RTL CO.

BCA ASSESSMENT REPORT (DA STAGE)

Marrickville Timberyards

Project Number: 119655
Report Type: BCA
Revision: 1.1
Date: 20 December 2024

PREPARED FOR

Varsity Assets Management Pty Ltd
(Developer) on behalf of
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Marrickville Property Trust (RTL Co.)

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Document Control

Revision	Issue Date	Issue Description	Prepared By:	Verified by:
r1	19 December 2024	DA Stage BCA Assessment Report	Andrew Beames	Reza Karani
r1.1	20 December 2024	DA Stage BCA Assessment Report Minor alterations to client name and building description.	Andrew Beames	Reza Karani
	20 December 2024	Reza Karani Senior Building Regulations Consultant	Signed: DocuSigned by: Reza Karani 7FB686B272EB48A...	

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 development at the Lots bound by Victoria Road, Sydenham Road, Farr Street and Mitchell Street, Marrickville NSW 2204, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Volume One.

Part 3 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 Fire Resistance Levels (FRLs)** Rationalise the FRLs in the basement and ground floor retail storeys as per below: + Above ground retail - to permit a 2-hour FRL in lieu of 3 hours. + Communal areas in residential areas – to permit 90 minutes FRL lieu of 2 hours. Refer to Item 1 of 'Further Information Required' below.	C2D2, Specification 5
2.	**Fire Walls – Separation of Buildings** 'Building A' will be fire separated from 'Building B', however, as there is no fire wall separation on the basement, it is proposed to permit 'Building A' to be assessed as a building under 25m in effective height. The Fire Safety Engineer has confirmed a performance solution is feasible provided the following items are addressed: + Basement level to have completely separate exit routes + Lifts to be provided with fire rated lobbies including fire rated doors on magnetic hold open devices. + All services penetrations to be fire stopped etc (to be addressed at the next stage of design). + All required fire services shall be provided such as sprinklers, EWIS, stair press, etc. + BCA consultant to confirm the effective height is less than 25m when measured in isolation (Refer to Section 2.3 of this report for confirmation).	C3C8
3.	**Protection of Openings** Openings in Building D & E are within 3m from the boundary southern boundary. The Fire Safety Engineer has confirmed the feasibility of a performance solution.	C4D3

Item	Description	BCA Provision
4.	**Shafts** To permit a fire-isolated stair without the fire rated roof / lid in Building B1.	S5C8
5.	**Building C – Central Stair** The central fire stair in Building C is not currently fire separated from the remainder of the building on Ground Floor (the stair is open between the final riser and the carpark). In addition, two retail tenancies open up into the stairway.	D2D4, D2D12
6.	**Roof Lights** BCA Clause S5C16 would apply, and roof lights must not be less than 3m from: + any part of the building which projects above the roof unless that part has the FRL required of a fire wall and + any openings in that part of the wall for 6 m vertically above the roof light or the like are protected in accordance with C4D5. There are skylights that would not comply with the above provisions in the following locations: + Below the sole occupancy unit's balconies located on Ground Floor of Building D (retail). + Voids / openings above Hardware Lane with residential SOUs above. The application of this Clause for these voids ha been deemed appropriate. Note that these openings need natural lighting and ventilation into all habitable rooms in the residential SOUs.	S5C16
7.	**Number of Exits** A single exit has been provided to the upper ground floor commercial tenancy in Building E in lieu of a minimum of 2 (two) exits. The Fire Safety Engineer has confirmed the feasibility of a performance solution subject to further detailed analysis.	D2D3
8.	**Travel Distance** The following travel distance non-compliances have been identified: + Basement car park – **33/65/90** + Ground Floor carpark storage under Building A – 17/**36/86** + Ground Floor car park – 19/**51/70** + Loading Dock – Up to **40m** to a point of choice. Add a new stair from the loading dock to the driveway. Provide compliant walkway to the public road. + Upper Ground Floor Building E Office – **23m** to a single exit in lieu of 20m to not less than two exits.	D2D5, D2D6

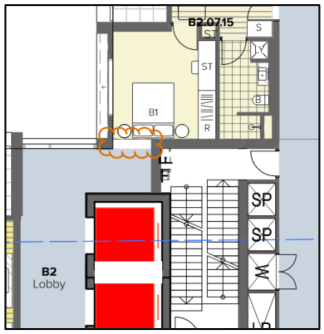
Item	Description	BCA Provision
	+ Building B2 – Distance between exits is up to **60m** in lieu of 45m (the building is > 25m effective height). + Upper Ground Floor podium level above the carpark – Up to **85m** between exits in lieu of 60m. + Building A – **20m** in lieu of 12m from a sole occupancy unit to the only exit. + Building B1 – **25m** to a point of choice from external steps in lieu of 20m. + Building B1 – Level 10 plant room is up to **30m** to a point of choice in lieu of 20m. + Building B2 – Up to **60m** between alternative exits in lieu of 45m. + Building C – **14m** in lieu of 12m from a sole occupancy unit to a point of choice. + Building D – **25m** in lieu of 20m to a single exit on the upper residential storeys from the lobby / common area (typical). + Building D – **15m** in lieu of 12m from a sole occupancy unit to the only exit. + Building F – **15m** in lieu of 12m from a sole occupancy unit to a single exit. + Other - TBC	
9.	**Distance Between Alternative Exits** According to the deemed-to-satisfy provisions of the BCA, exits cannot be less than 9m apart. The following locations have alternative exits less than 9m apart: + Building B (Lobby B1) (down to 8m). + Building E (Lobby E1 & E2) (down to 8m)	D2D6(b)
10.	**Egress Widths** The following egress widths are below 1m: + Various pinch points between fixed furniture on the Building B rooftop, down to 650mm in lieu of 1m. + Other – plant rooms and the like. Service Engineers to confirm egress widths of their respective plant rooms once layouts are confirmed. The Fire Safety Engineer has confirmed a performance solution is feasible should each pinch point provide no less than 850mm egress width. Where egress widths are less than 850mm, the design shall be altered to comply.	D2D8

Item	Description	BCA Provision
11.	**Exit Discharge – Open Space** Occupants discharging from the fire-isolated stairways must travel under the Class 10 building or back under Building CD in lieu of open space. The Fire Safety Engineer has confirmed a performance solution is feasible.	D2D12, D2D15
12.	**Exit Discharge – Enclosed Space** The discharge point of the fire-isolated passage does not meet the requirements of BCA Clause D2D12(2), i.e., the passage discharges within the confines of the building and is not open for at least 2/3 of its perimeter. This occurs in the following locations: + Building B2, B3 + Building C + Building G + Other – TBC The Fire Safety Engineer has confirmed a performance solution is feasible.	D2D12(2)
13.	**Exit Discharge – Protection of Occupants** Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 m of any part of an external wall of the same building. This occurs in the following locations: + Building B1 + Building B3 + Building C + Building D + Other – TBC The Fire Safety Engineer has confirmed a performance solution is feasible. Note that additional protection of openings may be required.	D2D12(3)
14.	**External / Open Stairways** A detailed review of the external stairways in lieu of fire-isolated stairs is required as the design progresses. Open stairs have proposed in the following buildings: + Building A + Building C, D + Building E + Building F + Building G In the first instance, compliance with BCA Clause D2D13 should be provided. Where required, and pending further feasibility study,	D2D13

Item	Description	BCA Provision
	the Fire Safety Engineer has confirmed a performance solution is feasible. As another option, on the external elevation, glazing would also be permitted to enclose the fire stair under BCA Clause C4D9(4).	
15.	**Exit Discharge – Distance between Alternate Exits** Alternate exits do not discharge as far apart as practicable. This occurs in the following locations: + Building B1 + Building B2 + Building E The Fire Safety Engineer has confirmed a performance solution is feasible.	D2D15
16.	**Door Swing** To permit a door to swing against the direction of travel in the following locations: + Ground Floor Building A/B northwestern exit door.	D3D25
17.	**Hydrant Booster** The Hydrant Booster is not within sight of the principal pedestrian entrance of each building due to each building being provided with multiple pedestrian entries(assuming that a single booster will service the site). A performance solution is required to permit the current hydrant booster location. The Fire Safety Engineer has confirmed a performance solution is feasible.	E1D2, Cl 7.3 of AS 2418.1
Building Code of Australia compliance matters to be addressed		
1.	**Protection of Openings** The openings between Building B and Building C that are within 6m of each building shall be protected in accordance with BCA Clause C4D5. The protection of openings shall be illustrated at the next stage of design.	C4D3, C4D5
2.	**Smoke Corridors** In a Class 2 or 3 building, a public corridor, if more than 40 m in length, must be divided at intervals of not more than 40 m with smoke-proof walls complying with S11C2. This is currently not provided in the following locations: + Building B1 + Building B2 + Building B3 + Building C	C4D15

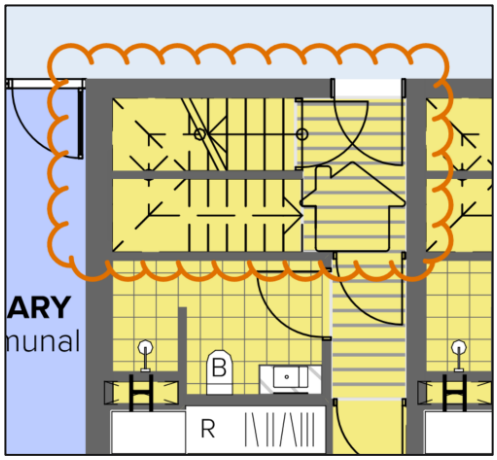
Item	Description	BCA Provision
	+ Building D (this common corridor is very close to 40m. Please provide dimensions). + Building E Note that the Fire Safety Engineer has confirmed that corridors could be up to 50m if a performance solution is required. The Architect is to confirm which corridors are proposed to be subject to a performance solution, noting that Building B1, B2, B3 & C have corridors greater than 50m without smoke separation.	
3.	**Door Swing** The following doors do not swing in the direction of egress: + Basement 1 southern exit door adjacent Lobby B3. + Ground Floor Building B2 BOH corridor from the loading dock to Warehouse Place. + Ground Floor Building E community room, retail & residential lobbies. + Ground Floor substation + Ground and Upper Ground communal rooms. + Upper Ground Floor, Building B1 (Lobby B1). + There are some entry / exit doors in the Ground Level retail tenancies that swing against the direction of egress. It is unknown if the retail tenancies will be split up, hence exit locations have not been confirmed. Any final exit doors will need to swing in the direction of egress - design to illustrate compliance.	D3D25
4.	**Sanitary Facilities – Unisex** There are unisex sanitary facilities provided in the following locations: + Building B - Ground Floor adjacent the facility management / BOH, + Building D retail space. + Building E commercial space These bathrooms only contain unisex WCs, contrary to the DtS provisions of the BCA where separate male and female sanitary facilities are required. The design is to be updated to illustrate compliance, i.e., provide separate male and female sanitary facilities OR, if a performance solution is proposed, then each sanitary compartment / cubicle will need to contain its own basin and pan and be designed as an ambulant facility. This is not currently illustrated.	F4D4

Item	Description	BCA Provision
5.	**Sanitary Facilities – Quantity** At this stage of the design, there is a shortfall in the number of proposed sanitary facilities. The following assessment has been provided: + It has been proposed that any food and beverage retail tenancies provide their own sanitary facilities, i.e., they are to provide additional facilities based on their individual layouts and populations. + In addition, there is further discussion around the use of the Class 9b communal spaces. Pending their final use, additional bathrooms may be added directly into these spaces to accommodate higher populations. It is understood that compliance will be illustrated at the next stage of design.	F4D4
Further information required		
1.	**Basement FRL** It has been suggested by the Fire Safety Engineer that the basement storey be provided with 4-hour FRLs due to the provision of Electric Vehicle charging stations and the large storage portions. It is suggested that the storage areas be compartmentalised from the carpark, otherwise the Basement and Ground Floor carpark / storage would form an oversized compartment due to the Class 7b/8 portions. Further discussion is required regarding possible solutions and whether an oversized compartment would be feasible, or if a DtS approach would be preferred.	C2D2
2.	**Effective Height of 'Building A'** It has been proposed to split 'Building A' from 'Building B' on a performance basis in order to keep 'Building A' under 25m in effective height. The proposed method of measurement of effective height is described in Section 2.3 of this report.	C2D2, C2D3
3.	**Non-Combustibility** Further design development is required to assess the external facade and its attachments in accordance with BCA Clause C2D10 and C2D14. Note that solid aluminium attachments are not exempted under C2D14. CodeMark Certificates, test reports and potentially Fire Safety Engineering may be required.	C2D10, C2D14

Item	Description	BCA Provision
4.	**Fire Separation Between Classifications** How will the larger Class 9b communal areas be separated from the remainder of the building, i.e., separated from the Class 2/3 lobbies and the like? Fire Resistance Levels (FRLs), bounding construction and fire walls will need to be further discussed. Fire Safety Engineering input may be required where glazing is proposed as bounding construction or as a fire wall. As an example, the Level 6 Class 9b communal rooms in Building C, D are proposed to be separated from the corridors by glass (including the stair connecting the storey below). This is common throughout. Where required, the Fire Safety Engineer has confirmed that a performance solution is feasible.	C3D8, C3D9, C4D12
5.	**Bounding Construction** Bounding construction is required between all sole occupancy units and the lobby. This includes Building B1/B2 lobby. This may just be a CAD error. Please adjust as necessary. 	C4D12
6.	**Shafts** Provide details of shafts to confirm any fire rating at the base and top of each shaft. It has been discussed that residential garbage chutes may be utilised in the design. Note that any shaft connecting a commercial kitchen to the storeys above must have the FRL of the retail on all levels. Where required, the Fire Safety Engineer has confirmed that a performance solution is feasible.	S5C8
7.	**Fire Resistance Plans** Provide FRL plans at the next stage of design for further review and comment.	Section C
8.	**Egress from Building B1 Rooftop** Provide a clear egress strategy for ‘Building B’ external area from Level 08 to Level 12. It is unclear where exits will be located. As an example, will the sliding doors on Level 11 external rooftop courtyard be readily accessible from the rooftop terrace to the back	Part D2

Item	Description	BCA Provision
	of house plant exit be available? If not, there are no access to exits from this rooftop space. Further assessment is required to determine travel distance and distance between exits. Refer to previous BCA markup dated 07/11/2024.	
9.	**Egress through another SOU** It is currently unclear how the retail tenancies will be split up. Egress paths cannot have occupants pass through another tenancy to seek an exit. Further review required at the next stage of design.	D2D3
10.	**Hydrant – Proximity to Substation** The Electrical and Hydrant Designers are to confirm that no hydrant points will be located within 10m of the substation.	E1D2
11.	**Sprinkler Design** Will the sprinkler valve room be located in the fire pump room? If so, the Fire Safety Engineer will need to confirm if a performance solution is feasible. The Sprinkler Designer is to confirm configuration in the first instance.	E1D4
12.	**EV Charging** Confirm if there are any proposed EV charging stations proposed. If so, the Fire Safety Engineer will need to review and confirm if a performance solution is feasible.	E1D17, E2D21
13.	**EV Storage** Confirm that there are no EV bike storage areas in the lobby's and the like (refer to Building E for example). If so, the Fire Safety Engineer will need to review and confirm if a performance solution is feasible.	E1D17, E2D21
14.	**General comment throughout - Emergency Lifts (Effective Height > 25m – Building B & E)** Confirm which lifts will be emergency lifts and which lifts will be passenger lifts. Where two or more passenger lifts are installed and serve the same storeys, at least two emergency lifts must be provided to serve those storeys.	E3D5
15.	**Weatherproofing** Confirm the wall cladding is in accordance with BCA Clause F3D5 or otherwise. If there are any deviations from the Clause, then the façade engineer will need to review the details and confirm if a performance solution is feasible.	F3D5

Item	Description	BCA Provision
16.	**Room Heights – Sprinkler Clearance** Confirm clear head heights above all storage cages. Note that there will need to be a top / roof to each cage that is minimum 500mm from each sprinkler head. Sprinkler and Mechanical Engineers to review clear head height requirements. The BCA needs a minimum of 2.1m from the floor to the obstruction / ceiling above.	F5D2 (& E1D4)
17.	**Room Heights – Clear Headroom** There are low headroom areas designated on the plans in the following locations: + Basement carparking (unknown if this space is void or accessible). + Ground Floor facility manager (Building B2) and storeroom (Building B1). + Level 08 in Building B1. + Level 09 in Building B1. + Level 10 in Building B2. Confirm the height of each ceiling for further assessment. If it is lower than 2m, Fire Safety Engineer and Ergonomics Consultant may be required to assess the detail and confirm feasibility.	F5D2
18.	**Natural Lighting / Ventilation** Confirm layout will achieve natural lighting and ventilation requirements in accordance with Part F6 of the BCA. That is: + Natural lighting to all habitable rooms for the Class 2's + Natural lighting to all bedrooms to all Class 3's	F6D2
19.	**Wintergardens** The Architect is to confirm if there are any winter gardens proposed in the development. This can create spandrel issues for non AS2118.1 sprinkler protected buildings, as well as service considerations such as EWIS, detection and sprinkler coverage. Bounding construction will also become an issue for further discussion.	Various
20.	**Service Engineers** The various Service Engineers to confirm if there are any additional performance solutions required to be considered by the Fire Safety Engineer. At this stage of the design, the following performance solutions have been proposed: + Deletion of hose reels from non-residential areas. + Additional hydrants outside of the fire-isolated stairs. + Deletion of sprinkler protection at top of lift shafts.	Various

Item	Description	BCA Provision
	+ The current location of the Fire Control Room having one travel path from the front entrance of the building (there is potential that the fire control room will serve multiple buildings – or at a minimum, the FIP will serve multiple buildings). Further review is required during Design Development to confirm the fill list and their feasibility.	
21.	**Clear Head Room** It has been assumed that the low headroom space on Basement 1 is inaccessible – hence a BCA assessment, i.e., travel distance, clear head heights etc have not been assessed in this space.	Various
22.	**Dual Occupancy SOUs** Further discussion is required regarding the dual occupancy SOUs, as it is currently unclear how the bounding construction and stairs will comply. The following items will need further consideration: + Travel distance will need to be adjusted so that it is from the SOU entry door, not the entry airlock door. + There is no landing at the base of the stair to the upstairs SOU. + Access consultant to review and confirm compliance of the airlock / entry way. + Bounding Construction to be detailed at the design development stage. 	Various
23.	**Scissor Stairs** Scissor stairs will require further design development to illustrate compliance on the plans. Several separating walls are not showing. It is understood this will be detailed at the next stage of design.	Various

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at the proposed Marrickville Timberyards. The development consists of a basement carpark a shared retail / public space podium and seven (7) towers.

There is a shared basement proposed under Building A and Building B, along with several communal, retail and commercial spaces for various mixed uses.

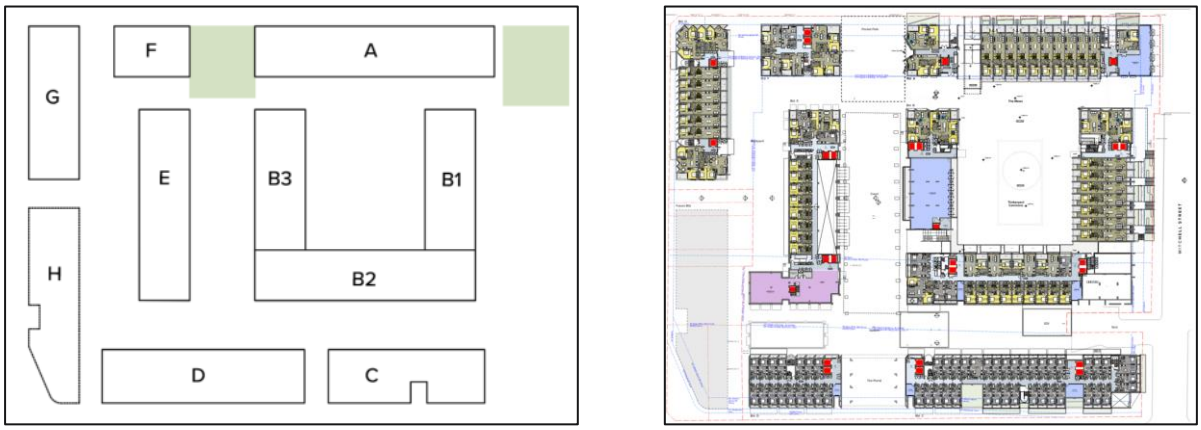


Figure 1 - Site layout of the building

1.2 PURPOSE

The purpose of this report is to provide a high-level assessment of 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 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.

1.5 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.

1.6 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)

Building A = nine (9) storeys (subject to Fire Safety Engineering).

Building B = fourteen (14) storeys (subject to Fire Safety Engineering).

Building C, D = eight (8) storeys.

Building E = fourteen (14) storeys.

Building F = eight (8) storeys.

Building G = eight (8) storeys.

Note that Building C, D, F & G appear to have stairs that connect to the rooftop. The roof top plant areas will need to be further assessed during the detailed design stage as it is currently unclear if additional roofs / ceilings will be added to the rooftop – these would constitute an additional storey and additional effective height to the building.

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building A Building Classification

Class	Level	Description
Class 2	Upper Ground to Level 07	Residential sole occupancy units
Class 7a / 7b	Basement 01 & Ground Level	Car parking & storage spaces

Table 2: Building B Building Classification

Class	Level	Description
Class 2 / 3	Upper Ground to Level 12	Residential sole occupancy units
Class 6	Ground Level	Retail
Class 7a / 7b	Basement 01 & Ground Level	Car parking & storage spaces
Class 8	Ground Level	Substation and loading dock
Class 9b	Ground Level to Upper Ground Level and Level 08 to Level 12	Assembly building use

Table 3: Building C, D Building Classification

Class	Level	Description
Class 3	Upper Ground to Level 06	Residential sole occupancy units
Class 6	Ground Level	Retail
Class 7a	Ground Level	Car parking
Class 9b	Level 06	Assembly building use

Table 4: Building E Building Classification

Class	Level	Description
Class 2 / 3	Upper Ground to Level 12	Residential sole occupancy units
Class 5	Upper Ground	Commercial / office space
Class 6	Ground Level	Retail
Class 7b / 8	Ground Level	Storage / Loading Bay
Class 9b	Ground Floor	Assembly building use

Table 5: Building F Building Classification

Class	Level	Description
Class 2	Ground Level to Level 06	Residential sole occupancy units
Class 6	Ground Level	Retail

Table 6: Building G Building Classification

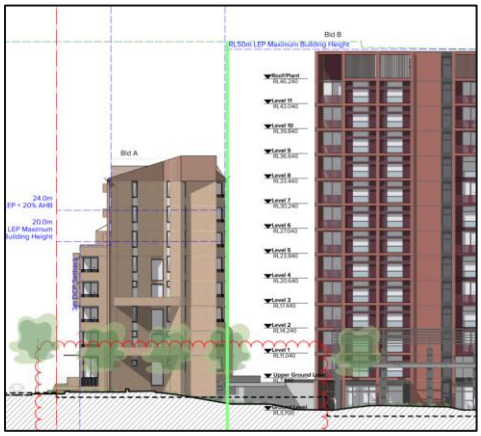
Class	Level	Description
Class 2	Ground Level to Level 06	Residential sole occupancy units

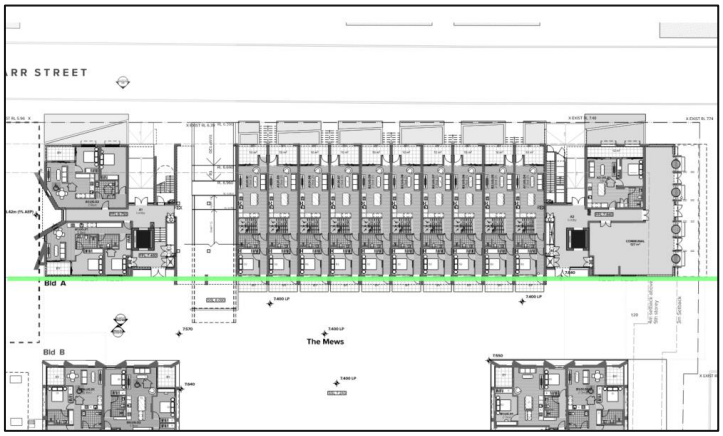
2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

Building A

It is understood that Building A will be fire separated from Building B via a Fire Safety Engineered Performance Solution. The Fire Safety Engineer has sought confirmation that if Building A was considered to be a standalone building, would the effective height be less than 25m.

It has been proposed, for the purposes of this assessment, to nominate the effective height as follows. Further discussion will be required with the Fire Safety Engineer to confirm this is an appropriate assessment for the pending performance solution. The green line below is proposed for determination of the effective height:





It is understood that the landscaping team will be altering the ground level at the lowest point to ensure that the buildings effective height, on the Building A side of the green line, will be less than 25m. The following assessment has been provided at this stage of the design:

The building has an effective height of 23.49m (RL 30.24 – RL 6.75).

This will need to be further detailed and confirmed at the next stage of design to ensure this building remains under 25m in effective height.

Building B

The building has an effective height of 42.96m (RL 46.24 – RL 3.28).

Building C, D

The building has an effective height of 23.99m (RL 27.04 – RL 3.05).

Building E

The building has an effective height of 42.54m (RL 46.24 – RL 3.70).

Building F

The building has an effective height of 24.24m (RL 27.94 – RL 3.70).

Building G

The building has an effective height of 23.34m (RL 27.04 – RL 3.70).

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

Each 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, 9b	Maximum Floor Area	8,000 m^2
	Maximum Volume	48,000 m^3
Class 6, 7b	Maximum Floor Area	5,000 m^2
	Maximum Volume	30,000 m^3
Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17) and as such there are no maximum floor area or volume limitations for this area. Note that due to the large storage portion in the basement, the basement car park may be considered as Class 7b pending a review of the fire rating plans at the next stage of the design. If the basement is considered to be Class 7b, then the maximum compartment size would apply.	
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.	
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C3D3 as Specifications 5 and Clause C4D12 of the BCA regulate the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 buildings.	

2.6 FIRE COMPARTMENTS

The following fire compartments have been assumed:

+ The basement carpark forms a fire compartment.
+ The basement storage portions form separate fire compartments.
+ Class 9b communal spaces form separate fire compartments on Ground Floor and Upper Ground Floor (Building A, B3 & E).
+ Each residential storey forms a separate fire compartment.

- The commercial space on Upper Ground Floor of Building E forms a separate fire compartment.
- The retail portions form a separate fire compartment (Building C, D, E & F).
- The loading dock in Building B forms a separate fire compartment.

Further design development is required to confirm the proposed fire compartments. This can be completed at the next stage of design when fire rating plans are provided for assessment.

2.7 EXITS

The exits, at this stage of the design, have been allocated as such:

- The final exit doors that discharge to open space on Ground Level and Upper Ground Level.
- The doorways that enter the fire-isolated stairways on each storey.

Exits will be further detailed at the next stage of design.

2.8 CLIMATE ZONE

The building is located within Climate Zone 5.

2.9 ENTERTAINMENT VENUE

The NSW variation of the BCA, Part NSWI4 contains additional requirements for entertainment venues. An entertainment venue is defined by the Environmental Planning and Assessment Act 2021 as:

*'**Entertainment venue** means a building used as a cinema, theatre or concert hall or an indoor sports stadium'*.

The subject building has not been considered an entertainment venue for the purposes of this report.

2.10 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 buildings are considered to beimportance level 3. Further discussion with the Structural Engineer is required to confirm importance level.

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.**

Importance Level	Building Types	Jensen Hughes Interpretation and Examples
		Transport facilities
4	Buildings or Structures that are essential to post-disaster recovery or associated with hazardous facilities.	Data centres, evacuation centres

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

2.11 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North East:	The side allotment boundary between Mitchell Street and Farr Street	>3m
South East:	The far boundary of Victoria Road	>6m
North West:	The far boundary of Farr Street	>6m
South West:	The far boundary of Sydenham Road & adjacent allotment	**<3m**

In accordance with Clause S5C2 of Specification 5, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

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

b. is neither transparent nor translucent.

3.0 BCA Assessment

3.1 INTRODUCTION

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

The main purpose of this report is to identify any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D (except Part D4), 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 (eg Façade);
- Fire Safety Systems (eg services, egress and FRL's)
- Waterproofing
- Fire Safety performance solutions

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

3.3 FIRE RESISTANCE AND STABILITY – PART C2 & SPECIFICATION 5

Each building must be constructed to achieve the minimum fire resistance levels outlined within the requirements for Type A Construction.

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

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

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. Further design development is required to confirm compliance; however, concrete and masonry are general proposed that will meet the relevant non-combustibility requirements of BCA Clause C2D10 (non-combustible).

The detail of external wall components such as facade covering, framing, insulation and ancillary elements to be provided at the Construction Certificate stage for further assessment.

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.

3.4 COMPARTMENTATION AND SEPARATION – PART C3

3.4.1 Fire and Smoke separation

The building will contain different fire compartments to satisfy issues of fire resistance and smoke hazard management. Further design development is required to determine the compartments; however, it is envisaged that these will include the following:

1. The basement car parking area underneath Building A & B. Note that due to the large Class 7b storage portion, the compartment may be considered as an oversized storage compartment in lieu of a Class 7a car parking compartment. Ordinarily, no size limitations are imposed on a carpark compartment that is protected with an AS 2118.1 sprinkler system, however, due to the large storage portion, this concession cannot be applied to the basement. Further design development is required to ascertain the compliance pathway for this part of the development.
2. The combined levels of the Community Hub / communal spaces on Ground Floor and Upper Ground Floor.
3. Ground Floor retail portions (Building C, D, E & F).
4. Loading Dock & substation (Building B).
5. The single Commercial tenancy in Building E.
6. Each residential storey is considered to be a fire compartment.
7. Other – TBC.

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, if the building is to be 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.

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 majority of external walls are located more than three (3) metres from any boundary and six (6) meters from another building on the allotment. As such there is no requirement to protect any openings within the external walls for these buildings.

However, Building D & E is within 2.5m of the boundary, hence several public corridor windows will need protection. The Fire Safety Engineer has confirmed the feasibility of a performance solution.

There is likely to be exposure, within the external walls, of the different fire compartments. This can be determined at later design development and openings protected where necessary in accordance with this part.

3.5.2 Bounding Construction

The walls between the Sole-Occupancy-Units (SOUs) and between the 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.

3.5.3 Openings to Fire Walls

The design allows for the appropriate fire wall separation to form the required fire compartments. Openings within these walls will need to be provided with appropriate self-closing fire doors to maintain compartmentation requirements.

3.5.4 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.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

Number of exits

All storeys of the building must of at least one exit or at least two as the case requires. Every occupant of a storey or part of a storey must have access to an exit or two if needed without having to pass through another sole occupancy unit area.

Note that a single exit is required for each building, however Building B and Building E are over 25m in effective height, hence require a minimum of two (2) exits.

The Car park basement area will need to be provided with at least two exits, it is noted that five (5) exits are available.

It is noted that suitable design provision is made for the exits to achieve required fire isolation. Access to the exits is available from public areas, otherwise suitable airlock arrangement could be provided. The discharge at ground level would involve the use of fire engineering assessment to address issue of occupants passing by the external walls of the building.

Travel distances

For the Buildings under 25m in effective height (Building A, C, D, F & G), the doorways of the residential apartments may be up to 12m from an exit or point of choice and up to 30m on the ground floors. Within common areas, no point on the floor may be more than 20m to an exit or point choice to two. There are particular units that exceed 12m to an exit, these would need design adjustment or be subject to Fire Engineering Assessment as described in the executive summary table.

For the buildings over 25m in effective height, there is no concession for increased travel distance. Hence, residential apartments need to be within 6m of an exit or a point of choice.

Egress from other parts of the building (non-residential) 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.

Exits are proposed to be suitably distributed around the building and can be readily added where necessary as the design develops. Fire engineering assessment will likely be necessary for the exit locations within the basement as the distance between alternative exits will exceed the maximum distance of 60m, when measured through points of choice.

A single exit has been provided to the upper ground floor commercial tenancy in Building E in lieu of a minimum of 2 (two) exits. The Fire Safety Engineer has confirmed the feasibility of a performance solution subject to further detailed analysis

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of BCA Clause D2D15 are readily satisfied, subject to a Fire Engineering review of occupants travelling back under Building C, D and the large Class 10 shade structure over Warehouse Place.

Suitable provision has been made for internal paths of travel and exits to achieve their required dimensions and population being served. Appropriate external paths of travel will need to be maintained to the roadways. It is noted that general provision is available and can be further developed as part of ongoing landscape design.

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.

Its considered that the necessary egress provisions can be readily achieved in accordance with this part.

3.6.2 Access for people with a disability

BCA Part D4 has not been assessed within this report. It is assumed a separate Access Consultant has been engaged.

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. This section will need to be further developed as the design progresses and will need extensive input from the relevant service designers.

3.7.1 Part E1 – Fire Fighting Equipment

Fire hydrant

As each building has a floor area greater than 500m2, fire hydrant protection is required. The fire hydrant system will need to be designed and installed to meet the requirements of BCA Clause E1D2 and AS 2419.1-2021.

Fire Hose Reel

The Car park, retail and communal areas will need to be provided with coverage from a fire hose reel system in accordance with BCA Clause E1D3 and AS 2441-2005.

Sprinklers

Each building is required to have a sprinkler system installed as per BCA Clause E1D5 & E1D6 Specification 17/18. The sprinkler system will need to be designed and installed to meet the requirements of AS 2118.1-2017.

Portable Fire Extinguishers

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

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:

Smoke Detection & Alarm System

The development must be provided with a smoke detection and alarm system in accordance with BCA Clauses E2D8 and E2D9 for buildings under 25m in effective height, and E2D5 and E2D6 for buildings greater than 25m in effective height (Building B & E). They must also comply with Specification 20. The system will need to be designed and installed to AS 1670.1-2018.

Automatic Mechanical Shutdown

The Class 9b building/portions will likely have ducted mechanical ventilation or individual units with a capacity more than 1000 L/s, therefore automatic shutdown will be required to the ventilation system throughout the Class 9b parts in accordance with BCA Clause E2D11 and NSW E2D16.

Stair Pressurization

Each fire stair in Building B and E that serve a storey above an effective height of 25m would need to be provided with automatic air pressurisation in accordance with BCA Clause E2D4 and AS 1668.1-2015.

Automatic Smoke Exhaust

If the retail or Class 9b portion have a fire compartment with an area over 2000m^2, then it will need to be provided with an Automatic Smoke Exhaust System in accordance with BCA Clause E2D14, E2D15 or NSW E2D19 complying with Specification 21 and AS 1668.1-2015. Although fire rating plans have not been provided, it has been assumed that the retail / Class 9b portions could be designed in a way where the compartment would be under 2000m^2, hence no smoke exhaust would be required. Further information is required.

3.7.3 Part E3 – Lift Installations

It is noted that passenger lifts will service the various parts of the building. Lifts are provided to the building and are located within their own shaft, serviced by a common lobby.

The lifts that connect each building require stretcher facilities as they serve a height above twelve (12) metres in *effective height* and the dimensions of the shaft are sufficient to allow compliance for a 1400 mm width x 2000 mm length lift car. Fire services controls are also required.

Building B and E require emergency lifts as they serve a building with an effective height of more than 25m. Where two or more passenger lifts are installed and serve the same storeys, at least two emergency lifts must be provided to serve those storeys; and if located within different shafts, at least one emergency lift must be provided in each shaft in accordance with BCA Clause E3D5. Lift floor dimensions shall be not less than 1400 mm wide x 2000 mm deep. Fire services controls are also required.

It is expected that all lifts will readily achieve compliance with the requirements of this part.

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

Each building is required to be provided with emergency lighting and exit signs.

- Emergency lighting is required as per BCA Clause E4D2 for all non-fire-isolated and 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 each building, including directional exit signs to guide occupants to the designated exits in the building.

It is considered these systems will be readily provided in accordance with this part.

3.8 FACILITIES IN CLASS 2 PORTIONS – 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

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

- A closet pan;
- Bath or Shower
- Kitchen
- Laundry facilities

It is considered that suitable provision is made for the required sanitary facilities to be provided in accordance with this part.

3.9 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

The Communal and Retail area will need to ensure that suitable facilities are available to service employees and other occupants of this part. Separate facilities for both male and female will be necessary with numbers and population served determined in accordance with BCA Clause F4D4. A performance solution is proposed

at this stage of the design to permit unisex bathroom facilities. The proposed unisex sanitary facilities will need to be redesigned so that each WC cubicle contains its own, separate basin.

3.9.1 Retail Populations

The following retail population has been determined based on the floor space of the total Ground Floor retail portion.

Ground Floor Retail*			
Location	**Area (m^2)**	**D2D18 requirement**	**TOTAL (occupants)**
Class 6 Retail (Mall)	1,020	3m^2/person	340
Class 6 Retail (F&B)	1,020	1m^2/person	1,020
TOTAL			**1,360**
For 1,360 occupants, the staff population has been assumed at 10% of the population, hence it is assumed that there will be 136 staff and 1,224 patrons using the retail parts of the building.			

Note: The retail population has been broken down into 50% mall / specialty shop type retail, and the other 50% as food and beverage (café / restaurant). Should this assumption change, then more or less bathrooms would be required.

3.9.2 Facilities in Class 3 to 9 Buildings – Part F4

The number of facilities *required* have been calculated in accordance with Clause F4D3 and D2D4 whilst using the Class 6 populations above:

At this stage of the design, it has been proposed that each food and beverage retail tenancy will provide their own sanitary facilities according to their fitout and proposed population. Hence their number of facilities have not been included in the below count.

Retail Amenities			
Patrons	**Closet Pans (required / illustrated)**	**Urinals (required / illustrated)**	**Washbasins (required / illustrated)**
Class 6 Retail (Mall)			
Male Staff (17)	1	1	1
Female Staff (17)	2	-	1
Male Patrons (153)	1	1	1
Female Patrons (153)	1	-	1
TOTAL MALE	**2**	**2**	**2**
TOTAL FEMALE	**3**	**-**	**2**

Note: The accessible bathroom has been counted at least once towards every sex.
Note 2: Employees and the public may share facilities in a Class 6 and Class 9b building.

It is noted that the Building D retail portion on Ground Floor has an allowance for a bank of toilets. It is considered that with further design development, these facilities could be utilised to satisfy compliance.

3.9.3 Class 9 Populations

The following retail population has been determined based on the floor space of the total Ground Floor and Upper Ground Floor Class 9b communal spaces.

No allowance has been provided for Warehouse Place. This area should be discussed in more detail, as it is currently unclear what the undercover space would be used for. Considering the indoor communal spaces only, the following population has been determined:

Public Hall Space			
Location	**Area (m^2)**	**D2D18 requirement**	**TOTAL (occupants)**
Class 9b Function	1,000	1m^2/person	1000

3.9.4 Facilities in Class 3 to 9 Buildings – Part F4

The number of facilities *required* have been calculated in accordance with Clause F4D3 and D2D4 whilst using the Class 9b populations above:

Retail Amenities			
Patrons	**Closet Pans (required / illustrated)**	**Urinals (required / illustrated)**	**Washbasins (required / illustrated)**
Male Staff (50)	3 / **2 (40)**	2 / 2 (50)	2 / 2 (60)
Female Staff (50)	4 / **3 (45)**	-	2 / 2 (60)
Male Patrons (450)	3 / **2 (200)**	7 / **4 (200)**	4 / 4 (600)
Female Patrons (450)	8 / **5 (200)**	-	4 / 4 (550)

Note: The accessible bathroom has been counted at least once towards every sex.
Note 2: Employees and the public may share facilities in a Class 6 and Class 9b building.
Note 3: The bathrooms off Hardware lane and the on grade carpark have been allocated to the Class 9b.

The current layout of the bathrooms that have been allocated to the Class 9b portion would not suffice. They are currently shown as unisex with a combined space for basins. If a performance solution is proposed for the amenities, then each cubicle will need to have a basin and WC inside.

Notwithstanding above, there is still a shortfall in sanitary facilities. The current bathrooms, if shown with a basin inside each cubicle, would provide for 80 staff and 400 patrons in accordance with BCA Table F4D4L.

3.9.5 Class 5 Population (Upper Ground Floor – Building E)

The following office population has been determined based on the floor space of the total Upper Ground Floor commercial space.

Commercial Space			
Location	**Area (m^2)**	**D2D18 requirement**	**TOTAL (occupants)**
Class 5 – Building E	300	10m^2/person	30

3.9.6 Facilities in Class 3 to 9 Buildings – Part F4

The number of facilities *required* have been calculated in accordance with Clause F4D3 and D2D4 whilst using the Class 9b populations above:

Retail Amenities			
Patrons	**Closet Pans (required / illustrated)**	**Urinals (required / illustrated)**	**Washbasins (required / illustrated)**
Male Staff (15)	1	1	1
Female Staff (15)	1	-	1

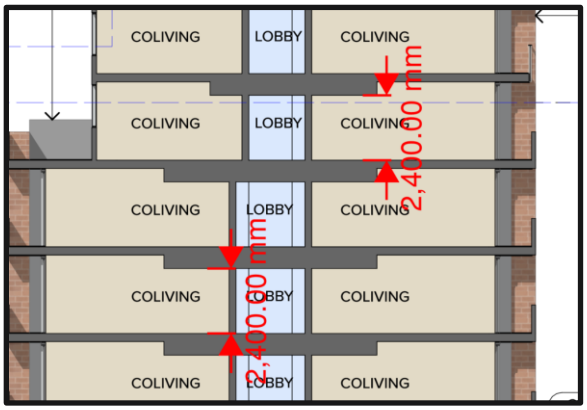
Note: The accessible bathroom has been counted at least once towards every sex.
Note 2: Employees and the public may share facilities in a Class 6 and Class 9b building.

It is noted that the Building E commercial portion on Upper Ground Floor has an allowance for a bank of toilets. It is considered that with further design development, these facilities could be utilised to satisfy compliance.

The current bathrooms are currently shown as unisex with a combined space for basins. If a performance solution is proposed for the amenities, then each cubicle will need to have a basin and WC inside and be designed as an ambulant facility.

3.10 ROOM HEIGHTS – PART F5

The section drawings indicate that the ceiling heights for all habitable spaces, corridors, and the like can achieve the minimum height of 2,400 mm. In non-habitable rooms such as toilets, garages and storage rooms, the ceiling height is no less than 2,100 mm. There are instances where the slab height is down to 2,400mm in co-living SOUs, and it is unclear where these occur. If these are bathrooms, then the finished ceiling height can be down to 2,100mm.



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

Note: If storage cages are used in the Class 7b portion of the buildings, it is important to consider a minimum of 500mm space below the sprinkler heads are required as per AS 2118.1. Additional vertical elements might be required to prevent storing goods within the required clearance for the sprinkler heads.

3.11 LIGHT AND VENTILATION – PART F6

3.11.1 Residential Accommodation & Class 9b Buildings

3.11.1.1 Method and extent of natural light

Class 2

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.

Class 3

Natural light is required to all bedrooms in a Class 3 building. The plans have been assessed which reveals that bedrooms are generally served by windows. The area of the 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.

Details of window openings will need to be assessed during design development, however it is expected that required natural lighting will be available in accordance with the requirements of this part.

3.11.1.2 Ventilation of rooms

Ventilation is required to all rooms and occupiable spaces within the 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 carpark (other than an *open-deck* carpark) is required to have a mechanical ventilation system complying with AS1668.2.

Details of methods of ventilation will need to be assessed during design development, however it is expected that required ventilation will be available in accordance with the requirements of this part.

3.12 SOUND TRANSMISSION AND INSULATION – PART F7

Both Class 2 and Class 3 sole occupancy units are subject to sound insulation requirements of this part. It is considered that provision is available within the design for the requirements of this Part to be achieved (to be designed and assessed by an acoustic engineer at the Construction Certificate stage).

3.13 CONDENSATION MANAGEMENT – PART F8

The provisions of this part are applicable to the Class 2 SOUs. It is considered that provision is available within the design for the requirements of this Part to be achieved.

3.14 ENERGY EFFICIENCY - SECTION J

To be separately assessed by Energy Consultant.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 7: Architectural Plans

Architectural Plans Prepared by Turner et al.			
Drawing Number	**Revision**	**Date**	**Title**
DA-110-006	01	12.12.24	Basement 01
DA-110-007	01	12.12.24	Ground Level - Victoria Road
DA-110-008	01	12.12.24	Upper Ground Level – Farr Street
DA-110-010	01	12.12.24	Level 01
DA-110-020	01	12.12.24	Level 02
DA-110-030	01	12.12.24	Level 03
DA-110-040	01	12.12.24	Level 04
DA-110-050	01	12.12.24	Level 05
DA-110-060	01	12.12.24	Level 06
DA-110-070	01	12.12.24	Level 07
DA-110-080	01	12.12.24	Level 08
DA-110-090	01	12.12.24	Level 09
DA-110-100	01	12.12.24	Level 10
DA-110-110	01	12.12.24	Level 11
DA-110-120	01	12.12.24	Level 12
DA-110-200	01	12.12.24	Roof Level
DA-110-701	01	12.12.24	South Elevation
DA-110-801	01	12.12.24	North West Elevation

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.

These Tables will need to be customised for each building once the Service Engineers and Fire Safety Engineer have reviewed. Any feedback / comments will be placed into the final Construction Certificate Stage report.

Table 8: Buildings Under 25m - Essential Fire Safety Measures

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

Item	Essential Fire and Other Safety Measures	Standard of Performance
5.	Fire shutters (TBC)	**BCA2022 C4D5** (Acceptable methods of protection) **BCA2022 Specification 12** AS1905.2-2005
6.	Lightweight construction (TBC)	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C4D12** (Bounding Construction) **BCA2022 C3D13** (Separation of Equipment) **BCA2022 D3D7** (Smoke Lobby) **BCA2022 D3D12** (Fire Isolated Passageways) AS1530.4:2014
7.	Smoke Walls	**BCA2022 C3D15** (Public Corridors Class 2/3) **BCA2022 D3D5** (Separation of Rising and Descending Stair Flights)
8.	Smoke Doors + Smoke Seals + Swing in direction of egress/or both ways + Connected to AS1670.1:2018 if held open Smoke detectors within 1.5m both sides + Fail close on power failure	**Specification 11** **BCA2022 C3D15** (Public Corridors Class 2/3) Clause S11C2 **BCA2022 Specification 12** AS1670.1:2018
General		
9.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
General Egress		
10.	Operation of Door latches	**D3D26** (Operation of Latch) AS 1670.1:2018 (TBC)
11.	Swing of Exit Doors	**D3D24** (Swinging Doors)
12.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
13.	Stretcher Lifts including + Fire Service Controls	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	+ Recall Operation + Drive control switch	**BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
14.	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)
15.	Automatic fire detection & alarm Note: if there is a SSISEP or EWIS applies different dB(A) i.e. At bedheads not SOU doors.	**BCA2022 Part E2,** NSW Part E2 **Specification 20** **BCA2022 D3D26** (Operation of Latch)(TBC) **Specification 12** **BCA2022S20C5** (Combined smoke alarm and smoke detection system) **BCA2022S20C6** (Smoke detection for smoke control systems) **BCA2022S20C7** (BOWS) **BCA2022S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 (Fire) – Section 4 and 5 (Detectors) AS 1670.3:2018 (Fire Alarm Monitoring) AS 1670.4:2018 (EWIS)
16.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
17.	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
18.	(TBC) Emergency warning and intercom system (EWIS) (EWIS or SSISEP) *(Pending further review form the Detection Designer – EWIS will be required if the building has Class 9b*	**(TBC) BCA2022 E4D9** AS 1670.4:2018 (SSISEP) AS 1670.4:2018 (EWIS)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	portions of 1,000m2 that can be used as a public hall).	
19.	System Monitoring	**BCA2022 S20C8** AS 1670.3:2018 Monitoring Required for any Sprinkler System
Hydraulic Services		
20.	Automatic fire suppression systems **Note:** BCA E2D8 could be N/A if the building is provided with an AS 2118.1 system.	**BCA2022 E1D4, E1D5, E1D6, E1D8, E1D9.** **BCA2022 Specification 17 / 18** AS 2118.1:2017 (Sprinklers) (TBC)
21.	Fire hydrant systems + NSW Storz Couplings	**BCA2022 E1D2** **BCA2022 C3D13 (Separation of Equipment)** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
22.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
23.	Wall-wetting sprinkler / drenchers (TBC)	**BCA2022 C4D5,** AS 2118.2: Wall-wetting sprinkler / drenchers
Mechanical Services		
24.	Fire dampers	**BCA2022 E2, Specification 20, Specification 21** **BCA2022 C4D16** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
25.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark. 3. 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;	**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.

Item	Essential Fire and Other Safety Measures	Standard of Performance
	+ non-ducted individual room units with a capacity of not more than 1000 L/s; or + miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	
E2D3 General Requirements 1. An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 to E2D20 and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must, subject to (2), be designed and installed— a. to operate as a smoke control system in accordance with AS 1668.1; or b. such that it— i. incorporates smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and ii. is arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1. 2. For the purposes of (1), each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment. 3. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with these Sections of the Standard. 4. A smoke detection system must be installed in accordance with S20C6 to operate AS 1668.1 systems that are provided for zone pressurisation and automatic air pressurisation for fire-isolated exits		
Fire Safety Engineering		
	TBC	TBC

Table 9: Buildings Over 25m - Essential Fire Safety Measures

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

Item	Essential Fire and Other Safety Measures	Standard of Performance
6.	Fire windows (TBC)	**BCA2022 C4D3** (Protection of Openings) **BCA2022 C4D4** (Separation of external walls and associated openings in different fire compartments) **BCA2022 C4D5** (Acceptable Methods of Protection) **BCA2022 C4D9** (Openings in Fire Isolated Exits) **BCA2022 C4D12** (Bounding Walls) **BCA2022 D2D12** (Travel Via Fire Isolated Exits) **BCA2022 D2D13** (External Stairways or Ramps in Lieu of Fire-Isolated Exits) **BCA2022 Specification 12** identical to tested porotype
7.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C3D8** (Fire Walls) **BCA2022 C3D9** (Separation – same storey) **BCA2022 C4D12** (Bounding Construction) **BCA2022 C3D13** (Separation of Equipment) **BCA2022 D3D7** (Smoke Lobby) **BCA2022 D3D12** (Fire Isolated Passageways) AS1530.4:2014
8.	Smoke Walls	**BCA2022 C3D6, Specification 11** **BCA2022 C3D15** (Public Corridors Class 2/3) **BCA2022 D3D5** (Separation of Rising and Descending Stair Flights)
9.	Smoke Doors	**Specification 11** **BCA2022 C3D15** (Public Corridors Class 2/3) Clause S11C2 **BCA2022 D3D5** (Separation of Rising and Descending Stair Flights) **BCA2022 Specification 12** AS1670.1:2018
General		
10.	Fire control centres & rooms + >25m	**BCA2022 E1D15, Specification 19** (Fire Control Centres)

Item	Essential Fire and Other Safety Measures	Standard of Performance
11.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
12.	Fire blankets	AS 2444–2001
General Egress		
13.	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) AS 1670.1:2018 (Fire)
14.	Operation of Door latches + Failsafe + Manual Push Button Control	**D3D26** (Operation of Latch) AS 1670.1:2018
15.	Swing of Exit Doors	**D3D24** (Swinging Doors)
16.	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		
17.	Access to Lift Pits + Located at lowest level or if >3m provided through an access door	**BCA2022 D2D22** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
18.	Emergency lifts +	**BCA2022 E3D5** AS 1735.1:2003 (Appendix A) or AS 1735.2:2001
19.	Stretcher Lifts including + Fire Service Controls + Recall Operation + Drive control switch	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls) **BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
20.	Automatic fail safe devices + Auto open Sliding Exit doors	**BCA2022 D3D26** (Operation of Latches)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	+ Break Glass release	**BCA2022 D3D27** (Re-entry from fire-isolated stairs) AS1670.1:2018 (Fire)
21.	Automatic fire detection & alarm Note: if there is a SSISEP or EWIS applies different dB(A) i.e. At bedheads not SOU doors.	**BCA2022 Part E2,** NSW Part E2 **Specification 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** **BCA2022S20C5** (Combined smoke alarm and smoke detection system) **BCA2022S20C6** (Smoke detection for smoke control systems) **BCA2022S20C7** (BOWS) **BCA2022S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018
22.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
23.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018
24.	Emergency warning and intercom system (EWIS) (EWIS or SSISEP) + >25m Residential areas: 75 dB(A) at all bedheads.	**BCA2022 E4D9** AS 1670.4:2018 (SSISEP) AS 1670.4:2018 (EWIS)
25.	System Monitoring	**BCA2022 S20C8** AS 1670.3:2018 Monitoring Required for any Sprinkler System
Hydraulic Services		
26.	Automatic fire suppression systems	**BCA2022 E1D4, E1D5, E1D6, E1D8, E1D9.** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers)
27.	Fire hydrant systems + NSW Storz Couplings + On-site water storage (>25m)	**BCA2022 E1D2** **BCA2022 C3D13 (Separation of Equipment)**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
28.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
29.	Wall-wetting sprinkler / drenchers (TBC)	**BCA2022 C4D5,** AS 2118.2: Wall-wetting sprinkler / drenchers
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
31.	Mechanical air handling systems Mechanical ventilation to carpark. 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; + non-ducted individual room units with a capacity of not more than 1000 L/s; or + miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015. Zone Pressurisation System. Fire Isolated Exit Pressurisation System	**BCA2022 E2, E2D4, E2D6** **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.
E2D3 General Requirements 1. An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 to E2D20 and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must, subject to (2), be designed and installed— a. to operate as a smoke control system in accordance with AS 1668.1; or b. such that it—		

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

Annexure C - Fire Resistance Levels

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

Type A Construction

Table 10: Type A Construction

Table S5C11a: Type A construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/90/90	180/180/180	240/240/180
3m, or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3 m	-/60/60	-/90/90	-/180/120	-/240/180
3m, or more	-/-/-	-/-/-	-/-/-	-/-/-

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

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

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

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

Table S5C11e: Type A construction: FRL of loadbearing internal walls

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

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

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

the discharge of hot products of combustion				

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

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

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

Annexure D - Definitions

Effective height

Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).

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.

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.

Sole-occupancy unit

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

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

3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

Annexure E - BCA Compliance Specification

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

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with S5C11 of Specification 5 of BCA2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
3. Building elements, including external walls and their components in buildings of Type A Construction, must be non-combustible in accordance with C2D10 of BCA2022.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C2D11 and Specification 7 of BCA2022.
5. Any fire-protected timber proposed will comply with Clause C2D13 of BCA2022 (assumed nil).
6. Any ancillary elements fixed, installed, or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C2D14 of BCA2022.
7. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C3D7 of BCA2022. It is noted that no spandrel separation is required in the stairway or to a void.
8. The external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
9. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C3D9 and Specification 5 of BCA2022.
10. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
11. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
12. 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.
13. The public corridors will be divided into intervals of not more than 40m in length with smoke proof walls in accordance with Clause C3D15, and S11C2 of Specification 11 of BCA2022. The smoke doors shall swing in both directions, or otherwise be installed to swing in the direction of egress.
14. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
15. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
16. 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.
17. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.

18. 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.
19. 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.
20. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
21. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
22. 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.
23. 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.
24. 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.
25. Smoke-proof walls and doorways required in BCA Clause C3D15 will be in accordance with Specification 11 of BCA2022.
26. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
27. Smoke doors will be installed in accordance with Specification 12 of BCA2022.
28. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
29. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
30. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
31. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
32. The alternative exits will be distributed uniformly around the storey and will be not be less than 9m apart, and not more that 45m apart in any residential portions (for Building B), or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.
33. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
34. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
35. The external stairway or ramp serving as a required exit will be in accordance with Clause D2D13 of BCA2022.
36. Smoke separation will be provided between the exit stairs at the level of discharge in accordance with Clause D2D14 of BCA2022.
37. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
38. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.

39. 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.
40. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
41. 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.
42. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
43. 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.
44. The smoke lobby to the fire-isolated exit will be constructed in accordance with Clause D3D7 of BCA2022.
45. 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.
46. 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.
47. 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.
48. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
49. 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.
50. 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.
51. 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.
52. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
53. 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.
54. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
55. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
56. Re-entry doors from the fire-isolated exits will be in accordance with Clause D3D27 of BCA2022.
57. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.

58. The openable portion of a window in a Class 2 or 3 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.
59. The fire control centre will be in accordance with Clause E1D15 and Specification 19 of BCA2022.
60. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.
61. (TBC) 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.
62. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
63. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
64. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
65. 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.
66. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
67. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
68. Sub-floor ventilation will be provided in accordance with Clause F1D8 of BCA2022.
69. 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.
70. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
71. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
72. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
73. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
74. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
75. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
76. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
77. 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.
78. 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.

79. 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.
80. The stoves, heaters or similar appliances installed in the building will be in accordance with AS/NZS 2918:2018 and Clause G2D2 of BCA2022.
81. Boilers and pressure vessels shall be installed in accordance with Specification G2D2 of BCA2022.
82. The atrium will be in accordance with Part G3, and Specification 31 of BCA2022.
83. The building is within a bushfire prone area therefore will be in accordance with Part G5 of BCA2022. (Note: See NSW G5D3 Variation below)
84. 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.
85. 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.
86. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.
87. Glazing will be in accordance with Part J4 of BCA2022.
88. Building sealing will be in accordance with Part J5 of BCA2022.
89. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

Electrical Services Design Certification:

90. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
91. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
92. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
93. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
94. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
95. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
96. 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:

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

101. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and Specification 18.
102. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
103. 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:

104. 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.
105. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
106. A zone pressurisation system will be installed in the building in accordance with E2D6 of BCA2022
107. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
108. Every storey of the car park will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
109. (TBC) 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.
110. Exhaust systems installed in a kitchen, bathroom, sanitary compartment, or laundry of a Class 2 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F8D4 of BCA2022.
111. Where exhaust discharges directly or via shaft into a roof space of a Class 2 sole-occupancy unit, ventilation of the roof space will comply with Clause F8D5 of BCA2022.
112. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022
113. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

114. 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.

115. 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.
116. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
117. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
118. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.
119. 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:

120. 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.
121. 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.
122. An emergency lift will be provided in the building in accordance with Clause E3D5 of BCA2022.
123. 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.
124. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
125. 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.
126. 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.
127. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
128. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

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