EBS CONSULTANTS

bca + fire + access + defects

Project
115-117 Dutton Street, Yagoona

Report
BCA Assessment

Client
David Lam
boundarystreetlaundry@hotmail.com

Date
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Reference
19462-BCA-3

Contact
Ben Long
ben@ebs.sydney
1300 300 327

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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.

Part 4 of this report outlines any specific non-compliances in the design that require redesign or be an assessment against the performance requirements will need to be addressed by an Eire 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
D2D5	Allow for extended travel distance within the Basement of up to 37.5m in lieu of the required 20m to a point of choice.
D2D5	Allow for extended travel distance from the SOUs of up to 19m in lieu of the required 20m to a single exit.
D2D6	Allow for alternative exits to be located within the required 9m.

1.2 Summary of BCA Non-Compliances

The following non-compliances have been identified and require further considerations:

BCA Clause	Summary
C3D15	The corridors are longer than 40m and not suitable smoke separated. Additional separation will be required otherwise a Performance Solution may be sought.
D2D14	The discharge of the fire isolated stairways are found to not lead directly to open space in accordance BCA Clause D2D14. The stairway is found to discharge within the building. The feasibility of addressing this non-compliance under a Fire Engineered Performance Solution would need to be discussed as concern is made regarding the possibility of this solution Where a Performance Solution is not feasible the plans will need to be updated to accommodate egress directly to open space in accordance with BCA Clause D2D14.
D2D5	The units on the storeys above have a travel distance of up to 19.5m in lieu of the required 12m. Discussions would need to be had with a Fire Engineer to determine what possible travel distances are capable of being addressed and where not capable the plans will need to be updated accordingly to reduce the travel distances to suit
D3D5	The building is provided with rising and descending stair way that is required to be provided in accordance with BCA Clause D3D5. Currently the layout is not suitable to maintain separate discharge in accordance with this Clause due to each rising and descending flight opening into the other flight without separation in accordance with this Clause. It would be required that the plans are updated to modify the stair discharge to ensure suitable separation in accordance with this Clause. Otherwise, it may be possible to discuss the feasibility of a Performance Solution with a Fire Engineer.
E1D2	The hydrant pump room is required to be served directly from a fire isolated stairway provided with an airlock as required by the BCA. This has not been shown and will need to be

	updated on the plans to maintain compliance or addressed within the Fire Engineering Report.

2.0 BASIS OF ASSESSMENT

2.1 Location and Description

The building development, the subject of this report, is located at 115-117 Dutton Street, Yagoona. The building development consists of five (5) storeys of residential sole occupancy units located above two (2) storeys of basement carpark. There is a Level 1 communal space which is considered to be for the residential use.

The building will be accessed through the main building entry from Dutton Street. The building has access to a single lift via the ground floor foyer which serves each of the storeys throughout the building.

The building will be accessed from Dutton Street.

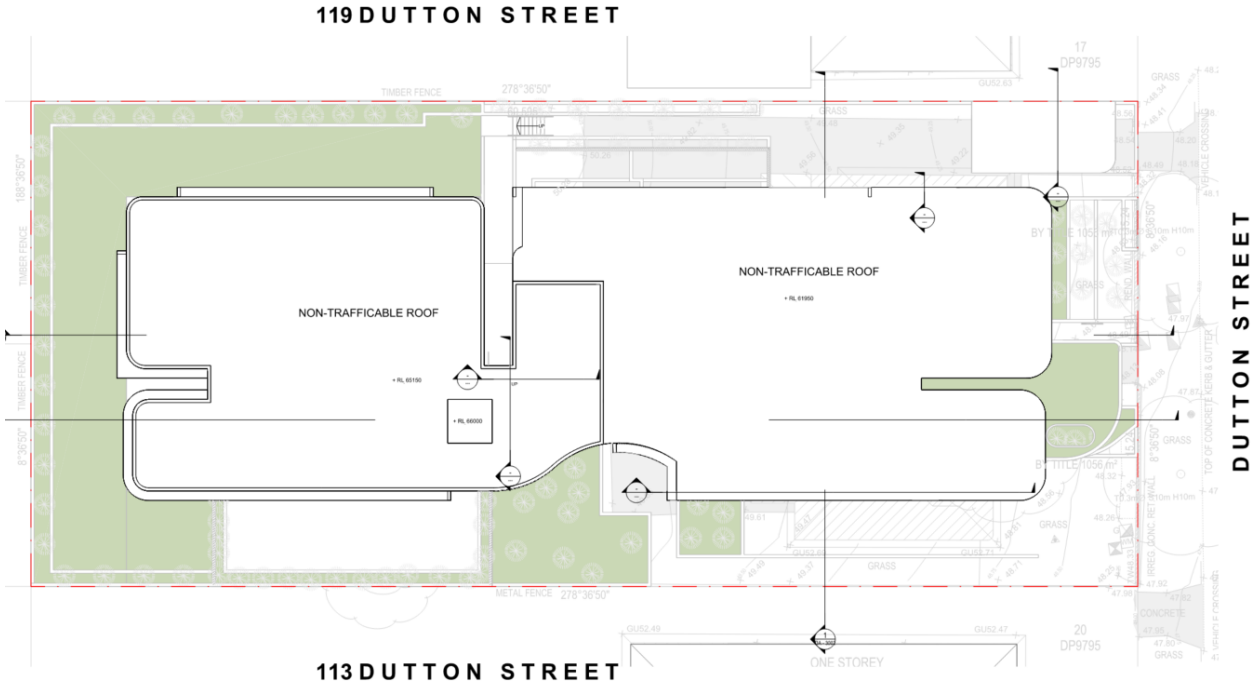

Image sourced from Architectural Plans

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:
02/12/2024	1	DA Stage BCA Report	Ben Long
16/12/2024	2	DA Stage BCA Report	Ben Long
18/06/2025	3	Final DA Stage BCA Report	Ben Long

2.6 Documentation

This report has been prepared based on the following documentation:

Architectural Drawings prepared by: Cedar			
Drawing Number	**Revision**	**Date**	**Title**
DA-0002	C	15/06/2024	Site Plan
DA-0003	C	15/06/2024	Demolition Plan
DA-1000	E	15/06/2024	GA Basement 02
DA-1001	E	15/06/2024	GA Basement 01
DA-1002	E	15/06/2024	GA Ground Level
DA-1003	E	15/06/2024	GA level 01
DA-1004	E	15/06/2024	GA Level 02
DA-1005	E	15/06/2024	GA Level 03
DA-1006	E	15/06/2024	Roof Top Level
DA-3000	C	15/06/2024	Section 1
DA-3001	C	15/06/2024	Section 2
DA-3002	C	15/06/2024	Section 3

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 buildings have a rise in storeys of six (6).

3.2 Classification (Part A6)

The building has been classified as follows.

Class	Level	Description
2	Ground Floor – Roof Top	Residential Sole Occupancy Units and Communal Areas
7a	Basement 01 - 02	Carparking

Note: The bin holding is a separatee structure not connected to the building and will be considered a Class 10.

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 16.22 m.

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 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 basement carpark storeys including the GF void will form a single fire compartment
- The residential storeys will form a single fire compartment

3.7 Climate Zone

The building is located within Climate Zone 5.

3.8 Exits

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

- Each of the swinging doorways leading to the fire isolated exits throughout the building.
- The main entry doorway located on the Ground Floor
- The main entry doorway located on the Level 1

4.0 BCA ASSESSMENT

4.1 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.

4.2 Section C: Fire Resistance

4.2.1 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 B Construction requirements.

The required fire resistance levels for the building elements are outlined in Part 6 of this report.

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.

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.

4.2.2 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 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 BCA Clause C3D3.

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.

The proposal does not contain suitable provision of separation to each of the openings as required due to full height glazing being proposed. Details will need to be provided during detailed design to ensure suitable compliance unless

a sprinkler system in accordance with AS2118 is being proposed. Details may be provided as the design development with compliance readily achievable at the CC Stage.

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 corridors within the Class 2/3 portion of the building are found to be more than 40 m in length and would not comply with BCA Clause C3D15. It would be required that smoke proof walls complying with Clause 2 of Specification 11. Otherwise, a Fire Engineering Performance Solution may be sought to rationalise the length of the corridor. The feasibility of such a Performance Solution will need to be discussed with a Fire Engineer.

4.2.3 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.

Due to the setback of the proposed building, no openings are required to be protected. The opening created by the driveway entry is considered to be located below ground and provided with a blade wall to the side which would be considered suitable separation in accordance with Specification 5.

The Ground Floor units with the courtyards located within 2.9m of the side boundary are not considered to be openings in an external wall and would not need protection. The slab does not overhang above the courtyard and only louvres are provided within proximity to the boundary and not an external wall.

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.

4.3 Section D: Access and Egress (D2 and D3)

Each storey of the building has access to at least one exit as per Clause D2D3. The basement is required to have access to at least two exits due to in accordance with BCA Clause D2D3

The building has more than three (3) storeys connected by a stairway, and therefore under the provisions of Clause D2D4 of the BCA, the building is required to have fire isolated stairways.

The discharge of the fire isolated stairways are found to not lead directly to open space in accordance BCA Clause D2D14. One of the egress paths will maintain egress to open space as required. However, the other stairway is found to discharge within the building and would maintain an extended travel distance to reach open space. The feasibility of addressing this non-compliance under a Fire Engineered Performance Solution would need to be discussed as concern is made regarding the possibility of this solution Where a Performance Solution is not feasible the plans will need to be updated to accommodate egress directly to open space in accordance with BCA Clause D2D14.

The discharge path to open space from the fire isolated stairway which does lead to open space is detailed 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.

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.

The travel distances exits do not comply with the above requirements. The units on the storeys above have a travel distance of up to 19m in lieu of the required 12m (using Specification 18 concession). It is considered that this egress is not likely something that would be capable of being addressed. Discussions would need to be had with a Fire Engineer to determine what possible travel distances are capable of being addressed and where not capable the plans will need to be updated accordingly to reduce the travel distances to suit.

Egress from the carpark and storage cages are 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 travel distances exits do not comply with the above requirements. Within the carpark when measured conservatively around the parking spaces a travel distance of 37.5m is maintain to a point of choice in lieu of the required 20m. Each of these extended travel distances may be addressed within a Fire Engineered Performance Solution. Furthermore, Basement 2 is only detailed as being provided with a single exit and will need to be addressed at CC stage to confirm the provision of two doorways into the fire stairs.

The distance between alternative exits is required by BCA Clauses D2D7-D2D11 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice. It is note that the basement floor plans will have the alternative exits closer than 9m to each other and would need to be addressed via a Fire Engineered Performance Solution.

Details will need to be provided as to the configuration of the egress stairways as two stairs are provided but have conflicting egress paths between the two possible flights and the ground Floor connection.

Suitable access has been provided into each of the required fire isolated exits in accordance with BCA Clause D2D12 due to the airlock being provided to the pump room in the basement.

The building is provided with rising and descending stair way that is required to be provided in accordance with BCA Clause D3D5. Currently the layout is not suitable to maintain separate discharge in accordance with this Clause due to each rising and descending flight opening into the other flight without separation in accordance with this Clause. It would be required that the plans are updated to modify the stair discharge to ensure suitable separation in accordance with this Clause. Otherwise, it may be possible to discuss the feasibility of a Performance Solution with a Fire Engineer.

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. However, to maintain compliant handrails throughout the stairways in accordance with AS1428.1-2009, it would be required to provided offset risers at the base of each flight to allow for a continuous height being maintained. The current architectural documentation does not detail offset risers and will need to be provided during detailed design to ensure compliance.

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.

4.4 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^2, fire hydrant protection is required in accordance with BCA Clause E1D2 and AS2419.1-2021.

The hydrant booster is provided 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 hydrant pump room is required to be served directly from a fire isolated stairway provided with an airlock as required by the BCA. This has not been shown and will need to be updated on the plans to maintain compliance or addressed within the Fire Engineering Report.

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 portions of the building are greater than 500m^2 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 carpark is required to have a sprinkler system installed as per BCA Clause E1D9 & Specification 17 due to the number of parking spaces. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance.

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.

LIFT INSTALLATIONS – PART E3

Lifts Serving More than 12 Metres Effective Height

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.

The size of the lift shaft would allow for a compliant lift car being provided in accordance with the requirements of this Part.

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.

Exit signs are required to be installed throughout the building, including directional exit signs to guide occupants to the designated exits in the building.

4.5 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.

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.

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 of mechanical ventilation in accordance with F6D6.

The plans have been assessed which reveals all habitable spaces are services 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 part of the 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.

4.6 Section G: Ancillary Provisions

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

OCCUPIABLE OUTDOOR AREAS - PART G6

The communal open space on Level 01 is noted to be occupiable outdoor area and will need to comply with this Part of the BCA. This will require suitable fire hazard properties and service coverage is maintained.

Due to the provision of the egress stairs and the lift it is noted that suitable access and egress is provided.

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) AS3786 – 2014 (Amdt 1-4) AS1670.1 – 2018 AS1670.3 – 2018 (Fire Alarm Monitoring)
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 C3D13, C3D14, C4D6, C4D8 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 hydrant systems	BCA 2022 E1D2 AS 2419.1-2021
12.	Fire seals protecting openings in fire-resisting components of the building	BCA 2022 C4D15, Specification 13 AS1530.4-2014, AS4072.1-2005
13.	Lightweight construction	BCA 2022 C2D9, Specification 6

Item No.	Essential Fire and Other Safety Measures	Standard of Performance
14.	Mechanical Ventilation System	BCA2022 E2, AS1670.1-2018, AS/NZS1668.1-2015, AS1668.2-2012
15.	Path of travel for stairways, passageway, and ramps	Section 108, 109 of the EP&A (development Certification and Fire Safety) Regulation 2021
16.	Portable fire extinguishers	BCA 2022 E1D14 AS 2444-2001
17.	Smoke Doors	BCA2022 C3D15, Clause S11C2
18.	System Monitoring - Any Sprinkler System	BCA 2022 Specification 20 AS 1670.3 - 2018
19.	Warning and operational signs	BCA 2022 D3D28, D4D7, E3D4 Clause 183 of the EP&A Regulation 2000
20.	Performance Solution: Fire Engineering Report – TBC	Fire Engineering Report Issues:

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. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
10. 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.
11. The public corridors will be divided into intervals of not more than 40m in length with smoke proof walls in accordance with Clause C3D15, and Clause S11C2 of Specification 11 of BCA2022.
12. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
13. 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.
14. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.
15. 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.
16. 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.
17. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C4D11 of BCA2022.
18. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
19. 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.
20. 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.
21. 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.
22. 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.
23. Smoke-proof walls and doorways required in the health care or aged care building will be in accordance with Specification 11 of BCA2022.
24. Fire doors will comply with AS1905.1 and Specification 12 of BCA2022.

25. Smoke doors will be constructed so smoke will not pass from one side of the doorway to the other in accordance with Specification 12 of BCA2022.
26. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
27. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
28. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
29. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
30. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more that 45m apart in the residential portion or 60m, in accordance with Clause D2D6 of BCA2022.
31. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 through D2D11 of BCA2022.
32. The fire-isolated exits will be in accordance with Clause D1D12 of BCA2022.
33. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
34. 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.
35. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
36. 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.
37. The construction separating rising and descending stairs in the fire-isolated exit stairway will be non-combustible and smoke proof, in accordance with Clause D3D5 of BCA2022.
38. 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.
39. 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.
40. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
41. 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.
42. 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.
43. 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.
44. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D174 and D3D21, and D3D22 of BCA2022.
45. 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.
46. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
47. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D3D26 of BCA2022.
48. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
49. 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.

50. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1D16 of BCA2022.
51. Additional provisions will be made in accordance with Clause E1D17 of BCA2022, due to the special hazards associated with the building works or the location of the building works.
52. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2.
53. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
54. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
55. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS3740.
56. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
57. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA2022.
58. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS1288 / AS2047.
59. Sanitary facilities will be provided in the building in accordance with Clause F4D2 and F4D4 and Table F4D4a through to F4D4l of BCA2022.
60. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
61. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA2022.
62. Natural light will be provided in accordance with Clause F6D2, F6D3 and F6D4 of BCA2022.
63. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
64. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
65. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
66. 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.
67. 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.
68. 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.
69. Occupiable Outdoor areas will be in accordance with Part G6 of BCA2022.
70. 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.
71. 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.
72. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.
73. Glazing will be in accordance with Part J4 of BCA2022.
74. Building sealing will be in accordance with Part J5 of BCA2022.
75. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

11.0 ELECTRICAL SERVICES DESIGN CERTIFICATION

76. A smoke detection and alarm system will be installed throughout the building in accordance with Clause E2D10, and Specification 20 of BCA2022.
77. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS2293.1.
78. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS2293.1.
79. 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

80. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and ASNZS3500.3
81. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS2419.1 as required.
82. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS2441.
83. 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.
84. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS2444.
85. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.
86. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and ASNZS3500.3

13.0 MECHANICAL SERVICES DESIGN CERTIFICATION

87. 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.
88. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS1668.2.
89. 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.
90. 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.
91. 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.
92. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022.

14.0 STRUCTURAL ENGINEERS DESIGN CERTIFICATION

93. 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.
94. 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.
95. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
96. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
97. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.
98. 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

99. 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 proving a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.
100. 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.

101. 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.
102. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
103. 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.
104. 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.
105. The lifts will comply with AS1735.12 in accordance with Clause E3D7 and E3D8 of BCA2022.
106. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

16.0 ACOUSTIC SERVICES DESIGN CERTIFICATION

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