

REGISTERED NATIONAL STANDARD

UNIT OF COMPETENCY



Title:	Lay paving bricks ¹				
TQF Level:	4	Credits:	4	Version:	1
National standard code:	NS147-04				
Associated qualification (and code):	National Certificate in Bricklaying and Blocklaying Level 3 QR-03-NQ-028-01-1005-26-01				
Approval date:	10 September 2026		Review date:	10 September 2031	
Purpose:	This unit describes the skills and knowledge required to prepare, set out, lay, and finish paving bricks in external areas. The unit covers paving works across varying substrates, grades, finishes, and patterns using different paving materials and techniques. The unit applies to paving work carried out on new or existing residential and commercial sites and reflects industry requirements for individuals with responsibility for task organisation and completion. The unit supports skilled bricklayers and pavers who are expected to independently manage paving tasks without close supervision while complying with workplace and regulatory requirements. In successfully completing this unit standard, learners are able to: • Apply workplace safety, environmental, and quality requirements • Prepare worksites for paving operations • Interpret plans, specifications, standards, and codes relevant to paving • Calculate material quantities and organise resources • Set out paving levels, grades, and finished heights • Prepare sub-soils, substrates, and bedding materials • Compact, grout, clean, and complete paved surfaces • Work with different paving materials, substrates, grades, and patterns. • Identify underground services, hazards, and risk control measures. • Excavate, prepare subsoil, and install bedding layers. • Competence in screeding and compacting bedding material to required specifications. • Lay pavers accurately in specified patterns and align joints and finishes. • Cut pavers, compact finished surfaces, and complete edge finishes. • Fill paver joints and ensure proper drainage to prevent water ponding. • Clean worksite, maintain tools, and manage materials responsibly.				

¹ Due to safety issues inherent in working with electricity and combustible substances, all training and assessment activities must be in accordance with Tonga National Building Code.

Learning Outcome 1 (LO1)	Determine and organise paving work
Performance standards	1.1 Read and interpret paving requirements from plans, specifications, and codes; 1.2 Follow requirements in workplace safety and environmental documentation and workplace procedures; 1.3 Select, fit correctly and use personal protective equipment (PPE) appropriate for job; 1.4 Calculate paving material quantities required for the task; 1.5 Determine job priorities and sequence job tasks in consultation with others on site; 1.6 Identify underground services and potential hazards and determine and implement control measures; 1.7 Select and check condition of plant, equipment and tools and report any damage or faults to relevant person; 1.8 Check conformity of paving materials against the specifications and place materials ready for the work.
Learning Outcome 2 (LO2)	Set out for paving
Performance Standards	2.1 Identify sub-soil, substrate types and compaction requirements; 2.2 Identify paver thickness and bed thickness; 2.3 Determine excavation depth based on paver and bed thickness; 2.4 Set out paved area, levels, grades and finished height of pavers.
Learning Outcome 3 (LO3)	Prepare for paving
Performance standards	3.1 Excavate area to required depth, treat area for sub-soil drainage and dispose of spoil; 3.2 Position and straighten screed rails; 3.3 Spread, screed and compact bedding material to specified height; 3.4 Grade surface evenly to avoid ponding.
Learning Outcome 4 (LO4)	Lay pavers
Performance standards	4.1 Determine specified pattern, starting point, and check measurements for parallel and square;

	4.2 Lay paving to specified pattern, cut segments and align joints; 4.3 Compact pavers as specified, fill paver joints and clean pavers; 4.4 Finish perimeters of pavers as specified.
Learning Outcome 5 (LO5)	Clean up paving work area.
Performance standards	5.1 Clear the work area and dispose waste following environmental requirements; 5.2 Clean tools and equipment, check for serviceability. 5.3 Report damage or faults to relevant personnel; 5.4 Store tools and equipment following workplace procedures; 5.5 Store materials for reuse or recycle following workplace procedures.
Pre-requisites	NS133-03 Apply <i>Occupational Health and Safety</i> (OHS) requirements, policies and procedures
Co-requisites	N/A
Underpinning skill and knowledge	The following skills and knowledge underpin this unit standard: <u>Skills:</u> Work Preparation and Planning • Reading and interpreting paving plans, specifications, standards, and codes • Calculating quantities of materials using measurements and formulas • Sequencing job tasks and coordinating with others on site • Identifying underground services and site hazards and implementing control measures • Selecting, fitting, and using appropriate personal protective equipment (PPE) Technical and Practical • Setting out paved areas, levels, grades, and finished heights

	• Identifying sub-soil and substrate types and determining compaction requirements • Excavating paving areas and disposing of spoil appropriately • Preparing sand and cement bedding materials • Positioning screed rails and screeding bedding material • Compacting subsoils, substrates, bedding, and pavers using appropriate equipment • Laying pavers to specified patterns and cutting pavers accurately • Aligning joints, finishing edges, and fill paver joints • Ensuring finished surfaces are level, evenly graded, and free of water ponding Tool, Equipment, and Technology • Selecting and checking plant, tools, and equipment for serviceability • Using plate compactors, cement mixers, wet cut saws, and battery-operated tools safely • Using digital tools and devices to source job information and communicate with others Housekeeping and Workplace Practices • Clearing work areas and managing waste through reuse, recycling, or disposal • Cleaning, inspecting, and storing tools and equipment • Reporting damaged or faulty tools and equipment according to workplace procedures <u>Knowledge:</u> Paving Materials and Products • Characteristics, applications, and limitations of paving products and materials, including: • Clay bricks and pavers • Concrete blocks and pavers • Stone, slate, and segmented paving materials • Bedding materials, mortar, and sand • Mortar ingredients and required consistency • Waterproofing materials and sealing products
--	--

	Paving Processes and Techniques • Setting out paving levels, heights, and patterns • Manual and mechanical excavation methods • Subsoil and surface drainage techniques • Compaction methods for subsoils, substrates, and bedding materials • Laying pavers in various patterns • Finishing paved surfaces evenly to prevent water ponding • Controlling surface water runoff Tools, Plant, and Equipment • Functional and operational features, uses, and limitations of: • Plate compactors • Cement mixers • Wet cut saws • Battery-operated tools and hand tools Construction and Documentation • Construction terminology relevant to paving • Features and interpretation of working drawings and specifications • Standards and codes applicable to paving works Workplace Health, Safety, and Environmental Requirements • Job Safety and Environmental Analysis (JSEA) • Hazardous manual task controls • Noise reduction and hearing protection • Dust suppression and silica exposure management • Control of exposure to loud noise • Environmental requirements for workplace processes and waste management
Assessment requirements	<u>Assessment methods</u> may include more than one of the following: Direct Observation Assessment of learners while they are performing tasks in real time in a simulated environment. • The learner performs practical tasks. • The assessor watches the learner complete these tasks against a checklist or performance standards. Assessor Requirements

	• Use a structured observation checklist aligned to performance standards • Observe multiple occasions to ensure consistency of competence. • Record evidence of safe work practices, correct use of equipment, etc. • Provide immediate feedback where appropriate. • Ensure conditions reflect real workplace standards. Oral Questioning Verbal questions asked to assess the learner's understanding of knowledge and reasoning. • Conducted during or after practical tasks. • Can be structured (planned questions) or informal (follow-up probing). Assessor Requirements • Ask questions that test underpinning knowledge • Use open-ended questions • Confirm learner understanding where practical performance is not enough. Record responses clearly (notes or checklist). • Adjust language to suit learner literacy levels. Written Test A structured assessment requiring learners to provide written responses. Short-answer questions, multiple choice, or case scenarios. • Typically conducted off-site or in a classroom environment. Assessor Requirements • Design questions that assess knowledge. • Ensure the test is clear, aligned to unit requirements and appropriate for language, literacy, numeracy levels • Mark responses using a marking guide or model answers. • Provide feedback and identify gaps in knowledge. • Ensure results reflect the learner's independent performance. Work-Based Activity Assessment conducted in a real workplace while the learner performs actual job tasks. • Learners complete normal workplace duties. • Evidence is collected over time. • Assessor Requirements
--	---

	• Coordinate with workplace supervisors. • Gather evidence such as - Observation reports, Supervisor feedback, etc. • Verify that tasks meet unit performance standards. • Ensure authenticity (learner's own work). • Confirm competence across different situations and timeframes. Assessment should use a combination of the above methods to ensure sufficient, valid, authentic, and current evidence of competence in both skills and knowledge, in line with unit requirements. <u>Context of Assessment:</u> Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects a real workplace setting. Assessment is to comply with relevant regulatory or relevant standards' requirements. Assessment of essential knowledge will usually be conducted in an off-site situation.
Moderation arrangements	1. Training providers must have their own moderation system approved by TNQAB before accreditation is granted: a) Relevant internal moderation processes are documented; b) Assessment is planned for each unit, and moderation processes are integrated into such plan. 2. Unless specified elsewhere, external moderation is conducted by the National Qualifications unit of TNQAB for all unit components of a national qualification: a) Samples of assessed activities are submitted for moderation; b) Moderation (external) forms are available on request.
Resource requirements	1. Power point presentations. 2. Trainer's Guide 3. Learner's Guide 4. Tonga National Building Code 5. Videos 6. Plans and Specifications 7. Trowels, floats, and jointing tools

	8. Screeds and screed rails 9. Measuring tools (tape measures, spirit levels, string lines) 10. Shovels and rakes 11. Plate compactor 12. Cement mixer 13. Wet cut saws for cutting pavers 14. Battery-operated tools and hand tools 15. Clay pavers and bricks 16. Concrete pavers and blocks 17. Stone or slate paving materials 18. Bedding materials (sand, crushed materials) 19. Mortar (cement, sand, lime) 20. Excavation tools/equipment 21. Screed rails and guides 22. Sub-base materials 23. Drainage materials 24. PPEs 25. Structured assessment and evidence-collection tools
Requirements to complete this unit	There are five (5) Learning outcomes and twenty-five (25) Performance Standards to measure competence. To demonstrate competence, the person studying this unit is: a. Required to demonstrate all LOs to the expected standards; b. Required to attain an Achieved Grade (Competent) to fulfil the requirements of the Unit Standard; c. Eligible to three (3) attempts to achieve the required competency within 14 days of the first attempt. Failure to achieve the required competency after three (3) attempts on the specific part of the assessment will require the person studying this Unit to re-enrol for the same Unit.
Important notes and definitions	<u>Notes:</u> 1. All training and assessment activities must be in accordance with Tonga National Building Code.

2. Assessors must comply with the Tonga national assessment and moderation requirements.

Definitions:

1. ***Bedding material*** refers to layer beneath pavers providing support (e.g., sand)
2. ***Compaction*** refers to ompressing material to improve stability.
3. ***Drainage*** refers to system for removing water from paving area.
4. ***Electrical Hazards*** refer to risks associated with electrical equipment and improper grounding.
5. ***Environmental Requirements*** refers to regulations and workplace procedures aimed at reducing environmental impact, including waste management and recycling.
6. ***Excavation*** refers to removal of soil to required depth.
7. ***Fill paver joints*** refer to filling joints between pavers.
8. ***Finished level*** refers to final surface height of paving.
9. ***Grade*** refers to slope for directing water flow.
10. ***Jointing sand*** refers to sand used to fill gaps between pavers.
11. ***JSEA (Job Safety and Environmental Analysis)*** refers to the process identifying hazards and environmental risks.
12. ***Mortar*** refers to mixture used to bond or bed paving units.
13. ***Pattern*** refers to arrangement of pavers (e.g., herringbone, stretcher bond).
14. ***Paver*** refers to individual unit (brick, concrete, or stone) used in paving.
15. ***Paving*** refers to process of laying materials to create a durable surface.
16. ***Plate compactor*** refers to machine used to compact substrate and paving.
17. ***Ponding*** refers to accumulation of water due to poor leveling.
18. ***Screed rail*** refers to guide used for levelling bedding material.

	19. <i>Screeding</i> refers to levelling bedding material to specified height. 20. <i>Sealant</i> refers to protective coating applied to finished surface. 21. <i>Set out</i> refers to marking layout, levels, and alignment before construction. 22. <i>Silica Dust Exposure</i> refers to health risk from inhaling fine dust from masonry materials. 23. <i>Substrate</i> refers to base layer supporting paving system. 24. <i>Tonga National Building Code</i> refers to a set of technical standards governing the design and construction of buildings in Tonga. 25. <i>Wet cut saw</i> refers to tool for cutting pavers accurately.
Public comments on unit	Please contact TNQAB National Qualifications Unit (email EnquireNQ@tnqab.to or Telephone 28136) if you like to discuss or suggest changes to the details of this unit.