WALSH ARCHITECTS

BCA ASSESSMENT REPORT

52&54 Brighton Street, Freshwater

Project Number: 1
Report Type: BCA
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Jensen Hughes Australia

Providing building regulations, fire engineering, accessibility, and energy consulting services to NSW for over 25 years

Our story begins in 1997 with the founding of BCA Logic to fulfill the demand of a consultancy company whose expertise expanded across the entire life cycle of a building, from consulting on the initial planning through to construction and occupation.

BCA Logic joined Jensen Hughes in 2021, a leading global, multi-disciplinary engineering, consulting and technology firm focused on safety, security and resiliency. We continue to be at the forefront of our industry and work thoroughly to preserve our position by ensuring the successful delivery of projects.

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With more than 90 offices and 1500 employees worldwide supporting clients globally across all markets, we utilise our geographic reach to help better serve the needs of our local, regional, and multinational clients. In every market, our teams are deeply entrenched in local communities, which is important to establishing trust and delivering on our promises.

Table of Contents

Executive Summary

This document provides an assessment of the architectural design drawings for the proposed eight unit apartment development at 52&54 Brighton Street, Freshwater, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2022, Volume 1.

Part 3 'Matters for Further Consideration' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	*Description*	*BCA Provisions*
Performance Solutions Required		
1.	Allow for travel distances to a points of choice to exceed the required 20m to a points of choice.	D2D5
2.	Allow for travel distances to an exit on the First Floor exceeding the required 6m..	D2D5
3.	The provision of EV charging bay will be considered a special hazard and required to be addressed within the Fire Engineering Report.	E1D17 E2D21
4.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	F3P1
Building Code of Australia Compliance Matters to be Addressed		
1.	Handrails are to be provided to the eastern stairway leading to egress ramp.	D3D22
2.	Handrails to the eastern egress ramp to be continuous.	D3D22
3.	The doorway of the Water Tanks Room may impact the egress path, 500mm clearance must be provided.	D3D25
Further Information Required		

1.	Details of Home Batteries are to be provided as they may need separation from the remainder of the building.	C3D13
2.	Provide details for the usage of the room adjacent to the central exit stair on Basement Floor	-
3.	The room enclosure under the stairway is to be fire separated from the remainder of the building.	D3D9
4.	Balcony barriers are to be of a minimum 1m in height.	D3D18
5.	Swimming pool barriers and gate to be compliant with the relevant Act, Regulations and Standards.	G1
6.	Details of the Skylights are to be provided to ensure handrail and clear head height complies.	D3D22 F5D2

1.0 Basis of Assessment

1.1 LOCATION AND DDSCRIPTION

The eight (8) unit apartment building development, the subject of this report, is located at 52 & 54 Brighton Street, Freshwater. The proposal contan a two storey residential building located above a basemenmt carpark. The residential units are provided with open walkways to gain access to the top floor and the top floor SOU are provided with roof top terraces.

Both vehicular and pedestrian access to the building is provided via Brighton Street.

1.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2022, Amendment 1, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2022. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3 BUILDING CODE OF AUSTRALIA

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2022 (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4 LIMITATIONS

This report does not include nor imply any detailed 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 proposed structural elements of the building (unless specifically referred to); and

c. the design basis and/or

This report does not include, or imply compliance with:

a. the National Construction Code – Plumbing Code of Australia Volume 3

b. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to);

c. he deemed to satisfy provision of Part D4 and F4D5 of BCA2022 ;

d. Demolition Standards not referred to by the BCA;

e. Work Health and Safety Act 2011;

f. Requirements of Australian Standards unless specifically referred to;

g. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority,

Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and

h. Conditions of Development Consent issued by the Local Consent Authority.

1.5 DESIGN DOCUMENTATION

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2.0 Building Description

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1 RISE IN STOREYS (CLAUSE C2D3)

The building has a rise in storeys of three (3).

Note: The roof top terrances for the SOUs are not considered to be roofed (only an open pergola structure) and the only building continuation is a stair shaft and therefore not deemed a storey.

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification(s)

Class	*Level*	*Description*
Class 7a	Basement Floor	Carpark
Class 2	Ground and First Floor	Residential

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an effective height of less than 12 metres. (RL 16.1 – RL 9.6 = 6.5m)

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

The building is required to be of Type A Construction.

2.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C3D3)

Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area.
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 C2D2 and Clause C4D12 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.

2.6 FIRE COMPARTMENTS

The following fire compartments have been assumed:

a. Residential levels are one fire compartment

b. Basement carpark is another fire compartment

2.7 EXITS

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

a. The first tread of each non-fire isolated stairway serving the building.

2.8 CLIMATE ZONE (CLAUSE A1G4)

The building is located within Climate Zone 5

2.9 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of Brighton Street

South: The common boundary of 17 & 19 Robert Street

East: The common boundary of 50 Brighton Street

West: The common boundary of 56 Brighton Street

In accordance with Clause 2.1 of Specification 5, a part of a building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

a. has an FRL of not less than 30/–/–; and

b. is neither transparent nor translucent.

3.0 BCA Assessment

3.1 INTRODUCTION

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate (CC) and as such, this assessment is designed to address a higher-level assessment of the building against the provisions of the BCA.

The main purpose of this report is to address any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E).

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

3.2 RELATIONSHIP TO THE DESIGN AND BUILDING PRACTITIONERS ACT

The Design and Building Practitioners Act requires certain specified design to be certified by a Registered Practitioner and the issuing of a Design Compliance Declaration (DCD). The declared designs include:

- Structure
- Building Enclosure (e.g. Façade);
- Fire Safety Systems (e.g. services, egress and FRL's)
- Waterproofing
- Fire Safety performance solutions

This report contains an assessment of the plans and specifications available, which are not sufficient in detail to allow any DCD to be issued by others. This report is not to be construed as or used to support to a DCD at CC stage as it is based on development application drawings only.

3.3 FIRE RESISTANCE AND STABILITY – PART C2 & SPECIFICATION 5

The required fire resistance levels for the building elements are outlined in Annexure C.

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 newly constructed ancillary attachments (i.e privacy screens etc) shall be constructed of 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.

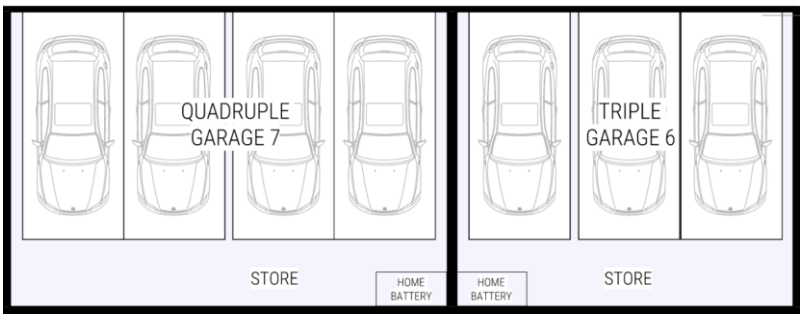
3.4 COMPARTMENTATION AND SEPARATION – PART C3

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

The carpark is not required to have sprinklers, and therefore is subject to the floor area and volume limitations of the BCA. The proposed floor area and volume of the carpark is less than that permitted by clause C3D3 of the BCA and therefore compliance is achieved.

Clause C3D7 of the BCA requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The plans indicate suitable spandrels are provided by a combination of horizontal balcony slabs and vertical walls beneath windows. The walls beneath the windows are required to be a minimum of 900mm high with 600mm above the slab, and an FRL of 60/60/60. No specific details of the spandrel walls have been provided to allow assessment however compliance is readily achievable.

Separation of equipment such as a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more is required where applicable. Details of the Home Batteries that are located at within each Garage space on Basement Floor are required to determine the compliance with BCA Clause C3D13.



Compliance with Part C3 of the BCA can be readily achieved by the proposal.

3.5 PROTECTION OF OPENINGS – PART C4

3.5.1 Openings in External Walls

The external walls are proposed to be non-loadbearing and are located more than 3m from any boundary. As such there is no requirement to protect any openings within the external walls.

3.5.2 Bounding Construction

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

3.5.3 Openings in Floors for Services and Service Installations

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. As 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.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the Building

Egress from the carpark is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from and exit, or a point of choice of two exits, in which case the distance to one of those exits is not more than 40m, as required by clause D2D5 of the BCA. On the ground floor, the distance to a single exit is permitted to be 30m. The exit travel distance from a point of choice is more than 20m and therefore is non-compliant, this will require a Fire Engineering Performance Solution.

In the residential portion of the building, the distance to an exit on the ground floor is permitted to be 20m. The distance to an exit on other floors is to be no more than 6m (12m for a sprinkler protected building) from any point on the floor to an exit, or a point of choice of 2 exits in which case the distance between those 2 exits is to exceed 45m. The travel distances and distances between alternative exits comply with the above.

Egress from the residential first floor is required in sufficient numbers to ensure that the front door of the SOU is no more than 6m from an exit. The travel distances from the First Floor SOUs are approximately 11m in lieu of the required 6m and is thus non-compliant, this will require a Fire Engineering Performance Solution.

The distance between alternative exits is required by Clause D2D6 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The travel distances between exits comply with the above requirements.

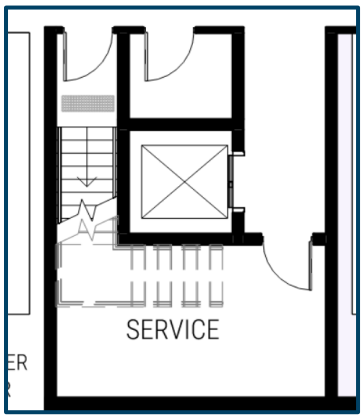
The building has no more than 3 storeys connected by a stairway, and therefore under the provisions of clause D2D4 of the BCA, the building is permitted to have non fire isolated stairways.

Dimensioned details of all exit paths including the fire stairs will be required at CC stage to confirm that a minimum egress width of at least 1 metre (measured clear of any obstructions or handrails) is maintained throughout the entirety of the exit as required by Clause D2D8.

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of Clause D2D15 of the BCA are readily satisfied.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA D3D8. The doors are to be lined internally with fire grade plasterboard or metal backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitable sealed against smoke spread by sealing with fire mastic.

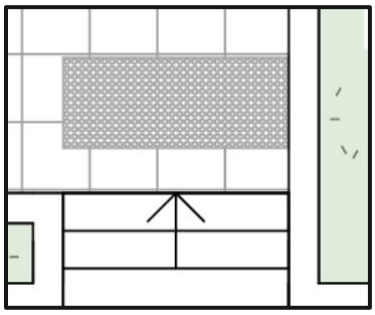
Enclosure of space under existing stairways and ramps must not be enclosed unless the enclosing walls and ceilings have a minimum 1 hour 60/60/60 FRL and a self-closing door with a -/60/30 FRL in accordance with BCA Clause D3D9. The following services rooms will need to be sepated in accordance with Clause D3D9.



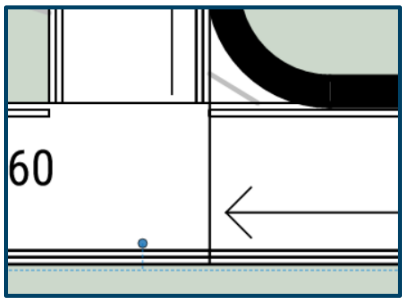
Details of treads and risers, landings, thresholds, balustrades and handrails have not been provided however compliance is readily achievable. The design of these elements can be assessed at the CC stage.

Barriers to all balconies and landings with a fall of more than 1m on the other side are required to be a minimum of 1m in height above the finished floor level as per BCA Clause D3D18.

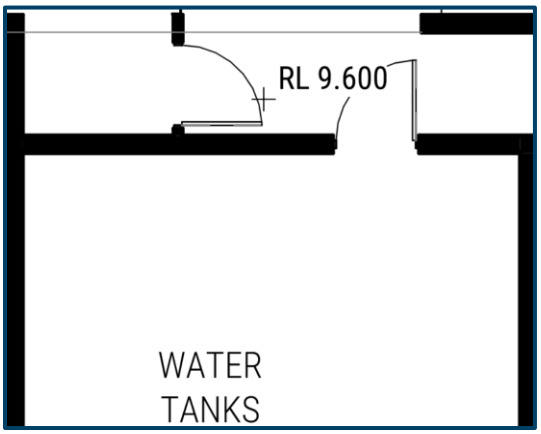
Handrails are required to all stairways and are to be of heights between 865mm to 1000mm above the stair nosing in accordance with BCA Clause D3D22. Handrails are required to the eastern stairway that leads to the egress ramp to be compliant with BCA Clause D3D22.



Handrails are required to be continuous, the 90 degree handrail turns at the eastern egress ramp have a break point and will required to be continuous to comply with the BCA Clause D3D22.



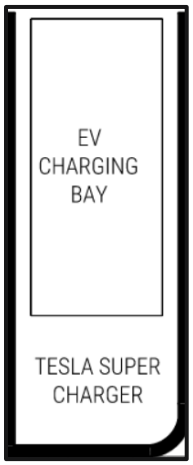
A swinging door in a required exit or forming part of a required exit must not encroach at any part of its swing by more than 500mm impeding the path of travel. The Water Tanks Room door swing opens more than 500mm into the required exit for the basement and therefore is non-compliant in accordance with BCA Clause D3D25.



3.7 SERVICES AND EQUIPMENT – PART E1, E2 AND E4

The building is required to be provided with the services and equipment set out in Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

Suitable additional provision must be made if special problems of fighting fire could arise due to the nature or quantity of materials being stored as per BCA Clause E1D17. Additional smoke hazard management measures may be necessary due to the special type or quantity of materials being stored or used in a building as per BCA Clause E2D21. Thus, the provision of the EV charging bay will require Fire Engineering Performance Solution.



3.8 LIFT INSTALLATIONS – PART E3

Lifts are provided to the building and are located in their own shaft and are serviced by a common lobby. The lifts do not require a stretcher facility as the building is under 12m in effective height and the dimensions of the shaft are sufficient to allow compliance.

3.9 FACILITIES IN THE RESIDENTIAL BUILDINGS – PART F4

Clause F4D2 of the BCA requires the following facilities within a Class 2 building:

- Kitchen sink;
- Bath or shower;
- Closet pan;

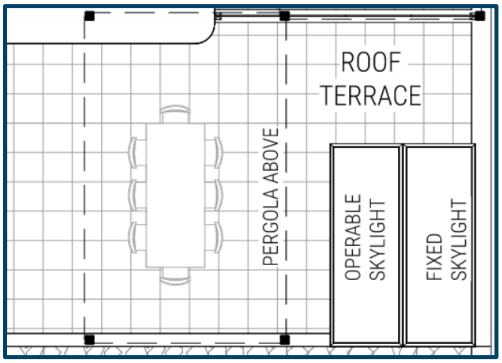
- Washbasin
- Laundry facilities

The plans indicate that each of these facilities are provided within each sole occupancy unit and therefore compliance is achieved with Clause F4D2 of the BCA.

3.10 ROOM HEIGHTS – PART F5

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

Details of the Skylights located on the Roof Floor are to be provided to confirm the handrail and clear head height complies with its relevant BCA Clauses D3D22 for handrails and F5D2 for the clear head height.



3.11 LIGHT AND VENTILATION – PART F6

Natural light and ventilation are required to all habitable rooms within a class 2 building. 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.

The carpark is required to be provided with a system of mechanical ventilation where required by clause F6D11 of the BCA.

3.12 SOUND TRANSMISSION AND INSULATION – PART F7

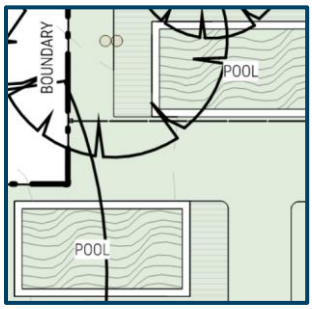
The bounding walls between the Class 2 sole occupancy units and the walls which separate the units from the lobbies, lift and service shafts must meet the sound insulation requirements of this part. Compliance is readily achievable at CC stage.

3.13 MINOR STRUCTURE AND COMPONENTS – PART G1

Swimming Pool must have compliant barriers with D4D11, Swimming Pools Act 1992 and its Regulations 2018.Swimming pool fencing are required to have a height of 1.2m in accordance with Clause 2.1 of AS1926.1-2012 and Clause 5.24 of AS1288-2006. A non-climbable zone of 900mm is required as per Clause 2.2.2 of AS1926.1-2012.

Swimming pool gates must swing outwards as per Clause 2.4.1.1 of AS1926.1-2012. Furthermore, the gate must have a self-closing device as per Clause 2.4.1.2 and a locking latch as per Clause 2.4.1.3 and 2.4.2 of AS1926.1-2012.

Resuscitation sign required to all swimming pool areas with a minimum size of 300x300mm, made of durable and waterproof material displaying the procedures for first aid including performing cardiopulmonary resuscitation as per Section 17 of the Swimming Pools Act 1992.



3.14 OCCUPIABLE OUTDOOR AREA – PART G6

The rooftop terraces are not considered to be occupiable outdoor area due to them being within the individual SOUs. However, the Level 1 communal external area would be considered and needing to comply with this Clause.

4.0 Statement of Compliance

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary 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.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia (BCA) and it is considered that such documentation complies or is capable of complying with that Code.

Annexures

Annexure A: Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by Walsh Architects			
Drawing Number	*Revision*	*Date*	*Title*
DA040	3	23.06.2023	Proposed Site Plan
DA100	3	23.06.2023	Basement Plan – Pre Adapted
DA102	3	23.06.2023	Ground Floor Plan
DA103	3	23.06.2023	Level 1 Plan
DA104	3	23.06.2023	Roof Plan
DA300	2	23.06.2023	Elevations – Sheet 1
DA301	2	23.06.2023	Elevations – Sheet 2

Annexure B - Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire doors	**BCA2022 C3D13** (Separation of Equipment) **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2022 C4D12** (Bounding Construction) **BCA2022 D3D9** (Enclosure of Space under Stairs) Spec 12 (C3.4 Fire Doors) AS1905.1: 2015
2.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 C4D16** (Construction joints) **BCA2022 Spec 15 (Braille & Tactile)** AS1530.4:2014 & AS4072.1-2005
3.	Lightweight construction	**BCA2022 C2D2, Spec 5** (C1.1) **BCA2022 C2D9, Spec 6** (C1.8) AS1530.4:2014
General		
4.	Portable fire extinguishers	BCA2022 E1D14 AS 2444–2001
5.	Swing of Exit Doors	**D3D25** (Swinging Doors)

Item	*Essential Fire and Other Safety Measures*	*Standard of Performance*
6.	Warning & operational signs	**BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
7.	Access to Lift Pits > Located at lowest level or if >3m provided through an access door	**BCA2022 D2D22** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
Electrical Services		
8.	Automatic fire detection & alarm	**BCA2022 E2D3**-E2D20 **Spec 20 (E2.2a Smoke Detection)** Spec 20 - Clause 3 (Smoke alarm system) Spec 20 - Clause 4 (Smoke detection system) Spec 20 - Clause 5 (Combined smoke alarm and smoke detection system) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 (Fire) – Section 4 and 5 (Detectors)
9.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
10.	Exit signs	**BCA2022 E4D5** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D7** (Residential Concession) **BCA2022 E4D8** (Design and Operation - Exits)

Item	*Essential Fire and Other Safety Measures*	*Standard of Performance*
		AS/NZS 2293.1:2018
Hydraulic Services		
11.	Fire hydrant systems	BCA2022 E1D2 AS 2419.1:20215
12.	Hose reel systems	BCA2022 E1D3 AS 2441:2005
Mechanical Services		
13.	Fire dampers (where required)	**BCA2022 C4D15** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
14.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark.	**BCA2022 E2** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type A Construction

Table 10. Type A Construction

Item	*Class 2*	*Class 7a*
Loadbearing External Walls (including columns and other building elements incorporated therein) - Less than 1.5m to a *fire-source feature* - 1.5 – less than 3m from a *fire-source feature* - 3m or more from a *fire-source feature*	90/90/90 90/60/60 90/60/30	120/120/120 120/90/90 120/60/30
Non-Loadbearing External Walls - Less than 1.5m to a *fire-source feature* - 1.5 – less than 3m from a *fire-source feature* - 3m or more from a *fire-source feature*	-/90/90 -/60/60 -/-/-	-/120/120 -/90/90 -/-/-
External Columns - Loadbearing - Non-loadbearing	90/-/- -/-/-	120/-/- -/-/-
Common Walls & Fire Walls	90/90/90	120/120/120
Stair and Lift Shafts required to be fire-resisting - Loadbearing - Non-loadbearing	90/90/90 -/90/90	120/120/120 -/120/120

Item	*Class 2*	*Class 7a*
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	90/90/90 -/60/60	120/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	90/90/90 -/60/60	120/-/- -/-/-
Ventilating, pipe, garbage and like shafts: - Loadbearing - Non-loadbearing	90/90/90 -/90/90	120/90/90 -/90/90
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-
Floors	90/90/90	120/120/120
Roofs[1]	90/60/30	120/60/30

1 The roof need not comply with any FRL's due to the classification of the building.

Annexure E – Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m^2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

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).

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

a. the exterior of the building; or
b. a non-conditioned space including—
    i. the floor of a rooftop plant room, lift-machine room or the like; and
    ii. the floor above a carpark or warehouse; and
    iii. the common wall with a carpark, warehouse or the like.

Exit

Exit means –

a. Any, or any combination of the following if they provide egress to a road or open space—
    i. An internal or external stairway.
    ii. A ramp.
    iii. A fire-isolated passageway.
    iv. A doorway opening to a road or open space.
    v. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

a. the total space of a building; or
b. when referred to in—

i. the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

ii. the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

a. structural adequacy; and

b. integrity; and

c. insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

Fire-source feature

a. the far boundary of a road, river, lake or the like adjoining the allotment; or

b. a side or rear boundary of the allotment; or

c. an external wall of another building on the allotment which is not a Class 10 building

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Loadbearing

Intended to resist vertical forces additional to those due to its own weight.

Non-combustible

Non-combustible means—

a. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and

b. applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Occupiable outdoor area

Occupiable outdoor area means a space on a roof, balcony or similar part of a building–

a. that is open to the sky; and

b. to which access is provided, other than access only for maintenance; and

c. that is not open space or directly connected with open space.

Open space

Open space means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Performance Requirement

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

Sarking-type material

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke developed index

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

a. a dwelling; or

b. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

c. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or

d. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification 5 of BCA 2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA 2022.
3. Building elements, including external walls and their components, must be non-combustible in accordance with C2D10 of BCA 2022.
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 5 of BCA 2022.
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 BCA 2022.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C3D7 of BCA 2022. It is noted that no spandrel separation is required in the stairway or to a void.
7. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA 2022.
8. Equipment will be separated in accordance with Clause C3D13 of BCA 2022.
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 BCA 2022.
10. 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 BCA 2022.
11. 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.
12. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA 2022.
13. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA 2022.
14. Columns protected by lightweight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C4D17 of BCA 2022.
15. 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 BCA 2022.

16. 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.
17. Fire doors will comply with AS 1905.1:2015 and Specification 11 of BCA 2022.
18. Travel distances to exits will be in accordance with Clause D2D5 of BCA 2022.
19. 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 BCA 2022.
20. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 of BCA 2022.
21. Discharge from exits will be in accordance with Clause D2D15 of BCA 2022.
22. Access to the lift pit will be in accordance with Clause D2D22 of BCA 2022.
23. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA 2022.
24. 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.
25. The enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60, and have a self-closing -/60/30 fire door, in accordance with Clause D3D9 of BCA 2022.
26. New pedestrian ramps will comply with AS 1428.1:2009, Clause D3D11 and Part D3 of BCA 2022.The floor surface of a ramp must have a slip-resistance classification complying with Table D3D14 when tested in accordance with AS 4586:2013.
27. 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 BCA 2022.
28. Stair geometry to the new stairways will be in accordance with Clause D3D14 of BCA 2022. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D14 when tested in accordance with AS 4586:2013.
29. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D14 and D3D16 of BCA 2022. Landings to have either a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
30. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17, and D3D22 of BCA 2022.
31. The doorways and doors will be in accordance with Clause D3D23 and D3D25 of BCA 2022.
32. Door latching mechanisms will be in accordance with Clause D3D26 of BCA 2022.
33. Non-illuminated exit signage will be installed in accordance with Clause E4D7 and of BCA 2022.
34. External above ground waterproofing membranes will comply with Clause F1D5 of BCA 2022. and AS 4654 Parts 1 & 2:2012.
35. The new roof covering will be in accordance with Clause F3D2 of BCA 2022.
36. Any sarking proposed will be installed in accordance with Clause F3D4 of BCA 2022.

37. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 of BCA 2022 and AS 3740:2010.
38. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA 2022.
39. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA 2022.
40. Sub-floor ventilation will be provided in accordance with Clause F1D8 of BCA 2022.
41. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA 2022. and AS 1288:2006 / AS 2047:2014.
42. Sanitary facilities will be provided in the building in accordance with Clause F4D2of BCA 2022.
43. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA 2022.
44. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA 2022.
45. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA 2022.
46. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA 2022.
47. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA 2022.
48. Pliable building membranes installed in external walls will comply with Clause F8D3 of BCA 2022 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.
49. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F6D11 of BCA 2022.
50. 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 G1D5 of BCA 2022.
51. The swimming pool associated with the new building will comply with Clause G1D2 of the BCA 2022 and AS 1926 parts 1 and 2. (Note: Excludes NSW. See NSW G1.1 Variation below)
52. 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.
53. 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.
54. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA 2022.
55. Glazing will be in accordance with Part J4 of BCA 2022.
56. Building sealing will be in accordance with Part J5 of BCA 2022.
57. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA 2022.

Electrical Services Design Certification:

58. A smoke detection and alarm system will be installed throughout the building in accordance with Part E2, and Specification 20 of BCA 2022.
59. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA 2022 and AS/NZS 2293.1:2018.

60. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA 2022 and AS/NZS 2293.1:2018.
61. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA 2022 and AS/NZS 1680.0:2009.
62. Lighting power and controls will be installed in accordance with Part J7 of BCA 2022.
63. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of BCA 2022.

Hydraulic Services Design Certification:

64. Storm water drainage will be provided in accordance with Clause F1D3 of BCA 2022 and AS/NZS 3500.3:2018
65. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA 2022 and AS 2419.1:2021 as required.
66. Fire hose reels will be installed in accordance with Clause E1D3 of BCA 2022 and AS 2441:2005.
67. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA 2022 and AS 2444:2001.
68. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8 of BCA 2022.

Mechanical Services Design Certification:

69. An air-handling system that does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of BCA 2022, and AS 1668.1:2015.
70. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA 2022 and AS 1668.2:2012.
71. Every storey of the car park will be ventilated in accordance with Clause F6d11 of BCA 2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
72. 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 BCA 2022.
73. 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 BCA 2022.
74. The air-conditioning and ventilation systems will be designed and installed in accordance with Part J6 of BCA 2022.
75. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

76. The material and forms of construction for the proposed works will be in accordance with Clause B1D3 B1D5 and B1D6 of BCA 2022 as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    c. Earthquake actions – AS 1170.4:2007

d. Masonry – AS 3700:2018

e. Concrete Construction – AS 3600:2018

f. Steel Construction AS 4100:1998

g. Aluminium Construction – AS/NZS 1664.1 or 2:1997

h. Timber Construction – AS 1720.1:2010

i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.

77. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification 5 of BCA 2022 for a building of Type A Construction.

78. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA 2022.

79. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA 2022.

80. The construction joints to the structure will be in accordance with Clause C4D16 of BCA 2022 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

81. Warning signage in accordance with Clause E3D4 of BCA 2022 will be provided to the lifts to advise not to use the lifts in a fire.

82. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D4 of the BCA 2022 and will be suitable to accommodate disabled persons.

83. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 will have accessible features in accordance with BCA 2022.

84. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 of BCA 2022.

Acoustic Services Design Certification:

85. The sound transmission and insulation of the residential portions of the development will comply with Part F7 of BCA 2022.