NCC BCA Compliance & Building Condition Audit Report

Project:	Port Hedland Retirement Village
Site Address:	Stevens Street, Port Hedland
Client:	Town of Port Hedland
Our Ref:	P180104
Date:	27th April 2018
Revision:	1

QUALITY MANAGEMENT

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REFERENCED DOCUMENTS

This report has been prepared based on the review of the following documentation:

No documents available.

Contents

1. EXECUTIVE SUMMARY

The site inspection carried out on the 26th April 2018 identified some NCC BCA non-compliances and some structural issues with the Port Hedland Retirement Village.

Of greatest concern is the existence of vertical cracks to external blockwork walls and piers that is potentially compromising the structural adequacy of the buildings. The cause of this cracking and the means of remediating this defect should be investigated as a priority for the safety of residents and the community.

The cavity flashing and damp proof membrane to all residential blocks and the communal building has corroded and is no longer fit for purpose. Removal and replacement of these components should be investigated before further deterioration occurs.

When applying current building standards as the benchmark for auditing compliance of existing buildings, it is likely that the buildings will not achieve compliance with all the requirements of these later building standards. Therefore it is no surprise that the communal building in particular does not achieve compliance with current accessibility requirements. Noting that the retrospective upgrading of buildings is not required until such time as the building is modified and/or a change of use or classification is proposed, some simple upgrades are recommended to increase accessibility and safety for occupants of this building. These include the installation of ramps with landings to the entrance doorways, and the changing of latches and removal of screen doors from egress doors.

The general condition of the buildings is indicative of the harsh and corrosive environment in which they are located. Due to this environment routine maintenance should be addressed as a matter of urgency to ensure further deterioration of the buildings does not occur.

2. INTRODUCTION

The Port Hedland Retirement Village is an existing development located at the corner of Sutherland and Stevens Streets in the Port Hedland town site. The development consists of 22 single bedroom accommodation units contained within 8 single storey blocks, plus a communal building and ancillary buildings consisting of 4 blocks of storerooms and a carport.

The site runs north south and is in close proximity to the open ocean with the northern most building being approximately 120 m from high tide line.

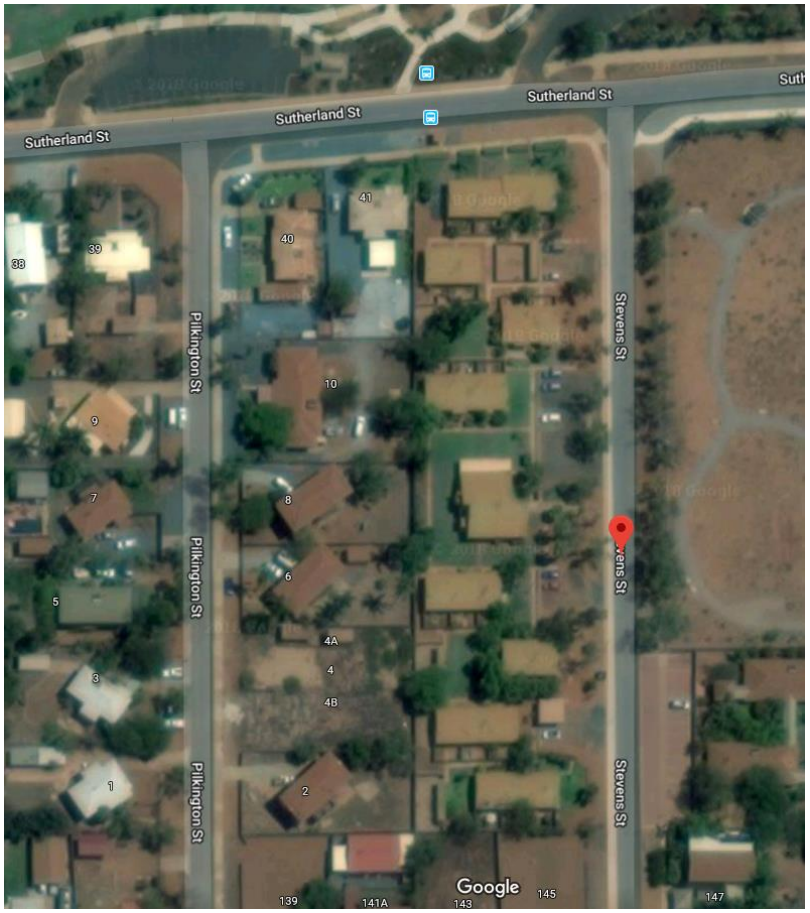

Figure 1 – Site location

2.1 Auditing and Reporting Scope

In accordance with the scope contained within our fee proposal Q180104 a site inspection was carried out on the 26th April 2018. The accepted scope of services is as follows:

- Review of drawings where available.
- Site visit and building walk through against below aspects:
- All structures/ units to be inspected and reported on state and provide recommendation on replacement and or demolish action;
- All structures/ units to be inspected to determine compliance under building codes; and
- All structures/ units to be inspected to determine compliance in line with AS1428.1 2009 - Design for access and mobility general requirements for access
- Provision of Building Audit Report.

This report is formatted around the above services.

3. DRAWINGS REVIEW

A request has been lodged with the Town of Port Hedland for copies of any building plans and specifications of the development. At the time of writing this report, no documents have been provided and therefore the contents of this report reflect on site observations only.

4. CONDITION REPORT

The buildings on site were inspected for general condition with the following observations recorded.

4.1 Communal Building

There is evidence of vertical cracking to concrete blockwork piers. This may be the result of corroding steel members within the blockwork and should be investigated as matter of urgency due to structural stability being compromised.

Vertical cracking to blockwork in the northern wall of the building was observed around door opening. No explanation for this defect is offered and the cracking was not observed to the internal leaf of blockwork.

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The ducted refrigerated air-conditioning system is corroded and has been decommissioned. This system has not been removed due to the large amount of rework required and has been left in place. Packaged (split) air-conditioner units have been installed to replace the decommissioned unit.

The condition of the interior of the building appeared to be sound.

4.2 Block [redacted]

This building is the closest to the ocean and therefore most susceptible to salt spray from breaking surf. This is evidenced by the corrosion to the fascia at the north eastern corner of the building.

There are vertical cracks to the external leaf of blockwork adjacent to door openings. No explanation as to the cause of these cracks could be offered and these cracks should be reviewed further by a structural engineer to determine the cause and possible remedy.

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.3 Block [redacted]

There are vertical cracks to the external leaf of blockwork adjacent to door openings. No explanation as to the cause of these cracks could be offered and these cracks should be reviewed further by a structural engineer to determine the cause and possible remedy.

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.4 Block [redacted]

There are vertical cracks to the external leaf of blockwork adjacent to door openings. No explanation as to the cause of these cracks could be offered and these cracks should be reviewed further by a structural engineer to determine the cause and possible remedy.

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.5 Block [redacted]

There are vertical cracks to the external leaf of blockwork adjacent to door openings. No explanation as to the cause of these cracks could be offered and these cracks should be reviewed further by a structural engineer to determine the cause and possible remedy.

Mortar joints have fretted to the eastern external wall of the building. This may be due to spalling reinforcing within the mortar bed joint and this should be investigated further to determine the cause and possible remediation.

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.6 Block [redacted]

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.7 Block [redacted]

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound. Note that there appears to be damp affecting the bathroom wall to unit [redacted].

4.8 Block [redacted]

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

4.9 Block [redacted]

Cavity flashing / damp proof membrane to the perimeter of the building has corroded and is no longer performing its intended function.

The condition of the interior of each unit varied; however all appeared to be sound.

5. NATIONAL CONSTRUCTION CODE – BUILDING CODE OF AUSTRALIA COMPLIANCE

The National Construction Code - Building Code of Australia (BCA) contains minimum safety, amenity and energy efficiency provisions for new building works. There is nothing in the BCA nor the enabling building control legislation that requires the provisions of the BCA to be applied retrospectively. New building works is the trigger for compliance with BCA. For the purposes of this report however; the benchmark for compliance review are the requirements contained in the current edition of the BCA. In applying the BCA, each building must be classified based on use and the appropriate requirements of the BCA are then determined based on the building classification.

5.1 Building Classifications

The BCA applies classifications to buildings depending upon the use and functions of the building. These classifications are applied to determine the minimum levels of occupant safety, health and amenity that must be achieved.

A summary of the buildings and applied classifications is contained in the table below.

Building Description	Building Use	Building Classification
Block [redacted]	4 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	2 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	2 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	3 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	3 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	2 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Block [redacted]	3 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a

Building Description	Building Use	Building Classification
Block [redacted]	3 - single bedroom accommodation units each unit being a self-contained dwelling for long term accommodation	Class 1a
Storeroom blocks & carport	4 – storeroom buildings each containing storerooms for the use of accommodation unit occupants. A double carport building for covered parking of 2 vehicles	Class 10a
Communal building	A single storey building containing a common room, kitchen, sanitary facilities, office and store rooms	Class 9b

Based on these classifications above, relevant BCA compliance items and compliance status observed are listed for each building.

5.2 Communal Building

Safe Movement & Egress

The communal building has a floor area of approximately 300 m^2 and for a building of this size and classification the BCA requires buildings to be provided with minimum access to and within buildings, safe movement by limiting slips, trips and falls hazards, and easy egress in the event of an emergency.

Access and egress from the building are compromised by the screen doors that incorporate latches that can be locked by a key from the inside. These screen doors also swing inwards and both these factors could impede emergency egress. These screen doors should therefore be removed from doors that are identified as emergency exits by the illuminated exit signs.

The main doors have locks with knob type latch handles. These latch handles should be replaced with lever type handles so that the doors can be opened by a simple downward action on the latch.

The external doorways all incorporate a step at the threshold of approximately 120 mm down to external paving level. This is a trip hazard and each doorway should be provided with a step ramp as detailed below.

Emergency lighting and exit signs are required throughout the communal building. Exit signs where in place; however no emergency lighting was observed. For safe evacuation in all lighting conditions, emergency lighting should installed along paths of travel to exits.

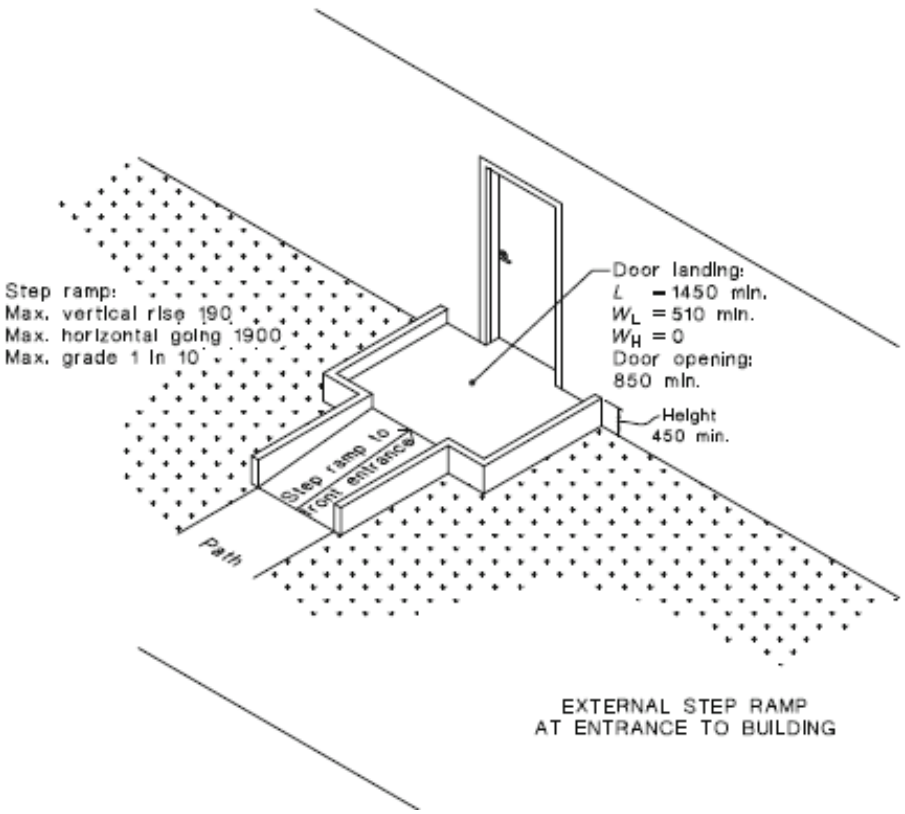

Figure 2 – Step ramp and landing details for external doorways

Sanitary & Accessible Facilities

The communal building is provided with male and female sanitary facilities that are adequate for up to 100 occupants.

One cubicle in each of the male and female toilets has been constructed for use by people with mobility disabilities. These cubicles do not conform with the current requirements and are accessed via doorways that do not provide adequate clear width for wheelchair users. The only way of addressing these non-compliances with current standards would be to construct a new unisex accessible sanitary facility separate to the existing toilets.

Access for People with Disabilities

The communal building being Class 9b is required to be accessible for people with disabilities under the current BCA. An accessible path of travel would be required from the allotment boundary to the building as well as from the accessible parking bay to the building. These are not provided.

Access would be required to and within the building with step free thresholds to entrance doors. This is not achieved and the ramps provided to entrance doors are too steep and do not provide a level landing or incorporate edge protection. Refer to Figure 1 in this report for details of an adequate step ramp and landing.

Once inside the building, people with disabilities should be able to travel to and within all spaces used by occupants of the building and to accessible sanitary facilities. Internal doors currently do not provide sufficient clear opening width, nor latch and hinge side circulation space.

Fire Compartments and Separation
The communal building is adequately separated from other buildings on the site and from allotment boundaries so that no fire rated construction is required.

Fire Services and Equipment
Fire extinguishers fire blankets were observed and these should be inspected and maintained in accordance with AS 1851 requirements.

Health & Amenity
With the ducted air conditioning system decommissioned and replaced with packaged (split) air conditioners, air quality should be confirmed by a mechanical services consultant to ensure sufficient air changes occur when the building is occupied and the air conditioners are running.

Energy Efficiency
The building is located in Climate Zone 1. Climate Zone 1 is subject to hot summers and warm winters and therefore cooling of indoor air is likely to occur for most of the year. Given the age of the building it is unlikely that minimum building envelope thermal performance levels are achieved. A new building in Climate Zone 1 should have a building envelope that achieves minimum R Values of R4.2 for the roof and R3.3 for external walls. Determining the total R Value achieved by the existing building fabric is not possible without removal of roof sheeting.

5.3 Residential Buildings

Safe Movement & Egress
The residential units contained within the 8 blocks are each provided with direct egress to open air. The BCA permits steps at doorway thresholds and the level differences provided are compliant. Some ramps have been installed to cater for mobility aides used by residents. The stability of these ramps should be checked and repaired where necessary.

Sanitary & Accessible Facilities
All residential units are provided with kitchen facilities, laundry facilities and adequate sanitary facilities. As the residential units are classified as Class 1a, there is no BCA requirement to provide accessible sanitary facilities.

Access for People with Disabilities
Class 1a buildings are not required to be accessible for people with disabilities and the buildings have not been designed with this in mind. Many units have been modified with grab rails installed, but spatial limitations mean that wheelchair circulation space cannot be achieved within the units and in particular within bathrooms.

All buildings on the site are linked by concrete paved pathways. The condition of these pathways has deteriorated with many tripping hazards along these pathways. Thes tripping hazards should be addressed as a matter of urgency.

Fire Compartments & Separation
The BCA requires the construction of fire rated separating walls between adjoining Class 1a residences. The site inspection indicated that these separating walls are in place and it is assumed that the walls achieved the required 60/60/60 fire resistance levels when constructed.

Fire Services & Equipment

Smoke alarms are required to each Class 1a residence at a location outside the bedroom and so that any smoke emanating from a fire within the residence will trigger the alarm and alert the occupants. All residential units had smoke alarms fitted and all except the alarm in unit [redacted] appeared to be working. At the time of inspection an electrical contractor was also inspecting the buildings and this report should be cross referenced with the electrical contractor's findings.

Fire extinguishers and fire blankets were observed in some units. These are not required by the BCA, but if provided they should be maintained. During the inspection residents were advised of an impending extinguisher safety check.

Health & Amenity

All rooms had adequate natural light and ventilation.

There was evidence of water damage to the bathroom in Unit [redacted] and this should be further investigated to determine the cause.

The separating walls between adjoining residential units should achieve a minimum sound reduction index Rw + Ctr of 50, and be of discontinuous construction where wet areas in one unit abut habitable rooms in the adjoining unit. It appears from the site inspection that the separating walls are constructed of 2 leaves of concrete blocks with a cavity between. It is assumed that the sound reduction performance of these walls complied at the time of construction.

Energy Efficiency

The buildings are located in Climate Zone 1. Climate Zone 1 is subject to hot summers and warm winters and therefore cooling of indoor air is likely to occur for most of the year. Given the age of the buildings it is unlikely that minimum building envelope thermal performance levels are achieved. A new building in Climate Zone 1 should have a building envelope that achieves minimum R Values of R5.1 for the roof and R2.8 for external walls. Determining the total R Value achieved by the existing building fabric is not possible without removal of roof sheeting and examination of installed insulation. This should be done and any deficiency in building envelope thermal performance should be addressed to minimise energy usage.

5.4 Ancillary Buildings

The ancillary buildings consist of store room buildings and steel framed carport.

The ancillary buildings are assumed to comply with BCA provisions as these ancillary buildings are classified as Class 10 a buildings and these buildings are adequately separated from other buildings on the site so as not to contribute to the spread of fire between buildings.

6. REPORT SCOPE & LIMITATIONS

The extent of the BCA Audit and or certification excludes assessment against the Safety Codes of Practice for "Safe Design of Buildings and Structures" unless formally engaged to undertake this assessment.

[redacted] offer this advice based on our knowledge of the building and the information received from the client or client's representative as described in the description of the building and classification listed in the building assessment data. This report is provided to and is to be used by the direct client to [redacted] and use of this report for any other purpose, project or any changes to the design without further assessment or certification from [redacted] will invalidate the content of and certification associated with this document. No part of this document may be reproduced in any form or by any means without written permission from [redacted]. This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

All advice provided by [redacted] is in good faith and the provision of specialist design and certification (alternative design solutions, design and commissioning certificates and reports) by appropriately qualified consultants will be taken on face value. [redacted] will not be responsible for the accuracy, appropriateness or third party review of information provided for the purpose of determining compliance. [redacted] will not be held responsible for interpretations of other building surveyors, conditions of development approval or local laws associated with non-BCA matters prior to the submission of a permit application to the local authority.

The extent of this report does not include assessment for stock loss, goodwill, environmental impact (in fire situation), or any loss of trade or business interruption associated directly or indirectly with fire in these premises.

The report does not provide advice on the Access to Premises Standard Legislation, of which will be undertaken by other parties with suitable recommendations for compliance being provided.

7. REFERENCES

- Australian Building Codes Board, National Construction Code (2016), Building Code of Australia, Volume 1
- Australian Building Codes Board, National Construction Code (2016), Building Code of Australia, Volume 2
- Australian Building Codes Board, National Construction Code (2016), Guide to the Building Code of Australia, Class 2-9 Buildings
- Australian Standards: AS1428.1-2009 Design of Access and Mobility, Part 1: General Requirements for Access – New Building work

8. APPENDICES

Appendix A: Photographs

Appendix A: Photographs

Photo 1 – Doorway to Communal Building

This photograph shows the steep access ramp as well as non-compliant latch to the door and the screen door that may impede emergency egress.

Photo 2 – Communal Building Accessible Sanitary Facility

The accessible sanitary facilities within the Communal Building do not comply with current standards.

Photo 3 – External Walls Vertical Cracks

Several buildings have cracking to external walls similar to the above. The cause of these cracks is not clear, and should be investigated by a structural engineer.

Photo 4 – External Walls Vertical Cracks

Several buildings have cracking to external walls similar to the above. The cause of these cracks is not clear, and should be investigated by a structural engineer.

Photo 5 – External Walls Vertical Cracks

Several buildings have cracking to external walls similar to the above. The cause of these cracks is not clear, and should be investigated by a structural engineer.

Photo 6 – External Walls Corroded Flashing

All residential blocks and the Communal Building have corroded cavity flashing / damp proof membrane.

Photo 7 – External Walls Fretting Mortar

The eastern wall to residential units Block [redacted] has damage to mortar joints.

Photo 8 – Masonry Piers Vertical Cracking

Masonry piers to residential blocks and the communal building have vertical cracks that may be caused by corroding and expanding hold down rods within the piers.