



Australian Government

Department of Education, Employment and Workplace Relations

PMC552093B Prepare for and cast refractory materials

Revision Number: 1

PMC552093B Prepare for and cast refractory materials

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the casting of refractory. It includes the use of tools and ancillary equipment.
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Application of the Unit

Application of the unit	<p>This unit of competency applies to operators who install and/or repair refractory bricks and blocks. Cast refractory may be the total requirements for the job, or it may need to join to moulded or brick/block refractory.</p> <p>This unit does NOT cover the installation of brick/block or mouldable refractory, refer to <i>PMC552091B Prepare for, install and repair refractory brickwork/blockwork</i> or <i>PMC552092B Prepare for and install mouldable refractory materials</i>.</p> <p>This unit includes the mixing of castable refractory.</p> <p>This competency will typically be performed by a team of operators working under direction and to a specification and/or procedures.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Establish the suitability of resources	1.1. Check all information conforms with resources 1.2. Record discrepancies in information 1.3. Report any inaccuracies in information to the person in charge 1.4. Identify and select materials, components, tools and equipment
2. Mix, place and compact refractory concrete	2.1. Mix refractory concrete 2.2. Place and compact refractory concrete 2.3. Vibrate refractory concrete 2.4. Remove and reinstate damaged refractory concrete 2.5. Provide and remove temporary supports/formwork 2.6. Maintain tools and equipment
3. Contribute to controlling hazards in work area	3.1. Identify hazards in work area 3.2. Assess risks arising from those hazards 3.3. Take appropriate action to control risks in accordance with procedures and duty of care

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- observing and monitoring work procedures
- adjusting/correcting/responding to sources of information
- identifying and solving problems
- manual skills
- physical handling skills
- using tools and equipment correctly and safely
- working in a team or individually, as required
- reading and numeracy to interpret workplace documents and technical information

Required knowledge

Required knowledge includes:

- methods of preparing background surfaces
- types, uses and operation of tools and equipment
- methods of compacting materials by hand and with vibration equipment
- correct selection and use of anchors
- types and methods of finishing the surface of the concrete
- reasons for, and timing of, dedicated curing and heat-up programs and the consequences for the installed concrete if the program is not correctly followed
- types and uses of temporary support/formwork
- methods of protecting work during installation
- reasons for, and methods of, providing test panels
- methods of cutting
- safeguards to take during reinstatement
- methods of removing damaged refractory
- methods of keying and bonding new to existing refractories
- reasons for, and methods of, obtaining seals between new and existing refractory
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications

Evidence Guide

EVIDENCE GUIDE	
<p>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.</p>	
<p>Overview of assessment</p>	<p>The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Competence must be demonstrated in the operation of all ancillary equipment to the level required for this unit of competency.</p> <p>Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.</p> <p>Consistent performance should be demonstrated. In particular look to see that:</p> <ul style="list-style-type: none"> • refractory cement has the required degree of compaction (neither too little nor too much) and that the casting conforms to requirements • all OHS requirements are followed.
<p>Context of and specific resources for assessment</p>	<p>Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations.</p> <p>Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.</p> <p>Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. A bank of scenarios/case studies/what ifs and questions will be required to probe the reasoning behind observable actions.</p>
<p>Method of assessment</p>	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>It may be appropriate to assess this unit concurrently with other relevant units.</p>

EVIDENCE GUIDE**Guidance information for
assessment**

Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
<p>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.</p>	
Procedures	All operations are performed in accordance with standard procedures and work instructions
Tools and equipment	<p>Tools and equipment include:</p> <ul style="list-style-type: none"> • mixers • pumps • vibrators • lifting equipment • equipment allowing access
Installation	<p>Installation includes:</p> <ul style="list-style-type: none"> • correct thickness • conforming to required curves and angles • maintaining cover • tying to structure • keying to existing refractory
Occupational health and safety (OHS)	All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

Unit Sector(s)

Unit sector	Operational/technical
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		