

REGISTERED NATIONAL STANDARD

UNIT OF COMPETENCY



Title:	Construct brick or block stairs ¹				
TQF Level:	4	Credits:	4	Version:	1
National standard code:	NS155-04				
Associated qualification (and code):	National Certificate in Bricklaying and Blocklaying Level 4 QR-04-NQ-028-02-1005-26-01				
Approval date:	10 September 2026		Review date:	10 September 2031	
Purpose:	This unit describes the skills and knowledge required to read and interpret, calculate, set out, and construct stairs, and associated wing walls using a range of brick and block products. The unit covers the process from preparation and accurate geometric calculation through to construction, finishing, and clean-up. It applies to brick and block layers working on new or existing structures who are expected to organise and complete tasks with limited supervision while complying with workplace procedures and Tonga National Building Code. This unit supports bricklayers who are expected to take responsibility for assigned brick or block stair tasks and complete work independently while meeting Tonga National Building Code requirements. In successfully completing this unit standard, learners are able to: • Interpret construction drawings, specifications, and standards for masonry stair construction. • Calculate stair geometry, including total rise, going, tread and riser dimensions. • Prepare the worksite, materials, tools, and equipment while following OHS and environmental procedures. • Accurately set out brick or block stair layouts, including positioning and alignment with plans. • Construct brick or block steps, stairs, and wing walls to required tolerances, bond, level, plumb, and alignment. • Apply finishing techniques and ensure compliance with Tonga National Building Code. • Carry out clean-up and maintenance of tools, equipment, and work areas				

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)	Prepare for brick or block stairs construction work
Performance standards	1.1 Read and apply brick or block stairs requirements from plans, specifications and Tonga National building Code; 1.2 Follow requirements in workplace safety and environmental documentation and workplace procedures; 1.3 Calculate material quantities for the task; 1.4 Identify potential hazards and determine and implement control measures; 1.5 Select and use personal protective equipment (PPE) appropriate for job; 1.6 Select and check condition of plant, equipment and tools and report damage or faults to relevant person.
Learning Outcome 2 (LO2)	Calculate and set out stairs
Performance Standards	2.1 Calculate rise of step from total rise; 2.2 Determine going of step and tread size; 2.3 Check conformity to slope relationship rule; <i>(Range of formula for calculating comfortable stair slope is $2R+G = (550 \text{ to } 700)$)</i> 2.4 Calculate total going; 2.5 Set out position of stairs on a prepared footing with vertical reinforcement bars; 2.6 Set out parallel wing wall to maintain bond and gauge with treads and risers.
Learning Outcome 3 (LO3)	Construct brick or block stairs
Performance standards	3.1 Mix mortar to consistency for job requirements; 3.2 Construct base brickwork or blockwork accurately to set out marks; 3.3 Lay stairs square and plumb to the specified bond; 3.4 Construct parallel sloping wing wall to align with tread and riser bond and gauge; 3.5 Finish joints to specified profile; 3.6 Brush down face of brick or block work to remove mortar residue.
Learning Outcome 4 (LO4)	Clean up stairs work area

Performance standards	4.1 Clear the work area and dispose waste following environmental requirements; 4.2 Clean tools and equipment; 4.3 Check for serviceability and report damage or faults; 4.4 Store and secure tools and equipment 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> Planning and Preparation • Reading, interpreting, and applying brick or block stair and step requirements from plans, specifications, standards, and codes • Calculating material quantities using measurements and formulas • Identifying hazards and implementing appropriate risk control measures • Selecting, fitting, and using appropriate personal protective equipment (PPE) • Selecting and checking plant, tools, and equipment for serviceability and safety • Preparing and blending brick or block materials to meet specifications Brick or block Stair Construction Techniques • Calculating total rise and total going of stair flights • Applying geometry and the slope relationship rule • Setting out stair positions on prepared footings to comply with standards • Setting out and constructing parallel wing walls that maintain bond and gauge • Mixing mortar to specified consistency

	• Constructing base brickwork or blockwork to set out marks • Laying brick or block steps and stairs square, level, and plumb • Constructing wing walls aligned with stair slope, tread, and riser bond • Finishing joints to specified profiles and tolerances • Cleaning brick or block faces to remove mortar residue prior to curing Using Tools, Equipment, and Technology • Using hand tools and power tools safely and effectively • Using digital tools and devices to communicate and collaborate with others on site 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 equipment according to workplace procedures <u>Knowledge:</u> Brick or block Stair and Step Principles • Construction terminology related to brick or block steps and stairs, including total rise, total going, tread, riser, landing, nosing, and wing wall • Processes and techniques for brick or block stair and step construction • Application of stair geometry to set out and calculations • Tonga National Building Code requirements relevant to brick or stairs construction, including: • Minimum and maximum riser and tread dimensions • Slope calculation rules [$2R + G = (550 \text{ to } 700)$] • Maximum number of steps per flight • Wing wall height requirements
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	• Brickwork tolerances for level, alignment, joint size, bowing, and lipping Materials, Tools, and Equipment • Characteristics, applications, and limitations of approved brick or block materials for steps and stairs • Brick bond patterns suitable for stair and wing wall construction • Functional and operational features of hand tools and power tools used in masonry work Workplace Health, Safety, and Environment • Workplace safety requirements, including: • Job Safety and Environmental Analysis (JSEA) • Hazardous manual handling • Exposure to silica dust • Exposure to loud noise • Features and interpretation of working drawings and specifications • Environmental requirements for workplace processes and waste disposal
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.
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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 Guide 4. Tonga National Building Code 5. Videos on brick or block stair construction 6. Plans and Specifications 7. Measuring and setting-out tools 8. Brick or block laying tools and equipment 9. Materials for stair and wing wall construction 10. PPE's 11. JSEA (Job Safety and Environmental Analysis) 12. Structured assessment and evidence-collection tools
Requirements to complete this unit	There are four (4) Learning outcomes and twenty-two (22) 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

Notes:

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. **2R + G = (550 to 700)** is a formula for calculating comfortable stair slope.
2. **Bond** refers to the pattern arrangement of masonry units ensuring structural integrity.
3. **Brickwork Tolerances** refers to acceptable limits of variation in masonry work
4. **JSEA (Job Safety and Environmental Analysis)** refers to risk assessment process.
5. **Landing** refers to a flat platform at the top or between stair flights.
6. **Mortar** refers to mixture used to bond masonry units.
7. **Nosing** refers to the projecting front edge of a tread.
8. **OHS (Occupational Health and Safety)** refers to workplace safety regulations and practices.
9. **PPE (Personal Protective Equipment)** refers to safety equipment such as helmets, boots, gloves, and high-visibility clothing.
10. **Raking joints** refers to removing mortar to create joint profile.
11. **Residue** refers to unwanted mortar.
12. **Riser** refers to the vertical face between two consecutive treads.
13. **Setting-Out Instruments** refers to tools used to measure and align structures (e.g., tape measures, spirit levels, automatic and laser levels)
14. **Silica dust** refers to hazardous dust produced during cutting masonry materials.

	15. <i>Tonga National Building Code</i> is a set of technical provisions for the design and construction of buildings and structures in Tonga. 16. <i>Total Going</i> refers to the horizontal distance covered by the stair flight. 17. <i>Total Rise</i> refers to the vertical height between the lower and upper levels of the stairs. 18. <i>Tread</i> refers to the horizontal surface of a step where the foot is placed. 19. <i>Wing Wall</i> refers to a side wall constructed alongside the stairs to support or retain material. 20. <i>Work area</i> refers to the particular section where tasks are performed at the work site.
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.