

40827**Design advanced rigging operations for complex loads**

Kaupae Level	5
Whiwhinga Credit	25
Whāinga Purpose	<p>This skill standard is for people intending to complete qualifications and credentials in advanced rigging operations.</p> <p>People with this skill standard have the skills required to evaluate and design for an advanced rigging operation for a complex load.</p> <p>This skill standard also provides contextual knowledge on emerging trends and innovations that are shaping rigging practices and technologies.</p> <p>This standard contributes to the New Zealand Certificate in Rigging (Level 5) [Ref: 2357].</p>

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

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Evaluate scenarios that require the application of advanced rigging techniques.	a. Evaluate scenarios to determine the selection and design of where advanced rigging techniques and apparatus are required.
2. Design and schedule advanced rigging operations for complex loads.	a. Develop risk controls and safety measures and equipment for an advanced rigging apparatus.
	b. Specify resource requirements for the operation.
	c. Specify cost estimate for the operation.
	d. Prepare tendered job specifications for client.
	e. Prepare control of work/permit to work requirements for approval.
	f. Coordinate preparation of an engineered lift plan.
	g. Coordinate communications with relevant parties during the design specification phase.
	h. Arrange programming and scheduling of the job.
	i. Document operational phases of the job.
	j. Debrief all shift rigging crews on the lift plan and operational phasing prior to execution and at the time of full handover.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
3. Determine the emerging trends and innovations shaping rigging practices and technologies.	a. Determine the potential impact of emerging technologies and practices on rigging operations, including benefits and implications for safety and crew capability.

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

Assessment specifications:

The candidate will be capable of demonstrating the technical skills and knowledge required to design advanced rigging operations that require from the outset detailed design and planning, involve high-risk (and) or are highly complex in nature, necessitating advanced rigging skills.

The candidate must oversee the design and planning of two advanced rigging operations, each involving a distinct advanced rigging scenario.

Assessment must be conducted in the workplace environment or simulated environment using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations, including:

- the use of full-scale, industry equipment
- performance of tasks within the timelines expected in a workplace
- participation of jobs comprising a team of three to five members.

Definitions:

An *advanced rigging operation* is characterised by the application of specialised methods and techniques tailored to the movement and precise positioning of complex loads. These operations demand comprehensive design, meticulous planning from the outset, and flawless execution. Due to the inherently high-risk nature of such tasks, they require a high level of expertise and advanced rigging skills.

A *complex load* typically exhibits one or more challenging characteristics, such as uneven weight distribution, irregular geometry, an offset or elevated centre of gravity, or uncertain lifting points, all of which significantly increase the complexity and risk of the lifting operation.

Control of work is a structured approach to ensuring that tasks are carried out safely, minimizing risks of injury, environmental harm, equipment damage, or unplanned loss of containment. It establishes a controlled work environment where hazards are identified, assessed, and mitigated before work begins.

An *engineered lift plan* is prepared by a lift engineer specialist. This specialist develop complex, customised rigging arrangements as it requires engineering expertise. This specialist may also provide guidance, review, and approval on:

- load lifting point design, inspection, and testing;
- load stability during lifting and reorientation;
- acceptable ground bearing loads exerted by lifting equipment;
- ground conditions and suitability for lifting operations.

Job is a project for which a proposal has been submitted to a client. If awarded, it transitions into an active project requiring planning, resource allocation, scheduling, and execution to meet contractual requirements.

Permit to work requirements are workplace protocols that must be followed to conduct advanced rigging operations involving high-risk activities. These requirements ensure that only personnel with advanced rigging skills undertake such tasks, following strict safety and operational controls.

Relevant parties are individuals or entities involved in the lifting operation, including but not limited to:

- the client;
- engineering service providers responsible for lift design and analysis;
- crane operators, rigging personnel, and equipment suppliers;
- any other stakeholders contributing to the execution of the lift.

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

Ngā momo whiwhinga | Grades available

Achieved.

Ihirangi waitohu | Indicative content

- Legal responsibilities of relevant parties.
- Management of job – tender, award, delivery and operational phases.
- Recognising criticality of lift operation.
- Coordination with lift engineering specialists.
- Design and specification of complex rigging methods
 - advanced rigging techniques.
 - advanced rigging apparatus/equipment.
 - ground and foundation suitability.
 - engineered specifications.
 - mathematical processes for calculating loads for advanced rigging.
 - operational steps (phases).
- Other factors to consider
 - Design of temporary shoring and stabilisation.
 - Design of lifting points and review of lifting components subjected to static and dynamic stresses during lifting.
 - Third party review and verification of lifting/rigging plans and calculation of loads and stressors for lifting operation.
 - Specification of specialist lifting equipment and rigging.
 - Analysis of existing structures subjected to loads during lifting operations.
- Control of work/permit to work requirements
 - permits, authorisation, risks and hazards, inspections, appropriately competent personnel, and other documentation (confined spaces, working at height, electrical isolation, traffic management).

- Emerging technology and practices and their impact
 - Smart rigging gear: integrated sensors provide real-time data on load weight and tension.
 - Automation: robotic rigging systems reduce human error.
 - Lightweight materials: advanced composites reduce equipment weight while maintaining strength.

Rauemi | Resources

Programme guidance information for the New Zealand Certificate in Rigging (Level 5) [Ref: 2357] is available from qualifications@waihangaararau.nz.

Approved codes of practice available at www.worksafe.govt.nz:

- Approved Code of Practice for Load-lifting Rigging.
- Approved Code of Practice – Cranes.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Waihanga Ara Rau – Construction & Infrastructure Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Service Sector > Lifting Equipment > Advanced Rigging
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0120

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	24 July 2025	N/A
Kōrero whakakapinga Replacement information	N/A		
Rā arotake Planned review date	31 December 2030		

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.