BROOKVALE PROPERTY INVESTMENT UNIT TRUST

BCA ASSESSMENT REPORT

638 Pittwater Road, Brookvale NSW 2100

Project Number: 110121
Report Type: BCA
Revision: 2
Date: 12 April 2024

PREPARED FOR

Tony Chirillo
tony@freemanchirillo.com.au

PREPARED BY

Cynthia Lawes
02 8484 4043
cynthia.lawes@jensenhughes.com

JENSEN HUGHES

Jensen Hughes Pty Limited, Trading as BCA Logic
Suite 302, Level 3, 151 Castlereagh St, Sydney NSW 2000
Postal Address: PO Box Q1440, Queen Victoria Building NSW 1230

Document Control

Revision	Issue Date	Issue Description	Prepared By:	Verified by:
110121-BCA-r2	12 April 2024	Final BCA Assessment Report	Cynthia Lawes	Zach Oliver
	12 April 2024	Zach Oliver Registered Certifier Grade A1, BDC 5138	Signed: DocuSigned by: 41C9B1848B734C4...	

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, SGA Fire and BCA Energy 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.

Jensen Hughes was launched in 2014 through the historic merger of Hughes Associates and Rolf Jensen & Associates (RJA), two of the most experienced and respected fire protection engineering companies at the time. Since then, we have gained market leadership in nuclear risk consulting and established commanding positions in areas like forensic engineering, security risk consulting and emergency management. Over the past 22 years, our integration of more than 30 privately held engineering and consulting firms has dramatically expanded our global footprint, giving us a powerful market presence ten times larger than our nearest competitor in some of our markets and extending our historical lineage back to 1939.

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 Mixed-use development at 638 Pittwater Road Brookvale NSW, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2022.

Part 4 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 Provision
Performance Solutions required		
1.	Basement Levels B3 has extended travel distance to a point of choice from the N/E area of 46m in lieu of 20m. Total travel distance of 50m in lieu of 40m	D2D5
2.	Basement Levels B2 has extended travel distance to a point of choice from N/E area of 32m in lieu of 20m. Total travel distance of 48m in lieu of 40m	D2D5
3.	Travel distance to the exit of Retail/Commercial Unit 1 Mezzanine is 30m in lieu of 20m.	D2D5
4.	Rationalize fire separation between Class 6 & 7a on Basement Level B1 to FRL 120/120/120.	C2D2 & S5C11
5.	The sprinkler alarm valves are located within the hydrant pump room in lieu of an area accessed directly from the road or open space AS2419.1-2021 does not permit the provision of services other than firefighting pumpsets and associated equipment within a hydrant pump room	E1D4, Specification 17 & AS2419.1-2021 E1P3 & E1P4
6.	The Study in Units 2, 22 & 42 is not provided with the required natural light as there are no glazed openings to outdoor areas shown.	F6D2
Building Code of Australia compliance matters to be addressed		
7.	Non-compliant handrails located on ground floor due to quarter landings without a stair offset which means a vertical section of handrail which does not comply with AS1428.1	D3D22
8.	Insufficient sanitary compartments provided for Class 5/6 areas (currently none shown).	F4D3
9.	Basement Level B1 commercial tenancy sanitary compartments to be nominated as one male and one female, cannot be unisex.	F4D3
10.	Insufficient ceiling height shown to SOHO units at Ground Level below the Storage Mezzanines. 2395mm shown in lieu of the required 2400mm.	F5D2

11.	Storage mezzanines are not provided with sufficient ceiling height at 2100-2205 in lieu of 2400.	F5D2
12.	Air locks required to sanitary compartments provided to Basement B1 Commercial tenancy	F6D10
Further information required		
13.	Fire Stair 3 from the Residential levels does not show a discharge on the ground level.	
14.	Stairs shown within Basement Commercial Area (non-fire-isolated) do not appear to have a destination. Elevations do not show a mezzanine to this tenancy and the stair does not appear to connect to the Ground Floor Tenancy above.	

NCC Clause Numbering

BCA2022 uses a new structure and clause referencing system to create better consistency across all volumes of the NCC. While the new Section-Part-Type-Clause system makes the NCC look different at first, it's intended to improve user experience and make it more web accessible.

The new structure results in a reorganisation of specifications and parts, some of which are contained in the table below.

The NCC uses a uniform clause numbering system across each of its three volumes. This system is called Section-Part-Type-Clause (SPTC). In each clause number-

+ The first letter indicates which NCC section or part it sits within;
+ The first number indicates the number of the Part within a section or the number of a Specification.
+ The second letter indicates the clause type. It will be either G, O, F, P, V, D, or C. and these are explained below.
+ The second number is the clause number within each Part of Specification.
+ The clause Types used in the NCC are as follows:
+ G = Governing requirements (mandatory)
+ O = Objective (guidance)
+ F = Functional Statement (guidance)
+ P = Performance Requirement (mandatory)V = Verification Method (optional)
+ D = Deemed-to-Satisfy Provision (optional)
+ C = Clause in a Specification (can be mandatory or optional depending on how the Specification is called up by the NCC).

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 638 Pittwater Road Brookvale NSW.

1.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the BCA, 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

The National Construction Code (**NCC**) is Australia's primary set of technical design and construction provisions for buildings.

As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings. The Australian Building Codes Board, on behalf of the Australian Government and each State and Territory government, produces and maintains the National Construction Code.

The NCC has three (3) volumes being:

- Volume One - containing technical design and construction requirements for all Class 2 to 9 buildings
- Volume Two - containing technical design and construction requirements for certain residential (class 1) and non-habitable buildings and structures (Class 10).

+ Volume Three - Containing technical requirements for the design and construction for plumbing and drainage systems in new and existing buildings

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code (**NCC**) Series Volume One – Building Code of Australia, 2022 Edition (**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 currently updated on a three-yearly cycle.

A reference to the BCA in this report is a reference to **BCA2022**, being volume 1 of the NCC.

1.4 LIMITATIONS

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

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

This report does not include, or imply compliance with:

1. the National Construction Code – Plumbing Code of Australia Volume 3
2. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D4 and F4D5 of BCA2022 only);
3. Demolition Standards not referred to by the BCA;
4. Work Health and Safety Act 2011;
5. Requirements of Australian Standards unless specifically referred to;
6. 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
7. 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.

The development compromises of three basement levels, two of which are car-park only with Basement Level B1 being commercial space and car-park.

The ground floor is a combination of one large commercial unit and two smaller retail/business units with eight SOHO units (being office). Ground floor commercial units (including SOHO) have mezzanine storage lofts. This level provides loading area and basement ramp access from Charlton Lane.

The first, second and third floors contain residential sole-occupancy units, 20 per floor.

2.1 RISE IN STOREYS (CLAUSE C2D3)

The building has a rise in storeys of five.

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 2	First, Second & Third Floors	Residential Sole Occupancy Units
Class 5	Ground Floor	SOHO Units
Class 6	Basement B1 & Ground Floor & Mezzanine	Commercial Units of assumed retail nature.
Class 7a	Basement levels B1, B2 & B3	Car parking and associated areas

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an *effective height* of less than 25 metres and more than 12 metres (RL11.1m – RL26.3m).

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)

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

Class 5	Maximum Floor Area	8,000 m^2
	Maximum Volume	48,000 m^3

Class 6	Maximum Floor Area	5,000 m^2
	Maximum Volume	30,000 m^3
Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17) 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 Specifications 5 and Clause C4D12 of the BCA regulate the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 buildings.	

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. Basement Levels
2. Ground Level
3. Residential Levels

2.7 EXITS

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

1. Stair 1, 2, 3 & 4 from basement levels B1, B2 & B3
2. Additional Stair 6 from basement level B1
3. Ground floor has direct access from each SOHO and units 1-3 to covered area.
4. Stair 1, 2, 4 & 6 from First, Second and Third Floors

2.8 CLIMATE ZONE

The building is located within Climate Zone 5

2.9 BUILDING IMPORTANCE LEVEL

Certain Australian Standards (particularly structural standards) require the Importance Level of the building to be determined. The importance level relates to the individual actions on a building listed in clause B1D3 of the BCA.

Table B1D3a of the BCA provides the following:

Importance Level	Building Types	Jensen Hughes Interpretation and Examples
1	Buildings or structures presenting a low degree of hazard to life and other property in the case of failure.	1 and 2 storey factory buildings

Importance Level	Building Types	Jensen Hughes Interpretation and Examples
2	Buildings or structures not included in Importance Level 1, 3 and 4.	Residential apartment buildings and associated carparking. Office buildings
3	Buildings or Structures that are designed to contain a large number of people.	Stadia, Entertainment venues, shopping centres. Transport facilities
4	Buildings or Structures that are essential to post-disaster recovery or associated with hazardous facilities.	Data centres, evacuation centres

The Guide to the BCA provides a generic description of building types which have Importance Levels assigned. The Guide state that the “Importance Level” concept is applicable to building structural safety only. Specific examples from the Guide are provided below. The examples provided by the Guide are not exhaustive of all building types.

Importance Level 1:

- Farm buildings and farm sheds.
- Isolated minor storage facilities.
- Minor temporary facilities.

Importance Level 2:

- Low rise residential construction.
- Buildings and facilities below the limits set for Importance Level 3.

Importance Level 3:

- Buildings and facilities where more than 300 people can congregate in one area.
- Buildings and facilities with a primary school, a secondary school or day care facilities with a capacity greater than 250.
- Buildings and facilities with a capacity greater than 500 for colleges or adult educational facilities.
- Health care facilities with a capacity of 50 or more residents but not having surgery or emergency treatment facilities.
- Jails and detention facilities.
- Any occupancy with an occupant load greater than 5000.
- Power generating facilities, water treatment and waste water treatment facilities, any other public utilities not included in Importance Level 4.

- Buildings and facilities not included in Importance Level 4 containing hazardous materials capable of causing hazardous conditions that do not extend beyond property boundaries.

Importance Level 4:

- Buildings and facilities designated as essential facilities.
- Buildings and facilities with special post disaster functions.
- Medical emergency or surgery facilities.
- Emergency service facilities: fire, rescue, police station and emergency vehicle garages.
- Utilities required as backup for buildings and facilities of Importance Level 4.
- Designated emergency shelters.
- Designated emergency centres and ancillary facilities.
- Buildings and facilities containing hazardous materials capable of causing hazardous conditions that extend beyond property boundaries.
- Importance Levels must be assigned on a case by case basis.

2.10 LOCATION OF FIRE-SOURCE FEATURES

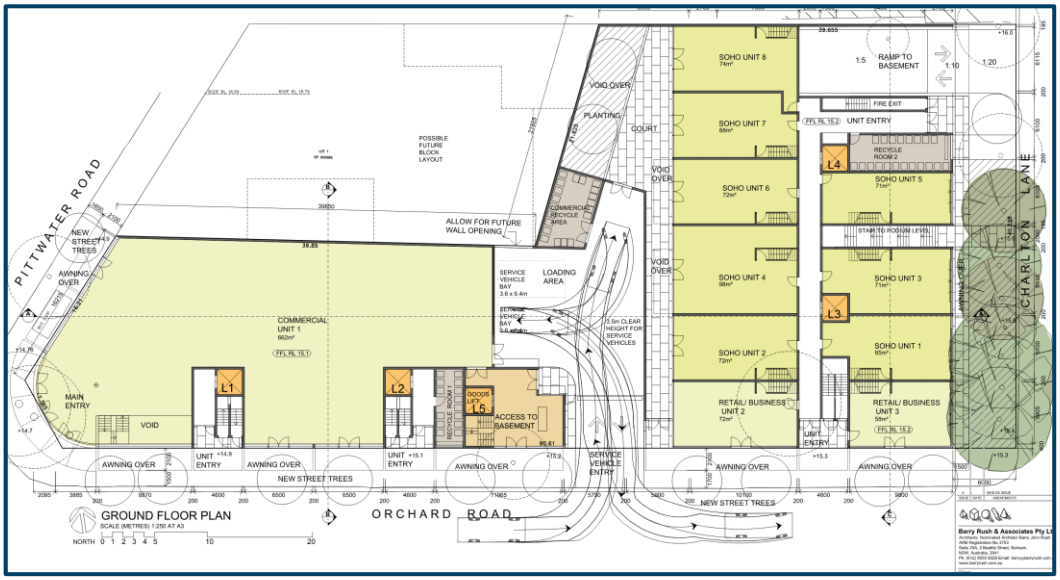
The fire source features for the subject development are:

North: Built to boundary, adjoining lots

South: The far side of Orchard Road

East: The far side of Charlton Lane

West: The far side of Pittwater Road



In accordance with Clause S5C2 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 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 E 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 building is proposed to be constructed of the following elements:

Element	Method of Construction
External Walls	Combination Hebel Panels and concrete
Floors	Assumed concrete
Roof	Concrete
Internal Walls (between SOU's)	Assumed blockwork
Basement walls	Assumed blockwork/concrete
Lift shafts	Assumed blockwork
Stair shafts	Assumed blockwork

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

The external walls and all components of the wall, in a building of Type A, are required to be non-combustible. The plans do not provide sufficient detail of 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.

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

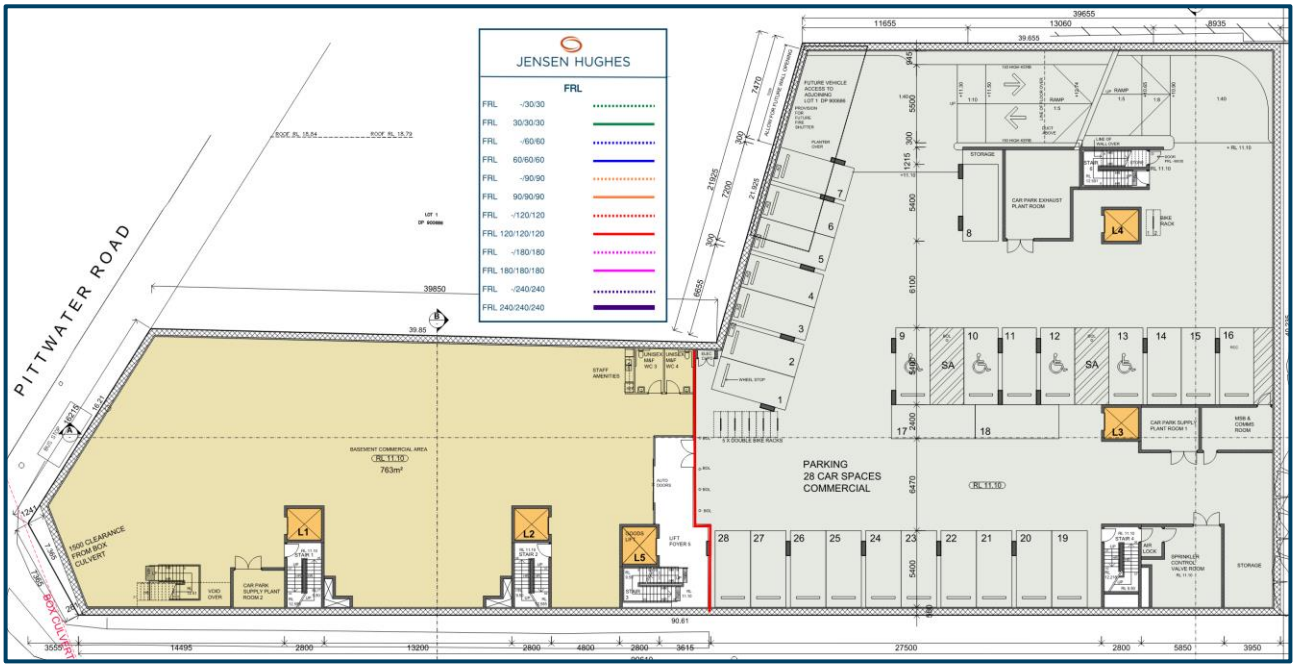
Under the provisions of clause C3D3 of the BCA, the residential portion of the building is not the subject to any floor area and volume limitations.

The class 5/6 portions of the building have been assessed and the floor area and volume of these compartments is less than that permitted by Clause C3D3 of the BCA. As such compliance with the provisions of the BCA for compartmentation is readily achieved.

The carpark is required to have a sprinkler system, therefore the carpark is not the subject of floor area and volume limitations under the provision of clause C3D3 of the BCA.

The building exceeds 4 storeys and therefore is required to have a sprinkler system. As such, spandrel panels are not required under the provisions of clause C3D7 of the BCA to protect opening on different storeys of the building.

On Basement Level B1 fire separation required between Class 7a carpark and Class 6 Commercial tenancy. A performance solution is recommended to rationalise the FRL down to 120mins.



The main switchboard location shown in Basement Level B1. If the switchboard 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.

Fire separation between Commercial spaces and Residential Units via the connecting stairs and floors to be FRL 120/120/120 as rationalised under a Performance Solution for the lower FRL.

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 openings on the shared boundary elevations are within 3m of the boundary and will require protection. Protection can be provided by self-closing fire windows, fire shutters or fixed glazing with sprinklers. Details are to be provided with the Construction Certificate to outline how compliance will be achieved.

3.5.2 Bounding Construction

The walls between the SOU's and between the SOU's and corridor are internal walls that require an FRL. Also, the walls to the lift and stairs require an FRL. As such, the doors to the sole occupancy units and fire stairs 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. 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.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

Egress from the carpark / retail / office is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from an 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 Basement Level B3 travel distance to a point of choice from the N/E area is 46m in lieu of 20m with a total travel distance of 50m in lieu of 40m. Basement Level B2 has a travel distance to a point of choice of 32m in lieu of 20m and a total travel distance of 48m in lieu of 40m. On the ground floor, the distance to a single exit is permitted to be 30m. Travel distance from the Retail/Commercial Unit 1 Mezzanine is 30m to the exit (stair) in lieu of 20m.

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 and distances between exits comply with the above requirements.

Exit dimensions are to comply with clauses D2D7- D2D11 of the BCA.

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.

The building has a rise in storeys of more than 3 with all levels connected by the stairs. As such, the stairs are required to be fire isolated. The stairs have been assessed and they are indicated as fire isolated with separate discharge directly to open space. As such compliance with the provisions of the Clause D2D4 of the BCA are satisfied.

As Stair 3 is connecting only 3 storeys, under the provisions of clause D2D4 of the BCA, the stair is permitted to be non-fire isolated.

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.

Details of treads and risers, landings, thresholds, balustrades and handrails have not been provided however compliance is readily achievable except on the Ground Level where stairs quarter landings without the stair offset mean a vertical section of handrail which is non-compliant under D3D22. Additionally the stairs within the SOHO's connecting ground to mezzanine and SOU's also contain 6 winders in lieu of a half landing which would mean non-compliant handrails.

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.

3.7 SERVICES AND EQUIPMENT- PARTS 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.

1. Fire Hydrant

The building has a floor area exceeding 500m2, therefore a Fire Hydrant System is required in accordance with AS2419.1-2021. The plans do not have any fire hydrants shown, therefore coverage cannot be assessed. To be firmed up with design development. It is noted that the plans only show a sprinkler control valve room but no hydrant pump room.

2. Fire Hose Reels

The Basement Levels and Ground Floor are required to be covered by a Fire Hose Reel system in accordance with AS2441-2005. The plans do not have any fire hose reels shown, therefore coverage cannot be assessed. To be firmed up with design development

3. Sprinkler

As the building has a rise in storeys exceeding 4, a sprinkler system is required in accordance with Specification 18. Due to requirement for spandrel separation it will be necessary for the sprinkler system to comply with AS2118.1-2017. To be firmed up with design development. Sprinkler Control Valve Room is shown on the plans, but a Performance Solution would be required if hydrant pumps located in the same room. The connection of three storeys in the large Class 6 portion of the building means that an FPAA101 sprinkler system cannot be provided.

4. Smoke Hazard Management

An automatic smoke detection system complying with Specification 20 Clause 4 (S20C4) is required throughout. This will likely include stand-alone AS3786 smoke alarms within units and, within ceiling cavity and on balconies and to connect to the Building Occupant Warning System. To be firmed up with design development.

Stair pressurization required to the Basement Level Fire-isolated stairs as per Clause E2D4.

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 require a stretcher facility as the building is over 12m in effective height and the dimensions of the shaft are sufficient to allow compliance.

3.9 FACILITIES IN 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 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

The number of facilities required have been calculated in accordance with Clause F4D3 and D2D4. The Sanitary Facilities provided to the Basement B1 Commercial Area are to be designated Male and Female and not unisex. There are no sanitary facilities shown to the SOHO units nor Units 2 & 3 on the Ground Level. Therefore, the number of toilet facilities shown on the plans are insufficient to satisfy the requirements of Clause F4D4 and the requirements for ambulant and accessible facilities.

3.11 ROOM HEIGHTS – PART F5

The ceiling heights have been assessed in accordance with Part F5 of the BCA which has indicated that SOHO units have insufficient clear height below the mezzanine storage at 2395 in lieu of the required 2400. Storage mezzanines shown to be 2100-2205mm in lieu of the required 2400mm.

3.12 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 that majority of habitable spaces are serviced by windows or glazed doors. The Study in Units 2, 22 & 42 are not provided with natural light, therefore a performance solution is required. 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 class 5,6,7b, 8 and 9b building artificial lighting and mechanical ventilation are required and these systems can be readily installed in the building.

The Basement Level B1 Commercial tenancy requires an airlock outside the sanitary facilities as per Clause F6D10 as they open directly to work area.

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

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.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by Barry Rush & Associates Pty Ltd			
Drawing Number	**Revision**	**Date**	**Title**
A01A		25/03/2024	LOCATION DIAGRAM
A02B		25/03/2024	BASEMENT LEVEL B3
A03B		25/03/2024	BASEMENT LEVEL B2
A04B		25/03/2024	BASEMENT LEVEL B1
A05A		25/03/2024	GROUND FLOOR LEVEL
A06A		25/03/2024	FIRST FLOOR LEVEL
A07A		25/03/2024	SECOND FLOOR LEVEL
A08A		25/03/2024	ROOF PLAN
A09A		25/03/2024	ELEVATIONS
A10A		25/03/2024	ELEVATIONS
A11B		25/03/2024	SECTIONS
A13A		25/03/2024	SITE ANALYSIS PLAN
A14A		25/03/2024	DEMOLITION PLAN
A17A		25/03/2024	DRIVEWAY SECTION
A18A		25/03/2024	EXTERNAL COLOUR SCHEME
A19A		25/03/2024	MEZZANINE FLOOR LEVEL
A20		25/03/2024	THIRD FLOOR LEVEL

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.

This section provides information for the design team, including service designers, and may need to be updated upon receipt of final designs and performance solutions at the construction approval stage.

Table 3: Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2022 C4D14** (Openings in Shafts) **BCA2022 Specification 12** AS 1905.1:2015 (Fire Resistant Doorsets) AS 1905.2:2005 (Fire Resistant roller shutters)
2.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
3.	Fire doors	**BCA2022 C3D13** (Separation of Equipment) **BCA2022 C3D14** (Electricity Supply Systems) **BCA2022 C4D5** (Acceptable methods of Protection) **BCA2022 C4D6** (Doors in Fire Walls) **BCA2022 C4D9 (**Openings in Fire Isolated Exits) **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2022 C4D12** (Bounding Construction) **BCA2022 C4D14** (Opening in Shafts) **BCA2022 D2.8** (Enclosure of Space under Stairs) Specification 12 AS1905.1: 2015
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 C4D16** (Construction joints) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005

Item	Essential Fire and Other Safety Measures	Standard of Performance
5.	Fire shutters (subject to design)	**BCA2022 C4D5** (Acceptable methods of protection) **BCA2022 Specification 12** AS1905.2-2005
6.	Fire windows (subject to design)	**BCA2022 C4D3** (Protection of Openings) **BCA2022 C4D5** (Acceptable Methods of Protection) **BCA2022 Specification 12** identical to tested porotype AS1905.2-2005 (Fire Resistant Roller Shutters)
7.	Lightweight construction (subject to design)	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C3D8** (Fire Walls) **BCA2022 C3D9** (Separation – same storey) **BCA2022 C4D12** (Bounding Construction) **BCA2022 C3D13** (Separation of Equipment) **BCA2022 D3D9** (Enclosure of Space under Stairs and ramps) AS1530.4:2014
General		
8.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
General Egress		
9.	Operation of Door latches + Failsafe + Manual Push Button Control	**D3D26** (Operation of Latch) AS 1670.1 (Amdt 1)
10.	Required Automatic Doors	**D3D24** (Doorways and Doors)
11.	Swing of Exit Doors	**D3D24** (Swinging Doors)
12.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
13.	Access to Lift Pits	**BCA2022 D2D22** (Access to Lift Pits)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	+ Located at lowest level or if >3m provided through an access door	'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
14.	Stretcher Lifts including + Fire Service Controls + Recall Operation + Drive control switch	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls) **BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
15.	Automatic fire detection & alarm: + Clause 4 – AS 1670.1 (Amdt 1) system throughout the building/part connected to a BOWS @ 100dB(A) + Incorporating a thermal detection system in the basement carpark	**BCA2022 E2D8** **Spec 20** **BCA2022 S20C4** (Smoke detection system) **BCA2022 S20C7** (BOWS) AS 1670.1 (Amdt 1) (Fire) – Section 4 and 5 (Detectors) AS 1670.1 (Amdt 1) (Fire) – Section 7 (Smoke Control) AS 1670.3 (Amdt 1) (Fire Alarm Monitoring)
16.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
17.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018
18.	System Monitoring	**BCA2022 S20C8** AS 1670.3 (Amdt 1) Monitoring Required for any: + Any Sprinkler System
Hydraulic Services		
19.	Automatic fire suppression systems + General Sprinklers	**BCA2022 E1D4, E1D6, E1D9,** **BCA2022 Specification 17 / 18** AS 2118.1:2017 (Sprinklers)
20.	Fire hydrant systems + NSW Storz Couplings	**BCA2022 E1D2**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA2022 C3D13 (Separation of Equipment) AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
21.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
22.	Wall-wetting sprinkler / drenchers (subject to design)	**BCA2022 C4D5,** AS 2118.2: Wall-wetting sprinkler / drenchers
Mechanical Services		
23.	Fire dampers	**BCA2022 E2, Specification 20, Specification 21** **BCA2022 C4D16** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
24.	1. Mechanical air handling systems 2. Fire Isolated Exit Pressurisation System	**BCA2022 E2,** **Specification 20, Specification 21** 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.

Notes:

1. An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 or E2D20 and which recycles air from one *fire compartment* to another *fire compartment* or operates in a manner that may unduly contribute to the spread of smoke from one *fire compartment* to another *fire compartment* must—
    a. ((be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or
    b.
        i. incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and

Item	Essential Fire and Other Safety Measures	Standard of Performance
	ii. be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1 (Amdt 1); and 2. for the purposes of this provision, each *sole-occupancy unit* in a Class 2 or 3 building is treated as a separate *fire compartment*. 3. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1:2015 serving more than one *fire compartment* (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. **4.** A smoke detection system must be installed in accordance with S20C6 to operate AS 1668.1:2015 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.	

Performance Solutions

	Description of Performance Solution	DTS Provision	Performance Requirements	Method of meeting performance solutions
1.	Basement Levels B3 has extended travel distance to a point of choice from the N/E area of 46m in lieu of 20m. Total travel distance of 50m in lieu of 40m	D2D5	D1P4	TBA
2.	Basement Levels B2 has extended travel distance to a point of choice from N/E area of 32m in lieu of 20m. Total travel distance of 48m in lieu of 40m	D2D5	D1P4	TBA
3.	Travel distance to the exit of Retail/Commercial Unit 1 Mezzanine is 30m in lieu of 20m.	D2D5	D1P4	TBA
4.	Rationalize fire separation between Class 6 & 7a on	C3D9	C1P2	TBA

	Basement Level B1 to FRL 120/120/120.			
5.	The Study in Units 2, 22 & 42 is not provided with the required natural light as there are no glazed openings to outdoor areas shown.	F6D2	F6P1	TBA

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 4: Type A Construction

Table S5C11a: 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	180/180/180	240/240/180
3m, or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: 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
3m, 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: 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-bearing	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 unit	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 unit	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for	-/90/90	-/90/90	-/120/120	-/120/120

the discharge of hot products of combustion				

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

Building Element	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

N.B. There are FRL concessions applicable for fully sprinkler protected car park portions under Clause S5C19 of BCA Specification 5, reducing the carpark FRL's down from 120/120/120 to 60/60/60.

Annexure D - Definitions

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—

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

Exit

Exit means –

1. Any, or any combination of the following if they provide egress to a road or open space—
    a. An internal or external stairway.
    b. A ramp.
    c. A fire-isolated passageway.
    d. A doorway opening to a road or open space.
    e. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

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

1. structural adequacy; and
2. integrity; and
3. 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

1. the far boundary of a road, river, lake or the like adjoining the allotment; or
2. a side or rear boundary of the allotment; or
3. 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.

Horizontal exit

Horizontal exit means a required doorway between 2 parts of a building separated from each other by a fire wall.

Loadbearing

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

Non-combustible

Non-combustible means—

1. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
2. 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–

1. that is open to the sky; and

2. to which access is provided, other than access only for maintenance; and
3. 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—

1. a dwelling; or
2. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. 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 E - 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 S5C11 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, including external walls and their components in buildings of Type A and B Construction, 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 fire-protected timber proposed will comply with Clause C2D13 of BCA2022.
6. 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.
7. 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.
8. The external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
9. 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.
10. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
11. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
12. The electricity substation, 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.
13. 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 S11C2 of Specification 11 of BCA2022.
14. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
15. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
16. Doorways in horizontal exits will be protected in accordance with Clause C4D8 of BCA2022.
17. 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.
18. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.

19. 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.
20. 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.
21. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
22. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
23. 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.
24. 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.
25. 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.
26. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
27. 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.
28. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
29. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
30. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
31. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
32. 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 patient care areas in the health-care building or 60m, in accordance with Clause D2D6 of BCA2022.
33. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
34. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
35. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
36. Horizontal exits will be in accordance with Clause D2D16 of BCA2022.
37. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
38. 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.
39. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.

40. 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.
41. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
42. 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.
43. 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.
44. 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 BCA2022.
45. New pedestrian ramps will comply with AS 1428.1:2009, 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 AS 4586:2013.
46. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
47. 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.
48. 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 AS 4586:2013.
49. 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 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.
50. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
51. 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 AS 1657:2013 or Part D3 of BCA2022.
52. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
53. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
54. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
55. The openable portion of a window in a 9b early childhood centre or a bedroom of a Class 2, 3, 4 building 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.

56. The new works will be accessible in accordance with Clause D4D2, D4D3, D4D4 of BCA2022, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D4 of BCA2022.
57. Accessible carparking will be in accordance with Clause D4D6 of BCA2022.
58. Braille and tactile signage will in accordance with Clause D4D7, and Specification 15 of BCA2022.
59. Tactile ground surface indicators will be provided in accordance with Clause D4D9 of BCA2022 and AS/NZS 1428.4.1:2009.
60. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS 1428.1:2009 and Clause D4D13 of BCA2022.
61. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1D16 of BCA2022.
62. Non-illuminated exit signage will be installed in accordance with Clause E4D7, and of BCA2022.
63. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
64. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
65. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
66. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS 3740:2010.
67. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
68. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA2022.
69. Sub-floor ventilation will be provided in accordance with Clause F1D8 of BCA2022.
70. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS 1288:2006 / AS 2047:2014.
71. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
72. Accessible sanitary facilities will be provided in the building in accordance with Clause F4D5, Table F4D6 (a) of BCA2022 and AS1428.1:2009.
73. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
74. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA2022.
75. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
76. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
77. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
78. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.

79. 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.
80. 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.
81. 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 BCA2022.
82. 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, 2021.
83. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.
84. Glazing will be in accordance with Part J4 of BCA2022.
85. Building sealing will be in accordance with Part J5 of BCA2022.
86. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

Electrical Services Design Certification:

87. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
88. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
89. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
90. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
91. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
92. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
93. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of BCA2022.

Hydraulic Services Design Certification:

94. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
95. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
96. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
97. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.
98. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.

99. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.

Mechanical Services Design Certification:

100. 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 1668.1:2015.
101. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
102. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
103. 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 AS 1668.2:2012 as applicable.
104. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F6D12 of BCA2022, and AS 1668.1:2015 and AS 1668.2:2012.
105. 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.
106. 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.
107. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022
108. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

109. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
110. Earthquake actions – AS 1170.4:2007
111. Masonry – AS 3700:2018
112. Concrete Construction – AS 3600:2018
113. Steel Construction AS 4100:1998
114. Aluminium Construction – AS/NZS 1664.1 or 2:1997
115. Timber Construction – AS 1720.1:2010
116. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
117. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification 5 of BCA2022, including S5C11 for a building of Type A Construction, including S5C21, for a building of Type B Construction, including S5C24, for a building of Type C Construction.
118. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.

119. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
120. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.
121. The concrete panel external walls will be in accordance with Specification 5 of BCA2022.
122. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D3D3 of BCA2022 for the fire isolated stairs.

Lift Services Design Certification:

123. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of BCA2022 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.
124. 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.
125. 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.
126. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
127. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D4 of the BCA2022 and will be suitable to accommodate disabled persons.
128. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 and E3D8 and will also have accessible features in accordance with E3D7 and E3D8 of BCA2022.
129. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
130. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

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

NSW Specification Design Certificate:

132. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C2D11, NSW Clause C2D11, Specification 5 and NSW Specification 5 of BCA2022.
133. The building will be separated in accordance with Clause C3D6, and NSW Clause C3D6 of BCA2022.
134. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C4D12, and NSW Clause C4D12(4) of BCA2022.
135. The number of exits provided to the building will be in accordance with Clause D2D3 and NSW Clause D2D3(4) of BCA2022.

136. The discharge points of exits will be in accordance with Clause D2D15, and NSW Clause D2D15(6) of BCA2022.
137. The width of doorways in exits and paths of travel to exits will be provided in accordance with Clause D2D96, and NSW Clause D2D9(a) to (g) of the BCA2022.
138. Stair geometry to the new stairways will be in accordance with Clause D3D14, and NSW Clause D3D14(1) of the BCA. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D154 when tested in accordance with AS 4586:2013 or a nosing strip with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
139. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D162.15, and NSW Clause D3D16(a) to (e) of the BCA. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 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 leads to a flight below.
140. The height of barriers is to be in accordance with D3D18 and NSW D3D18(1) of the BCA2022.
141. The doorways and doors will be in accordance with Clause D3D24, NSW Clause D23D24(2) of the BCA2022.
142. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D3D26 and NSW Clause D3D26(5) and (6) of the BCA2022.
143. The development consists of a drive-in theatre therefore it is to comply with NSW Part I6
144. Insulation will be in accordance with AS/NZS 4859.1:2018 and will be installed as required by NSW Part J4 of the BCA.
145. A smoke detection and alarm systems will be installed throughout the building in accordance with E2D10, NSW E2D10 and NSW Specification 20 of BCA2022.
146. Exit signage will be installed in accordance with Clause E4D5, NSW Clause E4D6, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
147. A smoke exhaust system will be installed in the building in accordance with E2D14 to E2D20, NSW E2D16 to E2D20 and Specification 21 of BCA2022.
148. Smoke and heat vents will be installed in the building in accordance with E2D14 to E2D20, NSW E2D16 to E2D20, and Specification 22 of BCA2022.
149. The building will be mechanically ventilated in accordance with Clause F6D6, NSW F6D6 of BCA2022 and AS 1668.2:2012.