Residential Apartment Building
4 Brookevale Avenue
Brookvale

NATIONAL CONSTRUCTION CODE REPORT

Dated: 13 March 2018
Prepared for: Lotus Project Management
Prepared by: **Private Building Certifiers Pty Ltd**
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13.03.2018	2	12	DA Stage	Dave Moody	Yin Ye	13.03.2018

Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by (refer appendix A) for compliance with the Nation Construction Code 2016.

The documentation will need further detailing such as door hardware, specifications, service design, as outlined in Appendix D of this report.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

Assessed By

Dave Moody
Building Regulation Consultant

1.0 Introduction

The proposed development comprises 11 units over 6 storeys with basement parking

The site is located on the north eastern side of Brookvale Avenue, Brookevale and is formally known as Lot 45 DP 6040. The site is irregular in shape and has an area of approximately 2587m² with a front boundary of 15.24m², a north western side boundary of 60.04m, a rear boundary of 30.48m and a south eastern side boundary of 55.285m. Vehicle access to the site is provided from Brookvale Avenue.

2.0 Building Assessment Data

Summary of Construction Determination: -

Classification	2, 7a
Number of Storeys Contained	7
Rise In Storeys	7
Type of Construction	A
Effective Height (m)	19m (RL 48.00-RL27.00)

3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1.

Glazing is to comply with AS1288, and AS2047.

Prior to the issue of the Construction Certificate structural certification is required to be provided.

4.0 Fire Resistance

The buildings should be constructed generally in accordance with Table 3 specification C1.1 of the National Construction Code 2016.

The building has been assessed on the basis of the following fire separation/ compartmentation within the development;

- Bounding construction to the sole occupancy units of 90 minutes,
- Separation between the carpark levels and the residential portions of 120 minutes,

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift motor rooms,
- Electricity supply,
- Hydrant Pump rooms,

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to specification C1.10 Building Code of Australia.

5.0 Egress

The egress provisions form the proposed building are provided fire isolated stairways.

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would be satisfied for the building.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Details of Separation of rising & descending Stairs
- Discharge from the Fire Isolated Exits
- Details of the egress provisions to the Road.

Exit Travel Distances

The locations of the proposed exits appear to comply with the deemed to satisfy requirements in terms of travel distances.

The travel distances to exits should not exceed:

Class 2

- 6m from an exit or from a point of choice

Dimensions of Exits

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657 in which case a 600mm clear width is required).

The exit width provided is sufficient for the proposed populations.

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e minimum 870 mm doors).

Fire Isolated Exits

Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to:

- A road or open space; or
- To a point within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or
- Into a covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter, has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m and provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.

Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have an FRL of not less than 60/60/60 and any openings protected internally in accordance with C3.4, for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

Balustrading and Handrail

Balustrading to a height of 1000mm with a maximum opening of 125mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm.

Where it is possible to fall more than 4m to the finished floor below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing.

Any windows with a sill height of less than 1.7m in bedrooms or 865mm in all other cases with a fall of more than 2m for windows, 4m for all other cases, openings are to be restricted or a protective barrier that does not allow a 125mm sphere to pass through.

Walls adjacent to windows and balustrades which are required to be not climbable are to be clear of climbable elements for a distance of 1m from the balustrade. This includes GPO's, gas outlets, climbable window and doors sills and the like.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

The main public stairs and ramps should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

1. Access for Persons with a Disability

Access for the pedestrian entrance is required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level.
Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the NCC 2016. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Clause D3.6 of the BCA.

General
Access to be provided to and within the building pursuant to AS1428.1-2009 as follows:

- Via the principle public entry and at least 50% of all other entrances
- From designated car parking spaces for the use of occupants with a disability.
- From another accessible building connected by a pedestrian link.
- All areas used by the public.

2. Fire Services & Equipment

The following fire services will need to be provided throughout the building:

- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1-2005

Fire Hydrants

A system of Fire Hydrants is required to be provided to BCA Clause E1.3 and AS 2419.1-2005.

A booster assembly is required as part of the fire hydrant requirements. The booster is required to be located attached to the building within sight of the main entrance lobby and adjacent to the

vehicular access.

Fire hydrants are to be provided within fire isolated stairs/within 4.0m of required exits.

Fire Hose Reels

A Fire Hose Reel System is required to BCA Clause E1.4 and AS2441 to all non-residential portions.

To be located within 4m of exits and provide coverage within the building based on a 36m hose length.

Please note that fire hose reel coverage cannot pass through fire or smoke doors.

Portable Fire Extinguishers

Portable fire extinguishers are required to be installed in accordance with Table E1.6 of the BCA and AS 2444-2001. In addition, extinguishers are to be provided to the class 2 portions of the building in accordance with the below:

- an ABE type fire extinguisher is to be installed with a minimum size of 2.5 kg; and
- extinguishers are to be distributed outside a sole-occupancy unit
    - to serve only the storey at which they are located; and
    - so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10 m.

3. Ventilation and Smoke Hazard Management

Smoke hazard management shall be provided throughout the building by means of the following systems:

Carpark Portions:

- Mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated.

Residential Portions:

- Smoke detection and alarm system complying with AS 3786 to be provided within each sole occupancy unit.
- Smoke detection and alarm system complying with AS 1670.1 to be provided to the public areas in residential portions of the building.

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry.

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with F4.5 Building Code of Australia and AS 1668 and AS/NZS 3666.1.

4. Lift Services

The passenger lifts to be installed are to be: -

- Fitted with warning signs, fire service controls in accordance with Clauses E3.3, E3.7, E3.9 and E3.10 of the BCA
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high.
- Be provided with the following: -
  - A handrail in accordance with AS 1735.12
  - Minimum internal floor dimensions as specified in AS 1735.12,
  - Fitted with a series of door opening sensory devices which will detect a 75mm diameter or across the door opening between 50mm and 1550mm above floor level,
  - Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12.

5. Sanitary Facilities

Residential Apartment - Each sole occupancy unit is to be provided with:

- A kitchen sink and facilities for preparation and cooking of food; and
- A bath or shower; and
- A closet pan and wash basin; and
- Clothes washing facilities (tub and space for washing machine); and
  Clothes drying facilities (either 7.5m of clothes line or space for a dryer).

As the development contains more than 10 apartments, a closet pan and basin is to be provided at or near ground level for employees that can be accessed without going through a sole occupancy unit.

6. Sound Transmission & Insulation

The sound transmission and insulation requirements for the Class 2 portions shall be provided in accordance with Part F5 of the NCC 2016 for the following elements:

<u>Floors</u>
A floor separating sole-occupancy units or a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification:

- Rw + Ctr (airborne) not less than 50
- Ln,w+CI (impact) not more than 62

<u>Walls</u>
A wall separating sole-occupancy units:

- Rw + Ctr (airborne) not less than 50,

A wall separating a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification:

- Rw (airborne) not less than 50,

A wall separating a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or a sole-occupancy unit from a plant room or lift shaft:

- Rw (airborne) not less than 50
- Discontinuous Construction

A door assembly separating a sole-occupancy unit from a stairway, public corridor, public lobby or the like:

- Rw not less than 30

All walls required to have an impact sound insulation rating are to be of discontinuous construction.

7. Energy Efficiency

The proposed development shall be provided insulation Building sealing and services in accordance with NSW Part J of the NCC 2016.

The deemed-to-satisfy provisions of the NCC only apply to thermal insulation in a class 2 building or class 4 part where a development consent or a Complying Development certificate specifies that the insulation is to be provided as part of the development.

The Class 7a (carpark), portions of the proposed development shall be provided with insulation, building sealing and services in accordance with NSW Part J of the BCA where conditioned.

The deemed-to-satisfy provisions of the BCA only apply to thermal insulation in a class 2 building where development consent or a Complying Development certificate specifies that the insulation is to be provided as part of the development.

The residential (Class 2) portions of the building are subject to BASIX, and a BASIX Certificate will be required prior to the issuance of the Construction Certificate for the works.

The Class 7a (carpark), portion of the proposed development shall comply with Part J of the BCA. To achieve compliance, there are two options available:

Option 1.

The building can comply with the deemed-to-satisfy provisions of the BCA, relating to the following areas:

- Building Fabric
- Glazing
- Building Sealing
- Air Conditioning & Ventilation Systems
- Artificial Lighting & Power
- Hot Water Supply

Option 2.

The building can be verified against a reference building as per Verification Method JV3. This requires that the proposed building and its services be shown to have an annual energy consumption of equal or less than the reference building which has been modelled as per the requirements of Part J of the BCA.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

Access for maintenance is to be provided to the building in accordance with the requirements of BCA Part J8.

The proposed site will be located in a climate zone 6.

Appendix A - Design Documentation

The following documentation was used in the assessment and preparation of this report: -

Drawing No.	Title	Date	Drawn By	Revision
A03	Ground Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A04	First Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A05	Second Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A06	Third Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A07	Fourth Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A08	Fifth Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A09	Sixth Floor Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A10	Roof Plan	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A11	South Elevation	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A12	West Elevation	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A13	North and East Elevation	09.03.2018	Barry Rush and Associates Pty Ltd	DA
A14	Sections	09.03.2018	Barry Rush and Associates Pty Ltd	DA

Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers	BCA Clause C3.13
2.	Automatic Fire Detection and Alarm System	BCA Clause E2.2 & Spec. E2.2a, AS1670.1 – 2015 &
3.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS2293.1 – 2005
4.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS2293.1 – 2005
5.	Fire Dampers	BCA Clause C3.15, AS1668.1 – 2015 & AS1682.1 & 2 – 1990
6.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS1905.1 – 2015
7.	Fire Hose Reels (Carpark)	BCA Clause E1.4 & AS2441 – 2005
8.	Fire Hydrant System	Clause E1.3 & AS2419.1 – 2005
9.	Fire Seals	BCA Clause C3.15 & AS1530.4 – 2014
10.	Lightweight Construction	BCA Clause C1.8 & AS/NZS1530.3 – 1999
11.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS1668.1 – 2015 & AS1668.2 – 2012
12.	Paths of Travel	EP&A Reg 2000 Clause 186
13.	Portable Fire Extinguishers	BCA Clause E1.6 & AS2444 – 2001
14.	Smoke Alarm System	BCA Spec. E2.2a & AS3786 – 1993/2014
15.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause C3.6, D2.23, E3.3