

Title	Perform fresh and hardened concrete testing		
Level	4	Credits	35

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 perform fresh and hardened concrete testing 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 Recommended skills and knowledge
Unit 32760, *Demonstrate knowledge of fresh and hardened concrete testing*, or demonstrate equivalent knowledge and skills.
- 2 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.

- 3 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 which sets out the standard and the required practices of that workplace.

- 4 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.

Standards accessed at www.standards.govt.nz

- NZS 3104:2003 *Specification for concrete production*
- NZS 3109:1997 *Specification for concrete construction*
- NZS 3112.1:1986 *Methods of test for concrete – Tests relating to fresh concrete*
- NZS 3112.2:1986 *Methods of test for concrete – Tests relating to the determination of strength of concrete.*

Guidelines and Approved Codes of Practice

- *The Absolutely Essential Health and Safety Toolkit for Small Construction Sites*, and other WorkSafe NZ publications available from www.worksafe.govt.nz
- *A Guide to Concrete Construction* available from www.concretenz.org.nz
- *The Plant Audit Scheme* available from www.concretenz.org.nz.

Skill specification and performance level guidance

Skill specification

Perform fresh and hardened concrete testing.

Skills

Perform moisture tests on sand and aggregate by weighing and measuring the known weight of wet aggregate, drying the sample, reweighing and calculating free moisture.

Select fresh concrete for samples for testing.

Range random represented sample, selected sample.

Combine snatch samples into representative samples and test.

Range workability tests, air percentage tests.

Inspect and measure cast cylinders and make calculations for testing.

Cast and cure cylinders for compressive testing.

Range process cylinder tops, cure in controlled environment.

Strip and identify samples and complete a standard cure in a controlled environment.

Place centralised cylinder between compression machine platen and compress cylinder to destruction at the prescribed loading.

Record failure loading to the prescribed Mega Pascal (MPa) and clean up residue.

Perform calibration checks on testing equipment, record results and recalibrate as required.

Report any irregularities in tested concrete as required.

Range irregularities include low compressive strength, matrix irregularities, excessive air holes.

Performance level guidance

Performance must reflect plant audit scheme requirements, NZS 3104, NZS 3109, NZS 3112, and workplace procedures.

A controlled environment for a standard cure is an environment with specific temperatures and humidity settings reflecting NZS 3112.

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.