



Australian Government

Department of Education, Employment and Workplace Relations

CPC CST3006A Machine stone

Release: 1

CPCST3006A Machine stone

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit specifies the outcomes required to use a range of static machine to cut, grind and polish stone.

Application of the Unit

Application of the unit This unit of competency supports the achievement of skills and knowledge to machine stone products, which may include working with others and as a member of a team.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCCOHS2001A

Apply OHS requirements, policies and procedures in the construction industry

Employability Skills Information

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

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare.	1.1. Work instructions and operational details are obtained using relevant information, confirmed and applied for planning and preparation purposes. 1.2. Safety (OHS) requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. Tools and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5. Material quantity requirements are calculated in accordance with plans, specifications and quality requirements. 1.6. Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. Environmental requirements are identified for the project in accordance with environmental plans and statutory and regulatory authority requirements, and are applied.
2. Operate stone machining equipment.	2.1. Stone machining equipment is selected for the machining operation required and safely started up and shut down to standard operating procedures in accordance with manufacturer specifications. 2.2. Materials and safety guards are correctly positioned, fitted and used to designed applications. 2.3. Stone machining equipment is operated, monitored and adjusted to achieve specified size, shape and finish. 2.4. Measurements and tolerances are checked for consistency with job requirements and specifications.
3. Operate static diamond saw.	3.1. Stone is located on movable table aligned with saw blade in accordance with designed cut. 3.2. Stone is fixed or secured into position on table by use of wedges or nailed timber sections to provide stability for sawing. 3.3. Cutting blade is adjusted for depth of first cut in accordance with type of blade, hardness of stone and safety considerations of operator and other persons. 3.4. Water is turned on for operating of machine and saw

ELEMENT**PERFORMANCE CRITERIA**

	is started up and operated in accordance with manufacturer's safe working and operating procedures. 3.5. Stone is moved by table movement so that blade cutting is at efficient rate without affecting designed operating revolutions of machine. 3.6. Additional cuts are made by lowering saw after each cut and then cutting on return movement of table, until complete.
4. Operate travelling beam saw.	4.1. Stone is located on adjustable table and fixed into stable position, and table is adjusted to align designed cut with saw blade. 4.2. Settings for operation are carried out on a digital panel designed for length of stone as well as width of blade. 4.3. Blade is set to initial cut for operation and machine is switched on and automatically operated in accordance with manufacturer specifications.
5. Operate multi-function cutter, grinder and polisher.	5.1. Machine and equipment are set up with appropriate head/plate fitted and secured to operating spindle according to work application. 5.2. Stone is fixed into location on table according to requirements for machining processes. 5.3. Template is set into place, where applicable, for profile work and cutting and moulding operations. 5.4. Machinery is set up with cutting head set to initial cut and aligned with template in accordance with manufacturer specifications for setting up and operation of machine. 5.5. Machinery operations are carried out to machine manufacturer specifications and job processes for dressing stone to requirements.
6. Carry out grinding and polishing.	6.1. Appropriate grinding plate is selected and fitted to machine according to machine manufacturer specifications and stone surface to be cut and polished. 6.2. Machine is set up for grinding operations and operated in accordance with job and machine manufacturer specifications with grinding and polishing processes carried out using appropriate changes of grit abrasive pads fitted in accordance with type of stone being finished. 6.3. Machine operations are monitored and water support

ELEMENT	PERFORMANCE CRITERIA
7. Shut down machine operations.	maintained to cutting and polishing applications. 7.1. Machine shut-down procedures are carried out to machine manufacturer specifications. 7.2. Supporting material, wedges and clamps are removed from stone and machine table. 7.3. Finished or machined stone is removed carefully without damage and stored. 7.4. Machine and supporting equipment and accessories are cleaned, maintained and checked for wear or deterioration in accordance with manufacturer specifications.
8. Clean up.	8.1. Area is cleaned to specification. 8.2. Waste material is removed and placed into job waste bins. 8.3. Tools and equipment are cleaned, inspected, maintained and stored.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- ability to recognise procedures, respond to change and contribute to workplace responsibilities, such as current work site environmental or sustainability frameworks or management systems
- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret drawings and specifications
 - use and interpret non-verbal communication
 - use language and concepts appropriate to cultural differences
- interpret drawings and specifications
- numeracy skills to apply measurements and calculations
- planning and organisational skills to identify requirements, apply relevant

REQUIRED SKILLS AND KNOWLEDGE

resources and sequence tasks

- problem solving skills to recognise and take action to rectify minor faults and problems
- teamwork skills to be able to work with others to action tasks and relate to people from a range of cultural, social, ethnic backgrounds and with varying physical and mental abilities.

Required knowledge

Required knowledge for this unit is:

- interpretation of drawings and specifications
- job safety analysis (JSA) and safe work method statements
- measuring and marking techniques relevant to stonemasonry work
- methods of dressing stone
- types and use of templates for stonemasonry work
- types of stone and their characteristics
- workplace and equipment safety requirements.

Evidence Guide

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 a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

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

A person who demonstrates competency in this unit must be able to cut, grind and polish to specification at least three types of stone products listed in the range statement, providing evidence of the ability to:

- comply with OHS regulations applicable to workplace operations
- comply with organisational policies and procedures
- select and use appropriate processes, tools and equipment to carry out tasks
- apply organisational quality procedures and processes within the context of setting and anchoring stone facades
- demonstrate sound techniques in dressing hard and soft stone
- select stone consistent with specification for material and colour
- accurately set out and install fixing brackets
- demonstrate safe handling practices in moving and placing stone
- fix stone to position and structure
- fix stone to line, level and plumb with clamps securing components
- identify typical faults and problems that occur and action required to rectify them
- communicate with others to ensure safe and effective workplace operations
- complete stone facade to specification.

Context of and specific resources This competency is to be assessed using standard

EVIDENCE GUIDE

for assessment

and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- work location for installation of stone
- tools, plant and equipment appropriate to installation processes
- construction materials relevant to proposed activity
- appropriate documentation relevant to task.

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.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm a reasonable inference that competency is not only verified under the particular assessment circumstance, but is able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected

EVIDENCE GUIDE

must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

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.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

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 includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- material safety data sheets (MSDS)
- memos
- regulatory and legislative requirements pertaining to handling stone
- relevant Australian standards

RANGE STATEMENT

Planning and preparation include:

- safe work procedures relating to handling stone
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- assessment of conditions and hazards
- determination of work requirements and safety plans and policies
- equipment defect identification
- work site inspection.

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

Tools and equipment include:

- brooms
- brushes
- clamps
- hammers
- jigs
- measuring tapes and rules

RANGE STATEMENT

	• shovels • spanners • spirit levels • squares • wedges.
Quality requirements include:	• internal company quality policy and standards • manufacturer specifications • relevant regulations including Australian standards • workplace operations and procedures.
Environmental requirements include:	• clean-up management • dust and noise • vibration • waste management.
Statutory and regulatory authority includes:	• federal, state and local authorities administering applicable Acts, regulations and codes of practice.
Stone machining equipment includes:	• block squaring machines • drilling machines • frame or gang saws • Jenny Lind type polishers • multi-blade saws • multi-functional cutter, grinder and polisher (Jenny Lind type) • multi-head static polishers • planing machines • shaping machines • slab splitting machines • static diamond circular saws • travelling beam circular saws.
Machining operation includes:	• bevelling • drilling • grinding • polishing • sawing.
Types of stone include:	• igneous rock, including basalt (blue stone) and granite • limestone • marble • sandstone.

RANGE STATEMENT

Cutting blades include:

- carborundum
- diamond.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area