Title	**Design, construct and operate heavy hauling systems for simple, compound, and complex lifts**		
Level	**5**	**Credits**	**10**

Purpose	This unit standard is intended for people working as advanced operators with extensive experience in the application of advanced techniques in industrial rope access work. People credited with this unit standards are able to: - design heavy hauling systems for simple, compound, and complex lifts; and - construct and operate heavy hauling systems for simple, compound, and complex lifts.

Classification	Lifting Equipment > Industrial Rope Access

Available grade	Achieved

Guidance Information

1 All tasks must be carried out in accordance with:
- a quality management systems;
- b designer's requirements and manufacturer's operating instructions; and government and local government legislation, regulations, bylaws, Health and Safety at Work Act 2015 and New Zealand Standards;
- c *Industrial Rope Access in New Zealand: Best Practice Guidelines May 2012* available from the website https://worksafe.govt.nz/; and
- d AS/NZS 1891 parts 1 - 4:2009 *Industrial fall-arrest systems and devices*: AS/NZS 4488 parts 1 and 2:1997 *Industrial rope access systems*. New Zealand Standards are available from http://www.standards.co.nz, and their subsequent amendments.

2 Definition
Advanced rope access work refers to work that require knowledge of mathematics and vector forces, as well as comprehensive training and guidance with extensive experience in the application of advanced rope techniques.

3 Training and assessment
People working towards, and being assessed against, this unit standard should note that work in the industrial rope access industry usually takes place at heights well above ground level and, therefore, requires a level of physical fitness and ability to work at heights.

Outcomes and performance criteria

Outcome 1

Design heavy hauling systems for simple, compound, and complex lifts.

Range must be in excess of 250kg for each lift.

Performance criteria

1.1 Design the heavy hauling system for the movement of the load.

1.2 Calculate the pull-forces on the hauling system.

Range line tensions, pulley efficiency versus loss, final pull-force on drag-line.

1.3 Select anchor points for heavy hauling.

1.4 Select equipment for heavy hauling.

Outcome 2

Construct and operate heavy hauling systems for simple, compound, and complex lifts.

Performance criteria

2.1 Construct heavy hauling systems designed in Outcome 1.

2.2 Operate the heavy hauling systems to transfer a load vertically, semi-vertically, and horizontally.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	10 December 2020	N/A

Consent and Moderation Requirements (CMR) reference	0003

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

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.