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LOCAL GOVERNMENT NEW ZEALAND TECHNICAL ASSISTANCE FACILITY

Tokelau

Building Control – Repairs and Potential Solutions

25 August – 11 September 2019

This report has been prepared by Mark Fitzpatrick, Assessor Building Control at Wellington City Council, following a visit to Tokelau in August and September 2019.

This report is the opinion of Mark Fitzpatrick. It should be used in conjunction with other reports and information and does not necessarily reflect the views of Local Government New Zealand, Wellington City Council, or the Ministry of Foreign Affairs and Trade.

NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Aid Programme

PacificTA is funded by New Zealand Foreign Affairs and Trade Aid Programme

The following are typical areas requiring repair or improvements in construction, seen on Nukunonu and Atafu.

This report includes diagrams and links to the proposed solutions.

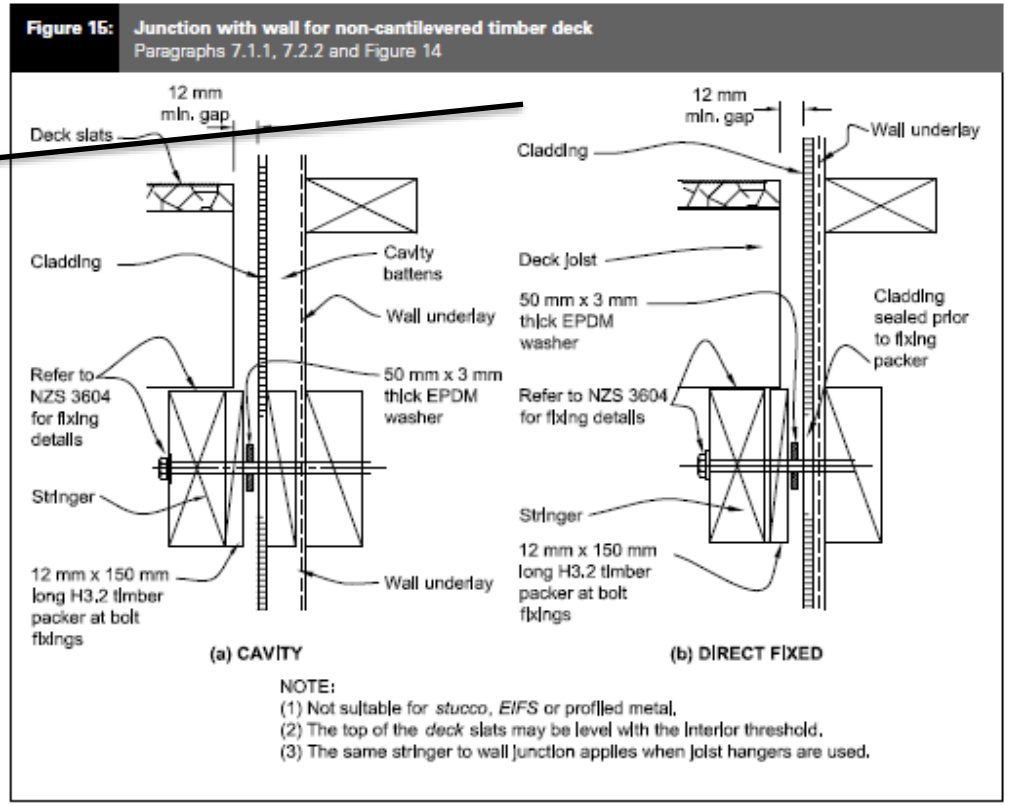
Typical Water-tank

Video & Tank repair products https://www.youtube.com/watch?v=QpAwd9iCHQ8

- **Mastermix:** https://mastermix.co.nz/product/fast-setting-waterproof-concrete/
- **Ardex:** https://www.google.com/search?q=ardex+nz&rlz=1C1GCEB_enNZ866NZ866&q=Ardex&aqs=chrome.1.0l4j69i60l2.2060j0j8&sourceid=chrome&ie=UTF-8
- **Gripset:** https://gripset.com/applications/water-tanks-pools-ponds-n-water-features/
- **Equus:** https://equus.co.nz/concrete-systems/
- **Sika:** https://nzl.sika.com/content/new_zealand/main/en/solutions_products/construction-markets/diy-trade/02a024/02a024sa010.html
- **etc.**

Deck stringers WITHOUT free draining

Deck stringers with free draining



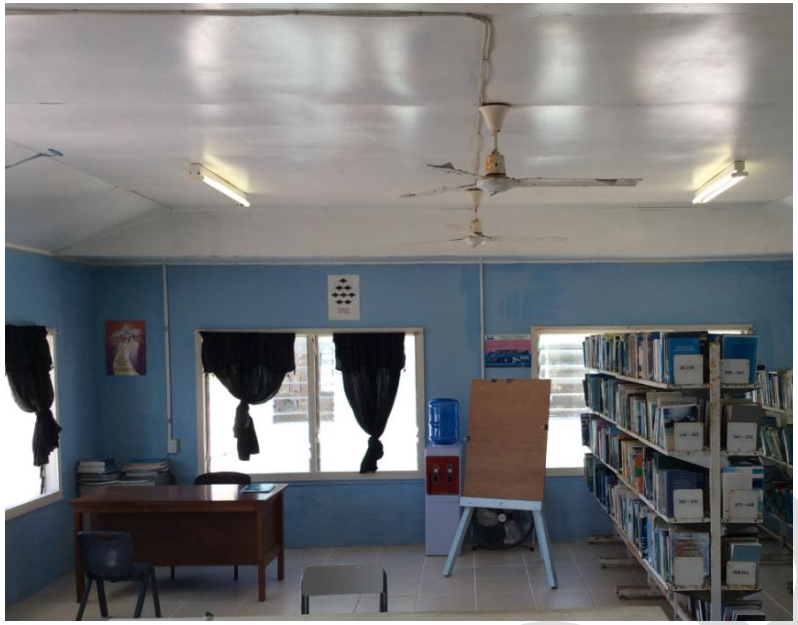
Insufficient cover, mix & durability for reinforcing – tank support strengthening required

Insufficient cover, mix & durability for reinforcing – spalling on bridge

Concrete quality

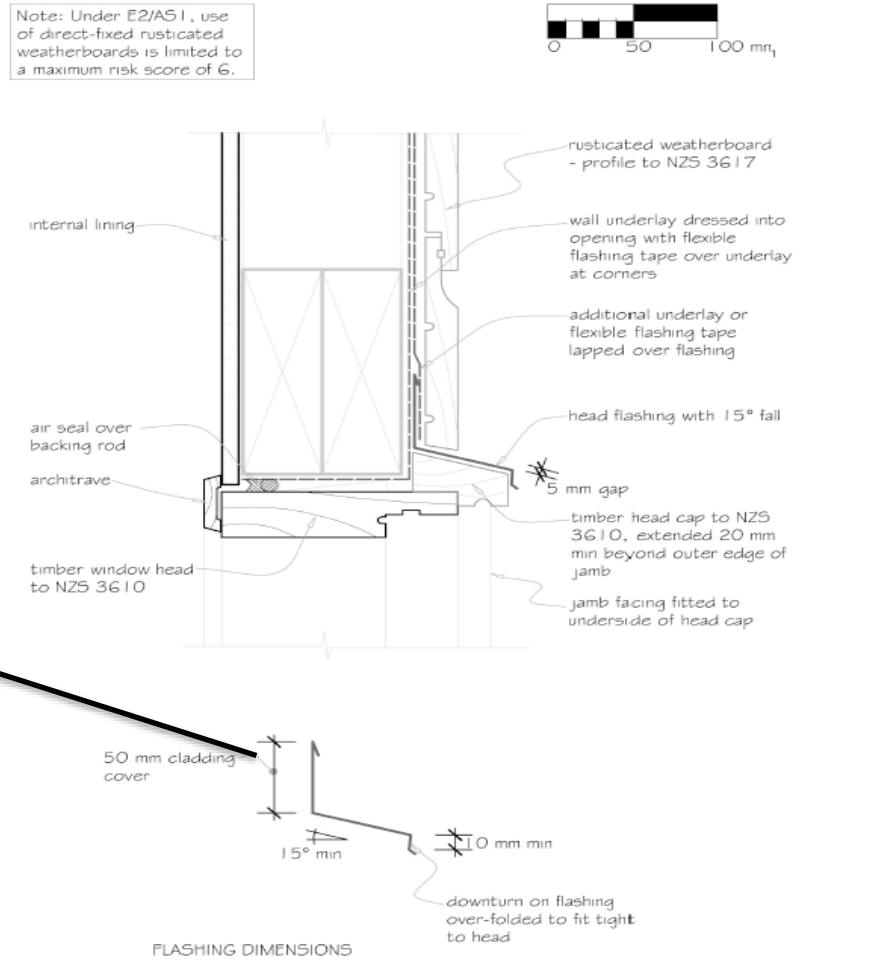
An example of rust free reinforcing can be found at the following website http://www.mateenbar.com/mateenbar/

Most buildings systems (both residential & public) without smoke alarms



Implement and enforce Tokelau Fire Building Code Vol 1 – install Smoke alarms

Head details requiring flashings



.1.4 Horizontal rusticated timber weatherboards - direct fixed - timber window head with head cap

Horizontal joins requiring on-going maintenance

https://www.jameshardie.co.nz/web/assets/downloads/Titan-Facade-CLD-Technical-Specification.pdf

10 Maintenance

The extent and nature of maintenance required will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to maintain the effectiveness of the cladding. As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-coating exterior protective finishes**
- Regular inspection and repair if necessary of the sealants, Inseal® strips and fillers etc
- Cleaning out gutters, down pipes and overflow pipes as required
- Pruning back vegetation which is close to or touching the cladding as well as ensuring the NZBC ground clearance requirements are maintained especially where gardens are created
- The clearance between the bottom edge of the Titan Façade Panel cladding and the finished/unfinished ground must always be maintained
- Refilling the countersunk holes where the cracks start appearing in the paint film around epoxy fillers or where fastener read through becomes significant

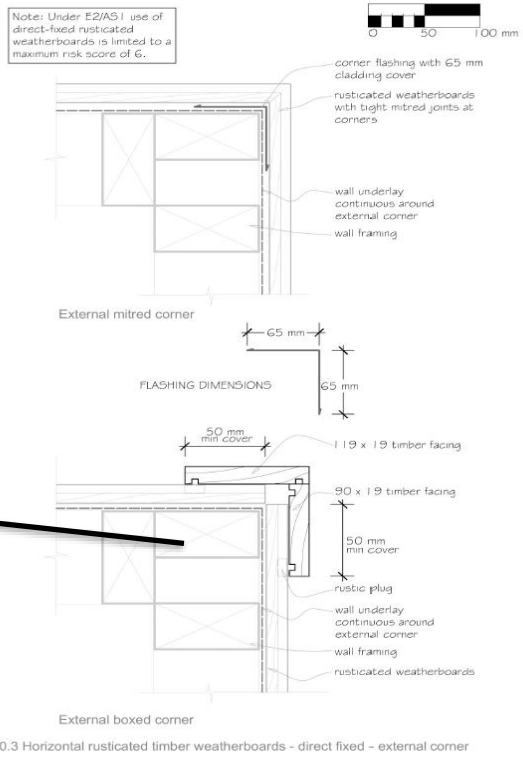
* Do not use a water blaster to wash down the cladding. In extreme coastal conditions or sea spray zones, wash every 3-4 months.

** Refer to the paint manufacturer for washing down and recoating requirements related to ongoing paint performance.

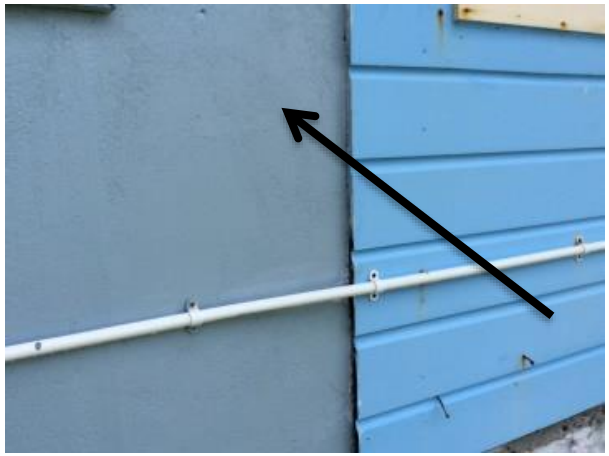
No Timber corner - cover boards

Add Timber corner - cover boards

No cover board to change of claddings

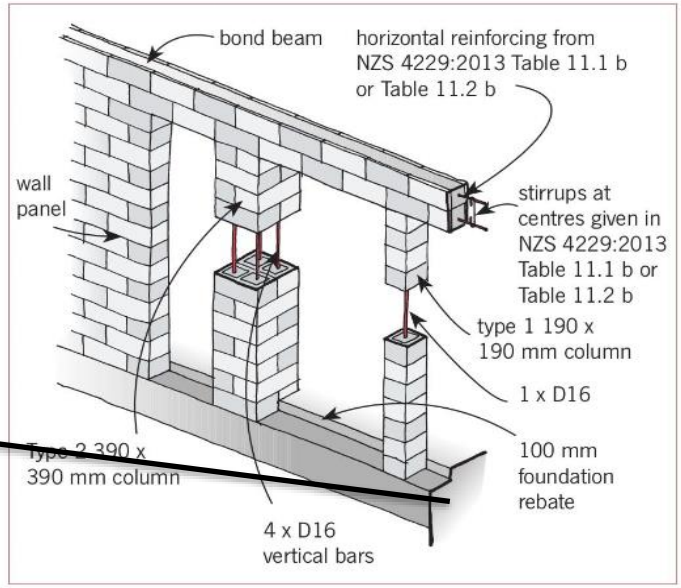


1.1.10.3 Horizontal rusticated timber weatherboards - direct fixed – external corner



No Concrete rebates at floor level

Add concrete rebates at floor level to future buildings or continuous veranda covers to existing buildings



No free joint for expansion

Expansion Free joints to slabs (ref:- BRANZ Masonry Good practice)

13.4 CRACKING

13.4.1 Cracks identified during the yearly condition survey need to be assessed to determine if they are:

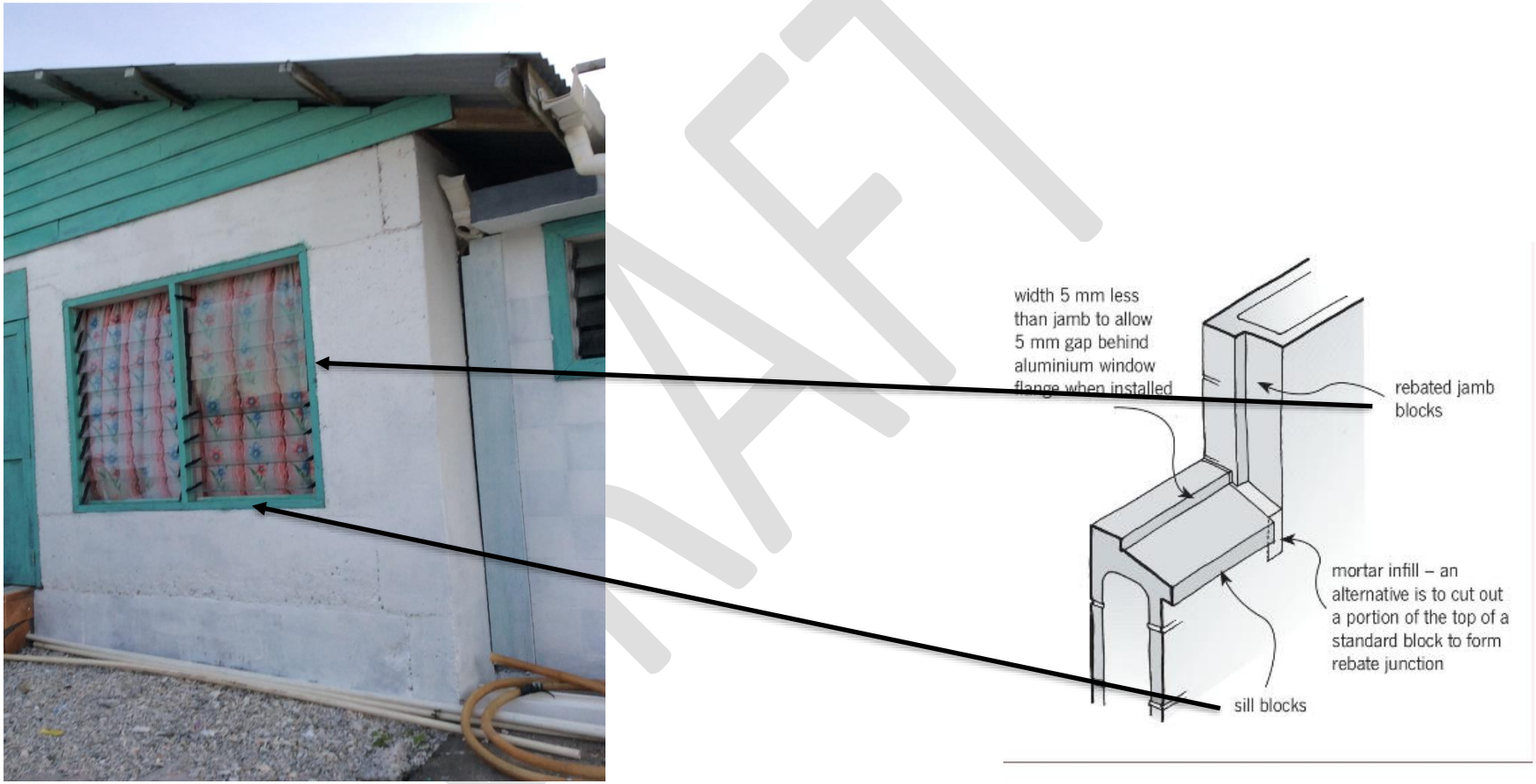
- moving cracks as a result of deflection, settlement or movement
- static cracks such as those arising from small amounts of shrinkage in the masonry and mortar.

13.4.2 For moving cracks, specialist engineering and repair advice should be sought.

13.4.3 Static cracks may be repaired by the application of an elastomeric coating system that has the ability to bridge small cracks, or the crack will need to be filled with an exterior grade masonry filler and recoated.

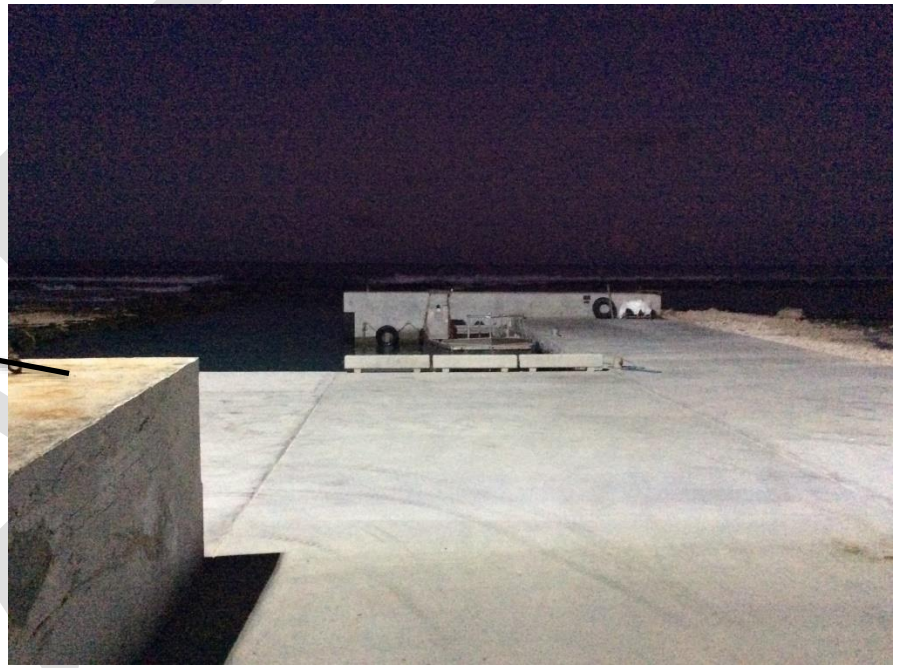
Recommend Water tanks to be above ground level to avoid cross contamination from adjoining septic tanks

Use rebate blocks for windows



Repair sea walls with durable products, i.e. concrete walls or stainless steel mesh

Typical durable engineered sea wall



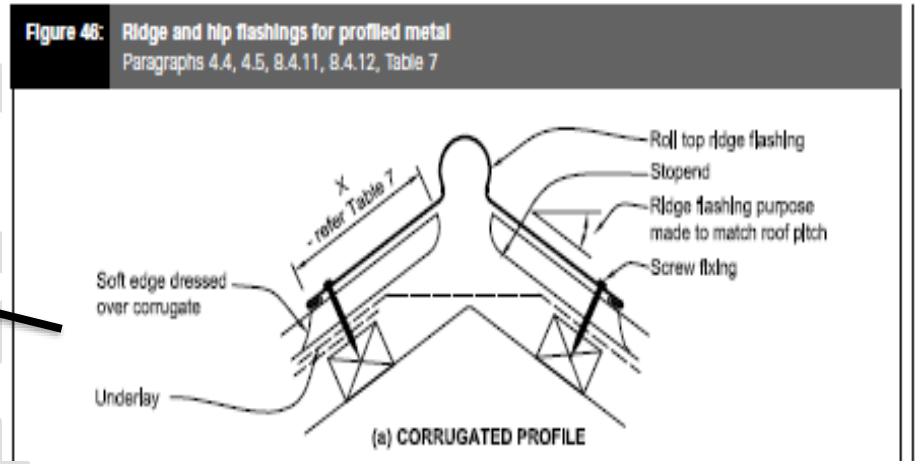
Maintenance by means of Cement seal primer and paint to damp areas

Recommend use of stainless steel fixings

Re-vamp or re build hospital

No soft flashing to ridge capping

Soft flashing to ridge capping or profiled seals ridge capping
Check all fixings & laps

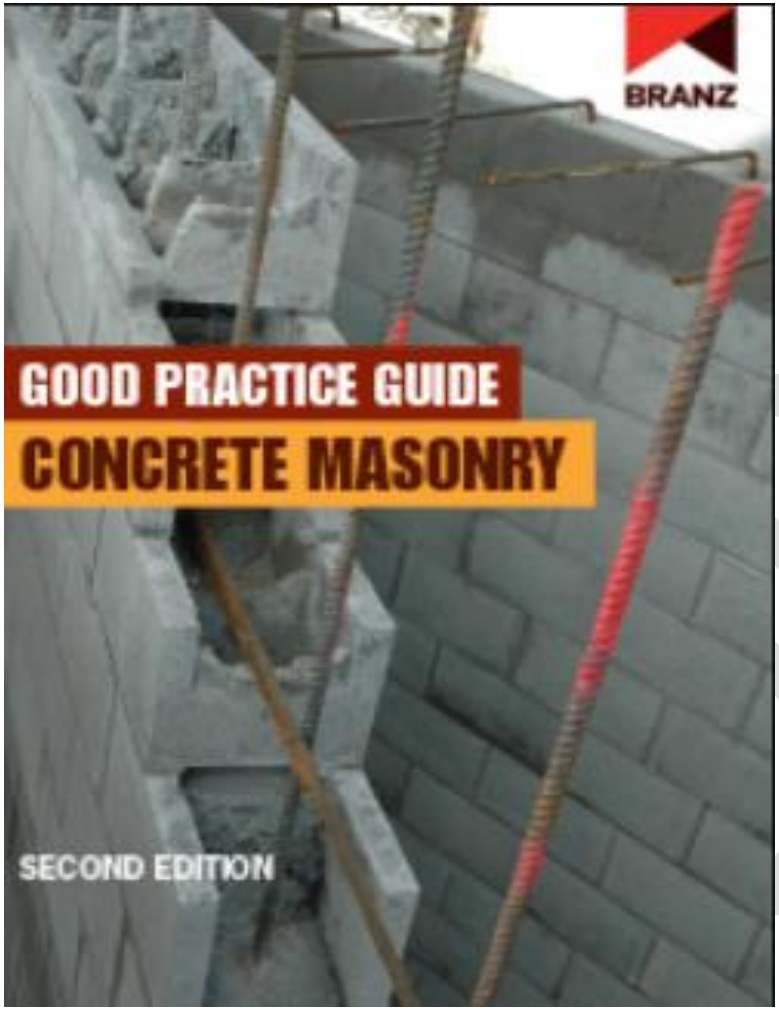


Maintenance - BRANZ good practice guide training on common details

Recommend verandas to Residential & Public buildings

Training on best practices – Drainage Drying Durability & Deflection (“the 4 Ds”)

Implement Building Rules



BUILDING RULES 2007

1 Name

These are the Building Rules 2007.

2 Interpretation

In these Rules —

“building” means the whole or part of any structure used or capable of being used —

(i) For human habitation;

(ii) As a place in which work is performed;

(iv) For storage of commodities articles or things,

and includes every other structure associated with such habitation work or storage, but does not include a structure that is temporary having regard to the purpose for which it shall be used;

“Code” means the Tokelau Building Code prescribed under Rule 4;

“construct” means to carry out work (other than temporary work) that has the purpose or effect of supporting, adding to, altering, or adapting a building and includes work that has the purpose or effect of supplying water or electricity to or within a building;

“inspector” means the inspector appointed under Rule 3;

“permit” means a building permit issued under these Rules.

3 Inspector

An inspector shall be appointed in the Tokelau Public Service for the purpose of administering these Rules.

4 Building Code

(1) The standards and controls relating to the construction of buildings set out in the Schedule shall be the Tokelau Building Code.

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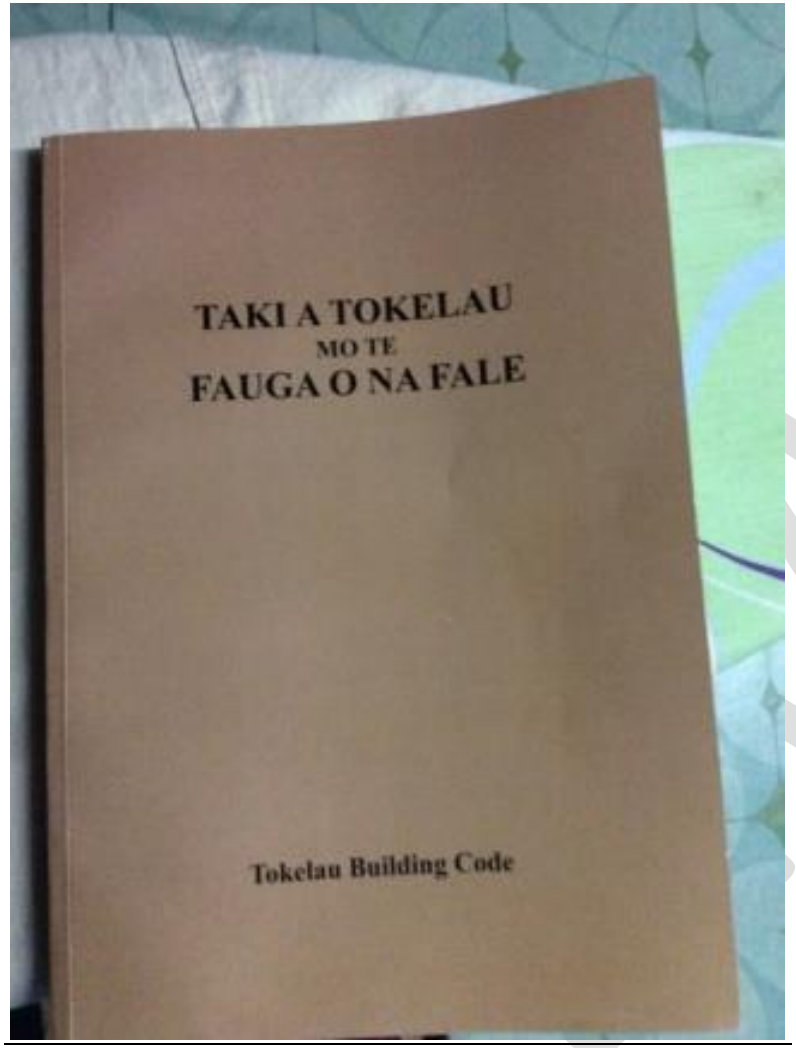
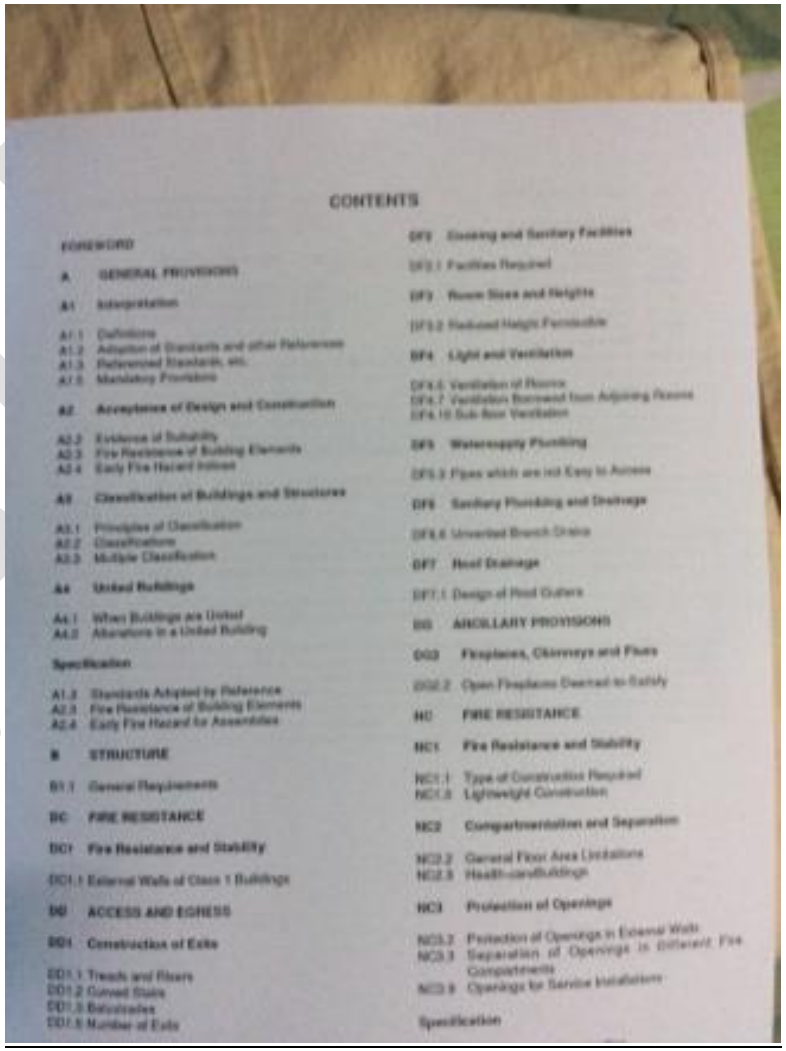
Implement Code Vol 1



Implement Code Vol 2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Specification

https://www.tokelau.org.nz/Strategic+Plan.html

4. WATER AND SANITATION

The villages continue to pursue its water and sanitation programme in terms of building proper toilets and water tanks for every house in the village. Issues in this area include:

- Little coordination for water conservation, hygiene and village planning;
- Complaints that family home water tanks do not last due to the poor quality of building skills and materials used during construction;
- A shortage of clean drinking water occurs in times of drought causing concerns about the effects on the health of community members;
- Village maintenance plans do not exist or are in an incomplete state, causing concern about the future sustainability of village infrastructure.

KEY OBJECTIVES

To sustain good quality of water supply and improve water quality control;

- To improve infrastructure design and increase storage capacity for water;)
- To improve sanitation and wastewater disposal;
- To monitor reserve capacity and quality;
- To meet requirements of the Hazard Analytical Critical Control Point (HACCP) Plan;
- To strengthen the capacity for qualified personnel to support the provision of this service to communities.

STRATEGIES

To develop a national water and sanitation policy which villages can adapt and include in their village maintenance plans;

- To increase nationwide awareness on water conservation and hygiene and possibly revive traditional methods for water conservation;
- To monitor reserve capacity and quality and report monthly;
- **To ensure that Tokelau Building Code includes quality requirements for water tanks**;
- To implement HACCP Plan;
- **To ensure that HR Development Plan includes requirements for trained and qualified personnel in this area**.

Contaminated bore hole water