

REGISTERED NATIONAL STANDARD



UNIT OF COMPETENCY

Title:	Prepare surfaces for tiling installation ¹				
TQF Level:	4	Credits:	6	Version:	1
National standard code:	NS171-04				
Associated qualification (and code):	National Certificate in Wall and Floor Tiling Level 3 QR-03-NQ-028-03-1005-26-01				
Approval date:	10 September 2026		Review date:	10 September 2031	
Purpose:	This unit describes the skills and knowledge required to repair and prepare a range of substrates suitable for wall and floor tiling. It includes the preparation of materials and substrates for the tiling process. The unit applies to workers performing tiling preparation tasks under supervision, requiring compliance with Tonga national Building Code, OHS, environmental requirements, manufacturer specifications, and workplace procedures. It emphasises achieving a sound, level, clean, and properly bonded substrate, ensuring effective adhesion and long-term performance of tiling systems. This unit ensures that learners can efficiently and safely prepare surfaces for tiling application while working with others as a member of a team. In successfully completing this unit standard, learners are able to: • Apply OHS, environmental, and site safety requirements • Interpret work instructions, drawings, and specifications for surface preparation • Plan and organise tasks to prepare surfaces efficiently and safely • Identify and control hazards through risk assessment and implementation of control measures • Select appropriate tools, equipment, and materials for substrate preparation • Calculate material quantities required for preparation tasks • Inspect substrates to determine condition, compatibility, and required preparation methods • Prepare materials required for substrate preparation and tiling application				

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.

	• Install underlay systems for framed substrates in accordance with specifications • Prepare framed substrates ensuring joints are flush and surfaces are finished to standard • Clean all surfaces to remove contaminants and loose materials • Prepare cementitious and brick and block substrates by controlling suction and applying bonding agents • Mix and apply screeding and/or rendering materials to achieve required levels and finishes • Finish surfaces to specified tolerances, including applying correct falls for drainage • Protect prepared surfaces during curing and drying processes • Ensure prepared surfaces meet best work practices and tiling requirements • Maintain and store tools and equipment according to manufacturer and workplace requirements • Dispose of waste materials, reuse, or recycle in accordance with environmental requirements and codes of practice • Minimise environmental impact during plastering preparation tasks • Work under supervision while following workplace instructions and coordinating with experienced workers
Learning Outcome 1 (LO1)	Plan and organise surface preparation work
Performance standards	1.1 Obtain work instructions and operational details using relevant information, confirmed and applied for planning and preparation purposes; 1.2 Follow safety (OHS) requirements in accordance with safety plans and policies; 1.3 Identify and implement signage and barricade requirements; 1.4 Select and use personal protective equipment (PPE) for each part of the task; 1.5 Select tools and equipment to carry out tasks and are consistent with the requirements of the job; 1.6 Calculate material quantity required in accordance with plans and specifications; 1.7 Determine materials appropriate to the work application are prepared, safely handled and located ready for use; 1.8 Determine environmental requirements for the project in accordance with Tonga environment Act.

Learning Outcome 2 (LO2)	Prepare materials for surface preparation
Performance Standards	2.1 Identify materials compatible with work surfaces; 2.2 Follow requirements of the application process for material preparation; 2.3 Assist with underlay preparation under instructions and supervision; 2.4 Finish substrate surface to approved surface standards with joints flush and sealed.
Learning Outcome 3 (LO3)	Prepare render for substrate surface
Performance standards	3.1 Remove and safely detached surface-mounted construction units and attachments are stored safely; 3.2 Identify substrate structure and surfaces are cleaned; 3.3 Mix materials for splash coat to proportion and instructions ready for application to wet surface; 3.4 Prepare horizontal and vertical surrounds for tiling process; (Range to comply in accordance with type of tile and specified finish) 3.5 Mix materials for render coat to proportion and instructions ready for application; 3.6 Render, scratch, cure and dry surface prior to tile installation.
Learning Outcome 4 (LO4)	Clean up tools and work area
Performance standards	4.1 Clear the work area and dispose waste following environmental requirements; 4.2 Clean tools and equipment, check for serviceability. 4.3 Report damage or faults to relevant personnel; 4.4 Store tools and equipment following workplace procedures; 4.5 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:

Skills:

Planning and organisational

- Interpret work instructions, drawings, and specifications for surface preparation
- Plan and sequence work tasks efficiently
- Calculate quantities of materials required for preparation
- Organise tools, equipment, and materials for the work area

Technical surface preparation

- Inspect substrates to identify defects, contamination, and suitability for tiling
- Prepare framed substrates, including installing underlay and finishing surfaces
- Prepare cementitious and masonry substrates by cleaning and treating surfaces
- Control suction of substrates using water, bonding agents, or primers
- Mix and apply screeding and rendering materials to required consistency
- Level and finish surfaces to the correct tolerance and profile
- Apply falls to surfaces for proper drainage
- Clean substrates to remove dust, grease, and loose material
- Protect prepared surfaces during curing and drying

Materials handling

- Select and use compatible materials for substrate preparation
- Handle and mix preparation materials safely and correctly
- Prepare materials according to manufacturer specifications

	Measurement and numeracy • Measure surfaces and materials accurately • Determine levels, falls, and surface alignment • Apply formulas to calculate material quantities Problem-solving • Identify substrate defects and surface irregularities • Determine appropriate preparation methods for different substrates • Adjust preparation techniques to achieve required tolerances and finishes Communication • Communicate with supervisors and team members • Report defects, hazards, and non-compliant conditions • Follow workplace procedures and documentation Safety and compliance • Apply OHS procedures and risk control measures • Use PPE correctly • Identify and control workplace hazards • Comply with Australian Standards and workplace requirements Tool and equipment • Select and operate hand and power tools for surface preparation • Maintain and store tools and equipment • Use mixing and finishing tools effectively Environmental and housekeeping • Dispose, reuse, or recycle materials appropriately • Maintain clean and safe work areas • Follow environmental protection procedures <u>Knowledge:</u> Standards and compliance • Tonga National Building Code relating to floor tiling installation • OHS requirements, including Job Safety Analysis (JSA)
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	• Environmental requirements for waste and material handling Substrate • Types of substrates, including: ○ Framed substrates (timber or metal framed walls/floors) ○ Cementitious substrates (concrete, screed) ○ Brick and Block substrates • Characteristics and limitations of different substrates • Surface defects and contaminants and their effects on tiling Materials and compatibility • Types of materials used in surface preparation: ○ Underlay materials ○ Mortar (cement, sand, lime) ○ Bonding agents and primers • Material compatibility between substrate and tiling systems • Material storage requirements and handling procedures Surface preparation processes and techniques • Cleaning and preparation techniques for different substrates • Underlay installation methods for framed structures • Screeding and rendering processes • Application of bonding agents and primers • Methods for achieving required surface finishes and tolerances • Techniques for controlling suction and ensuring adhesion Measurement and calculation • Processes for calculating material quantities • Techniques for establishing levels, alignment, and falls • Use of measurement tools for surface preparation Tools and equipment knowledge • Types and uses of tools and equipment, including: ○ Mixing tools ○ Trowels and floats ○ Measuring and levelling tools
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	• Safe operation and maintenance of tools • Manufacturer's recommendations for use Quality requirements • Surface tolerance and finish requirements • Standards for substrate preparation prior to tiling • Importance of proper surface preparation for tile adhesion and durability Safety knowledge • Hazards associated with surface preparation, including: ○ Dust and silica exposure ○ Manual handling risks ○ Chemical exposure (bonding agents, primers) • Risk control measures and safe work practices • Emergency procedures and reporting requirements
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.

	<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 on surface preparation for tiling application 6. Plans and Specifications 7. Underlay materials for framed substrates (e.g., fibre cement sheets) 8. Cement 9. Sand 10. Lime 11. Water 12. Bonding agents and primers 13. Screeding and rendering materials 14. Cleaning agents and surface preparation products 15. Tape measures 16. Spirit levels

	17. Straight edges 18. Squares 19. Trowels 20. Floats 21. Mixing equipment 22. Cleaning tools (brushes, scrapers) 23. Hand and power tools (as required) 24. Mortar boards 25. Wheelbarrows 26. Personal Protective Equipment (PPE): Safety boots 27. Gloves 28. Eye protection 29. Respiratory protection (dust control) 30. Safety signage and barricades 31. Safety Data Sheets (SDS) 32. Job Safety Analysis (JSA) 33. A process used to identify hazards and implement safety controls 34. Structured assessment and evidence-collection tools
Requirements to complete this unit	There are four (4) Learning outcomes and twenty-three (23) 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. ***Bonding Agent*** is a substance used to improve adhesion between the substrate and applied materials.
2. ***Cementitious Substrate*** is a surface made from cement-based materials such as concrete or render.
3. ***Contaminants*** refer to substances such as dust, grease, or loose material that can affect adhesion.
4. ***Environmental Requirements*** refer to regulations and workplace procedures aimed at reducing environmental impact, including waste management and recycling.
5. ***Fall*** is a slope applied to a surface to allow proper drainage of water.
6. ***Float Finish*** is a smooth surface finish created using a float tool after screeding or rendering.
7. ***Framed Substrate*** is a surface constructed using timber or metal framing, often requiring underlay before tiling.
8. ***Hazard*** refers to potential source of harm.
9. ***JSEA (Job Safety and Environmental Analysis)*** is a process to identify risks.
10. ***Manual handling*** refers to lifting and moving materials by hand.
11. ***Mechanical handling*** refers to using equipment to transport materials.
12. ***OHS (Occupational Health and Safety)*** is a framework for safe work practices.
13. ***Primer*** is a preparatory coating applied to improve adhesion and control surface absorption.
14. ***Rendering*** refers to applying a coat of mortar to a wall or surface to achieve a smooth or level finish.
15. ***Risk control*** refers to the measures to reduce workplace risks.
16. ***Screeding*** refers to the process of applying and levelling mortar to produce a smooth surface, often to create a fall for drainage.
17. ***Silica dust*** refers to hazardous dust produced during cutting masonry materials.
18. ***Substrate*** refers to the base surface (e.g., concrete or framed wall) to which tiles are applied.

	19. <i>Suction Control</i> refers to managing the absorption of moisture by a substrate to ensure proper bonding of materials. 20. <i>Surface Preparation</i> refers to the process of cleaning, repairing, levelling, and treating a substrate to ensure proper tile adhesion. 21. <i>Tolerance</i> refers to the allowable variation in surface level, alignment, or finish 22. <i>Tonga National Building Code</i> is a set of technical standards governing the design and construction of buildings in Tonga. 23. <i>Underlay</i> is a layer installed over a framed structure to provide a suitable surface for tiling.
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.