

**REGISTERED
NATIONAL STANDARD**

UNIT OF COMPETENCY



Title:	Install glass block work				
TQF Level:	4	Credits:	4	Version:	1
National standard code:	NS158-04				
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 install glass blocks into non-structural panels using a range of fixing methods, including mortar and proprietary adhesive systems. It covers preparing the work area, interpreting plans and specifications, setting out the installation, placing and aligning glass blocks, and completing finishing and clean-up tasks. The unit includes installing both standard and fire-rated glass blocks in new or existing structures, ensuring compliance with Tonga National Building Code and workplace and environmental requirements. This unit supports bricklayers who are expected to take responsibility for installing glass blocks tasks and complete work independently while meeting Tonga National Building Code requirements. In successfully completing this unit standard, learners are able to: • Interpret drawings, specifications, and installation requirements for glass blockwork • Plan and organise installation tasks, sequencing activities and coordinating with others on-site • Apply OHS, environmental, and workplace procedures throughout all stages of work • Identify and control hazards associated with glass block installation, including hazardous substances and working at heights • Calculate materials required for glass block panels using measurements and formulas • Select and prepare tools, equipment, glass blocks, adhesives, and accessories for installation • Check openings, lintels, flashings, and surfaces for suitability before installation • Set out the installation area ensuring base is level and surfaces are plumb				

	• Mix or prepare mortar or apply approved silicone products according to manufacturer instructions • Install reinforcement, expansion joints, and glass blocks to required line, level, and plumb • Align glass blocks accurately to specified design and joint spacing • Finish joints using appropriate tools and achieve specified appearance • Clean up work area and dispose of, reuse, or recycle materials according to environmental procedures • Maintain and store tools and equipment in safe and serviceable condition • Apply finishing techniques and ensure compliance with Tonga National Building Code. • Carry out clean-up and maintenance of tools, equipment, and work areas.
Learning Outcome 1 (LO1)	Prepare and organise to install glass blockwork
Performance standards	1.1 Read, interpret and apply glass block installation requirements from current plans, specifications and Tonga National Building Code; 1.2 Follow requirements in workplace safety and environmental documentation and workplace procedures; 1.3 Use measurements and apply formulas to calculate material quantities; 1.4 Determine job priorities and sequence job tasks in consultation with others on site; 1.5 Identify potential hazards and determine and implement control measures; 1.6 Select and use personal protective equipment (PPE) appropriate for job; 1.7 Select and check condition of plant, equipment and tools and report damage or faults to relevant person; 1.8 Check conformity of glass blocks, adhesives and accessories and place materials in preparation for the work.
Learning Outcome 2 (LO2)	Set out for glass block installation
Performance Standards	2.1 Check opening size, lintel and flashing to suit the glass block size before installation; 2.2 Check base and head for level and abutting surfaces for plumb; 2.3 Mix mortar to the correct consistency;

	2.4 Use approved silicone product following manufacturer's instructions.
Learning Outcome 3 (LO3)	Install glass blocks
Performance standards	3.1 Install expansion strips and reinforcements; 3.2 Lay glass blocks level and plumb to the specified design; 3.3 Remove mortar residue or silicone at completion and clean glass blocks; 3.4 Use appropriate tool to achieve specified joint finish.
Learning Outcome 4 (LO4)	Clean up glass block installation 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> Work Preparation Skills • Select, fit, and correctly use PPE. • Read, interpret, and apply glass block installation requirements from plans, specifications, standards, and codes. • Follow workplace safety, environmental procedures, and documentation. • Use measurements and formulas to calculate material quantities. • Identify hazards and implement appropriate control measures. • Select, check, and maintain plant, tools, and equipment.

	• Check conformity of glass blocks, adhesives, and accessories. Set-Out and Installation • Check opening size, lintels, and flashings for suitability. • Check base and head for level and abutting surfaces for plumb. • Mix mortar or prepare approved silicone product per manufacturer instructions. • Install reinforcement and expansion strips. • Lay glass blocks level and plumb to the design. • Remove mortar residue/silicone and clean glass blocks. • Finish joints using correct tools. Housekeeping • Dispose of, reuse, or recycle materials per environmental requirements. • Clean, check, store, and secure tools and equipment. <u>Knowledge:</u> Materials Selection • Characteristics, applications, and limitations of: • Aluminium frames • Reinforcement • Silicone products • Mortar mixes • Grouts • Fire-rated glass blocks Installation Processes and Techniques • Systems and techniques for installing a range of glass block types. • Construction terminology related to glass block installation. Tools and Equipment • Functional and operational features of relevant plant, equipment, hand tools, and battery-operated tools. Safety Knowledge • Job safety and environmental analysis (JSEA).
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	• Working with hazardous substances (including silicone). • Working at heights. • Exposure risks: silica, loud noise Regulatory Requirements • Relevant and current standards and building codes for glass block installation. • Features 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 real 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.

Context of Assessment:

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 on brick or block stair construction 6. Plans and Specifications 7. Glass blocks (standard and fire-rated) 8. Mortar materials (cement, sand, lime, water) 9. Silicone or approved adhesive systems 10. Aluminium frames (if applicable) 11. Reinforcement materials 12. Expansion joint materials (e.g., expansion strips) 13. Grouts and jointing materials 14. Flashings and lintels 15. Trowels 16. Jointing tools 17. Tape measures 18. Levels (spirit level) 19. String lines 20. Set-out rods or brickies' tape 21. Mixing equipment

	22. Hand and power tools (including battery-operated tools) 23. PPE's 24. Site safety signage and barriers 25. JSEA (Job Safety and Environmental Analysis) 26. Structured assessment and evidence-collection tools
Requirements to complete this unit	There are four (4) Learning outcomes and twenty (20) Performance Standards to measure competence. To demonstrate competence, the person studying this unit is: - Required to demonstrate all LOs to the expected standards; - Required to attain an Achieved Grade (Competent) to fulfil the requirements of the Unit Standard; - 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> - All training and assessment activities must be in accordance with Tonga National Building Code. - Assessors must comply with the Tonga national assessment and moderation requirements. <u>Definitions:</u> <i>Expansion Joint / Expansion Strip</i> refers to a joint or material that allows movement within the glass block panel due to thermal expansion or structural movement. <i>Flashing</i> refers to material installed to prevent water penetration at joints and openings. <i>Glass Block</i> refers to a hollow or solid glass unit used in construction to provide light transmission, insulation, and aesthetic features. <i>Glass Blockwork</i> refers to the installation of glass blocks into panels or openings, typically for non-structural walls. <i>Grouting</i> refers to the process of filling joints between glass blocks to provide strength and finish.

	6. <i>Hazardous Substances</i> refers to materials that can cause harm (e.g., adhesives, sealants, or cleaning chemicals) 7. <i>Joint Finish</i> refers to the final profile or appearance of the joints between glass blocks. 8. <i>JSEA (Job Safety and Environmental Analysis)</i> is a risk assessment process. 9. <i>Level</i> refers to perfect horizontal alignment 10. <i>Line</i> refers to straight alignment along a length 11. <i>Lintel</i> is a horizontal structural element above an opening to support loads above the glass block panel. 12. <i>Mortar</i> is a mixture of cement, sand, lime, and water used to bond masonry units together. 13. <i>Non-Structural Panel</i> is a wall or panel that does not carry structural loads but serves as a partition or architectural feature. 14. <i>OHS (Occupational Health and Safety)</i> refers to workplace safety regulations and practices. 15. <i>Plumb</i> refers to perfect vertical alignment 16. <i>PPE (Personal Protective Equipment)</i> refers to safety equipment such as helmets, boots, gloves, and high-visibility clothing. 17. <i>Reinforcement</i> refers to metal or other materials used within joints to strengthen glass block panels. 18. <i>Residue</i> refers to removing of unwanted material. 19. <i>Setting-Out Instruments</i> are tools used to measure and align structures (e.g., tape measures, spirit levels, automatic and laser levels) 20. <i>Silica dust</i> refers to hazardous dust produced during cutting masonry materials. 21. <i>Silicone Adhesive</i> refers to manufacturer-approved bonding material used instead of mortar in some glass block systems. 22. <i>Tonga National Building Code</i> is a set of technical provisions for the design and construction of buildings and structures in Tonga. 23. <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.

