast architectural features</p>	<p>4.1 Cast removal techniques are demonstrated which minimise damage to cast or mould.</p> <p>4.2 Cast items are inspected, damage is identified and appropriate repairs undertaken to restore cast to required level of finish.</p> <p>4.3 Salvage is removed from cast to restore surface finish.</p> <p>4.4 Completed items are stored in drying room to ensure most efficient drying process and to minimise risk of damage.</p> <p>4.5 Work is performed so as to maintain a safe and healthy work environment for self and others.</p>
<p>5. Clean work area</p>	<p>5.1 Work area is cleaned and materials disposed of, reused or recycled in accordance with environmental requirements, legislation such as regulations, codes of practice and job specifications.</p> <p>5.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices.</p>

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills to:
 - discuss and interpret work requirements
 - follow instructions
 - read and interpret:
 - * documentation from a variety of sources
 - * drawings and specifications
 - report faults in tools, equipment, materials and processes to appropriate personnel
 - use and interpret non-verbal communication, such as hand signals
- Literacy skills to:
 - research information for restoration projects
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - apply appropriate mathematical calculations for casting architectural features in plaster including mixing ratios, estimation and measurement
- Problem solving skills to:
 - recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials or process
 - move and store materials and components using MSDS information and instructions and manufacturing process
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
- Casting skills to produce architectural features in plaster
- Teamwork skills to:
 - work with others to action tasks
- Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling
- Use tools and materials sustainably with minimal wastage
- Follow enterprise OHS/WHS procedures.

Required knowledge

- Safety plans for work tasks
- OHS/WHS policies and procedures used in the construction industry
- Materials and tool storage requirements
- Environmentally friendly waste management practices
- Material safety data sheets (MSDS) relevant to the task
- Architectural styling for commercial, heritage and new housing applications
- Plaster casting terminology
- Casting tools and equipment and their applications
- Types, characteristics, applications and limitations of casting materials and components, including use of accelerants and mixing ratios
- Casting methods appropriate to the production of plaster and cement features and fixtures
- Workflow sequencing in relation to the production of plaster architectural features.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work instructions may include:

- plans
- specifications
- quality requirements
- operational details.

Sources may include:

- diagrams or sketches
- instructions issued by authorised organisations or external personnel, such as architects, heritage organisations and clients
- memos
- manufacturer's specifications and instructions where specified
- material safety data sheets (MSDS)
- relevant Australian standards
- safe work procedures relating to modelling, moulding and/or casting plaster features and fixtures
- workplace signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Scope of work may include:

- producing architectural features using plaster-based materials
- the identification of appropriate casting methods and selection of moulds for a given casting activity
- de-moulding after casting, curing and storage of items to minimise the chance of damage prior to use.

OHS/WHS may include:

- state or territory legislation and regulations
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices due to size, weight or other issues, such as disability

OHS/WHS may include:
(Continued)

- hazard control
- hazardous materials and substances including cement, lime and additives
- organisational first aid
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policy and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - lighting
 - power equipment
 - power leads
 - trip hazards
 - work site visitors and the public
 - working in close proximity to others
 - use of fire fighting equipment
 - use of tools and equipment.

Tools and equipment may include:

- modelling and carving tools
- measuring tape/rulers
- squares
- files
- joint rules
- metal shears
- straight edges
- drills
- hammers
- power leads
- broad knives
- paint brushes
- timber floats and small tools
- sponges
- chisels
- buckets
- leaf/small tools

Tools and equipment may include:
(Continued)

- brooms
- plasterer's trowels
- mobile phones
- two-way communication equipment.

Casting methods may include:

- two gauge casting utilising reinforcement materials
- run casting
- piece casting.

Materials may include:

- casting plaster
- mould release agent
- reinforcement:
 - fibreglass
 - accelerants
 - retardants.

Environmental requirements may include:

- suppression of dust
- waste removal
- stormwater protection.

Architectural features may include:

- plaques
- straight and curved balustrading
- columns
- urns
- statuettes
- wall niches
- capitals
- key stone and quion stones
- plaster lettering.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Elements, Performance Criteria, Required Skills and Knowledge, the Range Statement and the assessment section in section B of the accreditation submission.

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

- Evidence of the following is essential:
 - locate, interpret and apply relevant information, standards and specifications
 - comply with site safety plan and OHS/WHS legislation, including Acts, regulations and codes of practice applicable to workplace operations
 - plan and execute work within agreed timeframe to specified standards under general supervision and demonstrating minimum material wastage
 - mix materials to the required plaster to water ratios ranging from 40 parts per 100 parts water to 70 parts per 100 parts water
 - cast architectural features using appropriate moulding techniques to produce items that are sound in construction and free of voids or blemishes.
- As a minimum, cast features must include:
 - one corbel or similar utilising, at a minimum, one four piece plaster mould
 - one feature utilising a synthetic rubber mould
 - one feature utilising a run casting process
 - one length of ornamental cornice
 - at least one of the above features must include two gauge casting using appropriate reinforcement
 - at least one of the above features must involve wet casting that utilises accelerant.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace.
- An assessment must be conducted using current workplace techniques, procedures, tools, equipment and materials, and in accordance with all legal work requirements.
- Evidence may include the results of projects, and evidence of the process the participant followed.
- The following resources are required:
 - materials, tools and equipment relevant to casting architectural features in plaster
 - specifications and work instructions
 - facilities to allow the proper curing of cast items
 - sample models demonstrating expected levels of accuracy and finish.

Method of assessment

- A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
 - direct observation of the candidate in a real workplace setting or simulated environment
 - written and oral questioning to test underpinning knowledge and its application to casting architectural features in plaster
 - project activities that allow the candidate to demonstrate the application of knowledge and skills
 - review of portfolio evidence and third party workplace reports of on-the-job performance by the candidate.
- Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

VU21854

Cast architectural features in cement

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to cast a range of architectural features in cement-based materials. Casting involves wet casting and pressed cement casting methods, mixing casting materials and handling items to allow proper curing and avoid possible damage prior to installation.

Employability Skills

This unit contains employability skills.

Pre-requisite unit(s)

Nil.

Application of the Unit

This unit supports the attainment of skills and knowledge to cast architectural features in cement. The casting of architectural features in cement applies to a known workplace environment with established parameters and under general supervision.

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

- | | |
|---|--|
| 1. Plan and prepare for casting in cement | <p>1.1 Work instructions including plans, specifications, quality requirements and operational details are obtained from relevant sources, interpreted and applied to the scope of work performed.</p> <p>1.2 Occupational Health and Safety (OHS)/Work Health and Safety (WHS) requirements are followed in accordance with safety plans, workplace policies and procedures.</p> <p>1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.</p> <p>1.4 Casting methods are considered and selected according to the given casting activity.</p> <p>1.5 Materials selected to carry out tasks are suited to the requirements of the job.</p> |
|---|--|

ELEMENT	PERFORMANCE CRITERIA
	1.6 Environmental requirements are identified and applied to the job in accordance with the organisation's environmental plan and statutory and legislative authority obligations.
2. Prepare moulds for casting	2.1 Appropriate mould is selected to produce the required number of castings. 2.2 Mould is checked for serviceability and identified flaws are repaired in accordance with work instructions. 2.3 Mould is prepared for casting using appropriate type and amount of release agent.
3. Produce casts of architectural features	3.1 Correct cement to sand to water ratio is selected to achieve appropriate material characteristics and volume. 3.2 Appropriate mixing techniques are demonstrated to achieve a homogenous lump free blending of casting material. 3.3 Architectural features are cast using appropriate casting techniques and a solid product is produced, free of voids or blemishes.
4. Carry out de-moulding of cast architectural features	4.1 Cast removal techniques are demonstrated which minimise damage to cast or mould. 4.2 Cast items are inspected, damage is identified and appropriate repairs undertaken to restore cast to required level of finish. 4.3 Salvage is removed from cast to restore surface finish. 4.4 Completed items are stored to ensure most efficient curing process and to minimise risk of damage. 4.5 Work is performed to maintain a safe and healthy work environment for self and others.
5. Clean work area	5.1 Work area is cleaned and materials disposed of, reused or recycled in accordance with environmental requirements , legislation such as regulations, codes of practice and job specifications. 5.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufactures' recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills to:
 - discuss and interpret work requirements
 - follow instructions
 - read and interpret:
 - * documentation from a variety of sources
 - * drawings and specifications
 - report faults in tools, equipment, materials and processes to appropriate personnel
 - use and interpret non-verbal communication, such as hand signals
- Literacy skills to:
 - research information for restoration projects
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - apply appropriate mathematical calculations for casting architectural features in cement including mixing ratios, estimation and measurement
- Problem solving skills to:
 - recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials or process
 - move and store materials and components using MSDS information and instructions and manufacturing process
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
 - Casting skills to produce architectural features in cement
- Teamwork skills to:
 - work with others to action tasks Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling
- Use tools and materials sustainably with minimal wastage
- Follow enterprise OHS/WHS requirements.

Required knowledge

- Safety plans for work tasks
- OHS/WHS policies and procedures used in the construction industry
- Materials and tool storage requirements
- Environmentally friendly waste management practices
- Material safety data sheets (MSDS) relevant to the task
- Cement casting terminology
- Architectural styling for commercial, heritage and new housing applications
- Casting tools and equipment and their applications
- Types, characteristics, applications and limitations of casting materials and components, including use of accelerants and mixing ratios
- Casting techniques and methods appropriate to the production of cement features and fixtures
- Workflow sequencing in relation to the production of cement-based architectural features.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work instructions

may include:

- plans
- specifications
- quality requirements.

Sources may include:

- diagrams or sketches
- instructions issued by authorised organisations or external personnel, such as architects, heritage organisations and clients
- manufacturer's specifications and instructions where specified
- materials safety data sheets (MSDS)
- memos
- relevant Australian standards
- safe work procedures relating to modelling, moulding and/or casting cement features and fixtures
- workplace signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Scope of work may include:

- producing architectural features using cement-based materials
- the identification of appropriate casting methods and selection of moulds for a given casting activity
- de-moulding after casting, curing and storage of items to minimise the chance of damage prior to use.

OHS/WHS may include:

- state or territory legislation and regulations
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices due to size, weight or other issues, such as disability
- hazard control
- hazardous materials and substances including cement, lime and additives
- organisational first aid
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policy and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - lighting
 - power equipment
 - power leads
 - trip hazards
 - work site visitors and the public
 - working in close proximity to others
 - use of fire fighting equipment
 - use of tools and equipment.

Tools and equipment may include:

- modelling and carving tools
- measuring tape/rulers
- squares
- files
- joint rules
- metal shears
- straight edges
- drills
- hammers
- power leads
- broad knives
- paint brushes

Tools and equipment may include:
(Continued)

- timber floats and small tools
- sponges
- chisels
- buckets
- leaf/small tools
- brooms
- plasterer's trowels
- mobile phones
- two-way communication equipment.

Casting methods may include:

- neat sand and cement casting
- two gauge casting utilising reinforcement materials
- run casting
- pressed cement
- piece casting.

Materials may include:

- cement
- sand
- lime
- mould release agent
- reinforcement:
 - steel
 - fibreglass
- timber
- cement additives:
 - accelerants
 - retardants
 - oxide colours
- screws and nails.

Environmental requirements may include:

- suppression of dust
- waste removal
- stormwater protection.

Architectural features

may include:

- plaques
- straight and curved balistrading
- columns
- urns
- statuettes
- wall niches
- capitals
- key stone and quion stones
- cement lettering.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Elements, Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

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

- Evidence of the following is essential:
 - locate, interpret and apply relevant information, standards and specifications
 - comply with site safety plan and OHS/WHs legislation, including Acts, regulations and codes of practice applicable to workplace operations
 - plan and execute work within agreed timeframe to specified standards under general supervision and demonstrating minimum material wastage
 - mix a range of materials to the required ratio of sand to cement to water ratios that produces a desired volume of set cement with the required characteristics
 - cast architectural features using appropriate moulding techniques to produce items that are sound in construction and free of voids or blemishes.
- As a minimum, cast features must include:
 - one corbel or similar utilising, at a minimum, one four piece cement mould
 - one feature utilising a synthetic rubber mould
 - one feature utilising a fibreglass mould
 - at least one of the above features must include two gauge casting using appropriate reinforcement
 - at least one of the above features must involve wet casting
 - at least one of the above features must involve pressed cement casting.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace.
- An assessment must be conducted using current workplace techniques, procedures, tools, equipment and materials, and in accordance with all legal work requirements.
- Evidence may include the results of projects, and evidence of the process the participant followed.
- The following resources are required:
 - materials, tools and equipment relevant to casting architectural features in cement
 - specifications and work instructions
 - facilities to allow the proper curing of cast items
 - sample models demonstrating expected levels of accuracy and finish.

Method of assessment

- A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
 - direct observation of the candidate in a real workplace setting or simulated environment
 - written and oral questioning to test underpinning knowledge and its application to casting architectural features in cement
 - project activities that allow the candidate to demonstrate the application of knowledge and skills
 - review of portfolio evidence and third party workplace reports of on-the-job performance by the candidate.
- Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

VU21851**Make up models**

Unit Descriptor This unit describes the performance outcomes, skills and knowledge required to make up models using appropriate materials and modelling methods. It involves constructing models using appropriate materials that are visually exact copies of a given sample.

Employability Skills This unit contains employability skills.

Pre-requisite unit(s) Nil.

Application of the Unit This unit supports the attainment of skills and knowledge required to make up models using appropriate materials. The making of models applies to a known workplace environment with established parameters and under general supervision.

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

- | | |
|------------------------------------|--|
| 1. Plan and prepare to make models | <p>1.1 <i>Work instructions</i>, including plans, specifications, quality requirements and operational details are obtained from relevant <i>sources</i>, interpreted and applied to the <i>scope of work</i> performed.</p> <p>1.2 <i>Occupational Health and Safety (OHS)/Work Health and Safety (WHS)</i> requirements are followed in accordance with safety plans, workplace policies and procedures.</p> <p>1.3 <i>Tools and equipment</i> selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.</p> <p>1.4 <i>Materials</i> selected to carry out tasks are suited to the requirements of the job.</p> <p>1.5 <i>Environmental requirements</i> are identified for the job in accordance with the organisation's environmental plan and statutory and legislative authority obligations.</p> |
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- | | | |
|----|--|--|
| 2. | Specify applications for modelling methods | 2.1 Different modelling method characteristics are established to support the decision making process. |
| | | 2.2 Applications for different modelling methods are identified. |
| 3. | Use appropriate modelling methods to create models | 3.1 Appropriate modelling method is selected for the given application. |
| | | 3.2 Produce or interpret work instructions or job specifications to create working drawings and details. |
| | | 3.3 Model is created to organisation quality standards from working drawings in appropriate modelling media . |
| | | 3.4 Model is stopped and finished to required trade standards and job specifications. |
| | | 3.5 Work is performed so as to maintain a safe and healthy working environment for self and others. |
| 4. | Clean work area | 4.1 Work area is cleaned and materials disposed of, reused or recycled in accordance with environmental requirements , legislation such as regulations, codes of practice and job specifications. |
| | | 4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices. |

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills to:
 - discuss and interpret work requirements
 - follow instructions
 - report faults in tools, equipment, materials and processes to appropriate personnel
 - read and interpret:
 - * documentation from a variety of sources
 - * drawings and specifications
 - use and interpret non-verbal communication, such as hand signals
- Literacy skills to:
 - research information for restoration projects
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - interpret drawings to produce a 3D model with accurate numerical dimensions
- Problem solving skills to:
 - recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials or process
 - move and store materials and components using MSDS information and instructions and manufacturing process
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
 - Make models to meet design requirements
- Teamwork skills to:
 - work with others to action tasks
- Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling
- Design skills to interpret sketches or produce drawings for restoration works and trade items
- Carving skills to make accurate models
- Use tools and materials sustainably with minimal wastage
- Follow enterprise OHS/WHS procedures.

Required knowledge

- Safety plans for work tasks
- OHS/WHS policies and procedures used in the construction industry
- Materials and tool storage requirements
- Environmentally friendly waste management practices
- Material safety data sheets (MSDS) relevant to the task
- Relevant sections of the Burra Charter as it relates to the restoration and preservation of architectural features
- Architectural styling for commercial, heritage and new housing applications
- Different modelling methods
- Drawing techniques to design models
- Plaster modelling and casting terminology
- Modelling and casting tools and equipment and their applications
- Types, characteristics, applications and limitations of modelling and carving materials and components
- Reproduction techniques appropriate to the production of plaster and cement features and fixtures
- Workflow sequencing in relation to the production of models, moulds and casting.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work instructions may include:

- plans
- specifications
- quality requirements.

Sources may include:

- diagrams or sketches
- instructions issued by authorised organisations or external personnel, such as architects, heritage organisations and clients
- manufacturer's specifications and instructions where specified
- relevant sections of the Burra Charter
- material safety data sheets (MSDS)
- memos
- relevant Australian standards
- safe work procedures relating to modelling, moulding and/or casting plaster features and fixtures
- workplace signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Scope of work may include:

- producing models of new or existing features in low, medium or high relief
- modelling materials may include, at a minimum:
 - plaster
 - cement
 - wax
 - clay
- features may be prepared to allow all moulds to be produced from them.

OHS/WHS may include:

- state or territory legislation and regulations
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices due to size, weight or other issues, such as disability
- hazard control
- hazardous materials and substances including cement, lime and additives
- organisational first aid
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policy and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - lighting
 - power equipment
 - power leads
 - trip hazards
 - work site visitors and the public
 - working in close proximity to others
 - use of fire fighting equipment
 - use of tools and equipment.

Tools and equipment may include:

- modelling and carving tools
- hand/electric saws
- measuring tape/rulers
- tin snips
- squares
- files
- joint rules
- electric screw guns
- straight edges
- drills
- hammers

Tools and equipment
may include:
(Continued)

- power leads
- broad knives
- paint brushes
- retractable/packing case knives
- sponges
- chisels
- buckets
- leaf/small tools
- brooms
- mitre boxes
- plasterer's trowels
- mobile phones
- two-way communication equipment.

Materials may include:

- casting plaster
- timber
- stopping plaster
- shellac
- fibre reinforcement
- sheet metal
- modelling (oil) clay
- nails
- wet clay
- screws.

Environmental requirements may include:

- suppression of dust
- waste removal
- stormwater protection.

Modelling methods
must include:

- clay modelling
- reductive sculpting
- carving
- low, medium and high relief modelling
- plaster running
- in the round modelling
- additive sculpting.

- Modelling media** may include:
- plaster
 - wet clay
 - modelling (oil) clay.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Elements, Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

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

- Evidence of the following is essential:
 - locate, interpret and apply relevant information, standards and specifications
 - comply with site safety plan and OHS/WHS legislation, including Acts, regulations and codes of practice applicable to workplace operations
 - plan and execute work within agreed timeframe to specified standards under general supervision and demonstrating minimum material wastage
 - produce models in accordance with given instructions to a standard that is ready for mould production and visually comparable to the industry standard samples provided as reference material
 - the models must use all of the different modelling methods identified in the range statement.
 - The finished models must include:
 - * at a minimum, one clay and one plaster version
 - * one low relief plaque, shield, cartouche, crest or similar model with:
 - a smooth or patterned surface
 - a range of lettering sizes and styles
 - one or more areas of ornamentation
 - one high relief or in the round model, such as plaster corbel, animal or statuette.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace.
- An assessment must be conducted using current workplace techniques, procedures, tools, equipment and materials, and in accordance with all legal work requirements.
- Evidence may include the results of projects, and evidence of the process the participant followed.
- The following resources are required:
 - materials, tools and equipment relevant to the making of models
 - specifications and work instructions
 - sample models demonstrating expected levels of accuracy and finish.

Method of assessment

- A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
 - direct observation of the candidate in a real workplace setting or simulated environment
 - written and oral questioning to test underpinning knowledge and its application to making up models
 - project activities that allow the candidate to demonstrate the application of knowledge and skills
 - review of portfolio evidence and third party workplace reports of on-the-job performance by the candidate
- Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

VU21852

Produce moulds

Unit Descriptor	This unit describes the performance outcomes, skills and knowledge required to produce moulds from given models using appropriate materials and moulding methods. It involves constructing moulds using plaster, fibreglass, synthetic rubber or metal.
Employability Skills	This unit contains employability skills.
Pre-requisite unit(s)	Nil.
Application of the Unit	This unit supports the attainment of skills and knowledge to construct moulds.. The construction of moulds applies to a known workplace environment with established parameters and under general supervision

ELEMENT

Elements describe the essential outcomes of a unit of competency.

1. Plan work and prepare to manufacture moulds

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

- 1.1 ***Work instructions*** including plans, specifications, quality requirements and operational details are obtained from relevant ***sources***, interpreted and applied to the ***scope of work*** performed.
- 1.2 ***Occupational Health and Safety (OHS)/Work Health and Safety (WHS)*** requirements are followed in accordance with safety plans, workplace policies and procedures.
- 1.3 ***Tools and equipment*** selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.
- 1.4 ***Materials*** selected to carry out tasks are suited to the requirements of the job.
- 1.5 ***Environmental requirements*** are identified for the job in accordance with the organisation's environmental plan and statutory and legislative authority obligations.

ELEMENT	PERFORMANCE CRITERIA
2. Specify applications for modelling methods	2.1 Different mould making method characteristics are established to support the decision making process. 2.2 Applications for different mould making methods are identified.
3. Use appropriate mould making method to manufacture moulds	3.1 Appropriate mould making method is selected for the given application. 3.2 Produce or interpret work instructions/information or job specifications to create working drawings and details. 3.3 Mould making material requirements are calculated, measured or weighed out according to work instruction 3.4 Mould is manufactured to organisation quality standards using appropriate mould making methods. 3.5 Completed mould is checked for inappropriate undercuts, flaws/imperfections and repaired in accordance with the organisation's quality standards. 3.6 Mould is finished ready for casting in accordance with the organisations quality standards. 3.7 Mould is stored in an appropriate location to prevent accidental damage prior to casting. 3.8 Work is performed so as to maintain a safe and healthy working environment for self and others.
4. Clean work area	4.1 Work area is cleaned and materials disposed of, reused or recycled in accordance with environmental requirements , legislation such as regulations, codes of practice and job specifications. 4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufactures' recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills to:
 - discuss and interpret work requirements
 - follow instructions
 - read and interpret:
 - * documentation from a variety of sources
 - * drawings and specifications
 - report faults in tools, equipment, materials and processes to appropriate personnel
 - use and interpret non-verbal communication, such as hand signals
- Literacy skills to:
 - Research information for the production of moulds
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - apply appropriate mathematical calculations to correctly complete measurements, calculate area and volume, weights and estimate other material requirements in the production of moulds
- Problem solving skills to:
 - Recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials and process
 - Move and store materials and components using MSDS information and instructions and manufacturing process
- Make moulds to meet the requirements of the selected manufacturing process
- Design skills to interpret sketches or produce drawings for trade items
- Reproduction techniques to produce moulds and prototypes
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
- Teamwork skills to:
 - work with others to action tasks
- Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling
- Mould making skills using a variety of mediums

- Use tools and materials sustainably with minimal wastage
- Follow enterprise OHS procedures
- Workflow sequencing in relation to the production of models, moulds and casting.

Required knowledge

- Safety plans for work tasks
- OHS/WHS policies and procedures used in the construction industry
- Materials and tool storage requirements
- Sources of information relevant for the production of moulds
- Relevant sections of the Burra Charter
- Environmentally friendly waste management practices
- Materials safety data sheets (MSDS) relevant to the task
- Plaster modelling and casting terminology
- Drawing techniques to design and interpret sketches of trade items
- Architectural styling for commercial, heritage and new housing applications
- Mould making tools and equipment and their applications
- Types, characteristics, applications and limitations of moulds, mould making materials and components
- Reproduction techniques appropriate to the production of plaster and cement features and fixtures
- Workflow sequencing in relation to the production of models, moulds and casting.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work instructions

may include:

- plans
- specifications
- quality requirements.

Sources may include:

- diagrams or sketches
- instructions issued by authorised organisations or external personnel, such as architects, heritage organisations and clients
- manufacturer's specifications and instructions where specified
- material safety data sheets (MSDS)
- memos
- relevant Australian standards
- safe work procedures relating to modelling, moulding and/or casting plaster features and fixtures
- workplace signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Scope of work may include:

- manufacturing moulds suitable for the production of features in low, medium or high relief
- moulds may be made of plaster, fibreglass, synthetic rubber or metal and may consist of one/multiple piece moulds, flexible moulds and running moulds.

OHS/WHS may include:

- state or territory legislation and regulations
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices due to size, weight or other issues, such as disability
- hazard control
- hazardous materials and substances including cement, lime and additives
- organisational first aid

OHS/WHS may include:
(Continued)

- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policy and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - lighting
 - power equipment
 - power leads
 - trip hazards
 - work site visitors and the public
 - working in close proximity to others
 - use of fire fighting equipment
 - use of tools and equipment.

Tools and equipment may include:

- modelling and carving tools
- hand/electric saws
- measuring tape/rulers
- tin snips
- squares
- files
- joint rules
- electric screw guns
- straight edges
- drills
- hammers
- power leads
- broad knives
- paint brushes
- retractable/packing case knives
- sponges
- chisels
- buckets
- leaf/small tools
- brooms
- pins
- gig stick

- mitre boxes
- plasterer's trowels
- mobile phones
- two-way communication equipment.

Materials may include:

- casting plaster
- timber
- stopping plaster
- shellac
- fibre reinforcement
- sheet metal
- screws
- nails.

Environmental requirements may include:

- suppression of dust
- waste removal
- stormwater protection.

Mould making methods may include:

- running moulds
- fibre reinforced plastic moulds
- one piece moulds
- flexible moulds
- piece moulds
- waste moulds.

Mould materials may include:

- casting plaster
- stopping plaster
- synthetic rubber
- fibre reinforced (hemp or glassfibre) fibreglass
- sheet metal
- timber.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Elements, Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

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

- Evidence of the following is essential:
 - locate, interpret and apply relevant information, standards and specifications
 - comply with site safety plan and OHS/WHs legislation, including Acts, regulations and codes of practice applicable to workplace operations
 - plan and execute work within agreed timeframe to specified standards under general supervision and demonstrating minimum material wastage
 - manufacture moulds in accordance with given instructions to a standard that is ready for cast production and visually comparable to the provided industry standard samples and include:
 - * one straight running mould with common member profiles including placement of low relief ornamentation
 - * two curved running moulds utilising the following:
 - gig stick
 - freehand run using template and pins
 - one flexible mould using synthetic rubber
 - one multiple piece mould comprising four or more pieces
 - one fibre reinforced plastic mould.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace.
- An assessment must be conducted using current workplace techniques, procedures, tools, equipment and materials, and in accordance with all legal work requirements.
- Evidence may include the results of projects, and evidence of the process the participant followed.
- The following resources are required:
 - materials, tools and equipment relevant to mould production
 - specifications and work instructions
 - sample moulds demonstrating expected levels of accuracy and finish.

Method of assessment

- A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
 - direct observation of the candidate in a real workplace setting or simulated environment
 - written and oral questioning to test underpinning knowledge and its application to manufacture moulds
 - project activities that allow the candidate to demonstrate the application of knowledge and skills
 - review of portfolio evidence and third party workplace reports of on-the-job performance by the candidate
- Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

VU21855**Restore architectural features****Unit Descriptor**

This unit describes the performance outcomes, skills and knowledge required to restore architectural features. It involves the production of models, moulds and castings, or the reinstatement of original features using appropriate materials and work methods.

Employability Skills

This unit contains employability skills.

Pre-requisite unit(s)

Nil

Application of the Unit

This unit supports the attainment of skills and knowledge required for the restoration of architectural features. The restoration of architectural features applies to a known workplace environment with established parameters and under general supervision

ELEMENT

Elements describe the essential outcomes of a unit of competency.

PERFORMANCE CRITERIA

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

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| 1. Plan and prepare to make models | <p>1.1 <i>Work instructions</i> including plans, specifications, quality requirements and operational details are obtained from relevant <i>sources</i>, interpreted and applied to the <i>scope of work</i> performed.</p> <p>1.2 <i>Occupational Health and Safety (OHS)/ Work Health and Safety (WHS)</i> requirements are followed in accordance with safety plans, workplace policies and procedures.</p> <p>1.3 <i>Information</i> is gathered to inform the level of restoration required to meet the expected outcomes of restoration work.</p> <p>1.4 <i>Tools and equipment</i> selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.</p> |
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- 1.5 **Materials** selected to carry out tasks are suited to the requirements of the job.
 - 1.6 **Environmental requirements** are identified for the job in accordance with the organisation's environmental plan and **statutory and legislative** authority obligations.
 - 2. Use appropriate work methods and materials to repair/restore architectural features
 - 2.1 **Architectural features** are handled and set up to avoid further damage and ensure stability before, during and after the restoration process.
 - 2.2 Architectural features are **stripped** of paint or other coatings in readiness for repairs.
 - 2.3 Repairs are made to re-establish original detail and finish of surface, giving due regard to whether the features are to be used as a model for reproduction, or reinstated on site once repaired.
 - 2.4 Model is stopped and finished to work instructions/job specifications.
 - 2.5 Surfaces are resealed to protect work.
 - 2.6 Work is performed so as to maintain a safe and healthy working environment for self and others.
 - 3. Clean work area
 - 3.1 Work area is cleaned and materials disposed of, reused or recycled in accordance with **environmental requirements**, legislation such as regulations/codes of practice and job specifications.
 - 3.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills to:
 - discuss and interpret work requirements
 - follow instructions and specifications
 - access and understand site specific instructions
 - read and interpret:
 - * documentation from a variety of sources
 - * drawings and specifications
 - report faults in tools, equipment, materials and processes to appropriate personnel
 - use and interpret non-verbal communication, such as hand signals
- Literacy skills to:
 - research information for restoration projects
 - comprehend, record and maintain workplace documentation
 - interpret drawings and project related information
- Numeracy skills to:
 - use mathematical ideas and techniques to correctly complete measurements, calculate area and volume, weight and estimate other material requirements
- Problem solving skills to:
 - recognise and respond to variations in manufacturing processes and identify faults in tools, equipment, materials or process
 - move and store materials and components using MSDS information and instructions and manufacturing process
- Self-management skills to:
 - plan and execute work according to instructions
 - complete and evaluate performance according to the job task
- Use and maintain a range of tools and equipment efficiently and safely, including breathing apparatus and hand signalling
- Design skills to interpret sketches or produce drawings for restoration work
- Repair and restore architectural features and place in original location
- Preparation and repair of architectural features for reproduction
- Reproduction techniques to produce moulds and prototypes
- Casting skills to produce architectural features in plaster and cement

- Select manufacturing processes appropriate for the restoration of architectural features
- Use tools and materials sustainably with minimal wastage
- Follow enterprise OHS/WHS requirements.

Required knowledge

- Safety plans for work tasks
- OHS/WHS policies and procedures used in the construction industry
- Materials and tool storage requirements
- Environmentally friendly waste management practices
- Material safety data sheets (MSDS) relevant to the task
- The National Trust, Heritage Victoria, Burra Charter and other regulatory and heritage authorities as they relate to the restoration and preservation of cement and plaster architectural features
- Terminology that relates to the plastering and restoration of architectural features
- Architectural styling for commercial, heritage and new housing applications
- Plastering, modelling and casting tools and equipment and their applications
- Types, characteristics, applications and limitations of materials and components appropriate to the restoration of plaster and cement architectural features
- Mixing ratios appropriate to the materials being used and the environment in which the final product will be located
- Restoration techniques appropriate to the repair of plaster and cement features and fixtures
- Drawing techniques to design or interpret sketches of architectural features
- Workflow sequencing in relation to the process of restoration of architectural features.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Work instructions

may include:

- plans
- specifications
- quality requirements.

Sources may include:

- diagrams or sketches
- instructions issued by authorised organisations or external personnel, such as architects, heritage organisations and clients
- manufacturer's specifications and instructions where specified
- material safety datasheets (MSDS)
- memos
- relevant Australian standards
- safe work procedures relating to modelling, moulding and/or casting plaster/cement features and fixtures
- workplace signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Scope of work may include:

- the repair/restoration of architectural features commonly found on commercial buildings and residential dwellings
- work may be in preparation for the production of new castings of the feature or may involve the repair/restoration of the architectural feature in its own right
- work is usually completed in a workshop environment, therefore the scope of work includes the removal transport and setting up of architectural features for restoration.

OHS/WHS may include:

- state and territory legislation and regulations emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices due to size, weight or other issues, such as disability
- hazard control

OHS/WHS may include
(Continued)

- hazardous materials and substances including lead-based paint, cement, lime and additives
- organisational first aid
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policy and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - the removal of lead-based paint
 - lighting
 - power equipment
 - power leads
 - trip hazards
 - work site visitors and the public
 - working in close proximity to others
 - use of fire fighting equipment
 - use of tools and equipment.

Tools and equipment
may include:

- modelling and carving tools
- hand/electric saws
- measuring tape/rulers
- tin snips
- squares
- files
- joint rules
- trowels
- straight edges
- drills
- hammers
- power leads
- broad knives
- paint brushes
- retractable/packing case knives
- sponges
- chisels

Tools and equipment

may include:
(Continued)

- buckets
- leaf/small tools
- brooms
- mitre boxes
- pins
- gig stick
- plasterer's trowels
- mobile phones
- two-way communication equipment.

Materials may include:

- casting plaster
- stopping plaster
- lime mortars
- fibre reinforcement
- cement mortars
- shellac.

Environmental requirements may include:

- suppression of dust
- waste removal
- storm water protection.

Statutory and legislative authority may include:

- the National Trust
- the Burra Charter
- Australian Heritage Commission
- Heritage Victoria
- International Council of Monuments and Sites (ICMOS).

Architectural features may include:

- ornamental cornices
- rosettes and vents
- ceiling panels
- brackets and corbels
- statuettes
- crown moulds
- bolection moulds
- plaster bosses
- pilasters

Architectural feature
may include:
(Continued)

- capitals
- wall niches
- light sconces
- corbels
- ceiling roses
- cement mouldings
- key stones, quoin stones etc.

Stripping may include:

- chemical paint strippers
- boiling water
- heat gun
- mechanical stripping such as wire brushes and grinders.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Elements, Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment section in Section B of the accreditation submission.

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

- Evidence of the following is essential:
 - locate, interpret and apply relevant information, standards and specifications
 - comply with site safety plan and OHS legislation, including Acts, regulations and codes of practice applicable to workplace operations
 - plan and execute work within agreed timeframe to specified standards under general supervision and demonstrating minimum material wastage
 - undertake repairs of architectural features in accordance with given instructions and standards of finish
 - repair work must demonstrate appropriate processes for undertaking:
 - * removal of feature from original on-site position
 - * setting up of feature on workbench to enable good access and ensure feature is stable and safe to work on
 - removal of paint, dirt or other contaminants prior to commencement of repair work
 - storage of repaired feature to prevent accidental damage prior to reinstatement on site.
- Features for repair must include:
 - one cement feature such as ornamental urn or statuette
 - one plaster feature such as rosette or vent.
- Assessment must include the repair and preparation of one architectural feature for reproduction using appropriate moulding processes.
- Assessment must include the repair and preparation of one architectural feature that will be replaced into its original location.

Context of and specific resources for assessment

- The application of competency is to be assessed in the workplace or simulated workplace.
- An assessment must be conducted using current workplace techniques, procedures, tools, equipment and materials, and in accordance with all legal work requirements.
- Evidence may include the results of projects, and evidence of the process the participant followed.
- The following resources are required
 - materials, tools and equipment relevant to the restoration of architectural features
 - specifications and work instructions
 - sample models demonstrating expected levels of accuracy and finish.

Method of assessment

- A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
 - direct observation of the candidate in a real workplace setting or simulated environment
 - written and oral questioning to test underpinning knowledge and its application to manufacture moulds
 - project activities that allow the candidate to demonstrate the application of knowledge and skills
 - review of portfolio evidence and third party workplace reports of on-the-job performance by the candidate.
- Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.