FREECITY

BCA ASSESSMENT REPORT

2-30 Tempus Street, Rouse Hill NSW 2155

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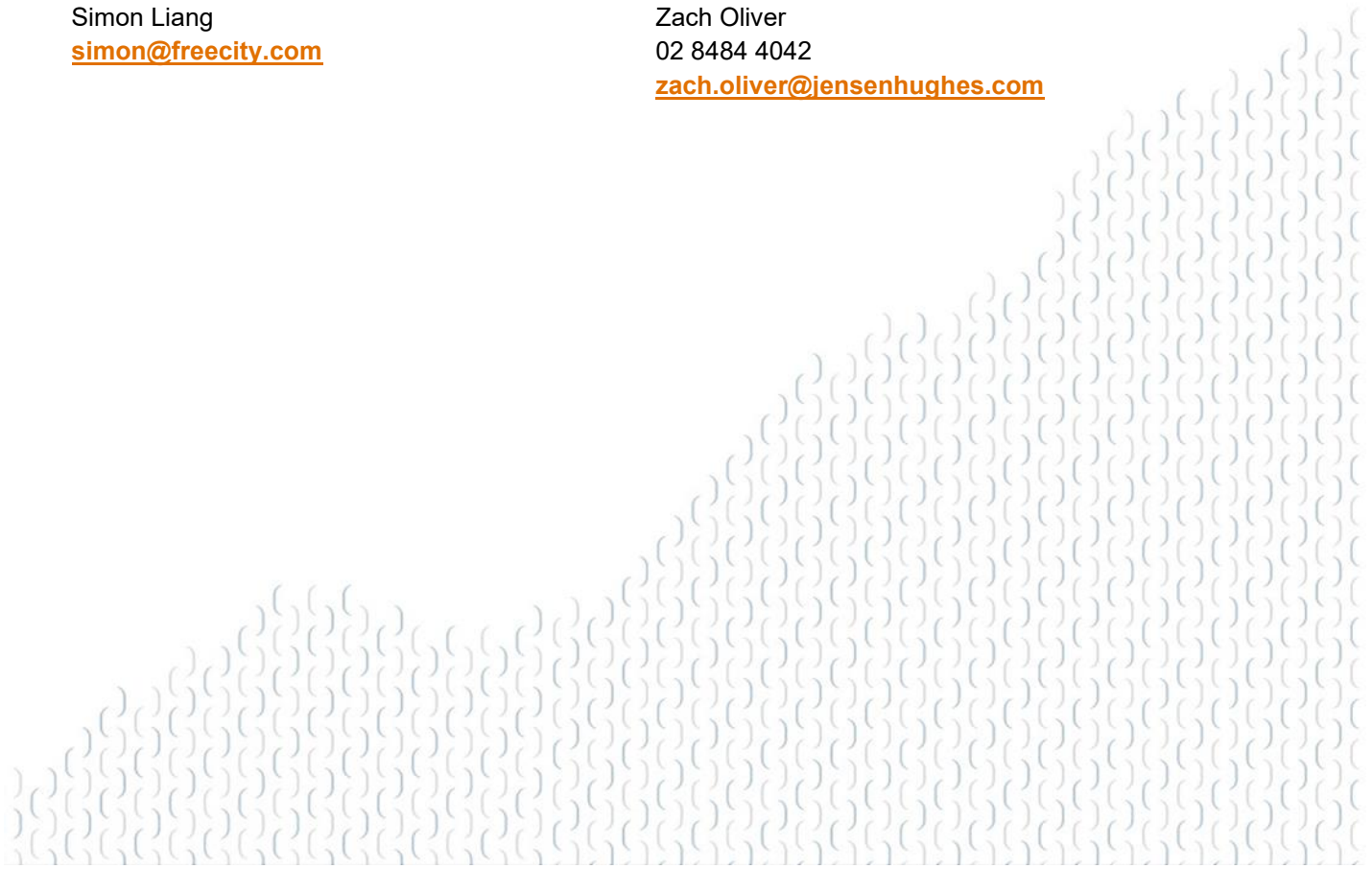

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r1.1	20 March 2025	DA BCA Assessment Report	Zach Oliver	Alex Newberry
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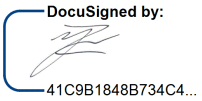
	10 June 2025	Zach Oliver Registered Certifier (Unrestricted) BDC 05183	Signed: 	

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.

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Executive summary

This document provides an assessment of the architectural design drawings for the proposed mixed-use residential development at 2-30 Tempus Street, Rouse Hill NSW 2155, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Volume One.

The project comprises the construction of a new 26 storey, three tower residential accommodation building with ground floor retail, Build To Rent (BTR) facilities, commercial offices and co-living services. The new building will comprise the following:

- Three (3) storeys of basement carparking, storage areas and plant spaces.
- One (1) Ground Floor mixed-use storey including retail tenancies, residential and commercial lobbies, BTR amenities, co-living amenities and ancillary plant spaces.
- Two (2) storeys of commercial offices.
- Ten (10) storeys of co-living accommodation and communal spaces.
- Twenty (20) storeys of residential apartments (marked as BTR facilities) and communal spaces.

Figure 1 - Proposed Development Frontage

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.	Rationalise the maximum FRL to Ground Floor to 120 minutes (in lieu of 180 minutes). Rationalise the maximum FRL to Basement Levels to 120 minutes (in lieu of 240 minutes).	C2D2 & S5C11 C1P1 & C1P2
2.	Permit Bin Chutes to balloon out to form a room, in lieu of being provided with a fire-rated bottom.	C2D1, S5C8 C1P1, C1P2
3.	Permit the maximum fire compartment sizes to be exceeded for the Basement Carparking / Storage Fire Compartment and the Ground to Level 2 Commercial / Retail Fire Compartment.	C3D3 C1P1 & C1P2
4.	Allow public corridors to extend without smoke division up to: + 71m to all Co-Living storeys containing units. + 45m to all BTR storeys containing units.	C3D15 E2P2
5.	Permit the Level 3 skylights to exceed 20% of the roof surface area in which they are located.	S5C16 C1P1 & C1P2
6.	Permit a single exit to be provided to Basement Level 1 Mezzanine in lieu of two (2).	D2D3 D1P4 & E2P2
7.	Allow extended travel distances as follows: + Up to 28m to a single exit (in lieu of 20m) from the Ground Floor Bike Parking Room. + Up to 30m to a Point of Choice (in lieu of 20m) and 45m to the nearest of two exits on Levels Basement 2, Ground, Level 1 & Level 2 + Basement Level 1 Mezzanine – up to 25m to a single exit. + Up to 35m to a Point of Choice (in lieu of 20m) and 45m to the nearest of two exits on Basement Level 1. + Up to 14m to a Point of Choice (in lieu of 6m) to all BTR storeys containing units. + Up to 25m to a Point of Choice (in lieu of 20m) from L3 Rooftop, L17 & L22 Communal Terraces. + Up to 60m between alternative exits on Level 3 of BTR Towers.	D2D5 & D2D6 D1P4 & E2P2
8.	Permit scissor stairs to discharge into covered areas that are not open for 1/3 of their perimeters.	D2D12 D1P4 & E2P2
9.	Permit Eastern Co-Living fire-isolated stair to discharge into a location requiring occupants to pass within 6m of an unprotected opening.	D2D12 D1P4
10.	Permit the discharge locations of alternative exit fire stairs to not be as far apart as practical.	D2D15 D1P4
11.	Permit openings to be provided within the Ground Floor Roof as Open Space for services penetrations.	D3D13 C1P2 & D1P5

12.	Booster not located within sight of main entrances due to multiple street frontages.	E1D2 E1P3
13.	Omit fire hose reels from Ground Floor Retail tenancies.	E1D3 E1P1
14.	Omit sprinkler protection from Substation, Comms & MSB Rooms.	E1D4 & S17C2 E1P4
15.	Omit zone pressurisation throughout the building.	E2D6 E2D2
16.	Omit smoke exhaust from Ground Floor fire compartment.	E2D15 E2D2
Building Code of Australia compliance matters to be addressed		
1.	Confirm if there are any proposed green walls or the like.	C2D10
2.	Hydrant coverage shortfalls appear to be present within the basement.	E1D2
3.	The northern fire-isolated stair serving the Basement Levels (including B1 Mezzanine) will serve three (3) storeys and is required to be provided with stair pressurisation. The drawings do not indicate that this has been provided.	E2D4
4.	The number of amenities provided to Ground Floor, Level 1 and Level 2 do not meet the minimum required number to cater for the anticipated populations.	F4D4
Further information required		
1.	Basement External walls are not permitted to contain combustible elements, ensure sacrificial formwork is not used.	C2D10
2.	Confirm if any EV Charging to be provided.	E1D17 & E2E21

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 2-30 Tempus Street, Rouse Hill NSW 2155.

The project comprises the construction of a new 26 storey, three tower residential accommodation building with ground floor retail, Build To Rent (BTR) facilities, commercial offices and co-living services. The new building will comprise the following:

- Three (3) storeys of basement carparking, storage areas and plant spaces.
- One (1) Ground Floor mixed-use storey including retail tenancies, residential and commercial lobbies, BTR amenities, co-living amenities and ancillary plant spaces.
- Two (2) storeys of commercial offices.
- Ten (10) storeys of co-living accommodation and communal spaces.
- Twenty (20) storeys of residential apartments (marked as BTR facilities) and communal spaces.

Figure 2 - Proposed Development Frontage

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 the BCA. Such assessment against relevant performance criteria will need to be addressed by means of a separate Fire Engineering Report (FER) for fire safety matters, and

Performance Solution Report for non-fire-safety matters; such reports are 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, or for Crown projects the date of the invitation for tenders to carry out the Crown building work, or in the absence of tenders the date on which the Crown building work commences.

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 access for people with a disability for the subject development has not been assessed against the Deemed-to-Satisfy Provisions of Part D4 and Clauses E3D7, E3D8, F4D5, F4D6, F4D7 and F4D12 of BCA2022 unless otherwise discussed in this report);
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.

2.1 RISE IN STOREYS (CLAUSE C2D3)

The building has a rise in storeys of 24 (Basement Levels 1, 1M & 2 are not counted in the RIS).

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 2 & 3	Levels 1 to 22	Co-Living & Build to Rent Accommodation Units / Communal Spaces
Class 5	Ground (Part) to Level 2	Commercial Offices, Lobbies and Collaborative Spaces
Class 6	Ground (Part)	Retail (food and beverage)
Class 7a & 7b	Basement Levels 1, 1M & 2	Carparking & Storage

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an *effective height* of more than twenty-five (25) metres (76.45m).

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	8,000m^2
	Maximum Volume	48,000m^3
Class 6 & 7b	Maximum Floor Area	5,000m^2
	Maximum Volume	30,000m^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.
Class 3	The Class 3 portions of the building are not subject to floor area and volume limitations of C3D3 as Table S5C11a of Specification 5 and Clause C4D12 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 3 classifications.

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. All Carparking areas from Ground to Basement Level 2 form a single fire compartment.
2. Basement 1 Mezzanine Level forms a separate fire compartment to the remainder of the basement.
3. Retail, commercial and Residential parts of the Ground Floor and the commercial offices on Levels 1 and 2 form a single fire compartment.
4. Co-living portions of Levels 1 to 4 form separate fire compartments to the remainder of the storey in which they are located and are separate fire compartments between storeys.
5. Levels 5 to 22 form single and separate fire compartments per tower per storey.

2.7 EXITS

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

Basement Levels (Typical)

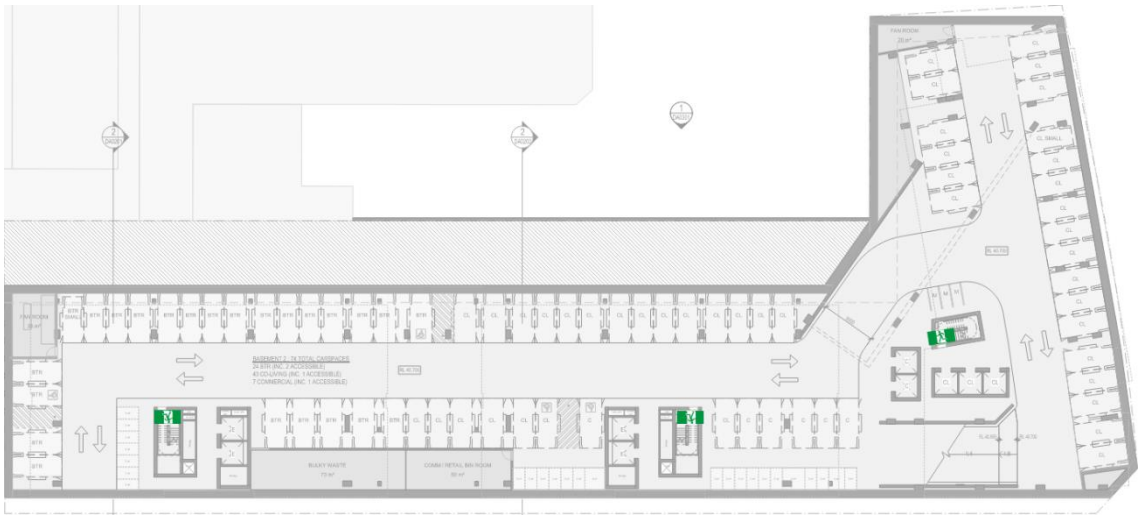

Figure 3 - Exits Basement Level 2 (Typical)

Ground Floor

Figure 4 - Exits Ground Floor

Levels 1 & 2

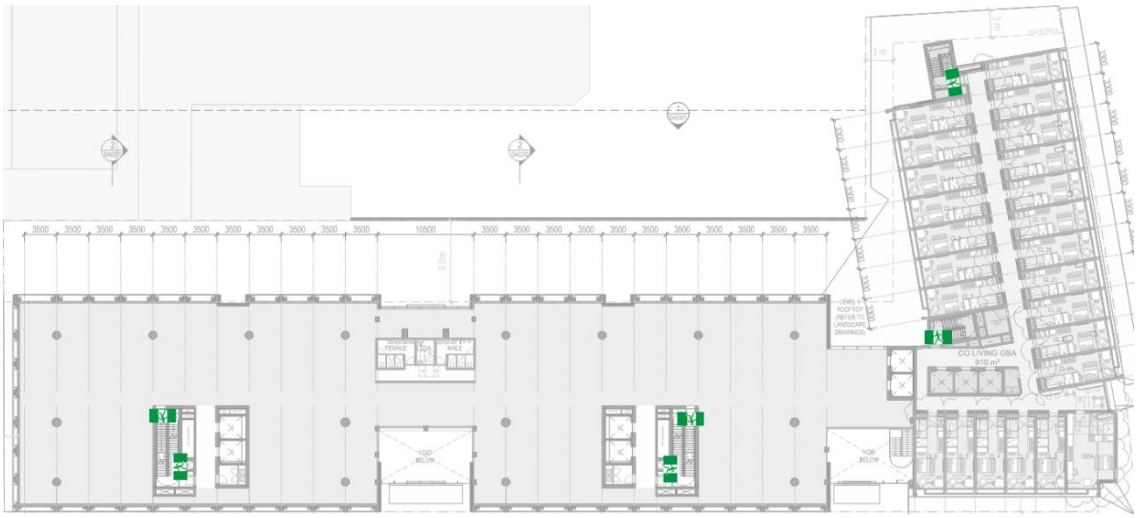

Figure 5 – Levels 1 & 2

Residential Levels (Typical)

Figure 6 - Exits Residential Levels (Typical)

2.8 CLIMATE ZONE

The building is located within Climate Zone 6.

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. The building is importance level 2.

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
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

2.10 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of Market Lane.

South: The far boundary of White Hart Drive.

East: The adjoining property boundary.

West: The far boundary of Tempus Street.

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.

Figure 7 - Site Location

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 identify 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) and is subject to the limitations outlined under Section 1.4 of this report.

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 FRLs)

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 Construction Certificate 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	Brick, aluminium cladding and glazing
Floors	Concrete
Roof	Concrete
Internal Walls (between SOU's)	Plasterboard
Basement walls	Concrete or masonry
Lift shafts	Concrete
Stair shafts	Concrete

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

It is noted that the bin chutes provided throughout each tower within the building extend from the bin rooms located on Basement Level 2 to the top storey of each tower. This arrangement represents a technical non-compliance as the bottom of the bin chutes are not provided with a fire rated bottom prior to ballooning into the adjoining bin room as required under BCA S5C8. It is proposed to permit the bin rooms to form the base of the bin chutes under a fire engineered performance solution.

The Level 3 Rooftop amenities are proposed to be provided with skylights which will comprise more than 20% of the roof surface (per rooftop) and will be within 3m horizontally and 6m vertically of parts of the building that are located above the skylights. The parts of the building that are within 3m horizontally and 6m vertically of the skylights must achieve an FRL not less than 120/120/120 (due to the Class 5/6 use beneath the skylight) and must have all openings within this range protected in accordance with Clause C4D5. It is proposed to permit the skylights to exceed 20% of the roof surface area (per L3 rooftop) under a fire engineered performance solution.

The storage (Class 7b) use on the Basement Levels will result in storage areas comprising more than 10% of the floor area of the storey in which they are located and as such will require the basement storeys to be constructed to achieve FRLs consistent with 240-minutes (4 hour) construction. It is proposed to rationalise the required FRLs for the Basement Levels (including Level 1 Mezzanine) to be not less than 120-minutess (2 hour) construction under a fire engineered performance solution.

Additionally, the residential (Class 2/3), commercial (Class 5) and retail (Class 6) uses on the Ground Floor will require the storey to be constructed to achieve FRLs consistent with 90-minutes (1.5 hour) construction, 120-minutes (2 hour) construction and 180-minutes (3 hour) construction respectively. It is proposed to rationalise the required FRLs for the Ground Floor to be not less than 120-minutess (2 hour) construction under a fire engineered performance solution.

3.3.1 Combustibility of External Walls

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. The external elevations provided nominate the following proposed external wall materials:

- Brick (face brick and brick tiles)
- Aluminium Cladding (specific product not nominated)
- Steel post and perforated balustrades
- Louvres
- Glazing

Specific products have not been nominated and as such it cannot be confirmed whether the proposed aluminium cladding, perforated balustrades and louvres are constructed from materials that are suitable for use on the building. Further details of the specific products to be used will be required to be submitted at CC stage for assessment.

It is noted that the external elevations indicate the presence of plants / greenery on the North, East and South Elevations (refer to Figure 8 below). Please confirm if these are proposed to be provided as continuous green walls. If so, these will be required to be addressed under a fire engineered performance solution.

Figure 8 - Indicative example of external wall greenery (East Elevation)

Please ensure that the external walls of the basement storeys do not include combustible materials, including PVC or other combustible sacrificial formworks or surface finishes.

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.

3.3.2 Fire Hazard Properties

Internal linings and materials are required to meet the specified fire hazard properties of BCA Clause C2D11 and Specification 7. Internal linings have not been specified on the drawings provided and further review will be undertaken at CC stage.

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

3.4.1 Fire Compartmentation

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

The Class 6 portion of the building (Ground Floor) is noted to be provided within a combined fire compartment with the Class 5 portions of the building. This fire compartment spans Ground Floor to Level 2 due to the non-fire-isolated stairway that connects all three storeys. It is noted that the fire compartment size when measured across these storeys (approx. 5,460m^2) exceeds the maximum fire compartment size permitted by BCA Clause C3D3 (5,000m^2).

It is further noted that the basement carparking storeys include storage areas that are not anticipated to be fire-separated from the reminder of the storey (storage cages) and as such, the combined Class 7a and 7b fire compartment will be required to comply with the fire compartment limitations as set-out within the BCA. The combined fire compartment spanning Basements 1, 2 and Ground Floor measures approximately 5,230m^2 (excluding Basement 1 Mezzanine which is assumed to be fire separated from Basement Level 1) which will exceed the maximum permitted fire compartment size (5,000m^2).

The above enlarged fire compartments are required to be permitted under a fire engineered performance solution.

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

3.4.2 Spandrel Separation

The development is Type A Construction and is required to have spandrel separation between openings in an external wall. However, as the building is protected with an AS2118.1 system, fire rated spandrel panels are not required under the provisions of BCA Clause C3D7. Should an alternative sprinkler system be provided to the building, spandrel separation will be required.

3.4.3 Separation of Classifications

It is assumed that the Ground Floor will be constructed to achieve 120-minute FRLs across the entire storey in lieu of fire-separating between the Class 2, 3, 5 & 6 parts of the storey. If the entire storey is constructed to achieve 120-minute FRLs, compliance with C3D9(1)(a) will be achieved.

It is also proposed to permit all basement storeys to be constructed to achieve a maximum FRL of 120 minutes under a fire engineered performance solution. This will allow for the separation of Basement 1 Mezzanine to achieve a minimum FRL of 120/120/120, in lieu of 240/240/240.

As noted above, it is proposed to construct the Ground Level to achieve a maximum FRL of 120 minutes which will prevent the floor slab of Level 1 from being required to achieve a higher FRL due to forming the separation between classifications for compliance with C3D10(a). The Level 1 floor slab of the Co-Living tower and the Level 3 floor slab of the BTR towers must achieve an FRL not less than 120/120/120 to form adequate separation between the Class 5 / 6 uses and the Class 2 / 3 uses in the different storeys.

Additionally, separation is not required between the Level 3 Rooftop Amenities and the Co-Living GBA area on Level 3 despite the connection via the unenclosed occupiable outdoor area for the Class 2 portion of the building. Separation is not required as both the Class 2 and Class 3 portions of the storey will achieve the same FRLs, achieving compliance with C3D9(1)(a).

3.4.4 Separation of Lift Shafts

All lift shafts are required to be fire-isolated as they all connect more than three (3) storeys within a sprinkler protected building and as such, must be housed within fire-rated lift shafts that achieve an FRL not less than 120/120/120 from Basement Level 2 to Level 2.

The lift provided on the Ground Floor between the large retail tenancy and the Residential Lobby / Amenity is noted to be contained within the Ground Floor and is not required to be fire separated or contained within a shaft.

It is noted that all lifts that serve Levels 3 and above are required to be provided as emergency lifts (excluding one of the Co-Living lifts) and as such, the lift shafts are required to achieve an FRL not less than 120/120/120 for their full height.

3.4.5 Electrical Equipment

The Ground Floor Main Switchroom will contain the main switchboard which is required to sustain emergency equipment during an emergency. As such, the Main Switchroom is required to be fire separated from the remainder of the building.

3.4.6 Public Corridors

It is noted that the undivided cumulative length of public corridors within the residential levels of the building are designed such that they will all exceed 40m, the following cumulative lengths of public corridors will be provided:

- BTR Towers (Levels 3 to 21) – up to 45m, in lieu of 40m.
- Co-Living Tower (Levels 1 to 9) –up to 71m, in lieu of 40m.

The above extended lengths of public corridor are proposed to be permitted under a fire engineered performance solution.

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 of the building are generally set-back more than 3m from the nearest fire-source feature however, it is noted that the Northeastern side of the Ground Floor will be located within 3m of the adjacent property boundary which will require the external walls to achieve an FRL not less than 120/120/120 where within 3m of the property boundary. It is noted that there are no proposed openings within this section of external wall and as such, no additional protection is required from the property boundary.

The fire compartmentalisation within the building generally results in fire compartments occupying an entire storey however, it is noted that alternative fire compartments will be provided on the Ground Floor (the Basement Carparking / Storage Fire Compartment and the Ground to Level 2 Commercial / Retail Fire Compartment) and on Levels 1 & 2 (the Ground to Level 2 Commercial / Retail Fire Compartment and the Co-Living Residential tower on Levels 1 & 2). It is noted that separation between the BTR Level 3 Rooftop Amenity and the Level 3 Co-Living GBA is not required and as such, there will be no corresponding openings between separate fire compartments.

The drawings provided indicate that there are no corresponding openings within the external walls of these fire compartments for a distance of 6m when they are located on the same storey and as such, protection of these openings is not required.

3.5.2 Bounding Construction

The walls between the Sole-Occupancy-Units (SOUs) and between the SOUs and corridor are internal walls that require an FRL. In addition, 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 BCA Clause C4D12. The doors to the lift are required to have an FRL of -/60/- in accordance with BCA Clause C4D11. Please also note that the doors to all rooms accessed from the public corridors (condenser rooms, bin chute rooms & VRF Condensers) must also be provided with fire-rated bounding construction and fire rated doors achieving an FRL not less than -/60/30.

Bounding construction requirements do not apply to the Level 10 Co-Living amenities, Level 17 BTR communal amenities or the Level 22 BTR communal amenities as these storeys within the respective towers do not contain SOUs.

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 tested in accordance with AS1530.4-2014.

Fire sealing of services is a design element that will require detailed assessment and specification at Construction Certificate stage.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

3.6.1.1 General Requirements

The stair provided between the Ground Floor Commercial Lobby and the Level 2 Commercial use area is noted to connect three (3) storeys within a sprinkler protected building and as such is not required to be fire-isolated. Additionally, the voids between the Ground Floor and Level 2 are noted to connect three (3) storeys in a sprinkler protected building and one of the storeys provides direct egress to road / open space, as such, the building is not considered to contain any atriums.

All other stairs provided within the building are noted to connect more than three (3) storeys and as such, must be provided as fire-isolated stairs. The drawings provided appear to indicate each stair within the building being provided as a fire-isolated stairway.

All parts of all storeys within the building are noted to be provided with no less than two (2) exits however, it is noted that the Basement Level 1 Mezzanine is provided with a single exit, in lieu of two (2). The provision of a single exit to this storey is required to be addressed under a fire engineered performance solution.

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. Where alternative exits are provided, they are required to discharge as far apart as practicable. It is noted that the scissor stair arrangement for the BTR towers results in the alternative exits provided to the residential storeys discharging adjacent to one another which represents a non-compliance with the requirements of BCA Clause D2D15. This is required to be addressed under a fire engineered performance solution.

The Ground Floor slab will represent a *roof as open space* for the purposes of the BCA. Clause D3D13 does not permit any openings within the floor slab forming *roof as open space* within 3m of the path of travel for occupants to reach the adjoining road / open space. As the Ground Floor slab will use used as a *roof as open space* it is possible that there will be services penetrations through the floor slab in proximity to the various paths of travel to reach the adjoining roadways. Despite these services penetrations being protected in accordance with BCA Clause C4D15, they are a non-compliance with the requirements of BCA Clause D3D13. It is proposed to address any potential services penetrations through the Ground Floor *roof as open space* under a fire engineered performance solution.

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 Construction Certificate Stage.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA Clause 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 suitably sealed against smoke spread by sealing with non-combustible mastic.

3.6.1.2 Basement Car Park and Ground Floor to Level 2 Commercial Areas

Egress from the carparking, commercial and retail portions of the building between Basement 2 and Level 2 shall ensure that no point on the floor is more than twenty (20) metres from an exit, or where a point of choice of two (2) exits is available, the distance to the nearest of those exits can increase up to forty (40) metres, as permitted by BCA Clause D2D5. On the Ground Floor the commercial (class 5) and retail (class 6) parts, egress distances are permitted to be thirty (30) metres to a single exit.

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

Compliance with the above requirements is generally achieved in the proposed design however, extended travel distances are noted as follows:

- Basement Level 2 – Up to 30m to a Point of Choice (in lieu of 20m) and 45m to the nearest of two exits.
- Basement Level 1 – Up to 35m to a Point of Choice (in lieu of 20m) and 45m to the nearest of two exits.
- Basement Level 1 Mezzanine – up to 25m to a single exit.
- Ground Floor – Up to 28m to a single exit (in lieu of 20m) from the Bike Parking Room.
- Ground Floor to Level 2 – Up to 30m to a Point of Choice (in lieu of 20m) and 45m to the nearest of two exits

The above extended travel distances are required to be addressed under fire engineered performance solutions.

Egress pathways not less than 1,000mm wide (measured free of obstructions) are required to be provided throughout the building, this appears to generally be provided throughout the building, including allowing for handrails at stairways.

3.6.1.3 Residential Floors

On the Ground Floor, the egress travel distance is permitted to extend up to twenty (20) metres. The drawings indicate that the travel distance is no further than that permitted under Clause D2D5, and therefore, compliance is achieved.

The upper floors of the building are required to incorporate travel distances from the entrance door of SOUs to an exit of no more than six (6) metres, or, where a point of choice exists, the distance between alternative exits is no greater than forty-five (45) metres. The travel distances from areas not within an SOU must not exceed 20m to an exit or point of choice.

The drawings indicate that the egress travel distances within the residential portions of the building generally comply with the requirements of BCA Clause D2D5 except for the following:

- BTR Towers (Levels 3 to 22) - Up to 14m to a Point of Choice (in lieu of 6m)
- Level 3 Rooftop, Levels 17 & 22 Communal Use Areas - Up to 25m to a Point of Choice (in lieu of 20m).
- BTR Towers Level 3 - Up to 60m between alternative exits (in lieu of 45m).

The above extended travel distance is required to be addressed under a fire engineered performance solution.

3.6.2 Fire-Isolated Stairs

It is noted that fire-isolated stair cores provided to the BTR towers will include discharge locations for the stairs which are into covered areas that are required to be open for 1/3 of their perimeter and achieve an unobstructed ceiling height of 3.0m. The plans provided indicate that the discharge locations will not be open for 1/3 of their perimeter (as indicated in Figure 9 below) but they appear to achieve the required unobstructed height. The fire-isolated stair discharge locations are required to be addressed under a fire engineered performance solution.

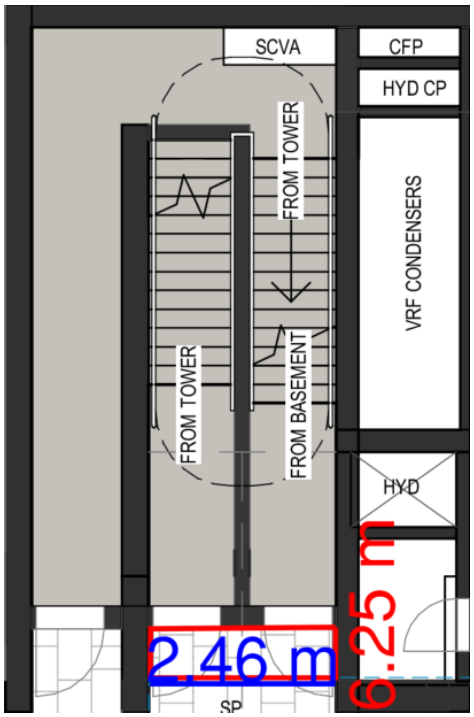

Figure 9 – BTR Tower Fire-Isolated Stair Discharge Locations

The discharge arrangement for the Western Co-Living stair core appears to demonstrate that adequate separation is provided between the stair flights rising from Basement Level 1 and the flights descending from Level 1.

The Eastern Co-Living stair is noted to discharge into a location that will require occupants to pass within 6m of unprotected openings in the external walls of the same building (the vehicle entrance ramp due to the opening between columns). It is proposed to permit the current discharge arrangement under a fire engineered performance solution.

The remaining fire-isolated stair discharge arrangements appear to generally meet the requirements of BCA Clause D2D12.

The drawings provided typically indicate that the doors for each fire-isolated stair swing in the direction of egress.

3.6.3 Access for people with a disability

BCA Part D4 has not been assessed within this report.

3.7 SERVICES AND EQUIPMENT- PARTS E1, E2, E3 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.

Electric Vehicle (EV) car parking is not noted to be provided to the carparking areas of the buildings. The provision of EV charging stations presents a special hazard within the building and if provided, is required to be assessed by the project fire engineer.

3.7.1 Part E1 – Fire Fighting Equipment

Specific comments pertaining to fire fighting services and equipment required for the building as set out in Annexure B of this report are provided as follows:

3.7.1.1 Fire hydrant

As the building has a floor area greater than 500m^2, fire hydrant protection is required. Fire hydrants are to be located within fire isolated stairs as relevant to the requirements contained within AS 2419.1-2021. The hydrant booster is required to be no more than twenty (20) metres from the building and within sight of the principal pedestrian entrance as well as located not less than ten (10) metres from any substation. The booster will be located on White Hart Drive, adjacent to the basement vehicle entry point. Due to the multiple entry points, it will not be possible for the booster to be within sight of all main entrances to the building and will be required to be permitted under a fire engineered performance solution.

The plans indicate the approximate locations of the fire hydrants within the fire-isolated stairs on all levels (excluding the Ground Floor) at the entry landings adjacent to the services risers. Adequate hydrant coverage appears to be provided on all storeys above the Ground Floor of the building however, coverage shortfalls appear to be present within the basement. Further review will be required to confirm compliance throughout the building as the design develops.

A fire pump room is provided on Basement Level 1 and appears to be accessed via the adjacent Fire Isolated Stair.

Further information will be required at the Construction Certificate Stage from the Hydraulic Consultant to demonstrate compliance.

3.7.1.2 Fire Hose Reel

Fire Hose Reels (FHRs) are required to be provided throughout the carparking, storage and retail areas of the building (Basement Levels and Ground Floor Level). FHRs have not been nominated on the drawings provided.

It is proposed to omit the requirement to provide FHRs to the Ground Floor retail areas under a fire engineered performance solution.

Further information will be required at the Construction Certificate Stage from the Hydraulic Consultant to demonstrate compliance.

3.7.1.3 Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D5 & Specification 17. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance. As the building is over twenty-five (25) metres in Effective Height, one of the following systems can be installed:

- AS 2118.1-2017; or
- AS 2118.6-2012, as applicable; or

It is proposed to omit the provision of sprinkler protection to non-HV rooms which are not specifically exempt from coverage under AS2118.1-2017, these rooms include:

- Basement Level 1 Comms Room; and
- Ground Floor Main Switchroom; and
- Ground Floor Substation.

The omission of sprinklers to the abovementioned rooms will be required to be permitted under a fire engineered performance solution.

3.7.1.4 Portable Fire Extinguishers

The development is required to have portable fire extinguishers installed throughout in accordance with AS2444-2001.

The drawings provided do not indicate a cupboard or the like within the public corridors for the Portable Fire Extinguishers (FE) to be located within and further review for compliance will be undertaken as the design develops to ensure that all SOU doors are within 10m of a portable fire extinguisher.

3.7.1.5 Fire Control Room

As the development is over fifty (50) metres effective height, it is required to have a Fire Control Room (FCR) in accordance with Clause E1D15 and Specification 19.

The FCR appears to be capable of complying with the requirements of Specification 19 however, please note that as it is not located on an external wall of the building, the FCR must be provided with a dedicated pressurisation system complying with the requirements of S19C11.

Further design input is required at the Construction Certificate Stage to confirm compliance.

3.7.2 Part E2 – Smoke Hazard Management

Specific comments pertaining to smoke hazard management system services and equipment required for the building as set out in Annexure B of this report are provided as follows:

3.7.2.1 Smoke Alarms

Smoke alarms will be required within residential sole occupancy units in accordance with Part E2.

3.7.2.2 Smoke Detection & Alarm System

The development must be provided with a smoke detection and alarm system complying with Specification S20C5. The plans do not provide any details regarding the layout of smoke detection and alarm system. Further information is needed from the Electrical Consultant during the Construction Certificate Stage to demonstrate compliance.

3.7.2.3 Stair Pressurization

As the development comprises stairs which serve a level above twenty-five (25) metres effective height, it will be necessary to have a stair pressurisation system to those stairs. Additionally, any stair serving more than two (2) basement storeys is required to be provided with stair pressurisation, it is noted that the northern fire-isolated stair serving the Basement Levels (including B1 Mezzanine) will serve three (3) storeys and as such is required to be provided with stair pressurisation. The drawings indicate that the stairs to each tower have stair pressurisation shafts as required however, the basement stair has not been provided with stair pressurisation as required. With design development all shafts and lobby relief will need to be further developed with further design input from the Mechanical Consultant at the Construction Certificate Stage.

Note: Stairs serving a height less than twenty-five (25) metres would not require stair pressurisation except where mandated within the Fire Engineering Report.

3.7.2.4 Zone Pressurisation

As the development comprises a building with an effective height of more than 25m, the Class 5, 6 & 7b parts of the building are required to be provided with zone pressurisation between vertically separated fire compartments. It is noted that BCA Clause E2D6(2) provides a concession for this requirement where there is only one fire compartment containing a use other than Class 2 or 3, however, as the building will contain three (3) fire compartments with a use other than Class 2 or 3, this concession does not apply. As such, it is determined that the Basement Levels and Ground Floor to Level 2 are required to be provided with zone pressurisation however, it is proposed to omit this provision under a fire engineered performance solution.

3.7.2.5 Smoke Exhaust

As the Ground Floor contains a Class 6 use which is not fire-separated from the remainder of the storey, the introduction of the non-fire-isolated stairs and voids connecting Ground to Level 2 will result in the fire compartment containing the Class 6 use exceeding a floor area of 2,000m^2. This will require the provision of smoke exhaust to this fire compartment as per the requirements of BCA Clause E2D15(2). It is proposed to omit the provision of smoke exhaust to the Ground to Level 2 Commercial / Retail fire compartment under a fire engineered performance solution.

3.7.3 Part E3 – Lift Installations

Lifts are provided to the building and are located within their own shaft in proximity to each stair core. The commercial lifts provided between Basement Level 2 and Level 2 will not serve a storey above 12m in effective height and are provided in addition to other lifts that serve those storeys and parts of the building. As such, these lifts are not required to be provided with stretcher facilities or be provided as emergency lifts.

All other lifts provided to the building will serve a storey at a height above twelve (12) metres in *effective height*, as such they must include stretcher facilities. The dimensions of the shafts are sufficient to allow compliance for a 1400 mm width x 2000 mm length lift car.

Where buildings exceed twenty-five (25) metres effective height, the building is required to have no less than one (1) emergency lift installed, but where multiple lifts are installed, not less than two emergency lifts must be provided to each storey, and if located in separate shafts, one (1) emergency lift must be provided within each shaft. Due to the tower arrangement of the building, not less than two (2) emergency lifts must be provided to each tower.

No details have been provided to undertake an assessment. Therefore, further information is required during the Construction Certificate Stage.

3.7.4 Part E4 – Visibility in emergency, exit signs and warning systems.

Specific comments pertaining to emergency lighting, exit signs and warning systems required for the building as set out in Annexure B of this report are provided as follows:

- Emergency lighting is required as per BCA Clause E4D2 for all non-fire-isolated stairs, corridors, passageways, hallways, or the like that is part of a path of travel to an exit.
- Exit signs are required to be installed throughout the building, including directional exit signs to guide occupants to the designated exits in the building.

- Emergency warning and intercommunication system is required to be installed within buildings with an effective height greater than twenty five (25) metres.

The DA plans do not provide any details for the emergency lighting and exit signs. As such further information will be required at the Construction Certificate Stage, however compliance is readily achievable.

3.8 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 BTR sole occupancy unit and therefore compliance is achieved with BCA Clause F4D2.

BCA Clause F4D2 requires the following facilities within a Class 3 building:

- Bath or shower;
- A closet pan;
- A washbasin

The plans indicate that the above services have been provided within each Co-Living sole occupancy unit and therefore compliance is achieved with BCA Clause F4D2.

3.9 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

The number of facilities *required* to be provided to the commercial parts of Levels 1 and 2 have been calculated in accordance with Clause F4D3 and D2D18 (assumed population):

Staff (170 per storey)	Closet Pans	Urinals	Washbasins
Male (85)	4 WC	3 Urinal	2 Basin
Female (85)	5 WC	N/A	2 Basin
Accessible	1	NA	1

Note: The accessible bathroom has been counted at least once towards every sex.

The above required facilities per storey will cater for the anticipated population of each storey as determined in accordance with BCA Clause D2D18. Please note that in meeting the minimum number of fixtures for the anticipated population, the above facilities will allow for a population on Levels 1 and 2 of up to 180 persons per storey.

The drawings provided indicate that the following facilities have been provided to Levels 1 & 2:

Staff (170 per storey)	Closet Pans	Urinals	Washbasins
Male (85)	4[1] WC = 80 persons	2 Urinal = 50 persons	4[1] Basin = 120 persons
Female (85)	4[1] WC = 60 persons	N/A	5[1] Basin = 150 persons

[1] 1 x accessible WC or Basin has been included.

The above facilities will cater for a maximum population of 110 persons per storey which is less than the anticipated population of 170 persons. Additional WC and Urinal facilities are to be provided to cater for the anticipated population, it is also recommended that the number of basins provided are reduced to meet the minimum requirements.

In addition to the above, facilities are required to be provide for the use of both staff and patrons for the Class 6 retail portions of the Ground Floor and staff located elsewhere on the storey. It is noted that the number of fixtures provided for staff and patrons are required to be determined separately and combined to determine the total number of required fixtures. The following number of fixtures will be required for the use of staff and patrons when the population is determined in accordance with BCA Clause D2D18:

Staff (18)	Closet Pans	Urinals	Washbasins
Male (9)	1 WC	0 Urinal	1 Basin
Female (9)	1 WC	N/A	1 Basin
Accessible	1	NA	1
Patrons (469)	**Closet Pans**	**Urinals**	**Washbasins**
Male (235)	2 WC	4 Urinal	2 Basin
Female (235)	5 WC	N/A	2 Basin
Accessible	1	NA	1

The drawings provided indicate that the following facilities have been provided to the Ground Floor:

Staff (18)	Closet Pans	Urinals	Washbasins
Male (9)	1 WC	0 Urinal	1 Basin
Female (9)	1 WC	N/A	1 Basin
Accessible	1	NA	1
Patrons (469)	**Closet Pans**	**Urinals**	**Washbasins**
Male (235)	2 WC = 300 persons	4[1,2] Urinal = 200 persons	4[1] Basin = 600 persons
Female (235)	4[1] WC = 150 persons	N/A	5[1] Basin = 750 persons

[1] 1 x accessible WC or Basin has been included.
[2] 1 x WC has been counted as a urinal as per F4D9(1)(c)

The above facilities will cater for a maximum population of 350 patrons which is less than the anticipated population of 469 persons and does not include any staff facilities. Additional WC and Urinal facilities are to

be provided to cater for the anticipated populations, it is also recommended that the number of basins provided are reduced to meet the minimum requirements.

Further review of the number of sanitary facilities provided for each population group and area of the building will be undertaken as the design develops.

3.10 ROOM HEIGHTS – PART F5

The section drawings indicate that the ceiling heights for all habitable spaces, corridors, and the like are capable of achieving the minimum height of 2400 mm.

A detailed assessment of the ceiling heights achieved throughout the building has not been undertaken due to the level of documentation available however a review of the section drawings indicates that compliance is readily achievable throughout the building.

3.11 LIGHT AND VENTILATION – PART F6

3.11.1 Residential Accommodation

3.11.1.1 Method and extent of natural light

Build to Rent

Natural light is required to all habitable rooms within a Class 2 building. The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors. The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 10% natural light to all habitable rooms. However, window specification will be needed with design development to verify compliance.

Co-Living

Natural light is required to all habitable rooms within a Class 3 building. The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 10% natural light to all habitable rooms. Where windows are fixed, a mechanical ventilation or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1 is required which can be readily provided. However, window specification will be needed with design development to verify compliance.

3.11.1.2 Ventilation of rooms

Ventilation is required to all habitable rooms within a Class 2 building. Clause F6D6 allows for either natural ventilation as per Clause F6D7 or mechanical ventilation or air-conditioning system complying with AS1668.2 and AS/NZS3666.1.

The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors. The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 5% ventilation to all habitable rooms. However, a window specification will be needed with design development to verify compliance if natural ventilation is relied upon.

3.11.2 Commercial Buildings

For a Class 5, 6 & 7b building or part, artificial lighting and mechanical ventilation are required, and these systems can be readily installed in the building. Further design development and input will be required from the Electrical and Mechanical Consultants at the Construction Certificate Stage.

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

3.12 CLEANING WINDOWS – NSW G1D5

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

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

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

3.13 ENERGY EFFICIENCY - SECTION J

To be separately assessed by Energy Consultant.

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 information to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

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, subject to all matters for further consideration identified in this report being addressed in the design, and subject to compliance with all Annexures and Specifications included with this report.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by			
Drawing Number	**Revision**	**Date**	**Title**
DA0091	P.04	16/05/2025	Basement 2 Plan
DA0092	P.04	16/05/2025	Basement 1 Plan
DA0093	P.02	16/05/2025	Basement 1 Mezzanine Plan
DA0100	P.03	16/05/2025	Ground Plan
DA0101	P.03	16/05/2025	Level 1-2 Plan
DA0103	P.03	16/05/2025	Level 3-4 Plan
DA0105	P.03	16/05/2025	Level 5-8 Plan
DA0109	P.03	16/05/2025	Level 9 Plan
DA0110	P.03	16/05/2025	Level 10 Plan
DA0111	P.03	16/05/2025	Level 11-16 Plan
DA0117	P.03	16/05/2025	Level 17 Plan
DA0118	P.03	16/05/2025	Level 18-21 Plan
DA0122	P.03	16/05/2025	Level 22 Plan
DA0123	P.03	16/05/2025	Roof Plan
DA0200	P.04	16/05/2025	Section A
DA0201	P.03	16/05/2025	Section B
DA0202	P.04	16/05/2025	Section C
DA0203	P.03	16/05/2025	Section D
DA0300	P.04	16/05/2025	North Elevation
DA0301	P.04	16/05/2025	East Elevation
DA0302	P.04	16/05/2025	South Elevation
DA0303	P.04	16/05/2025	West Elevation
DA0950	P.02	16/05/2025	Façade Detail A
DA0951	P.02	16/05/2025	Façade Detail B

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, including any omissions or additions as a result of the fire engineering processes.

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 Door sets)
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 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) Specification 19 (Fire Control Centres) Specification 12 AS1905.1: 2015
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005
5.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C4D12** (Bounding Construction) AS1530.4:2014

Item	Essential Fire and Other Safety Measures	Standard of Performance
6.	Smoke Walls	**BCA2022 D3D5** (Separation of Rising and Descending Stair Flights)
7.	Smoke Doors	**BCA2022 D3D5** (Separation of Rising and Descending Stair Flights) **BCA2022 Specification 12** AS1670.1:2018
General		
8.	Fire Control Room ▪ >50m	**BCA2022 E1D15, Specification 19** (Fire Control Centres)
9.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
10.	Fire blankets	AS 2444–2001
General Egress		
11.	Evacuation Training	AS 3745:2010
12.	Operation of Door latches Failsafe Manual Push Button Control	**D3D26** (Operation of Latch) AS 1670.1 (Amdt 1)
13.	Required Automatic Doors	**D3D24** (Doorways and Doors)
14.	Swing of Exit Doors	**D3D24** (Swinging Doors)
15.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs) **BCA2022 Specification 19** (Fire Control Room)
Lifts		
16.	Access to Lift Pits Located at lowest level	**BCA2022 D2D22** (Access to Lift Pits)
17.	Emergency lifts	**BCA2022 E3D5** AS 1735.1:2003 (Appendix A) or AS 1735.2:2001
18.	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)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA2022 Specification 24 AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
19.	Automatic fail-safe devices Auto open Sliding Exit doors Break Glass release	**BCA2022 D3D26** (Operation of Latches) **BCA2022 D3D27** (Re-entry from fire-isolated stairs) AS1670.1:2018 (Fire)
20.	Automatic fire detection & alarm:	**BCA2022 E2D3, E2D4, E2D5 E2D6, E2D12, E2D15** **Spec 20** **BCA2022 C4D6** (Doors in Fire Walls) **BCA2022 C4D9** (Openings in Fire-Isolated Exits) **BCA2022 C4D12** (Bounding Construction) **BCA2022 D3D26** (Operation of Latch) **Specification 12** **BCA2022 S20C3** (Smoke alarm system) **BCA2022 S20C4** (Smoke detection system) **BCA2022 S20C5** (Combined smoke alarm and smoke detection system) **BCA2022 S20C6** (Smoke detection for smoke control systems) **BCA2022 S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4) 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) AS 1670.4 (Amdt 1) (EWIS)
21.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
22.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D7** (Residential Concession) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018
23.	Smoke detectors & heat detectors	**BCA2022 E2D3, Specification 20**

Item	Essential Fire and Other Safety Measures	Standard of Performance
	1. Smoke Exhaust System 2. Zone Smoke Control System 3. Air Pressurisation System. 4. Auto-shutdown of Air-handling System. (Clause E2.2(b)) - Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1;	AS 1668.1:2015
24.	Emergency warning and intercom systems for Emergency Purposes (EWIS) >25m Residential areas: 75 dB(A) at all bedheads.	**BCA2022 E4D9** AS 1670.4 (Amdt 1) (EWIS)
25.	Standby power systems	**BCA2022 Specification 31** AS 4509.3:1999
26.	System Monitoring	**BCA2022 S20C8** AS 1670.3 (Amdt 1) Monitoring Required for any: Any Sprinkler System For smoke exhaust systems and smoke-and-heat vents
Hydraulic Services		
27.	Automatic fire suppression systems General Sprinklers	**BCA2022 E1D4, E1D5, E1D9** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers)
28.	Fire hydrant systems NSW Storz Couplings Ring Main required (LIB, >25m) Fire Brigade Relay Pump (>50m) On-site water storage (>25m)	**BCA2022 E1D2** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
29.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
Mechanical Services		
30.	Fire dampers	**BCA2022 E2, Specification 20, Specification 21** **BCA2022 C4D16** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015

Item	Essential Fire and Other Safety Measures	Standard of Performance
31.	1. Mechanical air handling systems 2. Smoke Control System/Smoke Exhaust System 3. Mechanical ventilation to carpark. 4. Auto-shutdown of Air-handling System. Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1:2015; Miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015; 5. Zone Pressurisation System. 6. 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.
32.	Smoke dampers	**BCA2022 C3D6 and Specification 11** **BCA2022 E2, Specification 20** Spec 31 AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015

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

Annexure D - 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—

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, S5C21 of Specification 5 of BCA2022 for a building of Type B Construction and S5C24 of Specification 5 of BCA2022 for a building of Type C 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 concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, will comply with Specification 8.
6. Any fire-protected timber proposed will comply with Clause C2D13 of BCA2022.
7. 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.
8. The large-isolated building will be in accordance with Clause C3D4 of BCA 202022.
9. Vehicular access to a large-isolated building will be in accordance with Clause C3D5 of BCA2022.
10. The buildings 9a and/or 9c will be separated in accordance with Clause C3D6 of BCA2022.
11. 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.
12. The external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
13. 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.
14. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
15. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
16. Any 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.
17. 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. The smoke doors shall swing in both directions, or otherwise be installed to swing in the direction of egress.

18. 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.
19. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
20. Sliding fire doors in a fire wall which is open when the building is use will be installed in accordance with Clause C4D7 of BCA2022.
21. Doorways in horizontal exits will be protected in accordance with Clause C4D8 of BCA2022.
22. 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.
23. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.
24. 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.
25. 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.
26. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
27. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
28. 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.
29. 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.
30. 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.
31. Smoke-proof walls and doorways required in the health care or aged care building will be in accordance with Specification 11 of BCA2022.
32. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
33. Smoke doors will be installed in accordance with Specification 12 of BCA2022.
34. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
35. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
36. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
37. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
38. The alternative exits will be distributed uniformly around the storey and will be not be less than 9m apart, and not more that 45m apart in any residential portions or patient care areas in the health-care building, or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.

39. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
40. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
41. The external stairway or ramp serving as a required exit will be in accordance with Clause D2D13 of BCA2022.
42. Smoke separation will be provided between the exit stairs at the level of discharge in accordance with Clause D2D14 of BCA2022.
43. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
44. Horizontal exits will be in accordance with Clause D2D16 of BCA2022.
45. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
46. 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.
47. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
48. 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.
49. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
50. 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.
51. The ramp or balcony provided for smoke hazard management requirements will be in accordance with Clause D3D6 of BCA2022.
52. The smoke lobby to the fire-isolated exit will be constructed in accordance with Clause D3D7 of BCA2022.
53. 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.
54. 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.
55. 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.
56. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
57. 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.
58. 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.
59. 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.

60. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
61. 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, plantroom, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2018 or Part D3 of BCA2022.
62. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
63. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
64. Re-entry doors from the fire-isolated exits will be in accordance with Clause D3D27 of BCA2022.
65. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
66. 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.
67. 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.
68. Accessible carparking will be in accordance with Clause D4D6 of BCA2022.
69. Braille and tactile signage will in accordance with Clause D4D7, and Specification 15 of BCA2022.
70. Hearing augmentation system(s) will be provided in accordance with Clause D4D8 of BCA2022.
71. Tactile ground surface indicators will be provided in accordance with Clause D4D9 of BCA2022 and AS/NZS 1428.4.1:2009.
72. Fixed wheelchair seating will be in accordance with Clause D4D10, and Table D4D10 of BCA2022.
73. The entry/exit to the swimming pool will be in accordance with Clause D4D11, and Specification 16 of BCA2022.
74. The ramps associated with the accessway will not have a combined vertical rise of more than 3.6m and a landing for a step ramp will not overlap a landing for another step ramp of ramp in accordance with Clause D4D12 of BCA2022.
75. 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.
76. The fire control centre will be in accordance with Clause E1D15 and Specification 19 of BCA2022.
77. The fire control room will be in accordance with Clause E1D15 and Specification 19 of BCA2022.
78. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.

79. Additional provisions will be made in accordance with Clause E1D17 and E2D21 of BCA2022, due to the special hazards associated with the building works or the location of the building works.
80. Non-illuminated exit signage will be installed in accordance with Clause E4D7, and of BCA2022.
81. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
82. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
83. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
84. 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.
85. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
86. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
87. Sub-floor ventilation will be provided in accordance with Clause F1D8 of BCA2022.
88. 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.
89. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
90. Accessible sanitary facilities will be provided in the building in accordance with Clause F4D5, F4D6, Table F4D6 of BCA2022 and AS1428.1:2009.
91. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
92. A slop-hopper will be provided in accordance with Clause F4D11 of BCA2022.
93. Accessible adult change facility will be in accordance with Clause F4D12 of BCA2022.
94. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
95. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
96. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
97. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
98. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
99. 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.
100. 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.
101. 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.

102. The swimming pool associated with the new building will comply with Clause G1D2 of the BCA2022 and AS 1926 parts 1 and 2. (Note: Excludes NSW. See NSW G1D2 (2) below)
103. The refrigerated or cooling chamber, strongroom or vault will be in accordance with Clause G1D3.
104. Outdoor play spaces associated with the early childhood centre will be in accordance with Clause G1D4 of BCA2022.
105. The stoves, heaters or similar appliances installed in the building will be in accordance with AS/NZS 2918:2018 and Clause G2D2 of BCA2022.
106. Boilers and pressure vessels shall be installed in accordance with Specification G2D2 of BCA2022.
107. Open fireplaces or fuel-burning appliances with an open fuel-burning compartment will be in accordance with Clause G2D3 of BCA2022.
108. The incinerator room including hoppers will in accordance with Clause G2D4 of BCA2022.
109. The atrium will be in accordance with Part G3, and Specification 31 of BCA2022.
110. The building is within an Alpine area therefore will be in accordance with Part G4 of BCA2022.
111. The building is within a bushfire prone area therefore will be in accordance with Part G5 of BCA2022. (Note: See NSW G5D3 Variation below)
112. The building is a theatre, stage, and public hall therefore will be in accordance with Specification 32 of BCA2022.
113. The building is a public transport building therefore will be in accordance with Part I2 of BCA2022.
114. 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.
115. 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.
116. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.
117. Glazing will be in accordance with Part J4 of BCA2022.
118. Building sealing will be in accordance with Part J5 of BCA2022.
119. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

Electrical Services Design Certification:

120. Hearing augmentation system(s) will be provided in accordance with Clause D4D8 of BCA2022.
121. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
122. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
123. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
124. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
125. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.

126. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
127. 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:

128. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
129. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
130. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
131. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.
132. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17, Specification 18 and appropriate part(s) of FPAA101D or FPA101H.
133. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
134. 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:

135. 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.
136. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
137. A zone pressurisation system will be installed in the building in accordance with E2D6 of BCA2022
138. A smoke exhaust system will be installed in the building in accordance with E2D14 to E2D20, and Specification 22 of BCA2022.
139. Smoke and heat vents will be installed in the building in accordance with E2D14 to E2D20, and Specification 22 of BCA2022.
140. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
141. 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.
142. 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.
143. 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.
144. 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.

145. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022

146. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

147. 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

    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.

148. 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.

149. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.

150. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.

151. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.

152. The concrete panel external walls will be in accordance with Specification 5 of BCA2022.

153. 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:

154. 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.

155. 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.

156. An emergency lift will be provided in the building in accordance with Clause E3D5 of BCA2022.

157. 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.

158. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.

159. 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.
160. 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.
161. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
162. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

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

NSW Specification Design Certificate:

164. 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.
165. The building will be separated in accordance with Clause C3D6, and NSW Clause C3D6 of BCA2022.
166. 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.
167. The number of exits provided to the building will be in accordance with Clause D2D3 and NSW Clause D2D3(4) of BCA2022.
168. The discharge points of exits will be in accordance with Clause D2D15, and NSW Clause D2D15(6) of BCA2022.
169. The width of doorways in exits and paths of travel to exits will be provided in accordance with Clause D2D9, and NSW Clause D2D9(a) to (f) of the BCA2022.
170. 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.
171. 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.
172. The height of barriers is to be in accordance with D3D18 and NSW D3D18(1) of the BCA2022.
173. The doorways and doors will be in accordance with Clause D3D24, NSW Clause D23D24(2) of the BCA2022.
174. 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.
175. The swimming pool associated with the new building will comply with Clause G1D2 and NSW G1D2 of the BCA, Swimming Pools Act 1992, Swimming Pools Regulation 2018 and AS 1926.1:2012. AS 1926.2:2007 and AS 1926.3:2010.

176. The building is within a bushfire prone area therefore will be in accordance with Part G5, and NSW Part G5D3 of the BCA2022.
177. The building is a Class 9b building and therefore will be in accordance with NSW Part I1.
178. The building is an Entertainment Venue and will be in accordance with NSW Part I4 of the BCA2022.
179. The temporary structure will be in accordance with NSW Part I5.
180. The development consists of a drive-in theatre therefore it is to comply with NSW Part I6
181. Insulation will be in accordance with AS/NZS 4859.1:2018 and will be installed as required by NSW Part J4 of the BCA.
182. A smoke detection and alarm systems will be installed throughout the building in accordance with E2D10, NSW E2D10 and NSW Specification 20 of BCA2022.
183. Exit signage will be installed in accordance with Clause E4D5, NSW Clause E4D6, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
184. 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.
185. 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.
186. The building will be mechanically ventilated in accordance with Clause F6D6, NSW F6D6 of BCA2022 and AS 1668.2:2012.