



C O N S U L T A N T S

bca + fire + access + defects

**Project**

94 & 96 Park Street & 4 Kunari Place, Mona Vale

**Report**

BCA Assessment

**Client**

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19696-BCA-1

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## 1.0 EXECUTIVE SUMMARY

EBS Consultants Pty Ltd have been engaged to undertake an assessment of the building against the Deemed-to-Satisfy Provisions of the National Construction Code (NCC) – Volume 1: Building Code of Australia (BCA) 2022.

The primary purpose of this report is to assess the proposed design against the Deemed-to-Satisfy (DTS) Provisions of the BCA and to outline any non-compliances in the design that may require redesign or be assessed against the performance requirements of the BCA to achieve compliance. Any assessment against the performance requirements will need to be addressed by a fire engineer through a performance solution report.

### 1.1 Performance Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance may not be achieved by the proposed design and site constraints. These matters will need to be addressed in a detailed Performance Solution Report to be prepared for this development under separate cover:

BCA Clause	Performance Solution
C2D2 and Spec 5	Rationalise the FRL of the Class 7b portions of the building in lieu of the required 240mins to be 120mins.
Spec 5	The Gym is provided with a green roof, as such to maintain DTS compliance this roof will need to maintain the required 120min FRL. Otherwise a Fire Engineering Report may be sought to ratioanalise the FRL while still being combustible.
D2D12	Allow for the fire isolated stairways serving the carpark to not be fully enclosed and pass within 6m to openings.
D2D14	Allow for extended travel distances to reach open space from the non-fire isolated stairway of more than 15m.

### 1.2 Summary of Matters for Consideration

The following matters have been identified and require further considerations:

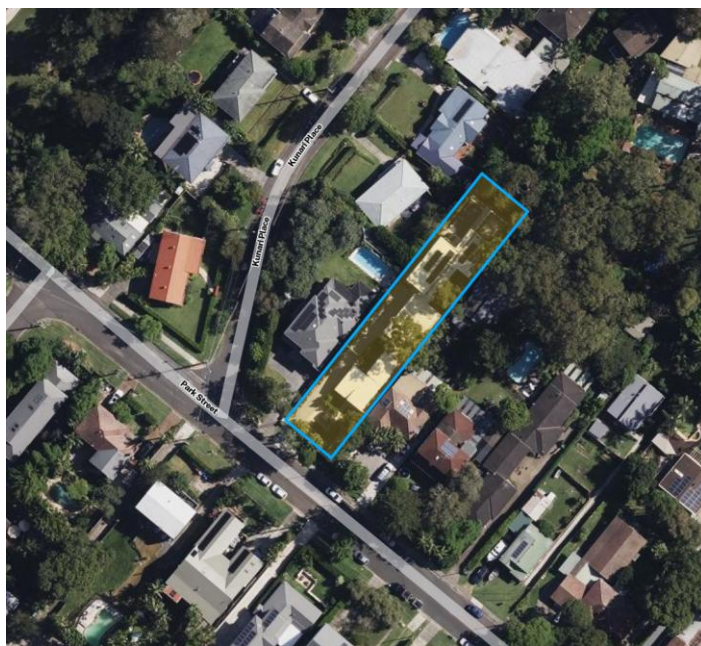
BCA Clause	Summary
C4D4	The external wall distance between the basement Class 7a and Class 9b to the Class 2 sole-occupancy units requires those parts separated by a fire wall with an FRL not less than 60/60/60 and any openings protected in accordance with BCA Clause C4D4 where located within proximity.

## 2.0 BASIS OF ASSESSMENT

### 2.1 Location and Description

The building development, the subject of this report, is located at 94 & 96 Park Street & 4 Kunari Place, Mona Vale. The building development consists of six (6) storeys. The proposal contains two storeys of carparking with associated storage, with five (5) storeys of residential use and a gym on Level 2 for the use of the residents adjacent to the pool.

The building will be accessed through Park Street and from Kunari Place.



*Snippet of Six Maps*

### 2.2 BCA Version

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2022 Edition (BCA) incorporating the State variations where applicable.

The version of the BCA applicable to new building works is the version applicable at the time of the application for a Construction Certificate.

### 2.3 Limitations of the Report

This report does not include nor imply any detailed analysis or assessment for design, compliance or upgrading for:

- a) the structural adequacy or design of the building.
- b) the inherent derived fire-resistance ratings of any existing structural elements of the building (unless specifically referred to).
- c) any existing fire safety measures are assumed to be compliant and maintained under the Annual Fire Safety Statement provisions required by the building owner.
- d) the design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire protection services.
- e) The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. The assessment of the plans and specifications has been undertaken to ensure the minimum dimensions have been met. The designer and builder should ensure that the minimum dimensions are met onsite, and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical matters such as access for people with disabilities, stair and corridor widths and balustrade heights.



Note: The BCA report and associated compliance advice is not intended or permitted to be relied on by any other party with respect to their obligations to ensure compliance including but not limited to the making of a compliance declaration under the NSW Design and Building Professionals Act.

This report does not include, or imply compliance with:

- a) Sections B, D4 or J of the BCA.
- b) the Disability Discrimination Act 1992.
- c) The Design and Building Practitioners Act 2020.
- d) Work Health and Safety Act 2011.
- e) Requirements of other Regulatory Authorities including, but not limited to, Telstra, NBN Co, 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.
- f) Demolition Standards not referred to by the BCA.
- g) Heritage significance
- h) Section J of the BCA not been carried out. Refer to a separate report prepared by an energy efficiency consultant.
- i) Requirements of Australian Standards unless specifically referred to.
- j) Conditions of Development Application approval issued by Council.
- k) The National Construction Code – Plumbing Code of Australia Volume Three.

## 2.4 Terms and Acronyms

- i. AS - Australian Standard
- ii. AVG - Average
- iii. BCA - Building Code of Australia
- iv. BOWS - Building Occupant Warning System
- v. BTM - Bottom
- vi. Comms - Communications Cupboard
- vii. DtS - Deemed To Satisfy
- viii. EDB - Electrical Distribution Board
- ix. FER - Fire Engineering Report
- x. FHR - Fire Hose Reel
- xi. FIS - Fire Isolated Stairway
- xii. FRL - Fire Resistance Level
- xiii. HBA - Home Building Act 1989
- xiv. LHS - Left Hand Side
- xv. MID - Middle
- xvi. MSB - Main Switchboard Room
- xvii. PEX - Cross-linked polyethylene
- xviii. PFE - Portable Fire Extinguisher
- xix. RHS - Right Hand Side
- xx. SOU - Sole Occupancy Unit

## 2.5 Document Control

Date	Revision	Comments/Description	Prepared By:
16-05-2025	1	BCA Assessment	Ben Long

### 2.6 Documentation

This report has been prepared based on the following documentation:

Architectural Drawings prepared by: Walsh Architects			
Drawing Number	Revision	Date	Title
DA100	1	16-05-2025	Basement 2 Plan
DA101	1	16-05-2025	Level 1 Plan
DA102	1	16-05-2025	Level 2 Plan
DA103	1	16-05-2025	Level 3 Plan
DA104	1	16-05-2025	Level 4 Plan
DA105	1	16-05-2025	Level 5 Plan
DA106	1	16-05-2025	Roof Plan
DA200	1	16-05-2025	Long Sections
DA201	1	16-05-2025	Cross Sections
DA300	1	16-05-2025	Elevations
DA301	1	16-05-2025	Elevations
DA302	1	16-05-2025	Elevations

### 3.0 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the building may be described as follows:

#### 3.1 Rise in Storeys (Clause C2D3)

The building has a rise in storeys of six (6).

#### 3.2 Classification (Part A6)

The building has been classified as follows.

Class	Level	Description
2	Level 1, 2, 3, 4 & 5	Sole-occupancy units
9b	Level 2	Gymnasium
7a	Basement 2 - Level 1	Carpark
7b	Basement 2 - Level 1	Storage and Waste Rooms

#### 3.3 Effective Height (Schedule 1 – Definitions)

The building has an effective height less than 25 metres. On review of the provided architectural drawings, I determined the building has an effective height of approximately 15.75m.

The BCA 2022 definition is as follows:

*“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).”*

#### 3.4 Type of Construction Required (Table C2D2)

The building is to be of Type A Construction.

#### 3.5 Floor Area and Volume Limitations (Table C3D3)

The building is subject to maximum floor area and volume limits of:

Class 9b	Maximum Floor Area	8000m <sup>2</sup>
	Maximum Volume	48 000m <sup>3</sup>
Class 7b	Maximum Floor Area	5000m <sup>2</sup>
	Maximum Volume	30 000m <sup>3</sup>
Class 7a	It is noted that the whole building is required to be sprinkler protected and the compartment limits are not required for the Class 7a carpark.	
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C3D3 as Table 3 of Specifications 5 and Clause C4D12 of the BCA regulates the compartmentation and separation provisions applicable to buildings or building portions.	

### 3.6 Fire Compartments

The following portions in the building have been considered as the fire compartments within the building:

- > The carpark has been considered a single fire compartment
- > The separate storage uses will be considered a single fire compartment (this will be based upon Future Fire Engineering)
- > The gym will form a single fire compartment
- > The residential storeys will form their own fire compartment.

### 3.7 Climate Zone

The building is located within Climate Zone 5.

### 3.8 Exits

The following points in the building have been considered as the required exits from the building:

- > Each of the doorways leading directly to open space
- > Each of the doorways serving the fire isolated exits.



## 4.0 BCA ASSESSMENT

### 5.1 Introduction

The assessment undertaken pertains to the plans prepared for the Development Application submission with Council. The technical details necessary for a Development Application are considered to be less than that required for a Construction Certificate and therefore, this assessment is intended to address a higher-level assessment of the building against the provisions of the BCA utilizing the information currently available.

The primary objective of this report is to evaluate and address any significant design modifications necessary to the building, the services required to be installed, and the fundamentals of the building design required by sections C, D, E, F and G of the BCA to ensure the foundation of the design is capable of complying with detailed documentation. This report does not address the design requirements for the structural integrity of the building (Section B), or for the comprehensive design of services (Section E).

The summary below is to be read in conjunction with the BCA specification contained in Annexure E of the report.

### 5.2 Section C: Fire Resistance

#### 5.2.1 FIRE RESISTANCE AND STABILITY – PART C2 AND SPECIFICATION 5

In line with the requirements of Clause C2D2, the proposed building would be subject to Type A Construction requirements. The required fire resistance levels for the building elements are outlined in Part 6 of this report.

The FRLs are required to be 240/240/240 FRL for Class 7b buildings, due to constructability and suitable product sourcing issues, it may be possible for a Fire Engineer to rationalise FRLs within the building under a Fire Engineering Performance Solution. The feasibility of such a Performance Solution will need to be discussed with a Fire Engineer.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. The plans do not indicate the materials of the external wall and further details will be required to be submitted at CC stage for assessment, however compliance is readily achievable by a number of common wall types.

In accordance with Specification 5, there is a concession to allow for the roof to not maintain an FRL if the roof covering is non-combustible. The Gym is provided with a green roof, as such to maintain DTS compliance this roof will need to maintain the required 120min FRL. Otherwise a Fire Engineering Report may be sought to rationalise the FRL while still being combustible.

All ancillary attachments (i.e privacy screens, signage, fences etc) shall be constructed of a non-combustible materials, further details will be required at CC stage to confirm compliance with Clause C2D14.

Linings, materials and assemblies are required to maintain the required fire hazard properties in accordance with BCA Clause C2D11 and Specification 7. Documentation shall be provided as part of the Construction Certificate package to detail compliance being maintained.

Subject to the required FRL's being provided, the proposed building is capable of complying with the requirements of the BCA with respect to fire resistance.

#### 5.2.2 COMPARTMENTATION AND SEPARATION – PART C3

Under the provisions of BCA Clause C3D3, the residential portion of the building is not the subject to any floor area and volume limitations.

The Class 7 and 9 portion of the building have been assessed and the floor area and volume of these compartments is less than that permitted by BCA Clause C3D3. As such compliance with the provisions of the BCA for

compartmentation is readily achieved, however this assessment is to be reaffirmed at Construction Certificate stage once holistic fire compartment drawings are available for assessment.

The carpark is required to have a sprinkler system; therefore, the carpark is not the subject of floor area and volume limitations under the provision of clause C2.2 of the BCA.

The development is Type A Construction and as such, Clause C3D7 of the BCA requires vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. These are required to take the form of a spandrel which is not less than 900 mm in height or a slab or other horizontal construction that projects outwards from the external face of the wall not less than 1100 mm.

No specific details of the spandrel walls have been provided to allow assessment however compliance is readily achievable. Otherwise confirmation of the sprinkler system being provided throughout the building will address any spandrels if a AS2118 system is being used.

If the switchboard in the basement is required service emergency equipment required to operate in an emergency, the switch room is to have an FRL of 120/120/120. The design of the switch room is such that compliance can be readily achieved.

The development contains parts of different classifications located alongside one another in the same storey. The higher FRL prescribed in Specification 5 within that storey must be provided in accordance with BCA Clause C3D9.

The Level 1 storey must be separated by a fire wall of 120/120/120, as it contains a shared wall of both Class 2 and 7a parts. The separation of the Class 7b portions are considered to be addressed within the Fire Engineering Report.

The lift within the building are required to be separated from the remainder of the building by enclosure in a shaft in which the walls have the relevant FRL prescribed by Specification 5 to comply with BCA Clause C3D11.

The corridors within the Class 2/3 portion of the building are found to be not more than 40 m in length to comply with BCA Clause C3D15.

### **5.2.3 PROTECTION OF OPENINGS – PART C4**

Openings in an external wall that is required to have an FRL must be protected in accordance with BCA Clause C4D5.

The external wall distance between the basement Class 7a and Class 9b to the Class 2 sole-occupancy units requires those parts separated by a fire wall with an FRL not less than 60/60/60 and any openings protected in accordance with BCA Clause C4D4 where located within proximity.

Further details will need to be provided at the CC Stage to ensure suitable methods of protection are being proposed. Otherwise, a Fire Engineering Performance Solution may be sought to rationalise the protection option available.

The openings provided within a fire wall must be protected by a single fire door or fire shutter which has an FRL of not less than that required by Specification 5 for the fire wall except that each door or shutter must have an insulation level of at least 30.

The fire isolated stairs and lift shafts are required to have the opening protected in accordance with BCA Clause C4D9 and C4D11. The openings into the fire isolated stairs will need to be –/60/30 fire doors that are self-closing, or automatic closing. The openings into the fire isolated lift shafts will need to be –/60/– fire doors.

The walls between the SOU's and between the SOU's and corridor are internal walls that require and FRL. As such, the doors to the sole occupancy units and communal areas are required to be self-closing FRL --/60/30 fire doors in accordance with Clause C4D12 of the BCA.

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables.

Fire sealing of services is a design element that will require detailed assessment and specification at the CC documentation stage.

### 5.3 Section D: Access and Egress (D2 and D3)

Each storey of the building has access to at least one exit as per Clause D2D3.

Egress from the carpark/gym is required in sufficient numbers and location to ensure that no point on the floor is more than twenty (20) metres from and exit, or a point of choice of two (2) exits, in which case the distance to one of those exits is not more than forty (40) metres, as required by BCA Clause D2D5.

The distance between alternative exits is required by BCA Clauses D2D6 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice.

The travel distances and distances between exits comply with the above requirements.

In the residential portion of the building, the distance to an exit on the ground floor is permitted to be twenty (20) metres. The distance to an exit on other floors is to be no more than six (6) metres from any point on the floor to an exit, or a point of choice of two (2) exits in which case the distance between those two (2) exits are not to exceed forty-five (45) metres as required by BCA Clause D2D5 and D2D6.

The travel distances and distances between alternative exits comply with the above.

Each of the residential stairways are connecting not more than 3 storeys and as such may be considered non-fire isolated exits. These are found to discharge internally which is suitable. It is noted that one of the towers will required travel underneath the gym roof which will have an extended travel distance and will need to be addressed via a Fire Engineering Report.

The stairways serving the carpark portion of the building and Level 1 residential portion are considered to be fire isolated stairs to maintain the travel distances. However, it is noted that on the top storey these are open and not fire isolated as such it would be required to address these enclosures within a Fire Engineering Report.

Furthermore, the discharge path to open space from the fire isolated stairways are shown as being within 6m to the external wall of the building. In accordance with BCA Clause D2D14, it would be required that the external walls maintain an FRL of at least 60/60/60 and any openings are internally protected in accordance with BCA Clause C4D5. However, this may be discussed with the Fire Engineer as to the feasibility of rationalising the protection required.

Egress paths throughout the building are required to maintain suitable clear widths and clear heights as required by BCA Clauses D2D7-D2D10. Based on a review of the plans provided, it is considered that suitable clearance are made available and compliance may be achieved subject to detailed design and appropriate door schedules being provided. A clear width of not less than 1000mm shall be provided throughout egress paths and not less than

750mm at doorways. A clear height of not less than 2000mm shall be provided throughout egress paths and not less than 1980mm at doorways.

The egress points throughout the building are found to discharges to open space on the property as required by BCA Clause D2D15. A suitable pathway from the point of discharge to the street has been detailed on the plans with a suitable clear width being maintained.

Specific details of treads and risers, landings, thresholds, barriers, and handrails have not been provided as part of the current documentation. Further information of the elements will be addressed during the detailed design stage with compliance readily achievable.

Electrical distribution cupboards are required to be provided with suitable smoke separation in accordance with BCA Clause D3D8. The enclosure is required to be non-combustible construction or a fire-protective covering (13 mm fire-protective grade plasterboard) and all service penetrations from the enclosure to be suitable sealed against smoke sealed with fire mastic.

#### 5.4 Section E: Services and Equipment

The building is required to be provided with the services and equipment set out in Part 5.0 of this report.

##### **FIRE FIGHTING EQUIPMENT – PART E1**

###### Fire Hydrants

As the building has a floor area greater than 500m<sup>2</sup>, fire hydrant protection is required in accordance with BCA Clause E1D2 and AS2419.1-2021.

The hydrant booster is required to be no more than twenty (20) metres from the building and within sight of the principal pedestrian entrance as well as located not less than ten (10) metres from any substation.

The plans do not identify the location of fire hydrants or hydrant systems such as the booster and/or pump room. Further information will be required during detailed design from the Hydraulic Consultant to demonstrate compliance is maintained with regards to coverage, pressure and flows in accordance with AS2419.1-2021.

###### Fire Hose Reels

The Class 7 and 9 portions of the building are greater than 500m<sup>2</sup> and is required to have fire hose reels (FHR's) BCA Clause E1D3 and AS2441-2005.

The plans do not show the location of fire hose reels. Further information will be required during detailed design from the Hydraulic Consultant to demonstrate compliance is maintained with regards to coverage in accordance with AS2441-2005.

###### Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D9 & Specification 17/18 due to the rise in storey of the building. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance.

###### Portable Fire Extinguishers

The development is required to have portable fire extinguishers installed throughout in accordance with BCA Clause E1D14 and AS2444-2001. No details have been provided to undertake an assessment. Further information is required during the CC Stage for assessment.

## **SMOKE HAZARD MANAGEMENT – PART E2**

### Automatic Smoke Detection and Alarm System

An automatic smoke detection and alarm system is required to be installed throughout the building in accordance with Specification 20.

Details are to be provided at the Construction Certificate Stage by the Electrical Consultant to demonstrate compliance.

### Mechanical Ventilation – Carpark

The Class 7a basement is required to be provided with a mechanical ventilation system in accordance with AS 1668.2, must comply with Clause 5.5 of AS 1668.1.

Details are to be provided at the Construction Certificate Stage by the Mechanical Consultant to demonstrate compliance.

### Mechanical Ventilation – Class 9b

The Class 9b portion of the building is required to be provided with an automatic shutdown of any air-handling system not forming part of the smoke hazard management system, where the capacity of any ducted system is more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1

Confirmation would be required from the Mechanical Consultant and as to whether the capacity of the systems will require automatic shutdown and where required, Electrical Consultants shall allow for shutdown in accordance Specification 20 of the BCA.

## **LIFT INSTALLATIONS – PART E3**

Lifts are provided to the building and are located within their own shaft, serviced by a common lobby. The lifts require stretcher facilities as they serve a height above twelve (12) metres in effective height and the dimensions of the shaft are sufficient to allow compliance for a 1400 mm width x 2000 mm length lift car.

No details have been provided to undertake an assessment. Further information is required during the CC Stage for assessment.

## **VISIBILITY IN EMERGENCY, EXIT SIGNS AND WARNING SYSTEMS – PART E4**

Emergency lighting is required as per BCA Clause E4D2 for all non-fire-isolated stairs, corridors, passageways, hallways, or the like that is part of a path of travel to an exit. Details are to be provided at the Construction Certificate Stage by the Electrical Consultant to demonstrate compliance.

Exit signs are required to be installed throughout the building, including directional exit signs to guide occupants to the designated exits in the building. Details are to be provided at the Construction Certificate Stage by the Electrical Consultant to demonstrate compliance.

## **5.5 Section F: Health and Amenity**

### **FACILITIES IN RESIDENTIAL BUILDINGS – PART F4**

Within each of the sole occupancy units, a kitchen sink and facilities for the preparation and cooking of food; a bath or shower; a closet pan; and a washbasin have all been provided in accordance with the requirements of this Clause.

Laundry facilities have been provided within each individual unit.

### **FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4**

Separate male and female sanitary compartments are not provided in accordance with this Clause as unisex/shared facilities have been proposed.

As the Class 9b gymnasium is intended solely for use by residents of the building, each with access to private sanitary facilities within their respective units, the provision of a single unisex sanitary facility within the gymnasium is adequate.

#### **ROOM HEIGHTS – PART F5**

The drawings indicate that the ceiling heights for all habitable spaces, corridors, and the like can achieve the minimum height of 2400 mm. In non-habitable rooms such as toilets, garages and storage rooms, the ceiling height is no less than 2100 mm. For a Class 9b gymnasium, the ceiling head height is no less than 2400 mm due to the number of occupants provided.

The ceiling heights have been assessed in accordance with BCA Part F5 which has indicated that compliance is readily achievable within all habitable spaces, corridors, and the like.

#### **LIGHT AND VENTILATION – PART F6**

The Class 2 portions of the building are required to maintain natural lighting and ventilation in accordance with this Part of the BCA. All habitable rooms are required to be provided with natural light in accordance with BCA Clause F6D3 and F6D4. Ventilation will be required to all rooms that are occupied by a person for any purpose and may be in the form of natural ventilation or mechanical ventilation in accordance with F6D6.

The plans have been assessed which reveals all habitable spaces are serviced by windows or glazed doors. The area of the doors and windows are sufficient in size to provide the required minimum natural light and ventilation to all habitable rooms.

For a Class 7b and 9 building, artificial lighting and mechanical ventilation are required, and these systems can be readily installed in the building. Further design development and input will be required from the Electrical and Mechanical Consultants at the Construction Certificate Stage.

The carpark (other than an open-deck carpark) is required to have a mechanical ventilation system complying with AS1668.2. No information has been provided; However, the mechanical system can be readily designed. Further design input will be required from the Mechanical Consultant to demonstrate Compliance.

#### **SOUND TRANSMISSION AND INSULATION – Part F7**

The Deemed-to-Satisfy Provisions of this Part apply to Class 2 and 3 buildings and Class 9c buildings. Acoustic separation will require detailed assessment and specification at the CC documentation stage.

### **5.6 Section G: Ancillary Provisions**

#### **SWIMMING POOL – G1D2**

Each of the swimming pools being provided within the building will need to maintain compliance with this Clause and suitably fences in accordance with AS1926.

#### **CLEANING WINDOWS – NSW G1D5**

A building must provide for a safe manner of cleaning any windows located three (3) or more storeys above ground level as per NSW Clause G1D5. Two (2) options are available for cleaning the windows:

1. The windows can be cleaned wholly from within the building; or
2. Provisions are made for cleaning windows by a method complying with the Work Health and Safety Act 2011 and regulations made under the Act.



No information has been provided to determine if the development can comply with this requirement, and further information will be required during the design development stage

## 5.0 ESSENTIAL FIRE SAFETY MEASURES

The following essential fire safety measures shall be implemented in the whole of the building premises and each of the fire safety measures must satisfy the standard of performance listed in the schedule which, for the purposes of Clause 78 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021, is deemed to be the current fire safety schedule for the building.

Item No.	Essential Fire and Other Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers to Fire Resisting Shafts	BCA 2022 C4D14 AS1530.4-2014 and Manufacturer's Specifications
2.	Smoke Hazard Management Systems - Automatic fire detection & alarm: - Clause S20C3 - AS3786 Smoke Alarm systems powered from consumer mains to all residential SOU's. - Clause S20C4 - AS1670.1-2015 system throughout the building and carpark connected to a BOWS @ 100dB(A) @ SOU door. -	BCA 2022 E2D8 BCA 2022 E2D13 Spec 20 - Clause S20C3 (Smoke alarm system) Spec 20 - Clause S20C4 (Smoke detection system) Spec 20 - Clause S20C5 (Combined smoke alarm and smoke detection system) AS3786 - 2014 (Amdt 1-4) AS1670.1 - 2018
3.	Automatic fire suppression systems	BCA 2022 E1D4, E1D6, E1D9, BCA 2022 Specification 17 AS 2118.1-2017; or AS 2118.4-2012; or AS 2118.6-2012; or FPAA101D; or FPAA101H
4.	Building Occupant Warning System	BCA 2022 Specification 17 - Clause S17C8 BCA 2022 Specification 20 - Clause S20C7 AS1670.1-2018
5.	Construction Joints	BCA 2022 C4D16 AS1530.4-2014
6.	Emergency lighting	BCA 2022 E4D2, E4D4 AS/NZS 2293.1-2018
7.	Exit signs	BCA 2022 E4D5, NSW E4D6, E4D8 AS/NZS 2293.1-2018
8.	Fire Dampers	BCA 2022 C4D15 AS1530.4-2014, AS1668.2-2012, AS1682.1 & 2-2015
9.	Fire doors	BCA 2022 C3D14, C4D5 C4D6, C4D9, C4D10, C4D12 BCA 2022 Specification 12 AS/NZS 1905.1-2015
10.	Fire Hose reel systems	BCA 2022 E1D3 AS 2441-2005
11.	Fire seals protecting openings in fire-resisting components of the building	BCA 2022 C4D15, Specification 13 AS1530.4-2014, AS4072.1-2005
12.	Lightweight construction	BCA 2022 C2D9, Specification 6
13.	Mechanical Ventilation System - Auto-shutdown of Air-handling System	BCA2022 E2, AS1670.1-2018, AS/NZS1668.1-2015, AS1668.2-2012

Item No.	Essential Fire and Other Safety Measures	Standard of Performance
14.	Path of travel for stairways, passageway, and ramps	Section 108, 109 of the EP&A (development Certification and Fire Safety) Regulation 2021
15.	Portable fire extinguishers	BCA 2022 E1D14 AS 2444-2001
16.	Warning and operational signs	BCA 2022 D3D28, D4D7, E3D4 Clause 183 of the EP&A Regulation 2000
17.	Performance Solution:  Fire Engineering Report – TBC	Future Fire Engineering Report

## 6.0 FRLS

The following tables illustrates the required FRL's for the various building elements within and throughout the building that are required to be fire-resisting in accordance with **Type A construction** – being the applicable Type of construction for this building.

Table S5C21a Type A construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
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

Table S5C21b Type A construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
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	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11c Type A construction: FRL of external columns not incorporated in an external wall

Column Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11d T Type A construction: FRL of common walls and fire walls

Wall Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-loadbearing	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e Type A construction: FRL of loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	90/90/90	120/120/120	180/120/120	240/120/120
Bounding public corridors, public lobbies and the like	90/90/90	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy units	90/90/90	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	-/90/90	-/120/120	-120/120	-/120/120
Bounding public corridors, public lobbies and the like	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120

Table S5C11g Type A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other loadbearing internal walls, internal beams, trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

## 7.0 DEEMED TO SATISFY BCA ASSESSMENT

The above assessment will provide an overview of compliance with the BCA and identify any major issues that require attention.

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary information to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

## 8.0 DESIGN CERTIFICATION

The architectural design documentation as referred to in report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure A) with that Code, subject to all matters for further consideration identified in this report being addressed in the design, and subject to compliance with all Specifications included with this report.

It is trusted this report is clear and addresses the requirements of the Client. Should you require any further information or clarification, please do not hesitate to contact the undersigned.

Signed,

Ben Long  
Manager Building Regulations  
**EBS Consultants**  
Building Surveyor – Unrestricted #BDC03380



## 9.0 ANNEXURE A

### 10.0 ARCHITECTURAL DESIGN CERTIFICATION

1. The FRL's of building elements for the proposed works have been designed in accordance with Clause S5C11 and Tables S5C11a through to S5C11g of Specification 5 of BCA2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
3. Building elements must be non-combustible in accordance with C2D10 of BCA2022.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C2D11 and Specification 7 of BCA2022.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C2D14 of BCA2022.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C3D7 of BCA2022. It is noted that no spandrel separation is required in the stairway or to a void.
7. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C3D9 and Specification 5 of BCA2022.
8. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
9. Any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C3D14 of BCA2022.
10. The external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
11. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
12. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C4D9 of BCA2022.
13. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.
14. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C4D13, C4D14 and C4D15 and Specification 13 of BCA2022.
15. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C4D16.
16. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C4D11 of BCA2022.
17. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
18. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C4D17 of BCA2022.
19. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification 5 Clause S5C4 BCA2022.
20. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause S5C5 of Specification 5 of BCA2022.
21. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause S5C8 of Specification 5 of BCA2022.
22. Fire doors will comply with AS1905.1 and Specification 12 of BCA2022.
23. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
24. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
25. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.

26. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
27. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 45m apart in the residential portion or 60m, in accordance with Clause D2D6 of BCA2022.
28. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 through D2D11 of BCA2022.
29. The fire-isolated exits will be in accordance with Clause D1D12 of BCA2022.
30. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
31. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D2D21 of BCA2022.
32. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
33. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of BCA2022.
34. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
35. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D3D8 of BCA2022 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
36. New pedestrian ramps will comply with AS1428.1-2009, Clause D3D11 and Part D4 of BCA2022. The floor surface of a ramp must have a slip-resistance classification complying with Table D3D15 when tested in accordance with AS4586.
37. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
38. The roof of the building where the exit discharges will have an FRL of 120/120/120, and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D3D13 of BCA2022.
39. Stair geometry to the new stairways will be in accordance with Clause D3D14 of BCA2022. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS4586.
40. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D16 of BCA2022. Landings to have either a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS4586 where the edge ledge to a flight below.
41. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D174 and D3D21, and D3D22 of BCA2022.
42. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plant-room, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS1657-2013 or Part D3 of BCA2022.
43. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
44. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D3D26 of BCA2022.
45. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
46. The openable portion of a window in a bedroom will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D3D29 of BCA2022. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
47. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1D16 of BCA2022.
48. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2.
49. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
50. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.

51. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS3740.
52. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
53. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA2022.
54. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS1288 / AS2047.
55. Sanitary facilities will be provided in the building in accordance with Clause F4D2 and F4D4 and Table F4D4a through to F4D4l of BCA2022.
56. Accessible sanitary facilities will be provided in the building in accordance with Clause F4D5 and F4D6 of BCA2022 and AS1428.1-2009.
57. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
58. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA2022.
59. Natural light will be provided in accordance with Clause F6D2, F6D3 and F6D4 of BCA2022.
60. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
61. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
62. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
63. Pliable building membranes installed in external walls will comply with Clause F8D3 of BCA2022 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
64. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F6D11 of BCA2022.
65. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2022.
66. The swimming pool associated with the new building will comply with Clause G1D2 of the BCA2022 and AS1926 parts 1 and 2. (Note: Excludes NSW. See NSW G1.1 Variation below)
67. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.
68. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
69. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.
70. Glazing will be in accordance with Part J4 of BCA2022.
71. Building sealing will be in accordance with Part J5 of BCA2022.
72. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

#### **11.0 ELECTRICAL SERVICES DESIGN CERTIFICATION**

73. A smoke detection and alarm system will be installed throughout the building in accordance with Clause E2D10, and Specification 20 of BCA2022.
74. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS2293.1.
75. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS2293.1.
76. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0.

#### **12.0 HYDRAULIC SERVICES DESIGN CERTIFICATION**

77. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS3500.3
78. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS2419.1 as required.
79. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS2441.
80. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022, Specification 17/18 and appropriate part(s) of AS2118 or FPAA101D, FPAA101H.

81. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS2444.
82. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.

### **13.0 MECHANICAL SERVICES DESIGN CERTIFICATION**

83. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of BCA2022, and AS/NZS 1668.1.
84. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS1668.2.
85. Every storey of the car park will be ventilated in accordance with Clause F6D11 of BCA2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS1668.2 as applicable.
86. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F8D4 of BCA2022.
87. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F8D5 of BCA2022.
88. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022.

### **14.0 STRUCTURAL ENGINEERS DESIGN CERTIFICATION**

89. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 as follows:
  - Dead and Live Loads – AS1170.1
  - Wind Loads – AS1170.2
  - Earthquake actions – AS1170.4
  - Masonry – AS3700
  - Concrete Construction – AS3600
  - Steel Construction AS4100
  - Aluminium Construction – AS/NZS1664.1 or 2
  - Timber Construction – AS 1720.1
  - ABCB Standard for Construction of Buildings in Flood Hazard Areas.
90. The FRL's of the structural elements for the proposed works have been designed in accordance with Tables S5C11a through to S5C11g of Specification 5 of BCA2022 for a building of Type A Construction.
91. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
92. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
93. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.
94. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D2.2 of BCA2022 for the fire isolated stairs.

### **15.0 LIFT SERVICES DESIGN CERTIFICATION**

95. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of BCA2022 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.
96. Warning signage in accordance with Clause E3D4 of BCA2022 will be provided to the lifts to advise not to use the lifts in a fire.
97. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3D11.
98. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
99. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of Part D4 of the BCA2022 and will be suitable to accommodate disabled persons.
100. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 and will have accessible features in accordance with Clause E3D8 of BCA2022.

101. The lifts will comply with AS1735.12 in accordance with Clause E3D7 and E3D8 of BCA2022.
102. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

**16.0 ACOUSTIC SERVICES DESIGN CERTIFICATION**

103. The sound transmission and insulation of the residential portions of the development will comply with Part F7 of BCA2022.