

Title	Demonstrate knowledge of concrete construction technology		
Level	3	Credits	7

Purpose	People credited with this unit standard are able to demonstrate knowledge of: curing; reinforced concrete; moulds and formwork; and quality control requirements for concrete manufacture and placement.
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Classification	Concrete > Concrete Technology
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Available grade	Achieved
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Guidance Information

Legislation and publications relevant to this unit standard include:

- Health and Safety in Employment Act 1992;
- NZS 3109:1997 *Concrete construction*; NZS 3114:1987 *Specification for concrete surface finishes*, available from Standards New Zealand (<http://www.standards.co.nz>);
- AS 3610:1995, *Formwork for concrete*; AS 3610 Supp 1-1995, *Formwork for Concrete – Blowhole and colour evaluation charts (Supplement to AS 3610-1995)*; AS 3610 Supp 2-1996, *Formwork for Concrete – Commentary (Supplement to AS 3610-1995)*, available from Standards Australia (<http://www.standards.org.au/Default.aspx>).

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of curing.

Performance criteria

- 1.1 Description outlines the purpose of curing concrete in accordance with NZS 3109.

Range purposes include – concrete strength, durability, heat, shrinkage; protection from premature drying, wear, water, excessive hot or cold air, mechanical injury.

- 1.2 Description outlines the methods and materials used for curing unformed surfaces and formed surfaces in accordance with NZS 3109.
- Range water curing – ponding, sprinkling wet covering;
sheet curing – polythene, hessian;
chemical curing – curing compounds;
accelerated curing process – low pressure steam, heat.
- 1.3 Description outlines the hazards associated with, and hazard control procedures required for each curing method.

Outcome 2

Demonstrate knowledge of reinforced concrete.

Performance criteria

- 2.1 Types of steel reinforcement are described in terms of their strength and characteristics.
- Range grades, sizes.
- 2.2 The location of steel reinforcing is identified in terms of its function in the concrete.
- 2.3 The relationship between durability and structural strength is described in terms of the concrete cover to reinforcement.

Outcome 3

Demonstrate knowledge of moulds and formwork.

Performance criteria

- 3.1 Description identifies types of moulds and formwork and their purposes in accordance with workplace practice and NZS 3109 and NZS 3114.
- Range materials – timber, steel, fibre glass, concrete.
- 3.2 Loads and pressures that formwork has to withstand are identified in accordance with AS 3610.
- 3.3 Differing formwork stripping times are identified in accordance with NZS 3109.
- 3.4 Description outlines the function of casting beds in accordance with workplace practice and NZS 3109, and NZS 3114.
- 3.5 Description outlines the process of mould and formwork fabrication in accordance with workplace practice and NZS 3109, and NZS 3114.

- 3.6 Description outlines hazards associated with, and hazard control methods required for, materials used for mould and formwork construction and fabrication in accordance with manufacturer's product information, and material safety data sheets.

Outcome 4

Demonstrate knowledge of quality control requirements for concrete manufacture and placement.

Performance criteria

- 4.1 The environmental effects on the properties of concrete are described in terms of effects on usability, strength, and durability.
- 4.2 The requirements for quality and quantity control of water in concrete mixtures are explained in terms of the need for quality control.
- 4.3 The requirements for quality control in the placement and compaction of concrete are explained in accordance with NZS 3109.
- 4.4 The requirements for quality control in the handling and storage of on-site concrete materials are explained in terms of the effects of lack of control.

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	21 May 1999	31 December 2024
Revision	2	12 February 2003	31 December 2024
Review	3	26 July 2004	31 December 2024
Rollover and Revision	4	25 January 2008	31 December 2024
Rollover and Revision	5	17 November 2011	31 December 2024
Review	6	24 November 2022	31 December 2024

Consent and Moderation Requirements (CMR) reference

0048

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.