



Australian Government

PMC557095 Specify and monitor the installation of monolithic/castable refractories

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to PMC557095A Specify and monitor the installation of monolithic/castable refractories

Application

This unit of competency covers the skills and knowledge required to specify and monitor the installation of monolithic or castable refractories. It applies to castable, mouldable and gunned (shotcrete, gunite) refractories.

This unit of competency applies to operators who are required to confirm that the design aligns to refractory requirements; design and document the installation method, materials, equipment and other specifications; and monitor the installation to ensure it meets specifications.

This unit of competency applies to senior technicians or those in similar roles who are required to analyse and synthesise advanced theoretical and technical knowledge and apply independent judgement to high-level technical issues and complex problems. The individual may work in liaison with other refractory specialists or they may be the sole refractory specialist for this job or in their organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Technical

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|-------------------------------------|------|--|
| 1 | Confirm design specification | 1.1 | Check design specification against agreed set of requirements for the refractory |
| | | 1.2 | Identify discrepancies or conflicts in requirements |
| | | 1.3 | Confirm installation requirements and specifications |
| | | | |
| 2 | Design installation process | 2.1 | Determine method of installing refractory |
| | | 2.2 | Determine refractory materials to be installed |
| | | 2.3 | Determine mix requirements for materials |
| | | 2.4 | Determine installation equipment requirements |
| | | 2.5 | Determine anchor requirements |
| | | 2.6 | Determine post placement requirements |
| | | 2.7 | Design formwork if required |
| | | 2.8 | Design scaffolding or other internal access needs if required |
| | | 2.9 | Design external access/egress means if required |
| | | 2.10 | Identify installation health, safety and environmental (HSE) hazards |
| | | 2.11 | Determine appropriate hazard controls |
| | | 2.12 | Check for discrepancies or conflicts in the designs and take appropriate action |
| | | | |
| 3 | Prepare for installation | 3.1 | Specify installation procedure |
| | | 3.2 | Liaise with relevant stakeholders |
| | | 3.3 | Modify specification if needed |
| | | 3.4 | Ensure correct ordering of requirements |

- 3.5 Identify time critical items for the installation
 - 3.6 Identify other items critical to the success of the project
 - 3.7 Identify or develop measures to monitor all critical items
 - 3.8 Prepare installation specification
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- 4 **Monitor installation**
 - 4.1 Ensure requirements meet specification/contract
 - 4.2 Ensure hazard controls are in place and effective
 - 4.3 Monitor work to installation specification
 - 4.4 Take appropriate action on non-conformances as required
 - 4.5 Report during project as required
 - 4.6 Complete end of project documentation on completion

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- HSE legislation, regulations and codes of practice relevant to the workplace, equipment and production processes and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

HSE hazards

Identification of HSE hazards requires consideration of:

- exposure to heat
- exposure to dust
- exposure to refractory materials
- confined space entry
- working with equipment
- working at heights
- ultra-violet (UV) and other welding hazards
- disposal of waste, scrap and excess materials
- manual handling hazards.

Mix requirements

Mix requirements include:

- materials to be mixed
- mixing ratios
- location of mixing (e.g. in charge vessel, at nozzle or other location).

Method of installing refractory

Method of installing refractory includes one or more of:

- casting
- moulding of plastic refractory
- gunning (shotcrete, gunite and gunned plastic refractory).

Unit Mapping Information

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Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>