Title	**Operate an asphalt paving machine**		
Level	**4**	**Credits**	**20**

Purpose	People credited with this unit standard are able to: – demonstrate knowledge of asphalt paving machines; – prepare for asphalt paving operations; – set up an asphalt paving machine screed; – operate an asphalt paving machine; – apply asphalt to prepared surfaces using an asphalt paving machine; – carry out post-operational checks for asphalt paving work; and – carry out post-operational procedures and maintenance for an asphalt paving machine.

Classification	Infrastructure Works > Bitumen Surfacing Construction

Available grade	Achieved

Prerequisites	Class of driver licence required for the vehicle being driven.

Guidance Information

1 Learning and assessment within this unit standard must be carried out in an infrastructure works environment; in accordance with industry requirements, the following legislation, guidelines, as relevant to their role, and any subsequent amendments or replacements:
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Traffic Regulations 1976, available from www.legislation.govt.nz;
- Best Practice Guideline: Safe Handling of Bituminous Materials Used for Roading (BPG01), available from BPG01 | Civil Contractors NZ;
- The Bitumen Safety Handbook, available from https://civilcontractors.co.nz/.
- NZTA M/10: 2020 *Specification for Dense Graded Asphaltic Concrete,* available from http://www.nzta.govt.nz/resources/.

2 Assessment against this unit standard must take place in a workplace environment and the candidate must be familiar with the type and size of plant to be used for assessment. Both driving and screed operation must be demonstrated. Assessment parameters will depend on company and site-specific equipment, procedures, and reflect industry best practice.

3 Definitions

Contract specifications include plans, diagrams, and special technical conditions. They do not include special administrative conditions.

Industry requirements include the policy, procedures, and methodologies of the company. They include legislative and regulatory requirements that may apply across the company or to a specific site. Requirements are documented in the company health and safety plans, traffic management plans, contract work programmes, quality plans, policies, and procedural documents.

Walk round means to walk around a machine or equipment inspecting it and its environment for hazards and removing hazards that may impair operation.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of asphalt paving machines.

Performance criteria

1.1 Asphalt paving machines and their attachments and controls are described in terms of purpose and function, and correct operation.

1.2 Types and sizes of asphalt paving machines are described in terms of their capabilities and limitations, and suitability for specific infrastructure works tasks.

1.3 Calibration and adjustment of asphalt paving machines are described in terms of purpose, requirements, and procedures.

1.4 Asphalt paving machines are described in terms of their safety features and requirements for safe use.

Outcome 2

Prepare for asphalt paving operations.

Performance criteria

2.1 Job requirements, process, and sequence of tasks are determined and confirmed in accordance with contract specifications.

2.2 Site is checked and confirmed as suitable for work to take place prior to starting work and changes are made, if required.

2.3 Pre-start check of machine is carried out before starting work, and minor adjustments are made, if required.

Range walk round, safety and fire equipment, tyre condition and air pressure or track tension and drive sprockets, gauges and controls (including governor on engine), hopper, conveyors, feed control gates, auger, fuels, lubricants, water levels, hydraulic fluid level, cleanliness, feeders, conveyors, augurs, screed, screed heater, sensing and control equipment, wear on the screed plate, wear on tamping bar if fitted, screed attack angle.

2.4 Site management and communication requirements are identified and confirmed as being in place before commencement of work.

Range site safety plan, environmental plan, traffic management plan.

2.5 Paving machine hopper is made ready to receive mix, and feed rate controls are set in accordance with manufacturer instructions.

Range feed gates, mix conveyors, augers.

Outcome 3

Set up an asphalt paving machine screed.

Performance criteria

3.1 Screed is set up, prepared for use, and heated in accordance with manufacturer instructions and contract specifications.

Range level, thickness, width, transverse shape, transverse slope.

3.2 Mat thickness controls are set up in accordance with manufacturer instructions and contract specifications.

Range manual controls, automatic sensors, automatic control systems.

3.3 Screed controls are set up in accordance with manufacturer instructions and contract specifications.

3.4 Screed with different mixes is prepared for use in accordance with contract specifications for shape and thickness.

Outcome 4

Operate an asphalt paving machine.

Performance criteria

4.1 Level control system is set up and operated in accordance with contract specifications.

Outcome 5

Apply asphalt to prepared surfaces using an asphalt paving machine.

Range a wearing course, an open graded porous asphalt, and a stone mastic asphalt or a structural pavement layer.

Performance criteria

5.1 Quality and temperature of material are monitored and visually inspected before discharge from truck to hopper.

5.2 Delivery truck position is communicated to paving machine driver for the safe and accurate discharge of hot mix into paving machine hopper.

5.3 Forward speed is determined to ensure mix delivery rate meets contract specifications.

5.4 Laying instructions are communicated to paving machine driver.

Range feed control gate settings, rate of asphalt feed, paving machine speed, auger settings and adjustments.

5.5 Paving run is monitored, and adjustments are made in accordance with job requirements.

Range smooth application of asphalt and laying of asphalt, prevent mix segregation.

Outcome 6

Carry out post-operational checks for asphalt paving work.

Performance criteria

6.1 Visual check and any required repair work are carried out to ensure paving meets contract specifications.

Range levels, uniformity.

6.2 Feedback or recommendations for improvements to the process are reported.

Outcome 7

Carry out post-operational procedures and maintenance for an asphalt paving machine.

Performance criteria

7.1 Machine is emptied and cleaned down and solvent runoff is controlled.

7.2 Waste materials are disposed of.

7.3 Machine is moved to a safe location, parked, and secured in accordance with manufacturer instructions.

7.4 Routine servicing is carried out.

7.5 Where routine servicing indicates that specialist maintenance is required, it is reported to specialist mechanic or supervisor.

7.6 Operator servicing and maintenance are documented.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 March 1998	31 December 2013
Revision	2	5 January 1999	31 December 2013
Review	3	27 October 2005	31 December 2013
Revision	4	25 January 2008	31 December 2013
Review	5	15 March 2012	31 December 2016
Review	6	19 February 2015	31 December 2021
Review	7	27 September 2018	31 December 2026
Review	8	29 June 2023	N/A

Consent and Moderation Requirements (CMR) reference	0101

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

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.