



Australian Government

Department of Education, Employment and Workplace Relations

CPCCBBC4041A Undertake preparations for refractory work

Release: 1

CPCCB4041A Undertake preparations for refractory work

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to undertake basic preparations prior to the commencement of work using refractory bricks and materials. It covers reading and interpreting plans and specifications, ensuring the use of quality materials as specified by engineers, and implementing relevant safety precautions prior to commencement of work.

Application of the Unit

Application of the unit This unit of competency supports specialist and advanced tradespersons working in refractory bricklaying. It may be applied in the construction or repair of various fire resistant structures, including boilers, kilns and industrial furnaces.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units Nil

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. Interpret refractory plans and specifications.	1.1. General and detailed refractory plans are accessed and analysed to determine nature of work to be undertaken. 1.2. Standard signs and symbols are noted, interpreted and implemented. 1.3. Notes to the plan are observed and complied with in accordance with design requirements. 1.4. Specified materials required are identified from the plans and obtained in accordance with organisational procedures.
2. Implement safety requirements.	2.1. Material safety data sheets (MSDS) are accessed and relevant safety precautions implemented. 2.2. Organisational OHS requirements are implemented and maintained.
3. Prepare refractory materials and equipment.	3.1. Test certificates of materials are checked to ensure materials meet required job specifications as detailed in refractory plans. 3.2. Tools and equipment are selected and checked for serviceability. 3.3. Mortar is prepared and mixed to design requirements.

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:

- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- read and interpret:
 - MSDS
 - refractory plans and specifications
 - test certificates

REQUIRED SKILLS AND KNOWLEDGE

- other relevant documentation
- use and interpret non-verbal communication
- use language and concepts appropriate to cultural differences
- numeracy skills to interpret mathematical information, calculate material quantities and measure accurately
- organisational skills, including the ability to plan for and set out work
- teamwork skills and the ability to work with others to ensure coordination and cooperation between self and others
- technical skills to ensure ability to select and use relevant plant, tools and equipment.

Required knowledge

Required knowledge for this unit is:

- Building Code of Australia (BCA) and other Australian standards relevant to the nature of work and materials being used
- characteristics and applications of different materials used in refractory brickwork
- methods and processes relating to the use of refractory bricks and insulation materials for the construction of fire resistant structures
- organisational procedures for the acquisition of materials
- workplace and equipment safety requirements, including relevant statutory regulations, codes and standards.

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 by carrying out relevant preparations for refractory work. It should include analysis and interpretation of the plans and specifications, demonstrated understanding of all aspects detailed in the plans, implementation of safety precautions and correct selection of relevant materials and equipment.

This unit of competency can be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully

EVIDENCE GUIDE

	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 provide evidence of the ability to: • demonstrate understanding of the purpose and application of refractory bricklaying • comply with OHS regulations applicable to workplace operations • use safe and effective procedures to handle hazardous materials • apply organisational quality procedures and processes within context of constructing or repairing structures employing refractory materials • read and interpret two-dimensional refractory plans and specifications • select and use processes, tools and equipment appropriate to job requirements • prepare materials and samples in accordance with job requirements • identify typical faults and problems with materials and equipment that occur and necessary action to rectify • communicate effectively with others to ensure safe work site operations.
Context of and specific resources for assessment	This competency is to be assessed using standard 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: • materials appropriate to refractory brickwork • plant, tools and equipment relevant to refractory brickwork. Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to

EVIDENCE GUIDE

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 that competency is verified and 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 the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected 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

EVIDENCE GUIDE

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.

General and detailed refractory plans include:

- detailed plans show aspects and sections of the structure in greater detail than the general plan
- general plans show the entire structure to be constructed.

Signs and symbols relate to:

- assembly of completed parts of the structure
- dimensions and scales
- materials to be used
- particular views of the structure
- quality control requirements
- sections of the structure
- tolerances.

Notes include:

- details of Australian standards to be complied with
- quality control requirements to be followed and documented
- requirements for samples of castables to be taken.

Materials include:

- castables
- different types of insulation materials, including insulation boards and bricks
- fire bricks
- fire clay
- stainless steel joints.

Safety precautions include:

- environmental precautions, such as the operation of an extraction system to filter dust and fumes

RANGE STATEMENT

- use of personal protective clothing, including:
 - disposable overalls
 - dust masks
 - eye and ear protection
 - gloves
 - respirator
 - steel toe capped shoes.
- OHS requirements* include:
 - handling materials
 - protective clothing and equipment
 - use of tools and equipment
 - working platforms and scaffolding
 - workplace environment and safety.
- Tools and equipment* include:
 - clay mixer
 - measuring tapes and rules
 - mortar boards
 - rubber mallets and scutches
 - straight edges
 - string lines
 - trowels.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area

