

Title	Manufacture precast concrete tanks		
Level	3	Credits	30

Purpose	<p>People credited with this unit standard are able to, for the manufacture of precast concrete tanks:</p> <ul style="list-style-type: none"> • prepare • set up moulds • fabricate and place reinforcing, and carry out the pre-pour process • place and test concrete • finish concrete • cure and demould • lift and store • finish, perform post-pour checks and remedial work • carry out delivery processes • complete work operations.
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Classification	Concrete > Precast Concrete
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Available grade	Achieved
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Guidance Information

1 Definitions

Modified tank refers to any tank that has been changed from its initial design or intended use.

Precast concrete tank manufacture refers to tanks manufactured by pouring concrete into a mould or series of moulds.

Specifications refers to documented instructions (oral, written, graphic) and may include any of the following: manufacturer's specifications, recommendations or technical data sheets; material specifications; specifications from a specialist source such as an architect, designer, engineer or a supervisor; site or work specific requirements.

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

2 Range

Evidence for assessment against this unit standard must include the manufacture of – a water tank, a waste water treatment tank, a modified tank;
must include – one single-chambered tank, one multi-chambered tank.

3 Credit for this unit standard indicates compliance with industry practice. *Industry practice* refers to the ability to demonstrate knowledge and skills that reflect the productivity, uniformity, finish quality and material economies currently accepted within industry.

- 4 Legislation and publications relevant to this unit standard include the Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995; and the Building Act 2004;
NZS 3109:1997 *Concrete construction*, NZS 3114:1987 *Specification for concrete surface finishes*, AS/NZS 1546.1:2008 *On-site domestic wastewater treatment units - septic tanks* and AS/NZS 1547:2000 *On-site domestic wastewater management*, available from Standards New Zealand (<http://www.standards.co.nz>).

Outcomes and performance criteria

Outcome 1

Prepare to manufacture precast concrete tanks.

Performance criteria

- 1.1 Job requirements for manufacture of precast concrete tanks are identified in accordance with workplace practice, job specifications and shop drawings.
- Range job requirements must take into account the effect of end-use and installation requirements on the manufacturing process.
- 1.2 Job requirements for manufacture of precast concrete tanks are identified in accordance with production programme, including timeframe of job in relation to rate of manufacture and available labour hours.
- 1.3 Tools and equipment used for manufacture of precast concrete tanks are selected in accordance with job requirements.
- 1.4 Production area for precast concrete tanks is selected in accordance with job requirements.
- Range considerations – size of work area needed, access to work area, duration of production, storage, safety, environmental factors, other work operations.

Outcome 2

Set up moulds for precast concrete tank manufacture.

Performance criteria

- 2.1 Moulds for precast concrete tanks are set up in accordance with job requirements, specifications and workplace practice.
- Range two of – base moulds, complete tank moulds, internal wall moulds, roof moulds.

Outcome 3

Fabricate and place reinforcing, and carry out the pre-pour process for precast concrete tank manufacture.

Performance criteria

3.1 Reinforcing for precast concrete tanks is fabricated and placed in accordance with job requirements, specifications and workplace practice.

Range identification of reinforcing type and size, arrangement of supplies, cutting and fabrication of reinforcing, placement of bar chairs, tying of reinforcing, placement of reinforcing in mould.

3.2 The pre-pour process for precast concrete tank manufacture is carried out in accordance with job requirements, specifications and workplace practice.

Range securing of final mould attachments, pre-pour quality assurance procedures.

Outcome 4

Place and test concrete for precast concrete tank manufacture.

Performance criteria

4.1 Concrete for precast concrete tank manufacture is placed in accordance with NZS 3109:1997, job requirements, specifications and workplace practice.

Range factors to consider – mix design, quantity, segregation, layers, screeding, continuity of supply, timing of pour.

4.2 Concrete for precast concrete tank manufacture is tested in accordance with NZS 3109:1997 and job specifications.

Outcome 5

Finish concrete for precast concrete tank manufacture.

Performance criteria

5.1 Concrete for precast concrete tanks is finished in accordance with NZS 3109:1997, NZS 3114:1987 and workplace practice.

Range three of – form finish, utility finish, trowelling, floating, brooming, brushing, stippling, exposed aggregate.

5.2 Construction joints in precast concrete tanks are formed in accordance with job specifications and workplace practice.

Range one of – base/wall, roof/wall.

Outcome 6

Cure and demould precast concrete tanks.

Performance criteria

6.1 Precast concrete tanks are cured in accordance with job specifications and workplace practice.

Range two different curing methods, including testing procedures related to the curing.

6.2 Precast concrete tanks are demoulded in accordance with job requirements and workplace practice.

Range two of – base moulds, complete tank moulds, internal wall moulds, roof moulds.

Outcome 7

Lift and store precast concrete tanks.

Performance criteria

7.1 Precast concrete tanks are lifted safely and in accordance with job specifications, workplace practice and manufacturer's specifications.

Range equipment, lifting techniques.

7.2 Precast concrete tanks are stored in accordance with job specifications and workplace practice.

Range factors to consider – area suitable for high loadings, height capacity, delivery sequence, storage sequence, dunnage, access.

Outcome 8

Finish, perform post-pour checks and carry out remedial work for precast concrete tanks.

Performance criteria

8.1 Precast concrete tanks are finished in accordance with job requirements, specifications and workplace practice.

Range two of – final sealing wash, pasting, piping, fitting out.

8.2 Precast concrete tanks are checked for possible defects in accordance with workplace practice.

Range method, documentation.

8.3 Remedial work on defects in precast concrete tanks is carried out in accordance with job specifications and workplace practice.

Range three defects.

Outcome 9

Carry out delivery processes for precast concrete tanks.

Performance criteria

9.1 Standard forms associated with delivering precast concrete tanks are completed in accordance with workplace practice.

9.2 Loading of precast concrete tanks for delivery is carried out in accordance with job specifications and workplace practice.

Range loading, placement of dunnage, securing load on vehicle.

Outcome 10

Complete work operations.

Performance criteria

10.1 All operations are safely completed, workplace and equipment are cleaned in accordance with workplace practice, including environmental safety requirements, and routine maintenance is carried out in accordance with workplace practice.

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 January 2011	31 December 2023
Review	2	28 October 2021	31 December 2023

Consent and Moderation Requirements (CMR) reference

0048

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