

Title	Demonstrate knowledge of refractories		
Level	3	Credits	6

Purpose	People credited with this unit standard are able to: demonstrate knowledge of refractories; demonstrate knowledge of pre-formed and unformed refractories; and demonstrate knowledge of safety requirements for refractory installation.
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Classification	Masonry > Refractory Installation
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Available grade	Achieved
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Guidance Information

1 Definitions

Site safety plan refers to the documented safety plan which is required by law to ensure compliance with the Health and Safety in Employment Act, 1992.

Specifications refer to any, or all of the following:

manufacturer's specifications and/or recommendations;
 site and/or workplace specific requirements.

Plant refers to appliances, equipment, fittings, furniture, implements, machinery, tools, vehicles, plus parts, controls, and anything connected to such plant.

2 Legislation and Codes of Practice relevant to this unit standard include the following:

Health and Safety in Employment Act, 1992;

Resource Management Act, 1991;

Best Practice Guideline for Scaffolding, 2003 Department of Labour available from <http://www.osh.dol.govt.nz/order/catalogue/scaffolding.shtml>.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of refractories.

Performance criteria

1.1 Refractories are described in accordance with their type.

Range basic, high-alumina, fireclay, silica, insulating, special refractories.

1.2 Refractories are described in accordance with their properties.

Range chemical composition, density, porosity, specific gravity, strength, thermal effects.

1.3 Refractories are described in accordance with their applications.

Outcome 2

Demonstrate knowledge of pre-formed and unformed refractories.

Performance criteria

2.1 Pre-formed refractories are described in terms of types and characteristics.

Range bricks, blocks, special shapes.

2.2 Unformed refractories are described in terms of types and characteristics.

Range castable, ramming, plastic, gunnable, cements, mortar.

2.3 Installation requirements and practice for each type are described in accordance with specifications.

Range expansion and/or construction joints, anchorage.

2.4 Drying and heating up procedures for refractories are described in accordance with specifications.

Outcome 3

Demonstrate knowledge of safety requirements for refractory installation.

Performance criteria

3.1 Requirements for site entry are described in accordance with the site safety plan.

3.2 Workplace hazards are identified in accordance with the site safety plan and the requirements of the Health and Safety in Employment Act 1992.

Range personnel, plant, processes, materials, products, site.

3.3 Requirements for the use, application, and maintenance of personal safety equipment are described in accordance with the specifications.

3.4 Requirements for the use, application, and maintenance of plant are described in accordance with the specifications.

3.5 Safety requirements for processes involved in refractory installation are outlined in accordance with the specifications.

- 3.6 Safety requirements for the use, storage, and disposal of refractory materials are outlined in accordance with the specifications.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	16 January 1997	31 December 2011
Revision	2	8 April 1999	31 December 2011
Review	3	21 September 2007	31 December 2011
Revision	4	21 July 2011	31 December 2024
Review	5	30 June 2022	31 December 2024

Consent and Moderation Requirements (CMR) reference	0048
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.