



Australian Government

CPC CST3021A Renovate and restore stone work

Release 1

CPCCST3021A Renovate and restore stone work

Modification History

New unit based on superseded unit BCG3050A Renovate and restore stone work
This version first released with CPC08 Construction, Plumbing and Services Training
Package Version 9.
Not equivalent to superseded BCG unit

Unit Descriptor

This unit of competency specifies the outcomes required to remove damaged stonemasonry, replace it with matching stone, cut stone to fit, and fix it in place using the correct fixing methods for the structure and type of stone.

Application of the Unit

This unit of competency supports the work of stonemasons who undertake renovation and restoration of stonemasonry structures. The work may be completed individually or in a team.

Licensing/Regulatory Information

Check with relevant state and territory licensing and regulatory authorities. State and territory jurisdictions may have different regulatory requirements for work carried out on heritage structures.

Pre-Requisites

CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry
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Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

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.

Elements and Performance Criteria

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| 1 | Plan and prepare work. | 1.1 | Work instructions are obtained using relevant <i>information</i> , confirmed and applied for <i>planning and preparation</i> purposes. |
| | | 1.2 | <i>Work health and safety (WHS) requirements</i> are followed according to safety plans and policies. |
| | | 1.3 | Signage and barricade requirements are identified and implemented. |
| | | 1.4 | <i>Tools and equipment</i> selected to carry out tasks are consistent with job requirements, checked for serviceability, and faults are rectified and reported before work begins. |
| | | 1.5 | Material quantity requirements are identified and calculated according to plans, specifications and <i>quality requirements</i> . |
| | | 1.6 | <i>Materials</i> appropriate to the work application are obtained, prepared, safely handled and located ready for use. |
| | | 1.7 | <i>Environmental requirements</i> are identified for the project according to environmental plans and <i>statutory and regulatory authority</i> requirements, and are applied. |
| | | 1.8 | Working platform or scaffolding is erected according to WHS requirements. |
| | | 1.9 | Lifting and lowering equipment is installed and tested according to WHS and workplace requirements. |

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| 2 | Assess damaged stone work. | 2.1 | Damaged section of stone is located, clearly identified, and confirmed with job drawings and specifications. |
| | | 2.2 | Extent of damaged sections and overall dimensions of replacement stones required are correctly determined. |
| 3 | Remove damaged stone and prepare void. | 3.1 | Damaged section is accurately and safely cut out according to predetermined dimensions without damage to surrounding stone. |
| | | 3.2 | Waste materials are safely lowered and removed from site according to job and WHS requirements. |
| | | 3.3 | Characteristics of bedding planes are identified and size of replacement stone is matched to ensure structural integrity. |
| 4 | Prepare replacement stone. | 4.1 | Colour and type of existing stone are matched with specified and sourced replacement stone, and alternative stone is sourced or advice sought if match is not compliant. |
| | | 4.2 | Dimensions and profile of replacement stone are determined and appropriate templates are made. |
| | | 4.3 | Replacement stone is accurately worked to match dimensions and profile of removed stone. |
| 5 | Fix replacement stone. | 5.1 | Stone is drilled or slotted for dowels or brackets according to job specifications for fixing. |
| | | 5.2 | Stone is correctly handled and raised into position for placement. |
| | | 5.3 | Stone is placed, fixed and bedded in location with adhesive or mortar according to job specification. |
| | | 5.4 | Vertical joints are filled with mortar or sealant, where applicable, according to job specifications. |
| | | 5.5 | Stonework is cleaned using dry, liquid or chemical means according to type of stone laid and job specifications. |

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| 6 | Reproduce decorative carving work. | 6.1 | Templates of decorative stone carving are made to match the original carving according to job specifications. |
| | | 6.2 | Stone is selected to match original according to job specifications. |
| | | 6.3 | Prepared carving template is applied to stone and stone is marked to show areas to be removed according to workplace procedures. |
| | | 6.4 | Bulk areas of waste stone are removed according to workplace procedures and job specifications. |
| | | 6.5 | Template is re-applied, and stone is re-marked in preparation for carving of detail according to workplace requirements and job specifications. |
| | | 6.6 | Detailed carving of stone is completed and inspected to ensure carving matches the original stone and amendments are made as required. |
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| 7 | Clean up. | 7.1 | Area is cleared of waste material and equipment according to workplace requirements. |
| | | 7.2 | Unused materials are stored and waste materials disposed of according to environmental and workplace requirements. |
| | | 7.3 | Tools and equipment are cleaned, maintained and stored. |

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - enable clear and direct communication
 - use questioning to identify and confirm requirements
 - share information
 - follow instructions
 - use and interpret non-verbal communication
 - use language and concepts appropriate to cultural differences
- innovation skills to select appropriate tools and equipment, respond to workplace challenges and put ideas into action
- numeracy skills to apply measurements and calculate material requirements
- planning and organising skills to identify requirements, apply relevant resources and sequence tasks
- problem-solving skills to recognise and take action to rectify minor faults and problems
- reading skills to read and interpret drawings and specifications
- self-management skills to work safely, including safely handling materials
- teamwork skills to work with others to action tasks
- technical skills to:
 - erect scaffolding
 - identify and select materials specific to requirements
 - select and use appropriate plant, equipment, hand and power tools

Required knowledge

- codes and standards applicable to replacing stone, including:
 - AS3700 Masonry in buildings
 - National Construction Code
- methods for:
 - fixing stone
 - preparing exposed areas of existing stonework for replacement stone
- mortar mix compositions required for different types of stonework
- principles and procedures to conserve Australian heritage places according to the Burra Charter
- range of mortar additives and their applications, including plasticisers
- range, production and use of templates for stonework

- safe operation of plant, tools and equipment used in stonework
- techniques for measuring and levelling stone
- types and safe operation of lifting and lowering equipment
- types of stone used in renovation and restoration work and their characteristics
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment This unit of competency could be assessed in the workplace or simulated workplace setting. Assessment may be conducted while tasks are undertaken either individually or as part of a team under limited supervision.

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

A person should demonstrate the ability to:

- reproduce and replace stone, including at least three different types of moulds each a minimum of 15 centimetres in height and length
- reproduce a decorative carving, which may include elements of both flora and fauna and must be a minimum of 15 x 15 x 15 centimetres, for example a lion's head with floral decoration.

The candidate should also provide evidence of:

- accuracy in taking measurements and preparing templates for replacement stone
- adopting and using safe and effective procedures to remove damaged stone
- applying organisational quality procedures and processes within the context of renovating or restoring stonework
- completing renovation process to specifications
- complying with work health and safety requirements applicable to workplace operations
- complying with organisational policies and procedures
- applying the Burra Charter where appropriate in relation to historic stone structures
- identifying typical faults and problems that occur and taking necessary action to rectify them
- communicating with others to ensure safe and effective workplace operations
- selecting and using appropriate processes, tools and equipment
- selecting stone consistent with specification for material and colour
- using safe handling practices in moving and placing stone.

Context of and specific resources for assessment

Assessment of this unit:

- must be in the context of the work environment
- may be conducted in an off-site context, provided it is realistic

and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills

- must meet relevant compliance requirements.

Resource implications for assessment may include:

- work location for renovation activity
- tools, plant and equipment appropriate to renovation and replacement processes
- construction materials relevant to the activity
- documentation relevant to task
- scaffolding appropriate to location and activity.

Method of assessment

Assessment for this unit must verify the practical application of the required skills and knowledge, using one or more of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- review of relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Guidance information for assessment

This unit could be assessed on its own or in combination with other units relevant to the job function.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the performance criteria, is detailed below. 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) may also be included.

Information may include:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- memos
- regulatory and legislative requirements
- current Australian standards relating to renovating and restoring stone work
- safe work procedures
- safety data sheets (SDS)
- signage
- verbal, written and graphical instructions, including manufacturer specifications and instructions where specified
- work bulletins
- work schedules, plans and specifications.

Planning and preparation may include:

- assessing conditions and hazards
- determining work requirements and safety plans and policies
- identifying equipment defects
- inspecting work sites.

Work health and safety requirements must comply with state and territory legislation and regulations and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements, and evacuation procedures
- hazard control
- hazardous materials and substances
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including operational risk assessment and treatments associated with:
 - concealed services (water, power and gas)
 - lighting
 - restricted access barriers
 - traffic control
 - working at heights
 - work site visitors and the public
 - working at heights
 - working in proximity to others
- use of firefighting equipment
- use of tools and equipment
- workplace environmental requirements and safety.

Tools and equipment may include:

- air compressor and hoses
- cranes
- elevated work platforms (EWPs)

- forklifts
- gin poles
- hammers
- masonry chisels
- material hoists
- measuring rules or tapes
- power drills, including impact drills
- power grinders
- power leads
- rollers
- scaffolding
- shear legs
- spirit levels
- squares.

Quality requirements
may include:

- attention to specifications of work
- control of handling procedures
- finishing of stone surfaces
- quality of materials
- relevant regulations, including:
 - Australian standards
 - internal organisational quality policy and standards
 - manufacturer specifications where specified
 - workplace operations and procedures.

Materials used to
renovate or restore stone
may include:

- basalt (bluestone)
- granite
- marble
- sandstone.

**Environmental
requirements** may
include:

- clean-up management
- dust and noise control
- vibration management
- waste management.

**Statutory and regulatory
authority** includes:

- federal, state and local authorities administering applicable Acts, regulations and codes of practice.

Unit Sector(s)

Construction

Custom Content Section

Not applicable.