

Title	Demonstrate knowledge of concrete science relevant to a concrete production plant		
Level	4	Credits	5

Purpose	<p>This unit standard is intended for people working in the concrete production industry.</p> <p>People credited with this unit standard are able to demonstrate knowledge of concrete science relevant to a concrete production plant to the level of performance required of a commercially competent concrete production operator.</p>
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Classification	Concrete > Concrete Production
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Available grade	Achieved
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Guidance Information

1 Assessment

This unit standard is intended to align with the *New Zealand Certificate in Concrete Production – Specifications* and the *New Zealand Certificate in Concrete Production (Level 4)* [Ref: 4187].

Evidence for this standard must reflect commercial competence.

Commercial competence refers to the ability to demonstrate knowledge and skills in the context of the currently accepted requirements of a business operating in a commercial environment.

Commercial competence must be confirmed by a person with current expertise in concrete production.

2 Definitions

The *Plant Audit Scheme* sets out the operating regulations and practices for each production plant, so accreditation requirements are met with the Concrete NZ Readymix Sector Group.

Workplace procedures refers to the documented procedures specific to a workplace that set out the standards and required practices of that workplace.

3 Legislation, standards and guidance information relevant to this standard includes the following, and any subsequent amendments and replacements:

New Zealand Certificate in Concrete Production – Specifications, BCITO, October 2020, available from www.bcito.org.nz.

Legislation accessed at www.legislation.govt.nz

- Building Act 2004
- Hazardous Substances and New Organisms Act 1996
- Health and Safety at Work Act 2015
- The New Zealand Building Code
- Land Transport Act 1998.

Standards accessed at www.standards.govt.nz

- NZS 3104:2003 *Specification for concrete production*
- NZS 3109:1997 *Specification for concrete construction*.

Guidelines and Approved Codes of Practice

- A Guide to Concrete Construction available from www.concretenz.org.nz (CCANZ)
- The Plant Audit Scheme available from www.concretenz.org.nz.

Skill specification and performance level guidance

Skill specification

Demonstrate knowledge of concrete science relevant to a concrete production plant.

Knowledge

The constituents of fresh concrete and their performance, properties and purposes in concrete mix design.

Range aggregates, cement, water.

The performance properties and purposes of different additives and admixtures used in concrete mix design.

The physical properties of fresh concrete and how these impact upon concrete transportation and placement.

The performance properties of hardened concrete as a construction material.

Range properties include compressive strength, tensile strength, and durability.

The common applications of concrete in the built environment and how these are reflected in mix designs for different environments.

Range includes residential, industrial, and commercial environment.

The effects of adverse or unfavourable weather conditions on concrete and how these are managed when producing fresh concrete.

Range rain, extreme heat, freezing temperatures, wind.

Performance level guidance

Performance must reflect plant audit scheme requirements, NZS 3104, NZS 3109 and workplace procedures.

Planned review date	31 December 2026
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 June 2021	N/A

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>.

Comments on this unit standard

Please contact the Building and Construction Industry Training Organisation national.office@bcito.org.nz if you wish to suggest changes to the content of this unit standard.