MBC MODERN BUILDING CERTIFIERS

NCC - Building Code of Australia 2019

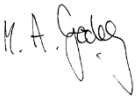
BCA DESIGN COMPLIANCE REPORT

Mixed Use Development
231 Whale Beach Rd, Whale Beach

Prepared for: RCA | Issue date: 17 Apr 20

Table of Contents

Authorisation

Revision	Comment / Reason for Issue	Issue Date	Prepared by	Reviewed by
02	Review of updated Plans	17 April 20	Matt Marks	Mike Gooley
				

Revision History

Revision	Comment / Reason for Issue	Issue Date	Prepared By
01	Preliminary Review	12 Mar 20	Matt Marks
02	Review of updated Plans	17 April 20	Matt Marks

Executive Summary

We have reviewed architectural design documents prepared by Richard Cole Architects (RCA) (refer Appendix A) for compliance with the Building Code of Australia 2019.

Fire & Life Safety

The assessment of the design documentation has revealed that the following areas may be subject to assessment against the relevant performance requirements of the BCA. The submission for Construction Certificate may need to include verification from an accredited fire engineer for the following aspects: -

DTS Clause	Description of Non-Compliance	Performance Requirement
D1.12	The internal non-required stairway connects 4 storeys where only 3 are permitted in accordance with this clause. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.	CP2, EP2.2
D2.4	Separation of rising and descending fire stair flights is required at level 3. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.	DP5, EP2.2
E1.3	The hydrant booster is proposed to be located fronting surf road. This is not within sight of the designated building entry point or fronting Whale Beach Road which is the designated building address for the lot. In addition, the Hydrant pump room is located at basement level and does not incorporate direct access for FRNSW. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.	EP1.3

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E1.5	A sprinkler booster is yet to be identified on site (if required). The sprinkler pump room is located at basement level and does not incorporate direct access for FRNSW. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.	EP1.4

Any proposed fire engineered solution relating to EP1.3, EP1.4, EP2.2, will need to be approved after consultation with Fire and Rescue NSW as part of the Construction Certificate process.

Accessibility

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA. The submission for Construction Certificate will need to include verification from a suitably accredited access consultant for the following aspects: -

DTS Clause	Description of Non-Compliance	Performance Requirement
D3, AS1428.1-2009 & Access to Premises Standard 2010	Access for persons with a disability Access throughout the building is to be assessed by an access consultant and where proposed a performance solutions developed to address the performance requirements of the BCA. The access consultant is required to provide a design statement certifying the building complies with the BCA, AS1428.1-2009 and the Access to Premises Standard 2010 prior to the issuance of the construction certificate.	DP1

BCA Compliance with DtS Provisions

The assessment of the design documentation has revealed that the following areas are required to be addressed to meet the prescriptive provisions of the BCA.

DTS Clause	Required Design Amendment
Spec C1.1, C2.8, C2.9	It is noted that the Ground Floor incorporates a Class 6 and a Class 7a classification.

	It is noted that Level 3 incorporates a Class 2 and a Class 6 classification. As such the correct fire separation and/ or FRLs shall be proposed accordingly also noting this shall comply with BCA clause C2.8 (separation of classifications in the same storey) & C2.9 (Separation of classifications in different storeys). Further information is required verifying compliance with this clause, prior to the issuance of a Construction Certificate.
D2.10	2 exits are required from the basement in accordance with D1.2 of the BCA The external basement ramp is to comply with BCA clause D2.10 and be a maximum gradient of 1 in 8. Further information is required verifying compliance with this clause, prior to the issuance of a Construction Certificate.

The documentation will need further detailing such as door hardware, construction specifications, services design and manufacturer's details, prior to the issuance of a Construction Certificate.

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

Matt Marks
Associate Director
Modern Building Certifiers

1. Introduction

Modern Building Certifiers (MBC) have been engaged by RCA to conduct a BCA Assessment of architectural design drawings (as listed in Appendix A), against the applicable provisions of the Building Code of Australia (BCA).

1.1. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the BCA, and to outline those areas, if any, where:-

- compliance is not achieved,
- areas may warrant redesign to achieve compliance,
- areas may be able to be assessed against the relevant performance provisions of the BCA.

1.2. Assessment Methodology

The methodology applied in undertaking this assessment has included:-

- A review of architectural plans, as listed in Appendix A,
- Detailed assessment of Sections C, D, E, F, G, H and J (as applicable / relevant) of the BCA.

1.3. Limitations

This report does not include or imply any detailed assessment for design, compliance or upgrading for:-

- the structural adequacy or design of the building;
- the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
- the design basis and/or operating capabilities of any proposed
  electrical.
  mechanical,
  hydraulic,
  fire protection services.

This report does not include, or imply compliance with:-

- the National Construction Code – Plumbing Code of Australia Volume 3;
- the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to);
- The deemed to satisfy provisions of Part D3 and F2.4 of BCA 2019
- Demolition Standards not referred to by the BCA;
- Work Healthy and Safety Act 2011;
- An out of cycle change to the Building Code of Australia;

- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Roads and Transport Authority, Local Council, ARTC, Department of Planning and the like; and
- Conditions of Development Consent issued by the Local Consent Authority.

1.4. Current Legislation

The applicable legislation governing the design of buildings in NSW is the Environmental Planning and Assessment Act 1979.

Applicable Building Code of Australia (BCA)

The proposed development will be subject to compliance with the relevant requirements of the BCA as in force at the time that the application for the Construction Certificate is made.

In this regard it is assumed that the Construction Certificate application will be made prior to the 1st May 2021, as such this report is based upon the Deemed-to-Satisfy provisions of BCA 2019.

Should the application for Construction Certificate be made after 1st May 2022, this report will be required to be updated to reflect any changes made and now required by the BCA. Should an out of cycle change occur to the Building Code of Australia, then this report is required to be updated to reflect any applicable changes made and now required by the BCA.

2. Development Description & Assessment Information

2.1. Location and Description

The proposed development comprises the construction of a mixed use development including 5 sole occupancy units, retail tenancies and associated carparking.

The site is located at 231 Whale Beach Road, Whale Beach.

Figure 1 - 231 Whale Beach Rd, Whale Beach

2.2. BCA Description Data

Summary of Construction and Building	
BCA Classification(s)	2, 6, 7a
Number of Storeys contained	6
Rise in Storeys	6 **(Note:** Class 2 building with a rise in storeys of 4 or more must be protected with a sprinkler system in accordance with E1.5 of the BCA.)
Type of Construction	A
Effective Height	17.3m (RL23.300 – RL6.000 = 17.3)
Floor Area	2,461m2
Max. Fire Compartment Size	538m2 (basement)

Climate Zone	5

2.3. BCA Classification (Clause A3.2)

The proposed development shall contain the following classifications:-

- Class 2: being an apartment building
- Class 6: being a retail building or part
- Class 7a: being a carpark building or part

2.4. Rise in Storeys (Clause C1.2)

The proposed development has been assessed to have a rise in storeys of six (6). Basement level is more then 1m above the ground level at the external wall (surf road).

2.5. Effective Height (Clause A1.1)

The proposed development has been assessed to have an effective height of 17.3m, this is measured from Basement level RL6.000 to level four RL23.300.

“Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).”

2.6. Type of Construction Required (Clause C1.1 / Table C1.1)

The proposed development is required to be Type A construction. Specification C1.1 outlines the fire resistance required by certain building elements. This has also been provided in Appendix B.

2.7. Floor Area and Volume Limitations (Clause C2.2 / Table C2.2)

The building is limited to the following floor area and volume compartment limitations:-

Table C2.2

Class		Type A	Type B	Type C
5, 9b or 9c	Max floor area -	8,000m2	5,500m2	3,000m2
	Max volume -	48,000m3	33,000m3	18,000m3
6, 7, 8 or 9a	Max floor area -	5,000m2	3,500m2	2,000m2
	Max volume -	30,000m3	21,000m3	12,000m3
Note:	These provisions do not apply to class 2 or 3 and sprinkler protected carpark/open deck carpark.			

The floor area of the carparking, storage and retail portions has been assessed as less than 5,000m^2 with a volume less than 30,000 m^3 for Type A Construction. Compliance will be achieved with C2.2 of the BCA.

2.8. Occupant Density Assessment:

Part of Development	Use	Class	Floor Area (approx.) m^2	Occupant Density
Basement	Carparking Storage	7a	658	18
Ground Floor	Carparking Retail	7a 6	275 153	10 51
Level 1	Residential	2	507	N/A
Level 2	Residential	2	423	N/A
Level 3	Residential Retail	2 6	131 174	N.A 58
Level 4	Residential	2	260	N/A
Roof	(Ancillary Plant)	N/A	N/A	N/A

Notes:-

- The occupant density can be assessed based upon the floor areas in accordance with Table D1.1.3/ other method to calculate the population of the BCA (i.e. such as seating layout etc.).
- The floor areas have been adjusted to account for ancillary areas such as sanitary facilities, corridors, shelving and / or racking layouts in storage areas etc.
- The Carpark areas have been considered ancillary to the use for the purposes of population numbers.

3. BCA Assessment Summary

3.1. Structural Provisions

Any new structural works are to comply with the applicable requirements listed within the suite AS/NZS 1170.

Any glazing, including external glazed assemblies, shall comply with AS1288-2006 – Glass in Buildings – Selection and Installation, Amendments 1 and 2.

Any external glazed assemblies shall also comply with AS2047-2014 – Windows and external glazed doors in buildings.

Prior to the issue of the relevant Construction Certificate structural certification is required to be provided confirming the structural design complies with the requirements of Section B of the BCA.

4. Fire Resistance

The building is required to be designed in accordance with Table 3 & 3.9 of Specification C1.1 of the Building Code of Australia 2019. The building is required to be Type Construction.

If the design is proposed to incorporate the use of lightweight fire resistant construction, then the system selected shall comply with the requirements of Specification C1.8 of the BCA. Details of the proposed lightweight construction means of compliance and FRL achieved are to be provided as part of the Construction Certificate application.

4.1. Fire Compartmentation

The building has been assessed in accordance with Part C of the BCA for following fire separation/ compartmentation within the development:-

- Bounding construction to the sole occupancy units of 90 minutes
- Separation between the Residential portions of 90 minutes
- Separation between the Retail portions of 180 minutes
- Separation between the Carpark portions of 120 minutes
- Fire compartmentation of the building at each floor level

Fire resistance levels for building structural members are as follows:-

- Residential Portions 90 Minutes
- Retail Portions 180 minutes
- Car park levels 120 minutes

Based upon the review of fire separation and fire compartmentation within the building. Compliance is readily achievable with Clause C2.2 of the BCA.

4.2. Protection of Openings

The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:-

- Any external opening within 3m of the fire source feature protected by -/60/- fire rated construction, or externally located wall wetting sprinklers, or an alternate solution be provided to verify CP2 of the BCA;
- Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving an FRL as specified in Spec C1.1 of the BCA;
- Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a

shaft achieving an FRL as specified in Spec C1.1 of the BCA (or 120/120/120 where it is a room such as a substation);
- Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

Fire source feature is defined as:-

- The far boundary of a road, river, lake or the like adjoining an allotment,
- The side or rear boundary of the allotment,
- The external wall of another building on the allotment which is not a class 10 building.

4.3. Vertical Separation of openings in external walls:

A building of Type A construction must be provided with spandrel separation between opening on different storeys unless the building is sprinkler protected throughout. Spandrels are required in accordance with BCA Clause C2.6, which stipulates a 900mm high spandrel; with 600mm of this spandrel being above the finished floor level. Alternatively, an 1100mm horizontal slab may be utilized. The spandrel material is required to achieve an FRL of 60/60/60.

The fire services engineer (JHA) has verified an AS2118.1-2017 sprinkler system is proposed. Therefore, this negates the need for spandrel separation.

4.4. Non-Combustible Building Elements

In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:-

- External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation;
- The flooring and floor framing of lift pits;
- Non-loadbearing internal walls where they are required to be fire-resisting;
- Ancillary elements attached to external walls must be non-combustible or satisfy exemption criteria under BCA Clause C1.14.

The external walls and attachments must satisfy the ‘evidence of suitability’ in accordance with BCA Clause A2.2 that the external walls and ancillary elements have been tested, certified and suitable for application as a non-combustible building elements. This documentation will be required as part of the construction certificate approval process.

4.5. Public Corridors: Class 2 and 3 Buildings

Public corridors exceeding 40m in length to be divided into intervals of not more than 40m by smoke proof walls.

4.6. Passive Fire Protection

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

- Lift motor rooms,
- Emergency power supply,
- Emergency generators,
- Electricity supply,
- Hydrant Pump rooms,
- Sprinkler Pump Rooms.

To be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

Battery areas may need to be fire separated from the remainder of the building. Electrical consultant to confirm when considering the limitations of BCA Clause C2.12, i.e. Batteries exceeding 24 Volts and a capacity exceeding 10 ampere hours.

4.7. Fire Hazard Properties

The Fire Hazard Properties of floor linings and floor coverings, wall and ceiling linings, and other material as noted within Clause C1.10, must comply with the provisions of Specification C1.10 as noted in Table 1 below.

Table 1 - Fire Hazard Properties

Item	Location	Requirement
Floor linings or coverings	All new floor linings	*CRF of not less than 2.2
Wall and ceiling linings	Corridors	**Group Number 1 or 2
Wall and ceiling linings	Rooms (General)	Group Number 1, 2 or 3
Ceiling linings	Rooms (Open office with a floor to ceiling ration of >5)	Group Number 1 or 2

Further documentation will be required at construction certificate stage to verify the chosen linings will comply with the requirements of the BCA.

5. Egress

The egress provisions from the proposed building are provided by:-

- Fire isolated stairways;
- External perimeter doorways;

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.

5.1. Number of required exits

In a class 2-8 building, not less than 2 exits must be provided from every storey where the building has an affective height more than 25m and from every basement storey in which has a vertical rise of 1.5m or more the reach the road or open space. The building is less than 25m effective height. The basement is provided with at least 2 exits and the remainder of the building is provided with access to a single fire stair from each storey.

Please Note:
2 exits are required from the basement in accordance with D1.2 of the BCA. The external basement ramp is to comply with BCA clause D2.10 and be a maximum gradient of 1 in 8.

Further information is required verifying compliance with this clause, prior to the issuance of a Construction Certificate.

5.2. Exit Travel Distances

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 will be satisfied for the relevant parts of the building.

The travel distances to exits should not exceed:-

Class 5-9
- 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m.

Class 2-3
- 6m from an exit or from a point of choice;
- 20m from a single exit at the level of egress to a road or open space;
- Alternate exits not more than 45m apart.

Please Note:

The internal non-fire isolated stairway connects ground floor to level 3 (4 storeys). This is not anticipated to be relied upon as a "required exit" as this would result in exits being located within 9m of each other on level 2.

5.3. 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 following table summarises the exit widths required:-

Floor Level	Exit Width Provided	Number of people (as provided)	Exit Width required
Basement	2m	18	2m*
Ground	2m	61	1m
Level 1	1m	N/A	1m
Level 2	1m	N/A	1m
Level 3	1m	58	1m
Level 4	1m	N/A	1m
Roof	N/A	N/A	N/A

*2m is required from the basement in accordance with D1.2 of the BCA.
*The internal stairway is not considered as a required exit.

The total aggregate exit width within the building caters for the proposed number of occupants.

Doorways are permitted to contain a clear opening width of 750mm 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).

5.4. 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 6m.

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.

A review of the architectural design has indicated compliance will not be achieved with the DTS provisions of the BCA.

5.5. Non-required stairways, ramps or escalators

An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp—
(b) may connect any number of storeys if it is—
- (i) in an open spectator stand or indoor sports stadium; or
- (ii) in a carpark or an atrium; or
- (iii) outside a building; or
- (iv) in a Class 5 or 6 building that is sprinklered throughout, where the escalator, walkway, stairway or ramp complies with Specification D1.12; and

(c) except where permitted in (b) must not connect more than—
- (i) 3 storeys if each of those storeys is provided with a sprinkler system (other than a FPAA101D system) complying with Specification E1.5 throughout; or
- (ii) 2 storeys, provided that in each case, those storeys must be consecutive, and one of those storeys is situated at a level at which there is direct egress to a road or open space; and

(d) except where permitted in (b) or (c), must not connect, directly or indirectly, more than 2 storeys at any level in a Class 5, 6, 7, 8 or 9 building and those storeys must be consecutive.

Please Note:
The internal non-required stairway connects 4 storeys where only 3 are permitted in accordance with this clause. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.

5.6. Separation of rising and descending stair flights

If a stairway serving as an exit is required to be fire-isolated—

(a) there must be no direct connection between—
- (i) a flight rising from a storey below the lowest level of access to a road or open space; and
- (ii) a flight descending from a storey above that level; and

(b) any construction that separates or is common to the rising and descending flights must be—

(i) non-combustible; and
(ii) smoke proof in accordance with Clause 2 of Specification C2.5.

Please Note:

Separation of rising and descending fire stair flights is not proposed to comply with D2.4 of the BCA. A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.

5.7. 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.

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.

5.8. Access for Persons with a Disability

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 BCA 2019. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

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. Parking shall be provided for

people with disabilities in accordance with in accordance with Clause D3.5 of the BCA. 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.

Note that entrances that are not accessible are to be located within 50m of an entrance that is accessible.

6. Fire Services & Equipment

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

- An automatic sprinkler system in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-2017,
- 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;
- Occupant Warning System in accordance with Spec E2.2a Clause 7.
- 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.

6.1. Fire Hydrants

A system of Fire Hydrants is required to be provided to BCA Clause E1.3 and AS 2419.1-2005. We will reply upon design certificate from a Hydraulic Consultant.

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

A booster assembly is required as detailed in E1.3 of the BCA. The booster if is required to be located attached to the building at the main entry. If remote from the building at the main vehicle entry or with sight of the main entry of the building within 8m of a hardstand area.

Location Hydrant Pump Room

Internal hydrant pump rooms shall have a door opening to a road or open space, or a door opening to a fire-isolated passage or stair which leads to a road or open space.

Please Note:
The hydrant booster is proposed to be located fronting surf road. This is not within sight of the designated building entry point or fronting Whale Beach Road which is the designated building address for the lot.

In addition, the Hydrant pump room is located at basement level and does not incorporate direct access for FRNSW.

A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.

6.2. Fire Hose Reels

A Fire Hose Reel System is required to serve a building will a floor area greater than 500m^2. This system is required to comply with the requirements of BCA Clause E1.4 and AS 2441-2005 for the class 6, 7a and 7b 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.

We will reply upon design certificate from a Hydraulic Consultant.

6.3. Automatic Sprinkler Protection

Class 2 building with a rise in storeys of 4 or more must be protected with a An Automatic Fire Suppression System in accordance with BCA Clause E1.5 and Spec E1.5

Location of pumps, tanks, FIP, control valves and booster are yet to be finalised.

An occupant warning system that is triggered upon activation of the sprinkler system should be provided in accordance with BCA Specification E1.5.

Location of Sprinkler Valve/ Pump Room

Sprinkler alarm values and pump rooms must be located in a secure room or enclosure which has direct egress to fire-isolated stairway or road or open space.

Please Note:
A sprinkler booster is yet to be identified on site (if required).

The sprinkler pump room is located at basement level and does not incorporate direct access for FRNSW.

A fire engineer shall make judgement as to whether this can be assessed under BCA Clause A2.2 to meet the performance requirements of the BCA.

7. Ventilation and Smoke Hazard Management

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

- Automatic Fire Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2018 & Smoke Alarm System within Class 2 units in accordance with BCA Spec E2.2 Clause 5 and AS3786-2014
- Automatic Shutdown of Mechanical Systems in accordance with the requirements of BCA 2019, NSW Table E2.2b and AS/NZS 1668.1-2015;

A fire brigade panel (FBP) is required as part of the fire detection system. This panel is to be located at the designated building entry point. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

7.1. Carpark Ventilation

The carpark's mechanical ventilation system must comply with clause 5.5 of AS/NZS 1668.1-2015 except that fans with metal blades suitable for operation at normal temperature may be used and electrical power and control cabling need not be fire-rated.

Should jet fans be proposed to be utilized with the basement carpark, these will be required to be assessed as part of the Fire Engineering Solution prepared by an Accredited Fire Engineer and verified against the Performance Requirements of the BCA and in consultation with Fire and Rescue NSW.

8. Lift Services

The passenger lifts must be installed in accordance with Part E3 and satisfy the following design requirements:-

- Fitted with warning signs, fire service controls in accordance with AS 1735.2;
- Where an emergency lift is not required, if the passenger lifts are installed to serve any storey above an effective height of 12m. A 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.

9. Sanitary Facilities

The sanitary & other facilities within the development would generally consist of: -

F2.4 - Sanitary Facility Calculations													
Description of building or part	Occupant Number	Population No.		Required			Provided			Difference			
				WC	Urinals	Basins	WC	Urinals	Basins	WC	Urinals	Basins	
Retail 1 - Staff	5 Staff (10% of 51)	Male	3	1	0	1	N/A	N/A	N/A	N/A	N/A	N/A	
		Female	3	1	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	
		Accessible	N/A	1	1	1	1	N/A	1	0	N/A	0	
Retail 1 - Patrons	46	Male	23	1	1	2	1	1	1	0	0	1	
		Female	23	1	N/A	1	1	N/A	1	0	N/A	0	
		Accessible	N/A	1	N/A	1	1	N/A	1	0	N/A	0	
Retail 2 - Staff (142m2 including terrace)	4 Staff (10% of 42)	Male	2	1	0	1	0	0	0	0	0	0	
		Female	2	1	N/A	1	0	N/A	0	0	N/A	0	
		Accessible	N/A	1	N/A	1	1	N/A	1	1	N/A	1	
Retail 2 - Patrons	38 Patrons	Male	19	1	1	1	2	0	1	0	0	0	
		Female	19	1	N/A	1	1	N/A	1	0	N/A	0	
		Accessible	N/A	1	N/A	1	0	N/A	0	0	N/A	0	
Retail 3 (Staff only)	<10	Male	5	1	0	1	N/A	N/A	N/A	N/A	N/A	N/A	
		Female	5	1	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	
		Accessible	N/A	N/A	1	N/A	N/A	1	N/A	N/A	0	N/A	
Retail 3 - Patron numbers are anticipated to be <20. Therefore, patron sanitary facilities need to be provided.													

Please note the Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2001.

Where detailed fitout is pending analysis will be undertaken once tenants and indicative layouts/tenant numbers are known. No allowance has been made for corridors etc. that would be provided.

10. Light and Ventilation

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.

Natural light must be provided to all habitable rooms in a class 2 building and all bedrooms in a class 3 building.

Adequate light and ventilation provisions are to be detailed in design documentation prior to the issuance of a Construction Certificate.

11. Sound Transmission & Insulation

Class 2 and 3 Buildings:-
The sound transmission and insulation requirements for the Class 2 and 3 portions shall be provided in accordance with Part F5 of the BCA 2019. A report from a qualified acoustic engineer will need to be provided to validate compliance with the BCA.

12. Energy Efficiency

Class 2 Portions:-

The proposed development shall be provided with building fabric and building sealing and services in accordance with NSW Part J of the BCA 2019.

The deemed-to-satisfy provisions of the BCA in regard to thermal insulation in a class 2 building are only applicable, where development consent specifies that the insulation is to be provided as part of the development. The class 2 building will be subject to a Basix Assessment.

We will rely upon the Basix Assessment together with confirmation that the commitments made under BASIX have been incorporated into the design prior to the issue of the Construction Certificate.

Class 5 to 9b Portions:-

The proposed development shall comply with Part J of the BCA. To achieve compliance, there are two options available:

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

- Building Fabric
- Building Sealing
- Air Conditioning & Ventilation Systems
- Artificial Lighting & Power

- Hot Water Supply
- Facility for Energy Monitoring

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 5.

Appendix A - Design Documentation

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

Drawing No.	Title	Date	Drawn By	Revision
DA03	Basement Plan	03.04.20	RCA	M
DA04	Ground Floor Plan	03.04.20	RCA	M
DA05	Level 1 Plan	03.04.20	RCA	M
DA06	Level 2 Plan	03.04.20	RCA	M
DA07	Level 3 Plan	03.04.20	RCA	M
DA08	Level 4 Plan	03.04.20	RCA	M
DA09	Roof Plan	03.04.20	RCA	M

Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access panels, doors and hoppers to fire-resisting shafts	BCA 2019 Clause C3.13, AS 1905.1-2015, AS1905.2-2005.
2.	Automatic fire detection and alarm system	BCA 2019 Clause E2.2, Spec. E2.2a, AS 1670.1-2015, AS3786-2014
3.	Automatic fire suppression system	BCA 2019 Clause E1.5, Spec. E1.5, AS 2118.1-2017
4.	Emergency evacuation procedures	Clause 43 of the Work Health & Safety Regulation 2011
5.	Emergency lighting	BCA 2019 Clause E4.2, E4.3 E4.4, AS 2293.1-2005
6.	Exit and directional signage	BCA 2019 Clause E4.5, NSW E4.6 & E4.8, Spec E4.8 and AS 2293.1-2005,
7.	Fire dampers	BCA 2019 Clause E2.2,, C3.12, C3.15, Spec E2.2, AS/NZS 1668.1-2015, AS 1682.1-2015, AS 1682.2-2015
8.	Fire doors	BCA 2019 Clause C2.12, C2.13, C3.4, C3.8, C3.11, Spec C3.4, AS 1905.1-2015
9.	Fire hose reel systems	BCA 2019 Clause E1.4, AS 2441-2005
10.	Fire hydrant systems	BCA 2019 Clause C2.12, E1.3, AS 2419.1-2005,
11.	Fire seals (protecting openings and service penetrations in fire resisting components of the building)	BCA 2019 Clause C3.12, C3.15, Spec C3.15, AS 4072.1-2005, AS 1530.4-2014, Manufacturer's specifications
12.	Lightweight construction	BCA 2019 Clause C1.8, Spec A2.3, Spec C1.8, Manufacturer's specifications

	Essential Fire Safety Measures	Standard of Performance
13.	Mechanical air handling systems	BCA 2019 Clause C2.3, E2.2, Spec E2.2a, AS/NZS 1668.1-2015, AS 1668.2-2012
14.	Openings in fire-isolated lift shafts	BCA 2019 Clause C3.10, AS 1735.11-1986
15.	Occupant warning system	BCA 2019 Clause E2.2, Spec. E2.2a, AS 1670.4-2015
16.	Path of travel for stairways, passageway and ramps	Clauses 183-186 of the Environmental Planning and Assessment Regulation 2000
17.	Portable fire extinguishers	BCA 2019 Clause E1.6 and AS 2444-2001
18.	Warning and operational signs	BCA 2019 Clause D2.23, E3.3, Clause 183 of the Environmental Planning and Assessment Regulation 2000

Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2019:-

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes) Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is—				
For loadbearing parts—				
less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/90/90	180/180/120	240/240/180
3 m or more	90/60/30	120/60/30	180/120/90	240/180/90
For non-loadbearing parts—				
less than 1.5 m	–/90/90	-/120/120	–/180/180	-/240/240
1.5 to less than 3 m	–/60/60	-/90/90	–/180/120	-/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an external wall-				
For loadbearing columns-	90/–/–	120/-/-	180/–/–	240/-/-
For non-loadbearing columns-	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—				
All	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair shafts—				
Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
Non-loadbearing	–/60/60	-/120/120	–/120/120	-/120/120
Bounding public corridors, public lobbies and the like -				
Loadbearing	90/90/90	120/-/-	180/–/–	240/-/-
Non-loadbearing	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units—				
Loadbearing	90/90/90	120/-/-	180/–/–	240/-/-
Non-loadbearing	–/60/60	–/–/–	–/–/–	–/–/–

Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/90/90	180/120/120	240/120/120
Non-loadbearing	–/ 90/ 90	-/90/90	–/120/120	-/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—				
All	90/-/-	120/-/-	180/–/–	240/-/-
FLOORS				
Any	90/90/90	120/120/120	180/180/180	240/240/240
ROOFS				
Any	90/60/30	120/60/30	180/60/30	240/90/60

MBC MODERN BUILDING CERTIFIERS

NCC - Building Code of Australia 2019

BCA DESIGN COMPLIANCE REPORT