BCA ASSESSMENT REPORT

277 The Grand Parade, Ramsgate

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PREPARED FOR

PREPARED BY





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Executive summary

This document provides an assessment of the architectural design drawings for the proposed development at 277 The Grand Parade, Ramsgate, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2022.

The development constitutes the construction of a multi storey residential tower incorporating two storeys of basement carparking, three storeys of retail space, and three storeys of short stay hotel accommodation. The report **does not** purport to any assessment of the 'proposed Voluntary Planning Agreement (VPA)' works in B1, B2, & GF storeys of the development.

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.

Considering that fire engineered Performance Solutions are required to demonstrate the compliance of critical fire safety matters in the project with the Performance Requirements of the BCA (e.g., atrium and large isolated building), it is critical to engage with a registered fire safety engineer to assess the feasibility of the below Performance Solutions. Note that this report does not infer that the below Performance Solutions are appropriate nor feasible.

ltem	Description	BCA Provision
Perfo	rmance Solutions required	
1.	A holistic fire engineered Performance Solution is to be sought to rationalise the required FRL's throughout the entire building, noting that all storeys and Classifications requiring different FRL's in the building are connected by the open voids around the carpark ramps, escalators, stairways, and atrium.	Clause C2D2 and Specification 5
2.	The building exceeds the maximum allowed fire compartmentation size and will be considered as a large isolated building with the provision of vehicular access requirements around the building. This is subject to extensive fire engineering assessment to address the requirements of a large isolated building in accordance with	Clause C3D4 & C3D5
	proposed around the entirety of the building.	
3.	A further review of the travel distances should be undertaken for the Construction Certificate stage and once the retail tenancy fit- out and loading dock details have been supplied (currently there is no exit path for the occupants in the loading dock).	
	A Performance Solution will be required to rationalise extended travel distances on those impacted storeys identified by this report as per below:	Clause D2D5 & D2D14
	 Exceeded exit travel distance on Basement 2 (53m in lieu of 40m) 	

	 Exceeded exit travel distance on Basement 1 (55m in lieu of 40m) 	
	 3- Exceeded exit travel distance on Ground level (68m in lieu of 40m) 	
	4- Exceeded exit travel distance on the second level using the fire stair, travel on the first level and exit the building using a non-fire isolated stair (98m in lieu of 80m):	
	 5- Exceeded exit travel distance on the residential storeys (L3 – L5) using the fire stair, travel on the first level and exit the building using a non-fire isolated stair as following: 	
	a) 101m in lieu of 60m on L3	
	b) 111m in lieu of 60m on L4	
	c) 121m in lieu of 60m on L5	
	6- Exceeded travel distance to the point of choice on the residential storeys (L3 – L5) (15.5m in lieu of 12m)	
4.	A fire engineered Performance Solution is required to rationalise the distance between alternative exits exceeding the requirements identified by this report as per below:	
	 Exceeded travel distance between alternative exits on Basement 2 (98m in lieu of 60m): 	
	 Exceeded travel distance between alternative exits on Basement 1 (102m in lieu of 60m): 	Clause D2D6
	 3- Exceeded travel distance between alternative exits on L2 (77m in lieu of 60m): 	
	 4- Exceeded travel distance between alternative exits on the residential storeys (L3 – L5) (72m in lieu of 45m) 	
5.	A fire engineered Performance Solution is required to rationalise reduced aggregate exit widths throughout the first-floor storey where a proposed population of ~1,500 occupants is expected by the client and the minimum required aggregate egress widths are not currently proposed.	Clause D2D8
6.	 A fire engineered Performance Solution is required to address the travel via fire-isolated exits due to multiple DtS non-compliances raised in part 3.6.3 of this report including: a) The fire isolated stairways serving levels 3 to 5 do not discharge to the road or open space. 	Clause D2D12
	b) The path of travel is passing within 6m of the external wall.	
	 c) The discharge of the fire isolated exits at first floor level, being a space within the confines of the building used for 	

	pedestrian movement, requires occupants to travel more than the permitted 20m to reach a road or open space.	
	d) The fire stairs from basement level discharge next to external walls of the building, one being the large carpark opening which will be impossible to protect.	
7.	A Performance Solution is required to address the available access to the fire control room which is located at basement level and only accessible from a doorway into the fire-isolated exit.	E1D15 & Specification 19
8.	A Performance Solution is required to address the special hazard due to the charging of electric vehicles in the building.	Clauses E1D17 and E2D21
9.	As there is no DtS solution available for the swimming pool drainage system, a performance solution is required to address the drainage requirements of the swimming pool.	G1D1 (No DtS requirements)
10.	The building includes an atrium which connects multiple storeys. It is required/recommended that the fire safety measures associated with the atrium be assessed holistically by a fire engineer. Note: this report does not include a detailed assessment of the atrium fire safety measures, such as the requirements pertaining to the atrium well and walls and barriers bounding the atrium well, pending input from the fire engineer on what fire safety measures they deem necessary commensurate with the size and location of the atrium void connections through the building.	Part G3 & Specification 31
Build	ing Code of Australia compliance matters to be addressed	
1.	Fire Resistance Levels	Specification 5
2.	General Floor Area and Volume Limitations	Clause C3D3
3.	Electricity Supply System	Clause C3D14
4.	Public Corridors in a Class 2 and 3 Building	Clause C3D15
5.	Number of Exits	Clause D2D3
6.	When Fire Isolated Stairways and Ramps are Required	Clause D2D4
7.	Exit Travel Distances	Clause D2D5
8.	Distance Between Alternative Exits	Clause D2D6
9.	Dimension of Exits	Clause D2D8
10.	Travel via Fire Isolated Exits	Clause D2D12
11.	Non-required Stairways, Ramps, or Escalators	Clause D2D17
	Poof as Open Space	Clause D3D13

13.	Fire Hydrants	Clause E1D2
14.	Fire Hose Reels	Clause E1D3
15.	Sprinklers	Clause E1D4
16.	General Requirements (Smoke)	Clause E2D2
17.	Stretcher Facilities in Lifts	Clause E3D3
18.	Sanitary Facilities in Class 3 to 9 Buildings	Clause F4D4
19.	Swimming Pools	Clause NSW G1D2
Furth	er information required	
1.	A registered fire safety engineer shall be consulted to verify the feasibility of the fire engineered Performance Solutions identified in this report.	BCA Section C, D & E
2.	Detailed and accurate fire compartments drawings are required for further assessment of the requirements for FRL's and fire safety systems which are governed by the sizes of fire compartments.	BCA Sections C & E
3.	Finalise general arrangement plans at Construction Certificate stage for greater detail around exit locations and travel distances of ground floor retail tenancy, and loading dock	Clause D2D5
4.	Detailed drawings of fire stairs required for further assessments of treads, risers, and handrails in accordance with Section D3 of the BCA.	BCA Part D3

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 277 The Grand Parade, Ramsgate. The development constitutes the construction of a multi storey residential tower incorporating two storeys of basement carparking, three storeys of retail space, and three storeys of short stay hotel accommodation. The report <u>does not</u> purport to any assessment of the 'proposed Voluntary Planning Agreement (VPA)' works in B1, B2, & GF storeys of the development.



Figure 1 - Site location (Nearmap)

1.2 PURPOSE

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

1.3 BUILDING CODE OF AUSTRALIA

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

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

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code (**NCC**) Series Volume One – Building Code of Australia, 2022 Edition (**BCA**), incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version

applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is currently updated on a three-yearly cycle.

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

1.4 LIMITATIONS

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

- 1. the structural adequacy or design of the building;
- the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
- 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
- the Disability Discrimination Act 1992 including the Disability ((Access to Premises Buildings) Standards 2010 – unless specifically referred to), (Note: the provisision of access for people with a disability <u>has not</u> been assessed against the Deemed-to-Satisfy Provisions);
- 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;
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
- 7. Conditions of Development Consent issued by the Local Consent Authority.

1.5 DESIGN DOCUMENTATION

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

2.0 Building Description

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

2.1 RISE IN STOREYS (CLAUSE C2D3)

The building has a rise in storeys of six (6).

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 7a	Basement 2	Carparking, Bicycle & Plant rooms
Class 7a	Basement 1	Carparking & Plant rooms
Class 6 & 7b	Ground floor	Hotel Reception, Retail & Loading Dock
Class 6, 7b, & 9b	First Floor	Retail/Bar Tenancies, Storage, & Assembly Space
Class 6, 9b & 10b	Second Floor	Retail & Assembly Space, Yoga & Gym, and Swimming Pool
Class 3	Third through to Fifth Floors	Sole Occupancy Units (SOUs)

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an effective height of 19.650m (RL 22500 - 2850).

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

The building is required to be of Type A Construction.

2.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C3D3)

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

Class 9b	Maximum Floor Area	8,000m ²
	Maximum Volume	48,000m ³
Class 6 & 7b	Maximum Floor Area	5,000m ²
	Maximum Volume	30,000m ³
Class 7a	The carpark is to be provided v	vith a sprinkler system (other than a

FPAA101D or FPAA101H system) complying with Specification 17 and as such there are no maximum floor area or volume limitations for this area.

Class 3 The Class 3 portions of the building are not subject to floor area and volume limitations of C3D3 as Tables S5C11a to S5C11g of Specification 5 and Clause C4D12 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 3 classifications.

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

- 1. Basement and Ground storeys are considered a single *fire compartment* whereby a non-required escalator connects each storey and is not separated by the required FRL of a *fire wall* as per the definition of a *fire compartment* contained within Schedule 1 of the BCA.
- 2. Due to connection between storeys in the building via the atrium, open stairways and escalators and discharge of residential units via the fire-isolates stairs on level 2, the building exceeds the maximum allowed fire compartmentation size and will be considered as a large isolated building with the provision of vehicular access requirements around the building.

This is subject to extensive fire engineering assessment to address the requirements of a large isolated building in accordance with BCA C3D4.

2.7 EXITS

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

1. Three (3) exits on the basement (B2):



Figure 2 - Exits on the basement (B2)

2. Three (3) exits on the basement (B1):



Figure 3 - Exits on the basement (B1)

3. Five (5) exits on the ground floor (the location of exit doors providing egress for the people in the loading dock to be shown on the drawings for further assessment):



Figure 4 - Exits on the ground floor

4. Three (3) exits on the first floor:



Figure 5 - Exits on the first floor

5. Two (2) exits on the second floor:



Figure 6 - Exits on the second floor

6. Two (2) exits on the third, fourth and fifth floors:



Figure 7 - Exits on third, fourth and fifth floors

2.8 CLIMATE ZONE

The building is located within Climate Zone 5.

2.9 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far road-side boundary of Ramsgate Road; more than 6m setback proposed.

South: The side boundary of the allotment; Om setback proposed.

East: The far road-side boundary of The Grand Pde; more than 6m setback proposed

West: The rear boundary of the allotment; 0m setback proposed.

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

- a. has an FRL of not less than 30/-/-; and
- b. is neither transparent nor translucent.

3.0 BCA Assessment

3.1 INTRODUCTION

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

The main purpose of this report is to address any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), the accessibility requirements (Section D4), for the detailed design of services (Section E), or Acoustic requirements.

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

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

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

3.3 FIRE RESISTANCE AND STABILITY – PART C2 & SPECIFICATION 5

Each building element is to achieve the require Fire Resistance Levels (FRLs) Prescribed by Tables S5C11a to S5C11g of Specification 5 and Annexure C of this report. As the storeys are connected via an atrium, the higher FRLs need to be applied throughout the entire building. A fire engineering solution needs to be provided to address the fire resistance levels of the whole building's elements and atrium fire protection requirements.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible.

3.4 COMPARTMENTATION AND SEPARATION – PART C3

3.4.1 General floor areas and volume limitations (C3D3)

Due to connection between storeys in the building via an atrium and other voids around stairways, escalators and carpark ramps, the building exceeds the maximum allowed fire compartmentation size and will be considered as a large isolated building with the provision of vehicular access around the building which is not available.

This is subject to providing detailed fire compartmentation drawings and an extensive fire engineering assessment to address the requirements.

3.4.2 Electricity supply systems (C3D14)

The substation proposed at the ground floor of the building will require the construction of the room achieving an FRL of 120/120/120 and the door openings protected with a self-closing fire door achieving an FRL of -/120/30.

3.4.3 Public Corridors in a Class 2 or 3 Building (C3D15)

Where the hotel corridors of third through to fifth floor exceed 40m in length, smoke separating construction complying with S11C2 is to be provided to limit each corridor length, so they are less than 40m. Current drawings do not show the smoke separations of the public corridors in the residential parts of the building.

3.5 PROTECTION OF OPENINGS – PART C4

3.5.1 Openings in external walls

The external walls are assumed to be non-loadbearing. There are no openings on the external walls closer than 3m to the boundary and the external walls with opening are located more than 3m from any boundary.

As such there is no requirement to protect any openings within the external walls.

3.5.2 Bounding Construction

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

3.5.3 Openings in Floors for Services and Service Installations

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

Egress from the carpark / retail / office is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from an exit, or a point of choice of two exits, in which case the distance to

one of those exits is not more than 40m, as required by clause D2D5 of the BCA. On the ground floor, the distance to a single exit is permitted to be 30m.

There are multiple locations in the building that the exit travel distance and distance between alternative exits exceed the requirements of BCA as following:



7- Exceeded exit travel distance on Basement 2 against D2D5 (53m in lieu of 40m)

Figure 8 - Exceeded exit travel distance on B2

8- Exceeded exit travel distance on Basement 1 against D2D5 (55m in lieu of 40m)



Figure 9 - Exceeded exit travel distance on B1

9- Exceeded exit travel distance on Ground level against D2D5(68m in lieu of 40m)



Figure 10 - Exceeded exit travel distance on GL

10- Exceeded exit travel distance on the second level using the fire stair, travel on the first level and exit the building using a non-fire isolated stair against D2D14 (98m in lieu of 80m):



Note: A fire performance solution is required to rationalise the fire-isolated stairs doors not opening to a road or open space as described in part 3.6.3 of this report.

- 11- Exceeded exit travel distance on the residential storeys (L3 L5) using the fire stair, travel on the first level and exit the building using a non-fire isolated stair against D2D14 as following:
 - d) 101m in lieu of 60m on L3
 - e) 111m in lieu of 60m on L4
 - f) 121m in lieu of 60m on L5



Figure 12 - Exceeded exit travel distance on residential storeys

Note: A fire performance solution is required to rationalise the fire-isolated stairs doors not opening to a road or open space as described in part 3.6.3 of this report.

- 12- Exceeded travel distance to the point of choice on the residential storeys (L3 L5) (15.5m in lieu of 12m)
- 13- Exceeded travel distance between alternative exits on Basement 2 against D2D6 (98m in lieu of 60m):



Figure 13 - Exceeded travel distance between alternative exits on B2

14- Exceeded travel distance between alternative exits on Basement 1 against D2D6 (102m in lieu of 60m):



Figure 14 - Exceeded travel distance between alternative exits on B1



15- Exceeded travel distance between alternative exits on Level 1 against D2D6 (80m in lieu of 60m):

Figure 15 - Exceeded travel distance between alternative exits on L1

16- Exceeded travel distance between alternative exits on L2 against D2D6 (77m in lieu of 60m):



Figure 16 - Exceeded distance between alternative exits on L2

17- Exceeded travel distance between alternative exits on the residential storeys (L3 – L5) against D2D6 (72m in lieu of 45m):



Figure 17 - Exceeded distance between alternative exits on the residential storeys

It is proposed by the applicant to undertake a performance solution for the above non-compliant travel distances.

The building has a rise in storeys of more than 3 and therefore the stairs connecting the residential storeys are required to be fire isolated.

The providing fire isolated stairs do not discharge directly to open space as required by BCA D2D12 and a fire engineered Performance Solution is required whereby the discharge of the fire isolated exits at first floor level, being a space within the confines of the building used for pedestrian movement, requires occupants to travel more than the permitted 20m to reach a road or open space.

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

3.6.2 Width of exits and paths of travel to exits (D2D8)

Where the client has proposed an indicative population of 1,500 occupants for the first storey of the building, a minimum aggregate exit width of ~13m is to be provided to safely egress the number population of the storey. The current aggregate exit width provided only achieves ~6m, as a result, alternative required exits are required from the storey. Alternatively, given the perimeter of the storey is significantly open along its perimeter to the outside, thus demonstrating the inability of smoke build-up in a fire, a fire engineered Performance Solution to rationalise a reduction to the required aggregate exit widths from the storey may be feasible.

3.6.3 Travel via fire-isolated exits

A fire engineering solution is required to address the below non-compliances against the requirements of BCA D2D12:

- e) The fire isolated stairways serving levels 3 to 5 do not discharge to the road or open space.
- f) The path of travel is passing within 6m of the external wall.
- g) The discharge of the fire isolated exits at first floor level, being a space within the confines of the building used for pedestrian movement, requires occupants to travel more than the permitted 20m to reach a road or open space.
- h) The fire stairs from basement level discharge next to external walls of the building, one being the large carpark opening which will be impossible to protect.

The above departures from DtS requirements of travel via fire-isolated exits (BCA D2D12) and a fire performance solution is required to address the above non-compliances.



Figure 18 - Travel via fire-isolated exits

3.6.4 Non-required stairways, ramps, or escalators (D2D17)

The escalator connecting the basement one, two, and ground floors is to be constructed in accordance with Specification 14 for fire separating requirements. A fire engineered Performance Solution is required whereby the design of the escalators create an atrium connecting multiple storeys.

3.6.5 Roof as an open space (D3D13)

Where the fire isolated stairways discharge at the roof top of Level 1, the separating slab is to achieve a minimum FRL of 120/120/120, subject to the higher FRL required by Clause C3D10 and Specification 5, and not contain any openings within the rooftop slab within 3m of the path of travel along the exit path.

3.7 SERVICES AND EQUIPMENT- PARTS E1, E2 AND E4

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

As the building is considered as a large isolated building and includes an atrium, all required fire services and equipment (active and passive) needed to be reviewed and assessed depending on the fire engineering solutions.

A summary of required services regardless to the outcome of the fire engineering solutions is provided as per following:

3.7.1 Fire hydrant (E1D2)

The building requires an appropriate fire hydrant facilities to be installed throughout. The hydrant system is to be designed and certified by an *accredited practitioner* – *fire safety* and designing in accordance with the requirements of AS2419.1-2021. Any design is to ensure the suction point for on-site water storage complies with the requirements of Fire & Rescue NSW Position Statement whereby a vertical suction does not exceed 2.8m below ground.

3.7.2 Fire hose reel (E1D3)

The building, except for the Class 3 & 5 use areas, is to be provided with fire hose reel coverage complying with AS2441-2005. The design should consider the location of fire resisting walls and ensure system coverage from each fire hose reel does not require the hose reel to pass through a fire door to achieve a coverage, except were permitted to omit coverage to rooms or shafts constructed in accordance with Clauses C3D13, C3D14, or C4D14.

3.7.3 Smoke hazard management (E2)

The residential parts of the building must be provided with an automatic smoke detection and alarm system complying with Specification 20.

The other parts of the building must be protected as following:

- a) Each vertically separated fire compartment within the basement through to second floor requires zone smoke control required by E2D9, and
- b) The Class 6 retail tenancy on the Ground level which exceeds 2,000m² in a sprinkler protected building requires smoke exhaust in accordance with E2D14, and

- c) The Class 6 & 9b tenancy on the upper floor levels also exceed 2,000m² thus requiring smoke exhaust in accordance with E2D14 & E2D20; and
- d) Any ducted mechanical ventilation system serving the Class 9b use areas are required to automatically shut down in fire mode in accordance with E2D20.

3.8 LIFT INSTALLATIONS – PART E3

Lifts are provided to the building and are located in their own shaft and are serviced by a common lobby. The lifts require a stretcher facility as the building is over 12m in effective height. The exact dimensions of the shaft are required to assess the compliance.

3.9 FACILITIES IN BUILDINGS – PART F4

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

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

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

3.10 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

An assessment of required facilities have been done in accordance with Clause F4D3 and D2D4 as per below:

a) End of trip facilities provided on Basement 2 including:

Sanitary facilities provided on B2				
WC Urinals Basins				
Male	2	2	3	
Female	4	N/A	3	
Accessible	1	N/A	1	

Note: There is no BCA requirements for end of trip facilities, however the above facilities might be used for the retail space.

b) No facilities are provided on the drawings for the retail space. The required facilities considering the size and use of the retail space on the ground floor includes:

Sanitary facilities required on Ground floor (3,110 sqm)					
WC Urinals Basins					
Male (518p)	1	1	1		
Female (518p)	1	N/A	1		
Accessible	1	N/A	1		

Note: Considering the number of required facilities, it might be possible to use the provided facilities on B2 for the required facilities for the retail space

c)	Required and provide	d facilities on level ?	1 and 2 are described as following:
----	----------------------	-------------------------	-------------------------------------

Sanitary facilities provided on Level 1 & 2				
WC Urinals Bas				
Male (750p)	18	1	10	
Female (750p)	20	N/A	9	
Accessible	3	N/A	3	
Sanitary facilities requi	ired on Level	ا 1 & 2 (1500)	persons)	
	WC	Urinals	Basins	
Male (750p)	5	10	2	
Female (750p)	11	N/A	5	
Accessible	2	N/A	2	

From the above assessment the provision of required facilities can be readily compliant.

3.11 ROOM HEIGHTS – PART F5

Detailed drawings are required to assess the ceiling heights in accordance with Part F5 of the BCA.

3.12 LIGHT AND VENTILATION – PART F6

Natural light and ventilation are required to all habitable rooms within the residential parts of the building.

For other parts of the building, artificial lighting and mechanical ventilation are required and these systems can be readily installed in the building.

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

3.13 SECTION G – ANCILLARY PROVISIONS

3.13.1 Swimming Pools (NSW G1D2)

The pool which is associated to the Class 3 use is required to have it barrier designed in accordance with AS1926 Parts 1 & 2 and the Swimming Pools Act 1992 NSW and its supporting Regulations. It is also noted that the BCA does not provide a means of DtS compliance to address Performance Requirement G1.

As there is no DtS solution available for the swimming pool drainage system, a performance solution is required to address the drainage requirements of the swimming pool.

3.13.2 Part G3 – Atrium construction

The building includes an atrium which connects multiple storeys. It is required/recommended that the fire safety measures associated with the atrium be assessed holistically by a fire engineer.

According to BCA Part G3 and Specification 31, there are specific fire safety requirements for a building which contains an atrium. It is recommended that these atrium fire safety measures be reviewed by a fire engineer for demonstrating the compliance with the Performance Requirements, including rationalisation of the following:

- Dimensions of atrium well

- Separation of atrium
- Construction of bounding walls
- Separation at roof
- Means of egress
- Fire and smoke control systems
- Sprinkler system protection

3.13.3 Part G6 – Outdoor occupiable areas

The rooftop outdoor area is required to comply with the DtS Provisions of C, D, E, F, & G with respects to fire hazard properties, fire resisting construction, provisions for escape, construction of exits, firefighting equipment, lift installations, emergency lighting, exit signs & EWIS.



Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by CRAFT Architecture Sydney				
Drawing Number	Revision	Date	Title	
A-0201	11	04/10/2023	Floor plan B2	
A-0202	16	04/10/2023	Floor plan B1	
A-0203	15	04/10/2023	Floor plan G	
A-0204	11	04/10/2023	Floor plan L1	
A-0205	10	04/10/2023	Floor plan L2	
A-0206	11	04/10/2023	Floor plan L3	
A-0207	12	04/10/2023	Floor plan L4	
A-0208	10	04/10/2023	Floor plan L5	

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.

Table 3: Essential Fire Safety Measures

ltem	Essential Fire and Other Safety Measures	Standard of Performance
Fire F	Resistance (Floors – Walls – Doors – Shafts)	
1.	Atrium Constriction	BCA2022 G3 (Atrium Construction) Specification 31 (Atrium Construction)
2.	Access Panels & doors/hoppers (fire rated)	BCA2022 C4D14 (Openings in Shafts) BCA2022 Specification 12 AS 1905.1:2015 (Fire Resistant Doorsets)
3.	Construction Joints	BCA2022 C2D2, Specification 5 BCA2022 C4D16 AS 1530.4:2014 & AS 4072.1:2005
4.	Fire doors	BCA2022 C3D13 (Separation of Equipment) BCA2022 C3D14 (Electricity Supply Systems) BCA2022 C4D5 (Acceptable methods of Protection) BCA2022 C4D6 (Doors in Fire Walls) BCA2022 C4D9 (Openings in Fire Isolated Exits) BCA2022 C4D11 (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 BCA2022 C4D12 (Bounding Construction) BCA2022 C4D14 (Opening in Shafts) BCA2022 D2.8 (Enclosure of Space under Stairs) Specification 12 AS1905.1: 2015
5	Fire seals protecting openings in fire resisting components of the building	BCA2022 C4D15 (Openings for service installations) BCA2022 C4D16 (Construction joints)
5.		BCA2022 Specification 13
		AS1530.4:2014 & AS4072.1-2005

ltem	Essential Fire and Other Safety Measures	Standard of Performance
6.	 Fire windows Fixed Internal wall-wetting sprinklers Fixed External wall-wetting sprinklers -/60/- Fire Windows automatic closing -/60/- Fire Windows fixed closed -/60/- automatic closing Fire Shutters FRL required for windows 	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 Specification 12 identical to tested porotype AS1905.2-2005 (Fire Resistant Roller Shutters)
7.	 Lightweight construction Fire Rating of Walls/floors/ceiling located Enclosure of Shafts (Service Shafts, Lift Shafts and Fire Isolated Stairs) 	BCA2022 C2D2, Specification 5 BCA2022 C2D9, Specification 6 BCA2022 C3D8 (Fire Walls) BCA2022 C3D9 (Separation – same storey) BCA2022 C4D12 (Bounding Construction) BCA2022 C3D13 (Separation of Equipment) BCA2022 D3D9 (Enclosure of Space under Stairs and ramps) AS1530.4:2014
8.	Smoke Walls	BCA2022 C3D15 (Public Corridors Class 3) BCA2022 D3D5 (Separation of Rising and Descending Stair Flights)
9.	 Smoke Doors + Smoke Seals + Connected to AS1670.1:2018 if held open Smoke detectors within 1.5m both sides 	BCA2022 C3D15 (Public Corridors Class 3) BCA2022 D3D5 (Separation of Rising and Descending Stair Flights) BCA2022 Specification 12 AS1670.1:2018
Gene	ral	
10.	Large Isolated Building	 BCA2022 C3D5 (Large Isolated Building) BCA2022 Specification 17 (Fire sprinkler systems) BCA2022 E1D15, Specification 19 (Fire Control Centres) BCA2022 Specification 21

ltem	Essential Fire and Other Safety Measures	Standard of Performance
		Smoke Exhaust System and smoke detection in accordance with Specification 20.
11.	Perimeter emergency vehicle access	BCA2022 C3D5 FRNSW Guide No. 4 'Guidelines for Emergency Vehicle Access' (current version 02 dated 27 Oct 2010)
12.	Portable fire extinguishers	BCA2022 E1D14 AS 2444–2001
Gene	ral Egress	
12	Automatic fail safe devices	BCA2022 D3D26 (Operation of Latches)

13.		AS 1670.1:2018 (Fire)
14.	Operation of Door latches + Failsafe	D3D26 (Operation of Latch) AS 1670.1:2018
	 Manual Push Button Control 	
15.	Swing of Exit Doors	D3D24 (Swinging Doors)
	Warning & operational signs	BCA2022 D3D28 (Signs on Fire Doors)
		BCA2022 D4D7 (Braille Exit Signs)
16.		(Note: E4D5 (Exit Signs))
		BCA2022 E3D4 (Lift Signs)

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.	 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)
Elect	rical Services	
19.	 Automatic fail safe devices + Auto open Sliding Exit doors + Break Glass release 	BCA2022 D3D26 (Operation of Latches) AS1670.1:2018 (Fire)

ltem	Essential Fire and Other Safety Measures	Standard of Performance
20.	 Automatic fire detection & alarm: Clause 4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS @ 100dB(A) 	BCA2022 E2D9, E2D15, E2D20 Spec 20 BCA2022 C4D6 (Doors in Fire Walls) BCA2022 C4D9 (Openings in Fire- Isolated Exits) BCA2022 C4D12 (Bounding Construction) BCA2022 D3D26 (Operation of Latch) Specification 12 BCA2022 S20C4 (Smoke detection system) BCA2022 S20C6 (Smoke detection for smoke control systems) BCA2022 S20C7 (BOWS) AS 1670.1:2018 (Fire) – Section 4 and 5 (Detectors) AS 1670.1:2018 (Fire) – Section 7 (Smoke Control) AS 1670.3:2018 (Fire Alarm Monitoring)
21.	Emergency lighting	BCA2022 E4D2, E4D4 AS/NZS 2293.1:2018
22.	Exit signs	BCA2022 E4D55 (Exit Signs) BCA2022 E4D6 (Direction Signs) BCA2022 E4D8 (Design and Operation - Exits) AS/NZS 2293.1:2018
	Smoke detectors & heat detectors	BCA2022 E2D3, Specification 20
	 Smoke Exhaust System (Retail tenancy > 2,000 sqm) Zone Smoke Control System Auto-shutdown of Air-handling System. 	AS 1668.1:2015
23.	 (Clause E2D3) - 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; (NSW E2D20) - Any system in a <u>Class 9b</u> assembly building which does not form part of a smoke hazard management system, other than: 	
	 non-ducted individual room units with a capacity of not more than 1000 L/s; or 	

ltem	Essential Fire and Other Safety Measures	Standard of Performance
	 miscellaneous exhaust are systems installed as per Section 5 and 6 of AS/NZS 1668.1:2015. 	
24.	Emergency warning and intercom systems for Emergency Purposes (EWIS)	BCA2022 E4D9 AS 1670.4 (Amdt 1) (EWIS)
25.	Standby power systems	BCA2022 Specification 31 AS 4509.3:1999
26.	System Monitoring	BCA2022 S20C8 AS 1670.3:2018 Monitoring Required for any: + Sprinkler System
Hydra	aulic Services	
27.	Automatic fire suppression systems	BCA2022 E1D4 BCA2022 Specification 17 AS 2118.1:2017 (Sprinklers)
28.	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'
29.	Hose reel systems (excluding the residential portions)	BCA2022 E1D3 AS 2441:2005
30.	Wall-wetting sprinkler / drenchers	BCA2022 C4D5 AS 2118.2: Wall-wetting sprinkler / drenchers
Mech	anical Services	
31.	Fire dampers	BCA2022 E2, Specification 20, Specification 21 BCA2022 C4D16 AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
32.	 Mechanical air handling systems Smoke exhaust systems Fire-isolated exit pressurisation systems Mechanical ventilation to carpark 	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

ltem	Essential Fire and Other Safety Measures	Standard of Performance
	 5. 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; 	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.
	 miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015; 	
	 (NSW Part E2) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: 	
	 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. 	

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRLs) 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.

As the building is connected via an atrium and other voids, it is recommended that the FRL's of the building be holistically fire engineered, otherwise the higher required FRL must be applied to all elements of the whole building due to the building's fire compartments containing various Classifications, some requiring higher FRL's than others as highlighted in Table 4 below.

Type A Construction

Table 4: Type A Construction

Distance from a fire-source	FRL (in minutes): Structural adequacy / Integrity / Insulation			
feature	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

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

	FRL (in minutes): Structural adequacy / Integrity / Insulation			
Distance from a fire-source feature	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

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

Non-loadbearing	_/_/_	-/-/-	-/-/-	-/-/-
Non loadbearing		11	//	, ,

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

	FRL (in minutes): Structural adequacy / Integrity / Insulation			
Wall Type	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

	FRL (in minutes): Structural adequacy / Integrity / Insulation			
Location	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

	FRL (in minutes): Structural adequacy / Integrity / Insulation			
Location	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 the discharge of hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120
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Table S5C11g: Table A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

	FRL (in minutes): Structural adequacy / Integrity / Insulation			
Building Element	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

Average specific extinction area

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

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m²) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

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

Effective height

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

Envelope

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

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

Exit

Exit means –

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

Fire compartment

Fire compartment means -

1. the total space of a building; or

- 2. when referred to in-
 - a. the Performance Requirements any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or
 - b. the Deemed-to-Satisfy Provisions any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

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

- 1. structural adequacy; and
- 2. integrity; and
- 3. insulation,

and expressed in that order.

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

Fire-source feature

- 1. the far boundary of a road, river, lake or the like adjoining the allotment; or
- 2. a side or rear boundary of the allotment; or
- 3. an external wall of another building on the allotment which is not a Class 10 building

Fire wall

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

Flammability index

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

Group number

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

Horizontal exit

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

Loadbearing

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

Non-combustible

Non-combustible means-

- 1. applied to a material not deemed combustible as determined by AS 1530.1:1994 Combustibility Tests for Materials; and
- applied to construction or part of a building constructed wholly of materials that are not deemed combustible

Occupiable outdoor area

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

- 1. that is open to the sky; and
- 2. to which access is provided, other than access only for maintenance; and
- 3. that is not open space or directly connected with open space.

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index

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

Smoke development rate

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

Smoke growth rate index

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

Sole-occupancy unit

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

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

Annexure E - BCA Compliance Specification

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

Architectural Design Certification

- 1. The FRL's of building elements for the proposed works have been designed in accordance with S5C11a to S5C11g of Specification 5 of BCA2022 for a building of Type A Construction.
- 2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
- 3. Building elements, 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 ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C2D14 of BCA2022.
- 6. The large isolated building will be in accordance with Clause C3D4 of BCA 202022.
- 7. Vehicular access to a large isolated building will be in accordance with Clause C3D5 of BCA2022.
- 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.
- The electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C3D14 of BCA2022.
- 13. The public corridors will be divided into intervals of not more than 40m in length with smoke proof walls in accordance with Clause C3D15, and S11C2 of Specification 11 of BCA2022.
- 14. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
- 15. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
- 16. 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.

- 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. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
- 26. Smoke doors will be constructed so smoke will not pass from one side of the doorway to the other in accordance with Specification 12 of BCA2022.
- 27. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
- 28. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
- 29. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
- 30. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
- 31. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more that 45m apart in the residential portion or 60m, in accordance with Clause D2D6 of BCA2022.
- The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
- 33. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
- 34. Discharge from exits must be in accordance with Clause D2D15 of BCA2022 otherwise a performance solution is required.
- The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
- 36. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
- 37. 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.
- 38. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.

- 39. The construction separating rising and descending stairs in the fire-isolated exit stairway will be noncombustible and smoke proof, in accordance with Clause D3D5 of BCA2022.
- 40. 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.
- 41. 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.
- 42. 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.
- 43. 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.
- 44. 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 when the edge ledge to a flight below.
- 45. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
- 46. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plant-room, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2013 or Part D3 of BCA2022.
- 47. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
- 48. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
- 49. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
- 50. The entry/exit to the swimming pool will be in accordance with Clause D4D11, and Specification 16 of BCA2022.
- 51. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1D16 of BCA2022.
- 52. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
- 53. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
- 54. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
- 55. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS 3740:2010.
- 56. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
- 57. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA2022.

- 58. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS 1288:2006 / AS 2047:2014.
- 59. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
- 60. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA2022.
- 61. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
- 62. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
- 63. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
- 64. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
- 65. 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.
- 66. 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.
- 67. 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.
- 68. The swimming pool associated with the new building will comply with Clause G1D2 of the BCA2022 and AS 1926 parts 1 and 2. (Note: Excludes NSW. See NSW G1D2 (2) below)
- 69. 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.
- 70. The atrium will be in accordance with Part G3, and Specification 31 of BCA2022.

Electrical Services Design Certification:

- 71. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
- 72. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
- 73. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
- 74. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
- 75. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
- A standby power system will be installed in the building in accordance with Part G3, and Specification 31 of BCA2022.

Hydraulic Services Design Certification:

77. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018

- 78. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2021 as required.
- 79. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005 except Class 3 and 5 portion of the building).
- 80. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.
- 81. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.

Mechanical Services Design Certification:

- 82. 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.
- 83. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
- 84. A smoke exhaust system will be installed in the retail portion of the building in accordance with E2D14 to E2D20, and Specification 22 of BCA2022.
- 85. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
- 86. Every storey of the car park will be ventilated in accordance with Clause F6D11 of BCA2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
- 87. 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.
- 88. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

- 89. 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
- 90. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
- 91. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification 5 of BCA2022, including S5C11a to S5C11g for a building of Type A Construction.
- 92. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.

- 93. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
- 94. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

- 95. 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.
- 96. 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.
- 97. 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.
- 98. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
- 99. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
- 100. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.