

<b>Title</b>	<b>Demonstrate knowledge of precast and pre-stressed concrete systems</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>12</b>

<b>Purpose</b>	People credited with this unit standard are able to describe the applications and production of precast products, precast components and cladding, and pre-stressed concrete production.
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<b>Classification</b>	Concrete > Concrete Technology
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<b>Available grade</b>	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*, available from Standards New Zealand

(<http://www.standards.co.nz>).

### Outcomes and performance criteria

#### Outcome 1

Describe the applications and production of precast products.

#### Performance criteria

- 1.1 The applications of precast concrete products are described in terms of type.
 

Range	types include but are not limited to – blocks, bricks, floor tiles, roof tiles, paving flags, kerbs and edgings, block paving, lighting columns, sewer and water pipes, manhole rings, piles, sleepers.
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- 1.2 The operations and methods used in precast product manufacture are described in terms of applications and advantages of each method.
- 1.3 The curing methods used for precast products are described in terms of industry requirements.
- 1.4 The production requirements for precast concrete product manufacture are identified in terms of aggregate storage, batching, mixing, handling equipment and making moulds.
- 1.5 Fibrous reinforcing materials are described in terms of types and application.

## Outcome 2

Describe precast components and cladding.

### Performance criteria

- 2.1 The applications of precast components and cladding are described in terms of type.
- Range types include but are not limited to – structural units, structural/visual units, non-structural cladding panels.
- 2.2 The operations and methods used in the manufacture of precast concrete elements and cladding are described in terms of applications and advantages of each method.
- 2.3 The curing methods used for precast elements are described in terms of industry requirements.
- 2.4 The production requirements for precast concrete production are identified in terms of aggregate storage, batches, mixing, and handling equipment.
- 2.5 Methods of mould making are described in terms of materials used and factors affecting dimensional accuracy.
- 2.6 Methods for fixing and fastening precast units are described in terms of materials and components, locating techniques, in situ concrete, and erecting columns, beams, slabs, cladding and other units.
- 2.7 Procedure for testing precast concrete units is identified in terms of industry requirements.

## Outcome 3

Describe pre-stressed concrete production.

### Performance criteria

- 3.1 The grades of concrete for pre-stressed concrete are identified in terms of tensile strengths of steel.
- 3.2 The tensile properties of different types of pre-stressing tendon are described in terms of reinforcing steel.
- 3.3 Methods of pre-stressing concrete are described in terms of pre-tensioning, post-tensioning and grouting.

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**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	23 May 2001	31 December 2023
Revision	2	16 July 2004	31 December 2023
Rollover and Revision	3	25 January 2008	31 December 2023
Rollover and Revision	4	17 November 2011	31 December 2023
Review	5	28 October 2021	31 December 2023

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