

40004 Operate concrete pump machinery and equipment for a boom delivery system

Kaupae Level	4
Whiwhinga Credit	10
Whāinga Purpose	<p>This skill standard recognises the skills required to operate concrete pumping machinery and equipment for a boom delivery system.</p> <p>This skill standard aligns with the New Zealand Certificate in Concrete (Specialist) [Ref: 4186] (Level 4) with a strand in Concrete Pump Operation (Boom Delivery System).</p>

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Confirm on-site set up location for concrete pump machinery and equipment for a boom delivery system.	a. Consultation with construction site principal is completed.
	b. Location is selected and allows for safe and efficient operation.
2. Position and stabilise concrete pump machinery and boom.	a. Concrete pump machinery and boom are positioned for safe and efficient delivery.
	b. Concrete pump machinery is stabilised for safe and efficient boom operation and concrete delivery.
3. Use a boom delivery system to complete a concrete pumping operation.	a. Pumping operation is completed according to job specifications.
	b. Safety of operator, and on-site workers and others is protected throughout pumping operation.
4. Clear pipeline and delivery system after a concrete pumping operation.	a. Residual concrete materials are removed from pump pipeline and delivery system.
	b. Safety of operator and workers is maintained during pipeline clean out procedure.
5. Clean out pump machinery and equipment after a concrete pumping operation.	a. Safety procedures are followed for safe pump machinery clean out.
	b. Machinery and equipment user instructions are followed during clean out.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
6. Prepare concrete pumping machinery and equipment for road travel.	a. Machinery and equipment are prepared for road travel according to user instructions.
	b. All power controls are set to off and loose components are correctly stowed or restrained.
	c. Visual inspection prior to movement complies with workplace procedures.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

The concrete pumping operation using a boom delivery system will be completed to the standard of a commercially competent concrete pump operator.

A commercially competent concrete pump operator will be capable of consistently demonstrating the technical skills and knowledge expected by the concrete pumping industry; this includes meeting current regulatory and industry standards within commercially viable timeframes, in familiar and unfamiliar construction environments, without direct supervision.

Machinery and equipment manufacturers user instructions must be followed during clean out and preparation for road travel.

Concrete pump machinery includes pump, hopper, and boom delivery system.

A boom delivery system may include hose, pipeline, bends, boom, clamps, reducers, safety pins.

Concrete pumping operation does not include driver licensing requirements.

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

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content

Safety

- Hazard and risk management.
- Safe boom movement practices.
- Safety radius around pump, workers and public.
- Safe operating distances - between concrete pump machinery and on-site equipment and machinery, and concrete pump machinery and overhead hazards and powerlines.
- Safety practices during clean out and maintenance.

Communication

- Hose hand responsibilities, instructions, communication, and safety hand signals.
- On-site communication during operation.
- Document requirements.

Machinery positioning, stabilisation and operation

- Assessment of ground conditions.
- Use of stabilisers, levelling, and operating tolerances.
- Setting up boom to line transitions.
- Knowledge of pump machinery operating limits.
- Operating procedures including pre-start checks and shutdown.
- Post pumping operation clean out procedures, safety and environmental considerations.
- Visual inspection of concrete pump machinery and equipment prior to leaving site

Concrete

- Knowledge of concrete properties – megapascal (MPa) and slump, retardants, composition, admixtures, and life span.
- Effects of steel fibre constituent on concrete pumping.
- Working with compressed air.
- Risks and effects of air in delivery pipe.
- Techniques for preventing backpressure build up.

Trouble shooting

- Blockages, breakdowns, un-pumpable concrete mixes, hydraulic hose blowout or leak, releasing pressure off delivery system.
- Emergency procedures during pumping.

On-site environmental considerations

- Slurry control, waterway protection and spill kit procedures.

Rauemi | Resources

- Concrete Pumping Health and Safety Guidelines February 2013 Copyright © Concrete Pumping Association of New Zealand. Available from www.worksafe.govt.nz
- Programme guidance available from qualifications@waihangaararau.nz.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Waihanga Ara Rau Construction and Infrastructure Workforce Development Council.
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Planning and Construction > Concrete > Concrete Construction
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0048

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	29 February 2024	N/A
Rā arotake Planned review date	31 December 2028		

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@waihangaararau.nz to suggest changes to the content of this skill standard.