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1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at 88 Christie Street, St Leonards. The development is a mixed use building, comprising retail, commercial, community (library) and residential use. The residential component comprises three towers which are connected by the commercial, retail and carpark parts at ground level and basement levels to form a single building. Vehicular access to the site is via Christie Street and the new Christie Lane (which is to be provided as part of the development).

1.2 Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2016, Volume 1, Amendment 1 (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 Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3 Building Code of Australia

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

1.4 Limitations

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

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

This report does not include, or imply compliance with:

- (a) the National Construction Code – Plumbing Code of Australia Volume 3
- (b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – refer to separate Access Report by BCA Logic;
- (c) BCA Part D3 or Clause F2.4 – refer to separate Access Report by BCA Logic;
- (d) Demolition Standards not referred to by the BCA;
- (e) Work Health and Safety Act 2011;
- (f) 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
- (g) 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 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 C1.2)

The building has a rise in storeys of 49.

2.2 Classification (Clause A3.2)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
2	Part ground floor, part level 1 & Towers 1 & 2 levels 2 to 47	Residential parts (including ground floor lobbies connected by void)
5	Part ground floor, part level 1 & Tower 3 levels 1 to 12	Commercial
6	Part basement level 1, part lower ground floor & part ground floor	Retail
7a	Part basement level 1 & basement levels 2 to 10	Carpark
7b	Part basement level 1	Storage areas and waste rooms
9b	Part ground floor	Library
10b	Part level 26 in Tower 2	Swimming pool

2.3 Effective Height (clause A1.1)

The building has an effective height of more than 75 metres.

2.4 Type of Construction Required (Table C1.1)

The building is required to be of Type A Construction.

2.5 Floor Area and Volume Limitations (Table C2.2)

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 sprinkler protected and as such there are no maximum floor area or volume limitations for this area.	
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.	

2.6 Fire Compartments

The following fire compartments have been provided as an option. Fire compartmentation is subject to further clarification at CC stage:

Basement levels – car parking parts

- a) Basement levels 2 to 10, the driveway at B1, the escalator void at B1 and the loading dock at lower ground level form a single fire compartment, classified as Class 7a carpark and sprinkler protected, therefore not subject to floor or volume limitations. Fire compartmentation will be provided around the escalators at B2 to provide separation from B1.

Basement 1

- a) The retail areas of Basement 1, including the supermarket back of house areas will form a single Class 6 fire compartment. Fire compartmentation will be provided around the escalator to B2 at B1 and around the escalator to Lower Ground Level at Lower Ground Floor Level. It is noted that the plant rooms on this level may need to be separate fire compartments in order to stay within the maximum 5000m² limit.
- b) The driveway at Basement 1 will be separated from the remainder of the level and form part of the carpark fire compartment which includes B2 to B10.

Lower Ground level

- a) The driveway at Basement 1 will be separated from the remainder of the level and form part of the carpark fire compartment which includes B2 to B10.
- b) The Class 7b waste rooms and collection / loading area room will be a separate fire compartment.
- c) The library and retail areas, excluding the switch rooms and substation will form a single fire compartment.
- d) The switch rooms and substation will each be separate fire compartments.

Ground level

- a) The Class 6 retail and Class 2 residential lobbies located on the southern side of Christie Lane will form a single Class 6 fire compartment, with the separation between classifications at the glazed external walls being addressed via a Performance Solution at CC stage.
- b) The Manager's office adjacent to the eastern Residential Lobby will form a separate Class 5 fire compartment.
- c) The western Class 2 residential lobby, being connected to the Class 2 residential corridor above will form part of the same fire compartment.
- d) Separation of the Class 6 retail tenancies from the Class 5 commercial lobby at the glazed external walls facing external covered areas will be addressed by a Performance Solution at CC stage.

Level 1

- a) The retail part will form a single fire compartment.
- b) The gym will form a single fire compartment.
- c) The residential parts will form a single fire compartment and with the western lobby connected to the western residential lobby at ground level via the open void.

Upper levels

- a) Generally each level of each tower will form a separate fire compartment.

2.7 Exits

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

Basements 2-10

- a) Fire Stairs 5, 6, 7 & 8

Basement 1

- a) Fire Stairs 6, 7, 8 & 10.

Lower Ground level

- a) The fire passage of Fire Stair 2/6 serves as an exit from the library and switch room.
- b) The stairway to ground floor located near the escalators.
- c) Fire Stairs 5, 7 & 8.

Ground level

- a) The doors from the tenancies and lobbies opening directly to the external at the level of egress to the road; and
- b) The points at which an occupant reaches road or open space at the building line, out from under the cover of the canopy/building above.

Level 1

- a) The fire-isolated exit stairs
- b) The external stairway serving the retail at level 1 and discharging to ground level.

Level 2 & above

- a) The fire-isolated exit stairs

2.8 Climate Zone (Clause A1.1)

The building is located within Climate Zone 5.

2.9 Location of Fire-source features

The fire source features for the subject development are:

- North: The far boundary of the Pacific Highway
- South: The rear allotment boundary
- East: The far boundary of Christie Street
- West: The side allotment boundary with the rail corridor.

A fire-source feature is defined in Section A1.1 of the BCA as–

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

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–

- (i) has an FRL of not less than 30/–/–; and
- (ii) is neither transparent nor translucent.

3 ESSENTIAL FIRE SAFETY MEASURES

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

Table 2. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
General – Fire Resistance (Floors – Walls – Doors - Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	BCA C3.13 (Openings in Shafts)
2.	Fire doors	BCA C2.12 (Separation of Equipment) BCA C2.13 (Electricity Supply Systems) BCA C3.4 (Methods of Protection) BCA C3.5 (Doors in Fire Walls) BCA C3.8 (Openings in Fire Isolated Exits) BCA C3.10 (Opening in Fire Isolated Lift Shafts) AS 1735.11 - 1986 BCA C3.11 (Bounding Construction) Spec E1.8 (Fire Control Rooms) Spec C3.4 AS1905.1 – 2015
3.	Fire seals	BCA C3.15, BCA Spec C3.15 AS4072.1-2005
General		
4.	Fire control room	BCA E1.8, Spec E1.8 (Fire Control Centres)
5.	Portable fire extinguishers	BCA E1.6 AS 2444 – 2001
General - Egress		
6.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
7.	Warning & operational signs	BCA D2.23 (Signs on Fire Doors) BCA D3.6 (Braille Exit Signs) (Note: E4.5 (Exit Signs))

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA E3.3 (Lift Signs), BCA Spec E1.8 (Fire Control Room)
Lifts		
8.	Access to Lift Pits <ul style="list-style-type: none"> Located at lowest level or if >3m provided through an access door 	BCA D1.17 (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
9.	Emergency lifts	BCA E3.4 AS 1735.1 – 2003 (Appendix A) or AS 1735.2 - 2001
10.	Lift controls <ul style="list-style-type: none"> Fire Service Controls Recall Operation Drive control switch 	BCA E3.2 BCA E3.7 (Fire Service Controls) BCA E3.9 (Fire Service Recall Operation Switch) BCA E3.10 (Lift Car Fire Service drive control switch) BCA Spec E3.1 AS1735.11-1986 (Fire rated landing doors)
Electrical Services		
11.	Automatic fail safe devices	BCA D2.22 (Re-entry from fire-isolated stairs)
12.	Automatic fire detection & alarm system	BCA E2.2, Table E2.2a & NSW Table E2.2b Spec E2.2a - Clause 3 & 4 Spec E2.2a - Clause 5 (Smoke Control) Spec E2.2a - Clause 6 (BOWS) Spec E2.2a - Clause 7 (System Monitoring) AS3786 – 2014 (Amdt 1-4) AS1670.1 – 2015 (Fire) – Section 4 and 5 (Detectors) AS1670.1 – 2015 (Fire) – Section 7 (Smoke Control) AS1670.3 – 2004 (Fire Alarm Monitoring)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS1670.4 – 2015 (EWIS)
13.	Emergency lighting	BCA E4.2, E4.4 AS/NZS 2293.1 –2005
14.	Exit signs	BCA E4.5 (Exit Signs) BCA E4.6 (Direction Signs) BCA E4.8 (Design and Operation - Exits) AS/NZS 2293.1 –2005
15.	Smoke detectors & heat detectors 1. Smoke Exhaust System 2. Zone Smoke Control System 3. Air Pressurisation System. 4. Auto-shutdown of Air-handling System – Class 9b	BCA E2.2, Table E2.2a & NSW Table E2.2b AS1668.1 – 2015
16.	Sound System and Intercom Systems for Emergency Purposes (EWIS)	BCA E4.9 AS1670.4 – 2015 (EWIS)
17.	System Monitoring	BCA E2.2 , Table E2.2a,Spec E2.2a AS 1670.3 - 2004 Monitoring Required for: <ul style="list-style-type: none"> • Sprinkler System • Smoke exhaust systems
Hydraulic Services		
18.	Automatic fire suppression system	BCA E1.5 & Spec. E1.5 AS 2118.1 – 1999 (Sprinklers) & Fire Engineering Report*
19.	Fire hydrant system	BCA E1.3 BCA C2.12 (Separation of Equipment) AS 2419.1 – 2017 & Fire Engineering Report* FRNSW Technical Sheet D15/45534.V6 issued 11.04.17, 'Compatible Hose Connections'
20.	Hose reel systems	BCA E1.4 AS 2441 – 2005 & Fire Engineering Report*

Item	Essential Fire and Other Safety Measures	Standard of Performance
Mechanical Services		
21.	Fire dampers	BCA E2.2, Spec E2.2a, Spec E2.2b BCA C3.15, Spec C3.15 AS 1668.1 – 2015
22.	Mechanical air handling systems 1. Smoke Exhaust System 2. Mechanical ventilation to carpark. 3. Auto-shutdown of Air-handling System – Class 9b. 4. Zone smoke control system 5. Fire Isolated Exit Pressurisation System	BCA E2.2, Table E2.2a, NSW Table E2.2b Spec E2.2a, Spec E2.2b NSW E2.2b AS/NZS 1668.1 – 2015 & Fire Engineering Report* 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.
<p>Notes:</p> <p>(An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b 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—</p> <ul style="list-style-type: none"> (i) (be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1; or (ii) <ul style="list-style-type: none"> (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1; and <p>for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment.</p> <p>Miscellaneous air-handling systems covered by Sections 5 and 6 of AS/NZS 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 that Section of the Standard.</p> <p>A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS/NZS 1668.1 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.</p>		

Item	Essential Fire and Other Safety Measures	Standard of Performance
23.	Performance Solutions <i>*Fire Engineering Report to be prepared under separate cover</i>	

4 FIRE RESISTANCE LEVELS

In accordance with Table 3 of BCA Specification C1.1, 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 3. Fire Resistance Levels

Item	Class 2	Class 5, 7a or 9b	Class 6	Class 7b
Loadbearing External Walls				
• Less than 1.5m to a fire source feature	90/90/90	120/120/120	180/180/180	240/240/240
• 1.5 – less than 3m from a fire source feature;	90/60/60	120/90/90	180/180/120	240/240/180
• 3m or more from a fire source feature	90/60/30	120/60/30	180/120/90	240/180/90
Non-Loadbearing External Walls				
• Less than 1.5m to a fire source feature	-/90/90	-/120/120	-/180/180	-/240/240
• 1.5 – less than 3m from a fire source feature;	-/60/60	-/90/90	-/180/120	-/240/180
• 3m or more from a fire source feature	-/-/-	-/-/-	-/-/-	-/-/-
External Columns				
• Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
• Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-
Common Walls & Fire Walls	90/90/90	120/120/120	180/180/180	240/240/240
Stair and Lift Shafts required to be fire-resisting				
• Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
• Non-loadbearing	-/90/90	-/120/120	-/120/120	-/120/120
Internal walls bounding sole occupancy units				
• Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
• Non-loadbearing	-/60/60	-/-/-	-/-/-	-/-/-
Internal walls bounding public corridors, public lobbies and the like:				
• Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
• Non-loadbearing	-/60/60	-/-/-	-/-/-	-/-/-

Item	Class 2	Class 5, 7a or 9b	Class 6	Class 7b
Ventilating, pipe, garbage and like shafts:				
• Loadbearing	90/90/90	120/90/90	180/120/120	240/120/120
• Non-loadbearing	-/90/90	-/90/90	-/120/120	-/120/120
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs ¹	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 3.9 of BCA Specification C1.1, reducing the carpark FRL's down from 120/120/120 to 60/60/60.

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

5 MATTERS FOR FURTHER CONSIDERATION

5.1 General

Assessment of the Architectural design documentation against the Deemed-to Satisfy Provisions of the Building Code of Australia, 2016 (BCA) has revealed the following areas where compliance with the BCA may require further consideration and/or may involve assessment as Performance Based (Fire Engineered) Performance Solutions. Any Performance Solutions will be required to clearly indicate methodologies for achieving compliance with the relevant Performance Requirements.

Annexure B to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA.

Note: It is important that Annexure B is read in conjunction with the items below, as some matters may not have had sufficient information provided to allow a detailed assessment to be undertaken.

5.2 Dimensions and Tolerances

The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. BCA Logic's assessment of the plans and specifications has been undertaken to ensure the minimal dimensions have been met.

The designer and builder should ensure that the minimum dimensions are met onsite and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical matters such as access for people with disabilities, stair and corridor widths and balustrade heights.

5.3 Performance Based Design – Performance Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters are proposed to be address in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover at Construction Certificate stage. Note: the items in [blue text](#) below identify the matters that are not covered / require updating in the current fire engineering brief (FEB), by Holmes Fire.

Table 4. Performance Solutions

Item	Description of Performance Solution	DTS Provision
1	The proposed slabs in residential areas are to be 190 mm in general and 170 mm in wet set-down areas, in lieu of 200 mm required by AS 3600 for concrete flat slab construction.	C1.1
2	It is proposed to provide a 120/120/120 FRL to the B1, Lower Ground, Ground and Level 1 retail tenancies.	C1.1 and Spec C1.1
3	Within the Lower Ground Floor, the library is not proposed to be fire separated from the retail mall, but will be separated from the tenancies. Within the Ground Floor of T1 and T2, the residential lobbies are not proposed to be fire separated from the retail areas, and within the Ground Floor of T3, the retail and office areas are not proposed to be fire separated from each other. Note that this only occurs between the glazed face of the lobbies and the covered external area which is considered retail. Fire rated separation will be provided between the lobbies and retail areas that are internal.	C1.1 and Spec C1.1,, C2.8 and C3.5

Item	Description of Performance Solution	DTS Provision
4.	Separation between the fire compartments at B1 and Lower Ground floor around the escalator void will be by a glazing system protected with wall wetting sprinklers and a fire curtain which will result in a fire compartment area similar to the Deemed-to-Satisfy compliant building.	C2.2
5.	To permit the openings on the western boundary wall at lower ground floor level in the delivery truck area that are within 3m of the allotment boundary to be unprotected.	C3.2 & C3.4
6.	To permit numerous retail tenancies on Ground Floor and the plant areas on Level 47 to only be provided with one exit.	D1.2
7.	To permit exit travel distance of up to 12m to a point of choice of exits from the entry doors of residential SOUs in Tower 1 & Tower 2.	D1.4
8.	<p>To permit the following extended travel distances:</p> <p>T3 Level 1-14:</p> <ul style="list-style-type: none"> The travel distance to a point of choice of exits is up to 25m in the office tenancies. <p>T2 Level 26:</p> <ul style="list-style-type: none"> The travel distance between exits on level 26 communal rooftop area is 48m. <p>Ground level:</p> <ul style="list-style-type: none"> The travel distance to the single exit from Restaurant G06 is approximately 32m. <p>Lower Ground Level:</p> <ul style="list-style-type: none"> The travel distance to a point of choice from the small retail tenancies is up to 30 m. The travel distance between exits from the loading dock is 70m. The travel distance between exits from the library is 65m. <p>Basement 01:</p> <ul style="list-style-type: none"> The travel distance to a point of choice from the small retail tenancies is up to 30 m. The travel distance to a point of choice of exits from the BoH mechanical plant is 46 m. The travel distance to a point of choice of exits from the Condenser Platform room is 25 m. The travel distance to an exit from the supermarket areas including BoH mechanical plant room is 57m. <p>Basement 02:</p> <ul style="list-style-type: none"> The travel distance to a point of choice is 22m from the female end of trip facilities. The travel distance to an exit is 48 m from the room adjacent to the express ramp. The travel distance to an exit is 45 m from the T1 cold water pump room. 	D1.4 & D1.5
9.	The maximum travel distance between alternative exits in a carpark or retail area is permitted to be 60 m. This distance is up to 86 m on B2 to B10 and up to 115 m on B1.	D1.5

Item	Description of Performance Solution	DTS Provision
10.	B1 retail tenancies and mall may contain up to 1,293 occupants based on the occupant density of Clause D1.13. This area is required to be provided with 11.5 m of exit width, however the level is served by five exits, which provide ~ 5 m of exit width.	D1.6
11.	The path of travel throughout the fire hydrant pump room on Level 46 will be less than 1m. A minimum of 600 mm will be permitted around the pumps for maintenance personnel.	D1.6
12.	On level 1-46 of T1, the condenser room opens directly into the north fire-isolated stairs. To permit the two plant rooms on level 47 of Tower 1 to open directly into the fire stairs.	D1.7(a)
13.	To permit the escalator located below Tower 3 to connect six storeys (starting at Level B5 and rising through B4, B3, B2, terminating on B1, with an adjacent escalator connecting B1 to Level LG, and another adjacent escalator connecting LG to G).	D1.12
14.	The building will be provided with a hydrant system in accordance with AS 2419.1-2017, in lieu of the 2005 year version of the Standard.	E1.3
15.	The fire hydrant pump room at Basement Level 02 does not have direct access (i.e. via it's own airlock) into the fire stair and instead has access to the fire stair via a shared airlock.	E1.3
16.	It is proposed to provide two combined sprinkler and hydrant tanks (including the wall wetting requirements) with a total capacity of 336,000 L to serve the lower three pressure zones (P1, P2 and P3).	E1.3
17.	1m clearance is not proposed to be provided to the full perimeter of the hydrant pumps on level 46.	E1.3 & D1.6
18.	Portable fire extinguishers will be provided to office floors in lieu of hose reels.	E1.4
19.	Wet sprinkler heads will be provided to the lift shafts and motor rooms.	E1.5
20.	Zone smoke control will be omitted from the retail areas on Ground Floor, Lower Ground and Basement 1 of the building and Level 1 retail in T2. Zone smoke control will also be omitted from the Class 7b storage and waste rooms on Basement 1 and the Class 9b library on Ground Level.	E2.2
21.	It is proposed to provide a stair pressurisation system to the basement levels such that 1m/s airflow across the doorway is achieved when only two doors entering the basement fire-isolated stairs and the discharge doors are open.	E2.2
22.	It is proposed to not provide smoke exhaust to the back of house area of the supermarket and the smoke reservoir will be approximately 2850 m ² .	E2.2

5.4 Exit travel distance from Gym– BCA Clause D1.4

For a Class 9 part of the building, no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m.

Travel distance from the furthest point on the floor of the gymnasium at Level 01 is approximately 23m to a point of choice. It is recommended that a doorway be provided from the gym into the internal corridor so that the distance will be within 20 m.

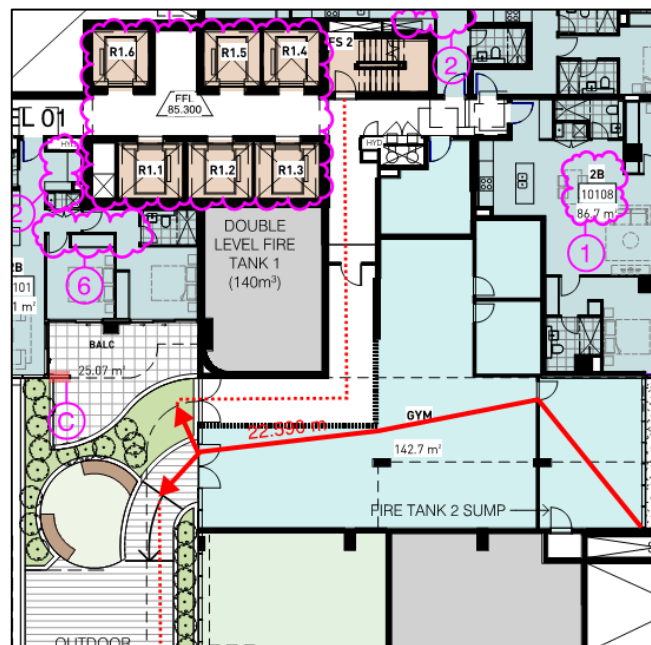


Figure 1: Distance to point of choice from Gym

5.5 Dimensions of exit paths – BCA Clause D1.6

The stairways within the loading dock currently appear to be less than 1m in width and must be increased in width to not less than 1m clear in accordance with BCA Clause D1.6.

5.6 Discharge of fire-isolated exits – BCA Clause D1.7(b) & D1.7 (c)

D1.7(b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway—

- (i) to a road or open space; or
- (ii) to a point—
 - (A) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and
 - (B) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or
- (iii) into a covered area that—
 - (A) adjoins a road or open space;
 - (B) and is open for at least 1/3 of its perimeter; and
 - (C) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and
 - (D) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.

D1.7 (c) - 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, measured horizontally at right angles to the path of travel, that part of the wall must have—

- (i) an FRL of not less than 60/60/60; and
- (ii) any openings protected internally in accordance with C3.4,

for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

Fire stairs FS5 and FC2 in Tower 3 discharge into a covered lobby area at ground level that is not open for at least 1/3 of its perimeter. Furthermore the path of travel from the discharge points to the road requires passing within 6m of unprotected openings of the same building. It is recommended that either the design be amended to comply with BCA Clauses D1.7(b) & (c), or BCA compliance be achieved via a Performance Solution.

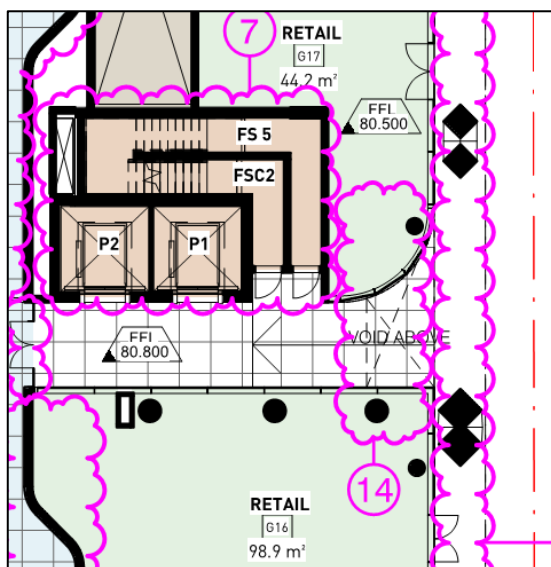


Figure 2: Discharge points of FS5 and FSC2 in Tower 3

5.7 Width of stairways – BCA Clause D2.9

A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.

A handrail is required to the non-fire-isolated stair connecting lower ground floor to ground floor as this stairway serves as an exit required to be more than 2m in width.

5.8 Fire hose reels – BCA Clause E1.3

A fire hose reel system complying with BCA clause E1.4 and AS 2441-2005 must be provided to the building, other than residential parts. All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m. Fire hose reels must not pass through fire doors other than those accepted by Clause E1.4(f).

Further details of the fire hose reel system to be provided at CC stage. It is noted that under the proposed Performance Solution, portable fire extinguishers will be provided to office floors in lieu of hose reels.

5.9 Doors to fire control room – BCA Specification E1.8

Required doors to a fire control room must open into the room, be lockable and located so that persons using escape routes from the building will not obstruct or hinder access to the room. The doors to the fire control room currently open outwards in lieu of into the room. It is recommended that the design be amended to comply.

5.10 Sanitary facilities – BCA Clause F2.3

Sanitary facilities must be provided in accordance with Table F2.3 and Clause F2.3 & F2.4. Further details are required of the proposed population numbers and sanitary compartments within the restaurant tenancies in order for compliance to be assessed.

6 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in this report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure B) with that Code, subject to the resolution of the matters identified in Part 5 at Construction Certificate stage.

B ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation.

Table 5. Architectural Plans

Architectural Plans Prepared by PTW Architects			
Drawing Number	Revision	Date	Title
DA-00-0000	E	xx.10.19	DRAWING LIST
DA-10-0900	H	xx.10.19	BASEMENT 10 PLAN
DA-10-1000	H	xx.10.19	BASEMENT 09 PLAN
DA-10-1100	H	xx.10.19	BASEMENT 08 PLAN
DA-10-1200	I	xx.10.19	BASEMENT 07 PLAN
DA-10-1300	I	xx.10.19	BASEMENT 06 PLAN
DA-10-1400	I	xx.10.19	BASEMENT 05 PLAN
DA-10-1500	I	xx.10.19	BASEMENT 04 PLAN
DA-10-1600	I	xx.10.19	BASEMENT 03 PLAN
DA-10-1700	I	xx.10.19	BASEMENT 02 PLAN
DA-10-1800	J	xx.10.19	BASEMENT PLAN 01
DA-10-1900	K	xx.10.19	LOWER GROUND PLAN
DA-10-2000	J	xx.10.19	GROUND FLOOR PLAN
DA-10-2100	H	xx.10.19	LEVEL 01 PLAN
DA-10-2200	J	xx.10.19	LEVEL 02 PLAN
DA-10-2300	J	xx.10.19	LEVEL 03 PLAN
DA-10-2400	H	xx.10.19	LEVEL 04 PLAN
DA-10-2500	H	xx.10.19	LEVEL 05 PLAN
DA-10-2600	H	xx.10.19	LEVEL 06 PLAN
DA-10-2700	H	xx.10.19	LEVEL 07 PLAN
DA-10-2800	G	xx.10.19	LEVEL 08 PLAN
DA-10-2900	G	xx.10.19	LEVEL 09 PLAN
DA-10-3000	G	xx.10.19	LEVEL 10 PLAN
DA-10-3100	H	xx.10.19	LEVEL 11 PLAN
DA-10-3200	H	xx.10.19	LEVEL 12 PLAN
DA-10-3300	H	xx.10.19	LEVEL 13 PLAN
DA-10-3400	H	xx.10.19	LEVEL 14 PLAN
DA-10-3500	H	xx.10.19	LEVEL 15 PLAN
DA-10-3600	H	xx.10.19	LEVEL 16 PLAN
DA-10-3700	H	xx.10.19	LEVEL 17 PLAN

DA-10-3800	H	xx.10.19	LEVEL 18 PLAN
DA-10-3900	H	xx.10.19	LEVEL 19 PLAN
DA-10-4000	H	xx.10.19	LEVEL 20 PLAN
DA-10-4100	H	xx.10.19	LEVEL 21 PLAN
DA-10-4200	H	xx.10.19	LEVEL 22 PLAN
DA-10-4300	H	xx.10.19	LEVEL 23 PLAN
DA-10-4400	H	xx.10.19	LEVEL 24 PLAN
DA-10-4500	H	xx.10.19	LEVEL 25 PLAN
DA-10-4600	H	xx.10.19	LEVEL 26 PLAN
DA-10-4700	H	xx.10.19	LEVEL 27 PLAN
DA-10-4800	E	xx.10.19	LEVEL 28 & 29 PLAN
DA-10-5000	A	xx.10.19	LEVEL 30-32 & LEVEL 38-42 PLAN
DA-10-5300	E	xx.10.19	LEVEL 33-LEVEL 37 PLAN
DA-10-6300	E	xx.10.19	LEVEL 43 – LEVEL 45 PLAN
DA-10-6600	G	xx.10.19	LEVEL 46 PLAN
DA-10-6700	G	xx.10.19	LEVEL 47 PLAN
DA-10-6800	F	xx.10.19	ROOF TOP PLAN
DA-20-0100	F	xx.10.19	NORTH ELEVATIONS
DA-20-0200	F	xx.10.19	SOUTH ELEVATION
DA-20-0300	F	xx.10.19	EAST ELEVATIONS
DA-20-0400	E	xx.10.19	WEST ELEVATIONS
DA-30-0100	H	xx.10.19	SECTIONS
DA-30-0200	I	xx.10.19	SECTIONS
DA-40-0001	C	xx.10.19	TOWER 01 FAÇADE CONCEPT
DA-40-0002	C	xx.10.19	TOWER 02 FAÇADE CONCEPT
DA-40-0003	C	xx.10.19	TOWER 03 FAÇADE CONCEPT
DA-97-0010	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 1
DA-97-0020	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 2
DA-97-0030	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 3
DA-97-0040	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 4
DA-97-0050	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 5
DA-97-0060	C	xx.10.19	97-PERSPECTIVE VIEWS PERSPECTIVE 6

ANNEXURE B - DETAILED BCA 2016 ASSESSMENT

Outlined below is a detailed assessment of the design under the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) including the State variations where applicable.

All Deemed-to-Satisfy clauses that are applicable to the subject building have been referred to below, including a comment adjacent to each clause of the proposal's ability to satisfy each respective clause.

The abbreviations outlined below have been used in the following table.

N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there was not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, subject to noting the requirements of each clause, compliance can be readily achieved.
FI	Further Information is necessary to determine the compliance potential of the building design.
PS	Performance Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

DEEMED TO SATISFY CLAUSE ASSESSMENT

Clause	Comment	Status
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Table 6. Deemed to Satisfy Clause Assessment

SECTION B: STRUCTURE		
PART B1 – STRUCTURAL PROVISIONS		
B1.1: Resistance to actions	The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions, where the most critical action has been determined in accordance with this Part – Structural Engineer to certify at CC stage.	CRA – Refer Annexure C
B1.2: Determination of individual actions	The magnitude of actions must be determined in accordance with this Clause – Structural Engineer to certify at CC stage.	CRA – Refer Annexure C
B1.4: Determination of structural resistance of materials and forms of construction	The structural resistance of materials and forms of construction must be determined in accordance with this Clause – Structural Engineer, Architect and Manufacturers to certify at CC stage.	CRA – Refer Annexure C
B1.5 Structural software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software. Structural Engineer to certify.	CRA – Refer Annexure C
B1.6 Construction of buildings in flood hazard areas	Not applicable	NA

SECTION C: FIRE RESISTANCE		
PART C1 – FIRE RESISTANCE AND STABILITY		
C1.1: Type of construction required	The building is required to be of Type A Construction. Refer to Specification C1.1 requirements at the end of this Section.	PS Refer to Part 5 of Report
C1.2: Calculation of rise in storeys	The building has a rise in storeys of forty nine (49).	Noted
C1.3: Buildings of multiple classification	Informational	Noted
C1.4: Mixed Types of construction	Not applicable	NA
C1.5: Two Storey Class 2, 3 or 9c buildings	Not applicable	NA
C1.6: Class 4 Parts of building	Not applicable	NA
C1.7: Open spectator stands and indoor sports stadium	Not applicable	NA
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	CRA – Refer Annexure C
C1.10: Fire hazard properties	Fire hazard properties of building materials must comply with C1.10 of the BCA and Specification C1.10, including floor, wall and ceiling linings, air-handling ductwork, lift cars, insulation, sarking-type materials and attachments, or be considered non-combustible.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE																												
C1.11: Performance of external walls in fire	Not applicable	NA																										
C1.12: Non-combustible materials	<p>The following materials, though <i>combustible</i> or containing <i>combustible</i> fibres, may be used wherever a <i>non-combustible</i> material is <i>required</i>:</p> <p>(a) Plasterboard.</p> <p>(b) Perforated gypsum lath with a normal paper finish.</p> <p>(c) Fibrous-plaster sheet.</p> <p>(d) Fibre-reinforced cement sheeting.</p> <p>(e) Pre-finished metal sheeting having a <i>combustible</i> surface finish not exceeding 1 mm thickness and where the <i>Spread-of-Flame Index</i> of the product is not greater than 0.</p> <p>(f) Bonded laminated materials where—</p> <p>(i) each laminate is <i>non-combustible</i>; and</p> <p>(ii) each adhesive layer does not exceed 1 mm in thickness; and</p> <p>(iii) the total thickness of the adhesive layers does not exceed 2 mm; and</p> <p>(iv) the <i>Spread-of-Flame Index</i> and the <i>Smoke-Developed Index</i> of the laminated material as a whole does not exceed 0 and 3 respectively.</p>	Noted																										
C1.13: Fire-protected timber: Concession	Not applicable	NA																										
PART C2 – COMPARTMENT AND SEPARATION																												
C2.1: Application of Part	<p>Informational -</p> <p>C2.2, C2.3 and C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5.</p>	Noted																										
C2.2: General floor area and volume limitations	<p>The size of fire compartments in the building must not exceed that specified in Table C2.2.</p> <p>Table C2.2 MAXIMUM SIZE OF FIRE COMPARTMENTS OR ATRIA</p> <table><tr><th rowspan="2">Classification</th><th rowspan="2"></th><th colspan="3">Type of construction of building</th></tr><tr><th>Type A</th><th>Type B</th><th>Type C</th></tr><tr><td rowspan="2">5, 9b or 9c <i>aged care building</i></td><td>max <i>floor area</i>—</td><td>8 000 m²</td><td>5 500 m²</td><td>3 000 m²</td></tr><tr><td>max volume—</td><td>48 000 m³</td><td>33 000 m³</td><td>18 000 m³</td></tr><tr><td rowspan="2">6, 7, 8 or 9a (except for <i>patient care areas</i>)</td><td>max <i>floor area</i>—</td><td>5 000 m²</td><td>3 500 m²</td><td>2 000 m²</td></tr><tr><td>max volume—</td><td>30 000 m³</td><td>21 000 m³</td><td>12 000 m³</td></tr></table> <p>Note: See C2.5 for maximum size of compartments in <i>patient care areas</i> in Class 9a <i>health care buildings</i>.</p> <p>Under the proposed Performance Solution, separation between the fire compartments at B1 and Lower Ground floor around the escalator void will be by a glazing system protected with wall wetting sprinklers and a fire curtain which will result in a fire compartment area similar to the Deemed-to-Satisfy compliant building.</p>	Classification		Type of construction of building			Type A	Type B	Type C	5, 9b or 9c <i>aged care building</i>	max <i>floor area</i> —	8 000 m ²	5 500 m ²	3 000 m ²	max volume—	48 000 m ³	33 000 m ³	18 000 m ³	6, 7, 8 or 9a (except for <i>patient care areas</i>)	max <i>floor area</i> —	5 000 m ²	3 500 m ²	2 000 m ²	max volume—	30 000 m ³	21 000 m ³	12 000 m ³	<p>PS</p> <p>Refer to Part 5 of Report</p>
Classification				Type of construction of building																								
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	max volume—	30 000 m ³	21 000 m ³	12 000 m ³																								
C2.3: Large isolated buildings	Not applicable	NA																										
C2.4: Requirements for open spaces and vehicular access	Not applicable	NA																										
C2.5: Class 9a and 9c Buildings	Not applicable	NA																										
C2.6: Vertical separation of openings in external walls	Not applicable	NA																										

SECTION C: FIRE RESISTANCE		
C2.7: Separation by fire walls	<ul style="list-style-type: none"> • Construction - A fire wall must be constructed in accordance with the following: <ul style="list-style-type: none"> – Any openings in a fire wall must not reduce the FRL required by Specification C1.1 for the fire wall, except where permitted by the Deemed-to-Satisfy Provisions of Part C3. – Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire resisting performance of the fire wall is maintained. • Separation of fire compartments – A part of a building separated from the remainder of the building by a fire wall may be treated as a separate fire compartment if it is constructed in accordance with this clause and the fire wall extends to the underside of – <ul style="list-style-type: none"> – a floor having an FRL required for a fire wall; or – the roof covering. 	CRA – Refer Annexure C
C2.8: Separation of classifications in the same storey	<p>Where a storey has different classifications located alongside one another:</p> <ul style="list-style-type: none"> • each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or • the parts must be separated in that storey by a fire wall having the higher FRL prescribed in Table 3; or • where one part is a carpark complying with Table 3.9 of Specification C1.1, the parts may be separated by a fire wall complying with the appropriate Table. <p>The following Performance Solutions are proposed in relation to Clause C2.8:</p> <ul style="list-style-type: none"> • Within the lower ground level, the library is not proposed to be fire separated from the retail mall, but will be separated from the tenancies. • Within the Ground Floor of T1 and T2, the residential lobbies are not proposed to be fire separated from the retail areas, and within the Ground Floor of T3, the retail and office areas are not proposed to be fire separated from each other. Note that this only occurs between the glazed face of the lobbies and the covered external area which is considered retail. Fire rated separation will be provided between the lobbies and retail areas that are internal. <p>Further details of the proposed firewall separation to comply with Clause C2.8 and the Performance Solution is to be provided at CC stage.</p>	<p>PS</p> <p>Refer to Part 5 of Report</p>
C2.9: Separation of classifications in different storeys	Floors separating storeys of different classifications must have an FRL of not less than that prescribed in	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	<p>Specification C1.1 for the classification of the lower storey.</p> <p>Note: Determination of Floor FRL's must also consider compliance with C2.7 whereby the floor must have the same FRL as the fire wall of the fire compartment below and D2.12 whereby roof as open space must have an FRL not less than 120/120/120.</p>	
C2.10: Separation of lift shafts	<p>All lifts connecting more than three storeys must be separated from the remainder of the building by enclosure in a fire rated shaft achieving an FRL prescribed by Table 3 of Specification C1.1.</p> <p>Emergency lifts must be contained within a fire-resisting shaft having an FRL of not less than 120/120/120.</p>	CRA – Refer Annexure C
C2.11: Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	Complies
C2.12: Separation of equipment	<p>Any of the following equipment located in the building must be separated from the remainder of the building:</p> <ul style="list-style-type: none"> • lift motors and lift control panels; or • emergency generators used to sustain emergency equipment operating in the emergency mode; or • central smoke control plant; or • boilers; or • a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. <p>Equipment need not be separated in if the equipment comprises:</p> <ul style="list-style-type: none"> • smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or • stair pressurizing equipment installed in compliance with the relevant provisions of AS/NZS 1668.1; or • a lift installation without a machine room; or • equipment otherwise adequately separated from the remainder of the building. <p>Separation must be by construction having an FRL as required by Specification C1.1, but not less than FRL 120/120/120 with openings protected by self-closing fire doors having an FRL of not less than –/120/30.</p> <p>Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.</p>	CRA – Refer Annexure C
C2.13: Electricity supply system	<ul style="list-style-type: none"> • The electrical substation located within the building must be separated from the remainder of the building by construction having an FRL of not less than 120/120/120, and doorways protected with self-closing fire doors having an FRL of not less than –/120/30. • Any main switchboards that sustains emergency equipment operating in the emergency mode must 	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	<p>be fire separated from any other part of the building by construction having an FRL of not less than 120/120/120 and have the doorway fitted with self-closing fire door having an FRL of not less than – /120/30.</p> <ul style="list-style-type: none"> Any electrical conductors located within the building that supply a substation or main switchboard for emergency equipment must comply with BCA clause C2.13. Emergency equipment switchgear must be separated from non-emergency equipment switchgear by metal partitions designed to minimize the spread of a fault from the non-emergency equipment switchgear. <p>Emergency equipment includes but is not limited to the following:</p> <ul style="list-style-type: none"> fire hydrant booster pumps; sprinkler pumps; hose reel pumps; air-handling systems designed to exhaust and control the spread of smoke; emergency lifts; control and indicating equipment; and sound systems and intercom systems for emergency purposes. 	
C2.14: Public corridors in Class 2 and 3 Buildings	<p>Public corridors in Class 2 parts that exceed 40 m in length must be divided at intervals of not more than 40m with smoke-proof walls complying with Clause 2 of Specification C2.5.</p> <p>All residential corridors are under 40m in length.</p>	NA
PART C3 – PROTECTION OF OPENINGS		
C3.1: Application of Part	<p>(a) The Deemed-to-Satisfy Provisions of this Part do not apply to–</p> <ul style="list-style-type: none"> (i) Control joints, weep holes and the like in external walls of masonry construction and joints between panels in external walls of pre-cast concrete panel construction if, in all cases they are not larger than necessary for the purpose; and (ii) Non-combustible ventilators for subfloor or cavity ventilation, if each does not exceed 45 000 mm² in face area and is spaced not less than 2 m from any other ventilator in the same wall; and (iii) Openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like; and (iv) In a carpark– 	Note

SECTION C: FIRE RESISTANCE		
	<p>(A) service penetrations through; and</p> <p>(B) openings formed by a vehicle ramp in,</p> <p>a floor other than a floor that separates a part not used as a carpark, providing the connected floors comply as a single fire compartment for the purposes of all other requirements of the Deemed-to-Satisfy Provisions of Sections C, D and E.</p> <p>(b) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings in building elements required to be fire-resisting (including doorways, windows including any associated fanlight), infill panels and fixed or openable glazed areas that do not have the required FRL.</p> <p>(c) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings, other than those covered under (a)(iii), between building elements such as columns, beams and the like, in the plane formed at the construction edge or perimeter of the building, are deemed to be openings in an external wall.</p>	
C3.2: Protection of openings in external walls	<p>Openings in an external wall that is required to have an FRL must be protected in accordance with C3.4 if the distance between the opening and the fire-source feature is:</p> <ul style="list-style-type: none"> less than 3 m from a side or rear boundary; or less than 6 m from the far boundary of a road adjoining the allotment, if not located in a storey at or near ground level; or less than 6 m from another building on the allotment that is not Class 10; and <p>if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located.</p> <p>Where wall-wetting sprinklers are used, they must be located externally.</p> <p>Under the proposed Performance Solution, the openings on the western boundary wall at lower ground floor level in the delivery truck area to be unprotected.</p>	<p>PS Refer to Part 5 of Report</p>
C3.3: Separation of external walls and associated openings in different fire compartments	<p>The distance between parts of external walls and any openings within them in different fire compartments separated by a fire wall must not be less than that set out in Table C3.3, unless—</p> <p>(a) those parts of each wall have an FRL not less than 60/60/60; and</p> <p>(b) any openings protected in accordance with C3.4.</p> <p>Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS</p>	<p>CRA – Refer Annexure C</p>

SECTION C: FIRE RESISTANCE																	
		<table><tr><th>Angle between walls</th><th>Min. Distance</th></tr><tr><td>0° (walls opposite)</td><td>6 m</td></tr><tr><td>more than 0° to 45°</td><td>5 m</td></tr><tr><td>more than 45° to 90°</td><td>4 m</td></tr><tr><td>more than 90° to 135°</td><td>3 m</td></tr><tr><td>more than 135° to less than 180°</td><td>2 m</td></tr><tr><td>180° or more</td><td>Nil</td></tr></table>	Angle between walls	Min. Distance	0° (walls opposite)	6 m	more than 0° to 45°	5 m	more than 45° to 90°	4 m	more than 90° to 135°	3 m	more than 135° to less than 180°	2 m	180° or more	Nil	
Angle between walls	Min. Distance																
0° (walls opposite)	6 m																
more than 0° to 45°	5 m																
more than 45° to 90°	4 m																
more than 90° to 135°	3 m																
more than 135° to less than 180°	2 m																
180° or more	Nil																
C3.4:	Acceptable methods of protection	Fire doors, fire windows and fire shutters must comply with BCA Specification C3.4.	CRA – Refer Annexure C														
C3.5:	Doorways in fire walls	Doorways in the fire walls must be protected by a self-closing fire door that achieves an FRL of not less than that required by Specification C1.1 for the fire wall except that each door must have an insulation level of at least 30.	CRA – Refer Annexure C														
C3.6:	Sliding fire doors	Not applicable – no sliding fire doors are currently indicated on the plans.	NA														
C3.7:	Protection of doorways in horizontal exits	Not applicable – there are not horizontal exits currently required.	NA														
C3.8:	Openings in fire-isolated exits	Doorways that open to fire-isolated stairways, fire-isolated passageways or fire-isolated ramps, and are not doorways opening to a road or open space, must be protected by –/60/30 fire doors that are self-closing, or automatic-closing in accordance with (ii) and (iii) of Clause C3.8.	CRA – Refer Annexure C														
C3.9:	Service penetrations in fire-isolated exits	<p>The fire-isolated exits are not to be penetrated by any services other than:</p> <ul style="list-style-type: none">electrical wiring associated with:<ul style="list-style-type: none">a lighting, detection, or pressurization system serving the exit; ora security, surveillance or management system serving the exit; oran intercommunication system or an audible or visual alarm system in accordance with D2.22; orthe monitoring of hydrant or sprinkler isolating valves.ducting associated with a pressurisation system if it;<ul style="list-style-type: none">(i) is constructed of material having an FRL of not less than –/120/60 where it passes through any other part of the building; and(ii) does not open into any other part of the building; orwater supply pipes for fire services.	CRA – Refer Annexure C														
C3.10:	Openings in fire-isolated lift shafts	<ul style="list-style-type: none">Lift landing doors are required to be fire doors with an FRL of -/60/- that comply with AS 1735.11-1986, and be set to remain closed except when	CRA – Refer Annexure C														

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	<p>discharging or receiving, passengers, goods or vehicles.</p> <ul style="list-style-type: none"> • Panels in the wall of the lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm² in area. 	
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	The doorways between sole occupancy units and the public lobbies and any common / service rooms and the public lobbies (class 2 parts) must be protected by self-closing –/60/30 fire doors.	CRA – Refer Annexure C
C3.12: Openings in floors and ceilings for services	Where services pass through a floor which is required to achieve an FRL or a ceiling required to have a resistance to the incipient spread of fire, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C3.15.	CRA – Refer Annexure C
C3.13: Openings in shafts	<p>Openings in shafts must be protected by:</p> <ol style="list-style-type: none"> a) if it is in a sanitary compartment – a door or panel which together with its frame, is non-combustible or has an FRL of not less than –/30/30; or b) a self-closing –/60/30 fire door or hopper; or c) an access panel having an FRL of not less than –/60/30; or d) if the shaft is a garbage shaft – a door or hopper of non-combustible construction. 	CRA – Refer Annexure C
C3.15: Openings for service installations	<p>Where services pass through an element which is required to achieve a FRL (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15.</p> <p>Note: contractors should check with PCA to confirm compliance with their proposed fire stopping method.</p>	CRA – Refer Annexure C
C3.16: Construction joints	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL.	CRA – Refer Annexure C
C3.17: Columns protected with lightweight construction to achieve an FRL	A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire.	CRA – Refer Annexure C
SPECIFICATION C.1.1 – FIRE-RESISTING CONSTRUCTION		
2.1: Exposure to fire-source features	<p>A building element is exposed to a <i>fire-source feature</i> 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–</p> <ol style="list-style-type: none"> (i) has an FRL of not less than 30/–/–; and (ii) is neither transparent nor translucent. 	Noted
2.2: Fire protection for a support of another part	Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must	CRA – Refer Annexure C

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	have an FRL not less than that required by other provisions of this Specification; and if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required for the supporting part itself and for the part it supports.	
2.3: Lintels	A lintel must 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 meets the requirements of Spec C1.1 clause 2.3 (a) & (b).	CRA – Refer Annexure C
2.4: Attachments not to impair fire-resistance	<p>Where a combustible material is used as a finish or lining to a wall or roof, or sunscreen, or awning, to a building element required to have an FRL–</p> <ul style="list-style-type: none"> the material must be exempted under C1.10 or comply with the fire hazard properties prescribed under C1.10; and the material must not be located near or directly above a required exit so as to make the exit unusable in a fire; and the material must not otherwise constitute an undue risk of fire spread via the façade of the building or compromise egress from the building. <p>Note: The above includes any aluminium panels which, where containing plastic strengthening elements, would be considered combustible.</p> <p>Where aluminium composite panels are proposed as an attachment to a fire rated element, the panels and their location must comply with the above. Details, including fire hazard properties of the panels are to be provided for review. It is likely that Aluminium Composite Panels if used will need to be the subject of a Performance Solution Report.</p>	CRA – Refer Annexure C
2.5: General concessions	<p>Structures on roofs — A non-combustible structure situated on a roof need not comply with the other provisions of this Specification if it only contains—</p> <p>(i) lift motor equipment; or</p> <p>(ii) one or more of the following:</p> <p>(A) Hot water or other water tanks.</p> <p>(B) Ventilating ductwork, ventilating fans and their motors.</p> <p>(C) Air-conditioning chillers.</p> <p>(D) Window cleaning equipment.</p> <p>(E) Other service units that are non-combustible and do not contain flammable or combustible liquids or gases.</p>	CRA – Refer Annexure C
2.6: Mezzanine floors: Concession	Not applicable	NA
2.7: Enclosure of shafts	Fire-isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction having an FRL required for the walls of a non-load-bearing shaft in the same building, as per specification C1.1. This fire rating is required in two directions.	CRA – Refer Annexure C

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	<p>The above does not apply to shafts extending beyond the roof covering, other than fire isolated stair and lift shafts and the bottom of non-combustible shafts laid directly on the ground.</p> <p>Note: Garbage chutes which are contained within fire resistant shafts through the building will discharge into a garbage room. As it is difficult to fire rate the bottom of the garbage chute, the garbage room becomes an extension of the fire resistant shaft and therefore must have walls with an FRL of a non-loadbearing shaft in the same building and doorways protected as per C3.13.</p>	
2.8: Carparks in Class 2 and 3 Buildings	Not applicable	NA
3.0: Type A fire-resisting construction	Noted	-
3.1: Fire-resistance of building elements	<ul style="list-style-type: none"> The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report. External walls, common walls and the flooring and floor framing of lift pits must be non-combustible. (Note: insulation and sarking used must be non-combustible) Internal walls required to be fire-rated must extend to— <ul style="list-style-type: none"> (i) to the underside of the floor next above; or (ii) the underside of a roof complying with Table 3; or (iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or (iv) a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes. Load bearing internal walls (including those part of a loadbearing shaft) and fire walls must be of concrete or masonry. Non-loadbearing internal walls required to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction. <p>Note: This includes non-combustible insulation. When an insulation material is not certified as non-combustible, this material will need to be the subject of a Fire Engineering Assessment at the CC stage.</p> <p>The following Performance Solutions are proposed in relation to Type A Construction:</p> <ul style="list-style-type: none"> The proposed slabs in residential areas are to be 190 mm in general and 170 mm in wet set-down 	<p>PS Refer to Part 5 of Report</p>

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		<p>areas in lieu of a minimum 200 mm thickness generally required to achieve the required FRL.</p> <ul style="list-style-type: none"> The required FRL of the retail tenancies at B1, Lower Ground, Ground and Level 1 will be 120/120/120 in lieu of 180/180/180 required under Table 3 of Specification C1.1. 	
3.2:	Concessions for floors	A floor need not comply with Table 3 if it is laid directly on the ground.	Noted
3.3:	Floor Loading of Class 5 and 9b buildings: Concession	Not applicable	NA
3.4:	Roof superimposed on concrete slab: Concession	Not applicable	NA
3.5:	Roof: Concession	A roof need not comply with Table 3 if its covering is non-combustible and the building has a sprinkler system complying with Specification E1.5 installed throughout.	Noted
3.6:	Roof lights	Not applicable – no roof lights are proposed	NA
3.7:	Internal columns and walls: Concession	Not applicable	NA
3.9:	Carparks	Car parking areas of sprinkler protected carparks may comply with the reduced FRLs of Table 3.9 in accordance with this clause.	Noted
3.10:	Class 2 and 3 buildings Concession	Not applicable	NA
SPECIFICATION C1.10 – FIRE HAZARD PROPERTIES			
3.	Floor linings and floor coverings	<p>A floor lining or floor covering must have–</p> <ol style="list-style-type: none"> a critical radiant flux not less than that listed in Table 2; and a group number complying with Clause 6(b), for any portion of the floor covering that is continued more than 150 mm up a wall. 	CRA – Refer Annexure C
4.	Wall and ceiling linings	<ol style="list-style-type: none"> A wall or ceiling lining system must comply with the group number specified in Table 3 A group number of a wall or ceiling lining and the smoke growth rate index or average specific extinction area must be determined in accordance with AS 5637.1. 	CRA – Refer Annexure C
5.	Air-handling ductwork	Rigid and flexible ductwork must comply with the <i>fire hazard properties</i> set out in AS 4254 Parts 1 and 2.	CRA – Refer Annexure C
6.	Lift cars	<p>Materials used as—</p> <ol style="list-style-type: none"> floor linings and floor coverings must have a <i>critical radiant flux</i> not less than 2.2; and wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with AS 5637.1. 	CRA – Refer Annexure C
7.	Other materials	Materials and assemblies not included in Clauses 3, 4, 5 or 6 must not exceed the indices set out in Table 4.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
PART D1 – PROVISION FOR ESCAPE		
D1.1: Application of Part	The <i>Deemed-to-Satisfy Provisions</i> of this Part do not apply to the internal parts of a <i>sole-occupancy unit</i> in a Class 2 part of a building.	Noted
D1.2: Number of exits required	Without passing through another sole-occupancy unit, every occupant of a storey or part of a storey must have access to at least 2 exits. Under the proposed Performance Solution, a single exit will be permitted from numerous retail tenancies on Ground Floor and the plant areas on Level 47.	PS Refer to Part 5 of Report
D1.3: When fire-isolated stairways and ramps are required	All egress stairs are required to be fire-isolated, other than: <ul style="list-style-type: none"> the open stairway connecting the lower ground floor and ground floor levels within Civic Plaza; the main stairway located between the escalators, connecting lower ground floor to ground floor; and the restaurant terrace stair. 	CRA – Refer Annexure C
D1.4: Exit travel distances	<p><u>Class 2 residential —</u></p> <ul style="list-style-type: none"> The entrance doorway of each sole-occupancy unit must be not more than – <ul style="list-style-type: none"> 6 m from an exit or from a point from which travel in different directions to 2 exits is available; or 20 m from a single exit serving the storey at the level of egress to a road or open space; and No point on the floor of a room which is not in a sole-occupancy unit must be more than 20 m from an exit or from a point at which travel in different directions to 2 exits is available. <p>Under the proposed Performance Solution, the following extended travel distances will be permitted within the residential parts:</p> <ul style="list-style-type: none"> Travel distance from the southern SOUs in T1 of up to 7m to a point of choice. The travel distance from SOUs in T2 of up to 12m to a point of choice. <p><u>Class 5, 6, 7 & 9 —</u></p> <ul style="list-style-type: none"> No point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m; and in a Class 5 or 6 building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m. 	Performance Solution Refer to Part 5 of Report

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	<p>Under the proposed Performance Solution, the following extended travel distances will be permitted within the commercial parts:</p> <p>T3 Level 1-14:</p> <ul style="list-style-type: none"> The travel distance to a point of choice of exits is up to 25m in the office tenancies. <p>T2 Level 26:</p> <ul style="list-style-type: none"> The travel distance between exits on level 26 communal rooftop area is 48m. <p>Ground level:</p> <ul style="list-style-type: none"> The travel distance to the single exit from Restaurant G06 is approximately 32m. <p>Lower Ground Level:</p> <ul style="list-style-type: none"> The travel distance to a point of choice from the small retail tenancies is up to 30 m. <p>Basement 01:</p> <ul style="list-style-type: none"> The travel distance to a point of choice from the small retail tenancies is up to 30 m. The travel distance to a point of choice of exits from the BoH mechanical plant is 46 m. The travel distance to a point of choice of exits from the Condenser Platform room is 25 m. The travel distance to an exit from the supermarket areas including BoH mechanical plant room is 57m. <p>Basement 02:</p> <ul style="list-style-type: none"> The travel distance to a point of choice is 22m from the female end of trip facilities. The travel distance to an exit is 48 m from the room adjacent to the express ramp. The travel distance to an exit is 45 m from the T1 cold water pump room. <p>Please note that future fitout works must allow for the required travel distances to be maintained, as travel distances are required to be measured around fixtures such as supermarket shelving. The above distances will need to be re-assessed when further details of the retail and commercial fitouts are provided.</p>	
D1.5: Distance between alternative exits	<p>Exits that are required as alternative means of egress must be—</p> <p>(a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and</p> <p>(b) not less than 9 m apart; and</p> <p>(c) not more than—</p> <p>(i) in Class 2 parts — 45 m apart; or</p> <p>(iii) in all other cases — 60 m apart; and</p>	<p>PS Refer to Part 5 of Report</p>

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	<p>(d) located so that alternative paths of travel do not converge such that they become less than 6 m apart.</p> <p>Note: the distance between exits must be measured through the point at which travel two exits is available.</p> <p>Under the proposed Performance Solution, the following distances between exits will be permitted:</p> <ul style="list-style-type: none"> The maximum travel distance between alternative exits in a carpark or retail area will be up to 86m on B2 to B10 and up to 115m on B1. On the Lower Ground Level, the travel distance between exits from the loading dock is 70m and 65m from the Library. 	
D1.6: Dimensions of exits and paths of travel to exits	<p>In a required exit or path of travel to an exit–</p> <ul style="list-style-type: none"> the unobstructed height throughout exits and paths of travel to exits must not be less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and the unobstructed width of each exit or path of travel to an exit, except for doorways must be not less than 1m; the unobstructed width of doorways must be not less than 750 mm, unless providing access for people with disabilities in which case the unobstructed width must be not less than 850 mm. the required width of a stairway or ramp must be measured clear of all obstructions such as handrails. the unobstructed width of a required exit must not diminish in the direction of travel to a road or open space. <p><u>Aggregate egress width – Clause D1.6(d)</u></p> <ul style="list-style-type: none"> If a storey accommodates more than 200 persons, the aggregate unobstructed width, except for doorways, must be increased to— <ul style="list-style-type: none"> (i) 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12; or (ii) in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200. <p>A Performance Solution is proposed to address the following:</p> <ul style="list-style-type: none"> B1 retail tenancies and mall may contain up to 1,293 occupants based on the occupant density of Clause D1.13. This area is required to be provided with 11.5 m of exit width, however the level is served by five exits, which provide ~ 5 m of exit width. 	<p>PS Refer to Part 5 of Report & DNC Refer to Part 5 of Report</p>

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	<ul style="list-style-type: none"> The path of travel throughout the fire hydrant pump room on Level 46 will be less than 1m. A minimum of 600 mm will be permitted around the pumps for maintenance personnel. <p>The following non-compliance has been identified in relation to Clause D1.6:</p> <ul style="list-style-type: none"> The stairways within the loading dock currently appear to be less than 1m in width and must be increased in width to comply with Clause D1.6. 	
D1.7: Travel via fire-isolated exits	<ul style="list-style-type: none"> D1.7 (a) - A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from – <ul style="list-style-type: none"> (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. D1.7 (b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— <ul style="list-style-type: none"> (i) to a road or open space; or (ii) to a point— <ul style="list-style-type: none"> (C) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and (D) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or (iii) into a covered area that— <ul style="list-style-type: none"> (E) adjoins a road or open space; (F) and is open for at least 1/3 of its perimeter; and (G) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and (H) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m. D1.7 (c) - 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, measured horizontally at right angles to the path of travel, that part of the wall must have— <ul style="list-style-type: none"> (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4, 	<p>PS Refer to Part 5 of Report & DNC Refer to Part 5 of Report</p>

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	<p>for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.</p> <p>A Performance Solution is proposed in relation to the following departures from Clause D1.7(a):</p> <ul style="list-style-type: none"> On level 1-46 of T1, the condenser room opens directly into the north fire-isolated stairs. The two plant rooms on level 47 of Tower 1 to open directly into the fire stairs. <p>The following non-compliance is identified in relation to Clause D1.7(b) & (c):</p> <ul style="list-style-type: none"> Fire stairs FS5 and FC2 in Tower 3 discharge into a covered lobby area at ground level that is not open for at least 1/3 of its perimeter. Furthermore the path of travel from the discharge points to the road requires passing within 6m of unprotected openings of the same building. It is recommended that either the design be amended to comply with BCA Clauses D1.7(b) & (c), or BCA compliance be achieved via a Performance Solution. 	
D1.8: External stairways or ramps in lieu of fire-isolated exits	Not applicable	NA
D1.9: Travel by non-fire-isolated stairways or ramps	<ul style="list-style-type: none"> A non-fire-isolated stairway serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. In a Class 5, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80m. In a Class 5 to 8 or 9b building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than – <ul style="list-style-type: none"> (i) 20 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or (ii) 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions. 	Complies
D1.10: Discharge from exits	<ul style="list-style-type: none"> Exits must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit. If a required exit leads to open space, the path of travel to the road must have an unobstructed width 	CRA – Refer Annexure C

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	<p>of not less than 1m or the minimum width of the required exit, if greater.</p> <ul style="list-style-type: none"> If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by a ramp or other incline not steeper than 1:8, or a BCA compliant stairway. 	
D1.11: Horizontal exits	Not applicable	NA
D1.12: Non-required stairways, ramps or escalators	<p>An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp—</p> <p>(b) may connect any number of storeys if it is in a Class 5 or 6 building that is sprinklered throughout, where the escalator, walkway, stairway or ramp complies with Specification D1.12; and</p> <p>(c) except where permitted in (b) must not connect more than 3 storeys if each of those storeys is provided with a sprinkler system complying with Specification E1.5 throughout; and</p> <p>(d) except where permitted in (b) or (c), must not connect more than 2 storeys at any level in a Class 5, 6, 7, 8 or 9 building and those storeys must be consecutive.</p> <p>A Performance Solution is proposed to permit the escalator located below Tower 3 to connect 6 storeys.</p>	<p>PS</p> <p>Refer to Part 5 of Report</p>
D1.13: Number of persons accommodated	<p>Informational—</p> <p>The number of persons accommodated in a storey, room or mezzanine must be determined within consideration to the purpose for which it is used and the layout of the floor area by—</p> <p>(a) calculating the sum of the numbers obtained by dividing the floor area of each part of the storey by the number of square metres per person listed in BCA Table D1.13 according to the use of that part, excluding spaces set aside for—</p> <p>(i) lifts, stairways, ramps and escalators, corridors, hallways, lobbies and the like; and</p> <p>(ii) service ducts and the like, sanitary compartments or other ancillary uses; or</p> <p>(b) reference to the seating capacity in an assembly building or room; or</p> <p>(c) any other suitable means of assessing its capacity.</p>	Noted
D1.14: Measurement of distances	<p>Informational –</p> <p>The nearest part of an exit means in the case of—</p> <p>(a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access to them; and</p> <p>(b) a non-fire-isolated stairway, the nearest part of the nearest riser; and</p> <p>(c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and</p>	Noted

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	(d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a horizontal exit, the nearest part of the doorway.	
D1.15: Method of Measurement	Informational	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Informational – (a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100 m ² ; or (ii) all but one point of egress from a plant room, a lift machine room or a Class 8 electricity network substation with a floor area of not more than 200 m ² . (b) A ladder permitted under (a)— (i) may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) for a plant room or a Class 8 electricity network substation, must comply with AS 1657.	CRA – Refer Annexure C
D1.17: Access to lift pits	Access to the lift pit is assumed to be through the bottom landing doors if the pit is less than 3m deep. If greater than 3m deep, access must comply with BCA Clause D1.17 (b).	CRA – Refer Annexure C
PART D2 – CONSTRUCTION OF EXITS		
D2.1: Application of Part	Informational— Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17 (e), D2.18 & D2.24, the deemed-to-satisfy Provisions of this Part do not apply to internal parts of the Class 2 sole-occupancy units.	Noted
D2.2: Fire-isolated stairways and ramps	The fire-isolated stairways must be constructed of non-combustible materials and constructed so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of the shaft.	CRA – Refer Annexure C
D2.3: Non-fire-isolated stairways and ramps	Required stairs and ramps (including landings and any supporting building elements) must be constructed according to D2.2, or only of— (a) reinforced or pre-stressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m ³ at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue".	CRA – Refer Annexure C

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D2.4: Separation of rising and descending stair flights	<p>If a stairway serving as an exit is required to be fire-isolated—</p> <p>(a) there must be no direct connection between—</p> <p>(i) a flight rising from a storey below the lowest level of access to a road or open space; and</p> <p>(ii) a flight descending from a storey above that level; and</p> <p>(b) any construction that separates or is common to the rising and descending flights must be</p> <p>(i) non-combustible; and</p> <p>(ii) smoke proof in accordance with Clause 2 of Specification C2.5.</p>	CRA – Refer Annexure C
D2.5: Open access ramps and balconies	Not applicable	NA
D2.6: Smoke lobbies	Not applicable	NA
D2.7: Installations in exits and paths of travel	<ul style="list-style-type: none"> Access to service shafts and services other than to fire-fighting or detection equipment must not be provided from a fire-isolated stairway or fire-isolated passageway. Gas or other fuel services must not be installed in a required exit. Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in corridors/hallways/lobbies or the like must be enclosed with non-combustible construction or a fire protective covering with doorways suitably sealed against smoke spread. Electrical wiring may be installed in a fire-isolated exit if the wiring is associated with: <ul style="list-style-type: none"> a lighting, detection, or pressurization system serving the exit; or a security, surveillance or management system serving the exit; or an intercommunication system or an audible or visual alarm system in accordance with D2.22; or the monitoring of hydrant or sprinkler isolating valves. 	CRA – Refer Annexure C
D2.8: Enclosure of space under stairs and ramps	<p>The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space.</p> <p>The space below a required non fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door.</p>	CRA – Refer Annexure C
D2.9: Width of stairways and ramps	A <i>required</i> stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.	FI Refer to Part 5 of Report

SECTION D: ACCESS AND EGRESS		
	A handrail is required to the non-fire-isolated stair connecting lower ground floor to ground floor as this stairway serves as an exit required to be more than 2m in width.	
D2.10: Pedestrian ramps	The floor surface of ramps must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586.	CRA – Refer Annexure C
D2.11: Fire-isolated passageways	The enclosing construction of a fire isolated passageways must have an FRL not less than that required for the fire isolated stair it serves.	CRA – Refer Annexure C
D2.12: Roof as open space	If an exit discharges to a roof of a building, the roof must— (a) have an FRL of not less than 120/120/120; and (b) not have any roof lights or other openings within 3 m of the path of travel of persons using the exit to reach a road or open space. Roof of the lower ground floor level is to achieve an FRL of 120/120/120 as exits discharge onto it.	CRA – Refer Annexure C
D2.13: Goings and risers	<p>Stairways must comply with the following:</p> <ul style="list-style-type: none"> stairways must have not more than 18 and not less than 2 risers in each flight; goings must be between 240 mm and 355 mm within the residential units; goings must be between 250 mm and 355 mm in other areas; risers must be between 115 mm high and 190 mm high; the slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; the goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between— <ul style="list-style-type: none"> (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm. Risers must not contain any openings that would permit a 125 mm sphere to pass through. each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosings; treads must be of solid construction (not mesh or perforated) if the stairway is more than 10 m high or connects more than 3 storeys. In the case of a required stairway, no winders in lieu of a landing Treads must have a surface or nosing strip with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS																			
	<i>4586-2013 Slip resistance classification of new pedestrian surface materials.</i>																		
D2.14: Landings	<p>Landings must be not less than 750 mm long and have either a surface with a slip-resistance classification complying with Table D2.14 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586.</p> <table border="1"> <thead> <tr> <th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr> <tr> <th>Dry</th><th>Wet</th></tr> </thead> <tbody> <tr> <td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr> <tr> <td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr> <tr> <td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr> <tr> <td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr> </tbody> </table>	Application	Surface Condition		Dry	Wet	Ramp steeper than 1:14	P4 or R11	P5 or R12	Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11	Tread or landing surface	P3 or R10	P4 or R11	Nosing or landing edge strip	P3	P4	CRA – Refer Annexure C
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D2.15: Thresholds	<p>The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless–</p> <ol style="list-style-type: none"> in a building required to be accessible, the doorway– <ol style="list-style-type: none"> opens to a road or open space; and is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or in other cases– <ol style="list-style-type: none"> the doorway opens to a road or open space, external stair landing or external balcony; and the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens. 	CRA – Refer Annexure C																	
D2.16: Barriers to prevent falls	<p>Balustrades must be provided to stairs and balconies, driveway ramps etc where there is a fall of more than 1m. Balustrades must comply with the following:</p> <p><u>Balustrade minimum heights</u></p> <ul style="list-style-type: none"> 865 mm above stair nosings; 865 mm above landings to a stair where the barrier is provided along the inside edge of the landing and does not exceed 500 mm in length; and 1 m in all other locations. <p><u>Balustrade openings – fire-isolated stairs</u></p> <ul style="list-style-type: none"> maximum openings of 300 mm; or where rails are used– <ul style="list-style-type: none"> a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail 	CRA – Refer Annexure C																	

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	<p>or between the rail and the floor of the landing, balcony or the like; and</p> <ul style="list-style-type: none"> – the opening between rails must not be more than 460 mm <p><u>Balustrade openings – other than fire-isolated stairs</u></p> <ul style="list-style-type: none"> • A 125 mm sphere must not be able to pass through any opening and for stairways, the 125 mm is measured above the nosing line of the stair treads. <p><u>Climbability – other than fire-isolated stairs</u></p> <p>For floors more than 4m above the surface beneath, the balustrade must not incorporate any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that could facilitate climbing.</p>	
D2.17: Handrails	<p>Handrails to stairways must:</p> <ul style="list-style-type: none"> • be located along at least one side of the ramp or flight (a flight being 2 or more risers); and • located along each side if the total width of the stairway or ramp is 2m or more; and • be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and • be continuous between stair flight landings and have no obstruction that will break a hand-hold. • be constructed to comply with clause 12 of AS 1428.1 (including handrails to the fire stairs). • Handrails in common areas (other than fire stairs) must also accord with D3.3. <p><u>Clause 12 of AS 1428.1-2009</u></p> <p>A required exit (fire isolated or non-fire isolated) serving an area required to be accessible must be fitted with handrails in accordance with Clause 12 of AS1428.1.</p> <p>The handrail shall follow the angle of the nosings and be consistent height through the stair flight and any landings with no vertical sections at the landing. Compliance can be achieved via offset risers at the bottom of the flight in accordance with Figure 28 in AS1428.1-2009 or with larger landings to accommodate required handrail extensions.</p>	CRA – Refer Annexure C

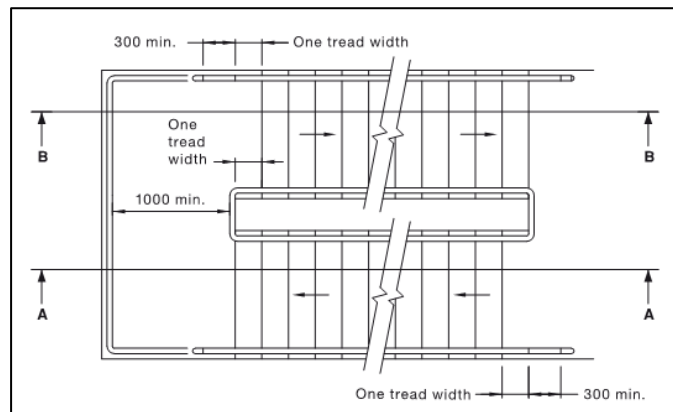
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Figure 28 in AS1428.1-2009

D2.18: Fixed platforms, walkways stairways and ladders	Plant areas may be accessed via stairs and ladders compliant with AS 1657-2013.	CRA – Refer Annexure C
D2.19: Doorways and doors	<ul style="list-style-type: none"> An exit door must not be fitted with a roller shutter. Sliding doors must not serve as exit doors unless they lead directly to open space and must be openable manually under a force of not more than 110N. Exit doors that are power operated must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source and if leading to road or open space, open automatically if there is a power failure or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. A power operated door in a path of travel to a required exit must be able to be opened manually under a force of not more than 110 N if there is a malfunction of the power source. 	CRA – Refer Annexure C
D2.20: Swinging doors	<p>Swinging doors in a required exit must not encroach–</p> <ol style="list-style-type: none"> at any part of its swing by more than 500 mm on the required 1m width of the exit and when fully open, by more than 100 mm on the required 1m exit width; and <p>the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door.</p> <p>A swinging door in a required exit must swing in the direction of egress unless–</p> <ul style="list-style-type: none"> it serves a building or part with a floor area not more than 200 m², it is the only required exit from the building or part and it is fitted with a device for holding it in the open position; or it serves a sanitary compartment or airlock (in which case it may swing in either direction). <p>Dimensioned plans are to be provided at CC stage to demonstrate compliance with the above.</p>	CRA – Refer Annexure C
D2.21: Operation of latch	All doors in a required exit or forming part of a required exit AND doors in a path of travel to a required exit must	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	<p>be readily openable without a key from the side that faces a person seeking egress, by–</p> <ul style="list-style-type: none"> (i) a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3 – <ul style="list-style-type: none"> A. be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and B. have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm; or (ii) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. <p>The above requirements do not apply to a door that –</p> <ul style="list-style-type: none"> (i) serves only or is within a sole-occupancy unit in a Class 2 building; or (ii) serves a sole-occupancy unit in a Class 5, 6 or 7 building with a floor area not more than 200m²; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building. <p><u>Class 9b Library</u></p> <p>All doors in a required exit or forming part of a required exit AND doors in a path of travel to a required exit must be readily openable–</p> <ul style="list-style-type: none"> (i) without a key from the side that faces a person seeking egress; and (ii) by a single hand pushing action on a single device such as a panic bar located between 900mm and 1.2 m from the floor; and (iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf; and (iv) where the door is a door in a path of travel providing re-entry to the building from a balcony terrace or the like, it may be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public, so the door can yield to pressure. 	
D2.22: Re-entry from fire-isolated exits	Doors of the fire-isolated exits must not be locked from the inside unless the door is fitted with a fail-safe device which automatically unlocks the door upon the activation of a fire alarm and –	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	<ul style="list-style-type: none"> (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation. 	
D2.23: Signs on doors	<p>Signage in accordance with this clause is to be located on all fire and smoke doors stating "Fire Safety Door, Do Not Obstruct, Do Not Keep Open" and the discharge door from the fire isolated stairways are to state "Fire Safety Door – Do Not Obstruct" in capital letters not less than 20mm in height.</p> <p>Note: Fire signage in accordance with clause 183 of the Environmental Planning and Assessment Regulation 2000 is also required.</p>	CRA – Refer Annexure C
D2.24: Protection of openable windows	<ul style="list-style-type: none"> a) Bedroom windows must be provided with protection if the floor below the window is 2m or more above the surface beneath. b) Where the lowest level of the window opening is less than 1.7m above the floor, a window opening covered by (a) must comply with the following: <ul style="list-style-type: none"> (i) The openable portion of the window must be protected with– <ul style="list-style-type: none"> A. a device to restrict the window opening; or B. a screen with secure fittings. (ii) A device or screen required by (i) must– <ul style="list-style-type: none"> A. not permit a 125 mm sphere to pass through the window opening or screen; and B. resist an outward horizontal action of 250 N against the– <ul style="list-style-type: none"> aa. window restrained by a device; or bb. screen protecting the opening; and C. have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. c) A barrier with a height not less than 865 mm above the floor is required to an openable window– <ul style="list-style-type: none"> (i) in addition to window protection, when a child resistant screen release mechanism is required by (b)(ii)(C); and (ii) where the floor below the window is 4m or more above the surface beneath if the window is not covered by (a). d) A barrier covered by (c) except for (e) must not– <ul style="list-style-type: none"> (i) permit a 125 mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. 	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	<p>e) A barrier <i>required</i> by (c) to an openable window in—</p> <p>(i) fire-isolated stairways, fire-isolated ramps and other areas used primarily for emergency purposes, excluding external stairways and external ramps; and</p> <p>(ii) Class 7 (other than carparks) and Class 8 buildings and parts of buildings containing those classes;</p> <p>must not permit a 300mm sphere to pass through it.</p> <p>Note: when considering the preferred option to comply with this clause consideration will need to be given to natural ventilation required under Clause F4.6.</p>	
D2.25: Timber stairways: concession	Not applicable	NA
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
Refer to separate Access Report prepared by BCA Logic		

SECTION E: SERVICES AND EQUIPMENT		
PART E1 – FIRE FIGHTING EQUIPMENT		
E1.3: Fire hydrants	<p>Under BCA Clause E1.3, a fire hydrant system complying with AS 2419.1-2005 must be provided to the building.</p> <p>Under the Performance Solution the following is proposed:</p> <ul style="list-style-type: none"> The fire hydrant system will generally comply with AS 2419.1-2017; and the combined sprinkler and hydrant tank serving the lower three pressure zones (P1, P2 and P3) will have a reduced capacity. 1m clearance is not proposed to be provided to the full perimeter of the hydrant pumps on level 46. 	<p>PS</p> <p>Refer to Part 5 of Report</p>
E1.4: Fire hose reels	<p>A fire hose reel system complying with BCA clause E1.4 and AS 2441-2005 must be provided to the building, other than residential parts.</p> <p>All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m. Fire hose reels must not pass through fire doors other than those accepted by Clause E1.4(f).</p> <p>Further details of the fire hose reel system to be provided at CC stage.</p> <p>Under the proposed Performance Solution, portable fire extinguishers will be provided to office floors in lieu of hose reels.</p>	<p>FI</p> <p>Refer to Part 5 of Report & PS</p> <p>Refer to Part 5 of Report</p>
E1.5: Sprinklers	<p>The building must be provided with a sprinkler system complying with Specification E1.5 installed throughout.</p> <p>Grade 1 water supply is required. Further details to be provided at CC stage.</p> <p>Under the proposed Performance Solution, wet heads will be provided to the lift shafts and motor rooms.</p>	<p>PS</p> <p>Refer to Part 5 of Report</p>

SECTION E: SERVICES AND EQUIPMENT		
E1.6: Portable fire extinguishers	<p>Portable fire extinguishers must be provided in accordance with clause E1.6 & Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444-2001. For the Class 2 parts, portable fire extinguishers must be—</p> <ul style="list-style-type: none"> (i) an ABE type fire extinguisher; and (ii) a minimum size of 2.5 kg; and (iii) distributed outside a sole-occupancy unit— <ul style="list-style-type: none"> (A) to serve only the storey at which they are located; and (B) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10 m. 	CRA – Refer Annexure C
E1.8: Fire control centres	<p>The building must be provided with a fire control centre facility located within a fire control room in accordance with BCA Specification E1.8.</p> <p>The fire control centre is located at ground floor level in Tower 1. The doors to the fire control room currently open outwards in lieu of into the room.</p>	DNC Refer to Part 5 of Report
E1.9: Fire precautions during construction	<p>Informational—</p> <ul style="list-style-type: none"> • During construction, not less than one portable fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required / temporary exit; and • After the building has reach an effective height of 12m, the required fire hydrants and fire hose reels must be operational on all floor / roof covered storeys, except for the 2 uppermost storeys; and all required booster connections must be installed. 	Noted
E1.10: Provision for special hazards	Suitable additional provisions must be made if special problems of firefighting could arise because of the nature or quantity of stored materials or the location of the building in relation to a water supply.	CRA – Refer Annexure C
PART E1.5 – FIRE SPRINKLER SYSTEMS		
2. Adoption of AS2118	The sprinkler system must comply with AS2118.1, or for a combined sprinkler and fire hydrant system: AS 2118.6.	PS Refer to Part 5 of Report
5. Fast response sprinklers	Fast response sprinklers may be installed only if they are suitable for the type of application proposed and it is demonstrated that the sprinkler system is designed to accommodate their use.	CRA – Refer Annexure C
6. Sprinkler valve enclosures	<p>(a) Sprinkler alarm valves must be located in a secure room or enclosure which has direct egress to a road or open space.</p> <p>(b) All sprinkler valve rooms and enclosures must be secured with a system suitable for use by the fire brigade.</p>	CRA – Refer Annexure C
7. Water supply	The Grade of water supply to a required sprinkler system must be Grade 1.	CRA – Refer Annexure C
8. Building occupant warning system	A required sprinkler system must be connected to and activate a building occupant warning system complying with Clause 6 of Specification E2.2a.	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
9.	Connection to Other Systems	Where a smoke hazard management system is installed and is actuated by smoke detectors, the sprinkler system must, wherever practicable, be arranged to also activate the smoke hazard management system.	CRA – Refer Annexure C
11.	Sprinkler Systems in Carparks	The sprinkler system protecting a carpark complying with Table 3.9 of Specification C1.1 in a multi-classified building must— (a) be independent of the sprinkler system protecting any part of the building not used as a carpark; or (b) if forming part of a sprinkler system protecting a part of the building not used as a carpark, be designed such that the section protecting the non-carpark part can be isolated without interrupting the water supply or otherwise affecting the effective operation of the section protecting the carpark.	CRA – Refer Annexure C
13.	Sprinkler systems in lift installations	Where sprinklers are installed in a space housing lift electrical and control equipment, including machine rooms, secondary floors and sheave rooms, they must be of the dry system type in accordance with AS 2118.1.	PS Refer to Part 5 of Report
PART E1.8 – FIRE CONTROL CENTRES			
2.	Purpose and content	A fire control centre must— (a) provide an area from which fire-fighting operations or other emergency procedures can be directed or controlled; and (d) contain controls, panels, telephones, furniture, equipment and the like associated with the required fire services in the building; and (e) not be used for any purpose other than the control of— (i) fire-fighting activities; and (ii) other measures concerning the occupant safety or security.	CRA – Refer Annexure C
3.	Location of fire control centre	A fire control centre must be so located in a building that egress from any part of its floor, to a road or open space, does not involve changes in level which in aggregate exceed 300 mm.	Complies
4.	Equipment not permitted within a fire control centre	An internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings must not be located in a fire control centre, but may be located in rooms accessed through the fire control centre.	CRA – Refer Annexure C
5.	Ambient sound level of fire control centre	(a) The ambient sound level within the fire control centre measured when all fire safety equipment is operating in the manner in which it operates in an emergency must not exceed 65 dB(A). (b) The measurement must be taken for a sufficient time to characterize the effects of all sound sources. Where there is not a great variation in noise level, a measurement time of 60 seconds may be used.	CRA – Refer Annexure C
6.	Construction of a fire control room	A fire control centre in a building more than 50 m in effective height must be in a separate room where—	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT		
	<p>(a) the enclosing construction is of concrete, masonry or the like, sufficiently impact resistant to withstand the impact of any likely falling debris, and with an FRL of not less than 120/120/120; and</p> <p>(b) any material used as a finish, surface, lining or the like within the room complies with the requirements of Specification C1.10; and</p> <p>(c) services, pipes, ducts and the like that are not directly required for the proper functioning of the fire control room do not pass through it; and</p> <p>(d) openings in the walls, floors or ceiling which separate the room from the interior of the building are confined to doorways, ventilation and other openings for services necessary for the proper functioning of the facility.</p>	
7. Protection of openings in a fire control room	<p>Openings permitted by Clause 6 must be protected as follows:</p> <p>(a) Openings for windows, doorways, ventilation, service pipes, conduits and the like, in an external wall of the building that faces a road or open space, must be protected in accordance with the Deemed-to-Satisfy Provisions of Part C3.</p> <p>(b) Openings in the floors, ceilings and internal walls enclosing a fire control room must, except for doorways, be protected in accordance with the Deemed-to-Satisfy Provisions of Part C3.</p> <p>(c) A door opening in the internal walls enclosing a fire-control room, must be fitted with a self-closing – /120/30 smoke sealed fire door.</p> <p>(d) Openings associated with natural or mechanical ventilation must—</p> <p>(i) not be made in any ceiling or floor immediately above or below the fire control room; and</p> <p>(ii) be protected by a –/120/– fire damper if the opening is for a duct through a wall required to have an FRL, other than an external wall.</p>	CRA – Refer Annexure C
8. Doors to a fire control room	<p>(a) Required doors to a fire control room must open into the room, be lockable and located so that persons using escape routes from the building will not obstruct or hinder access to the room.</p> <p>(b) The fire control room must be accessible via two paths of travel—</p> <p>(i) one from the front entrance of the building; and</p> <p>(ii) one direct from a public place or fire-isolated passageway which leads to a public place and has a door with an FRL of not less than –/120/30.</p> <p>The doors to the fire control room currently open outwards in lieu of into the room.</p>	DNC Refer to Part 5 of Report

SECTION E: SERVICES AND EQUIPMENT		
9. Size and content of a fire control room	<p>(a) A fire control room must contain—</p> <ul style="list-style-type: none"> (i) a Fire Indicator Panel and necessary control switches and visual status indication for all required fire pumps, smoke control fans and other required fire safety equipment installed in the building; and (ii) a telephone directly connected to an external telephone exchange; and (iii) a blackboard or whiteboard not less than 1200 mm wide x 1000 mm high; and (iv) a pin-up board not less than 1200 mm wide x 1000 mm high; and (v) a raked plan layout table of a size suitable for laying out the plans provided under (vi); and (vi) colour-coded, durable, tactical fire plans. <p>(b) In addition, a fire control room may contain—</p> <ul style="list-style-type: none"> (i) master emergency control panels, lift annunciator panels, remote switching controls for gas or electrical supplies and emergency generator backup; and (ii) building security, surveillance and management systems if they are completely segregated from all other systems. <p>(c) A fire control room must—</p> <ul style="list-style-type: none"> (i) have a floor area of not less than 10 m² and the length of any internal side must be not less than 2.5 m; and (ii) if only the minimum prescribed equipment is installed — have a net floor area of not less than 8 m² with a clear space of not less than 1.5 m² in front of the Fire Indicator Panel; and (iii) if additional equipment is installed — have an additional area of not less than 2 m² net floor area for each additional facility and a clear space of not less than 1.5 m² in front of each additional control or indicator panel, and the area required for any path of travel through the room to other areas must be provided in addition to the requirements (ii) and (iii). 	CRA – Refer Annexure C
10. Ventilation and power supply for a fire control room	<p>A fire control room must be ventilated by—</p> <ul style="list-style-type: none"> (a) natural ventilation from a window or doorway in an external wall of the building which opens directly into the fire control room from a road or open space; or (b) a pressurisation system that only serves the fire control room, and— <ul style="list-style-type: none"> (i) is installed in accordance with AS/NZS 1668.1 as though the room is a fire-isolated stairway; and 	CRA – Refer Annexure C

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		<ul style="list-style-type: none">(ii) is activated automatically by operation of the fire alarm, or sprinkler system complying with Specification E1.5, installed in the building and manually by an over-riding control in the room; and(iii) provides a flow of fresh air through the room of not less than 30 air changes per hour when the system is operating and any door to the room is open; and(iv) has fans, motors and ductwork that form part of the system but not contained within the fire control room protected by enclosing construction with an FRL of not less than 120/120/120; and(v) has any electrical supply to the fire control room or equipment necessary for its operation connected to the supply side of the main disconnection switch for the building, and no openable devices other than necessary doorways, pressure controlled relief louvres and windows that are openable by a key, must be constructed in the fire control room.	
11.	Sign for a fire control room	The external face of the door to the fire control room must have a sign with the words— FIRE CONTROL ROOM in letters of not less than 50 mm high and of a colour which contrasts with that of the background.	CRA – Refer Annexure C
12.	Lighting for a fire control room	Emergency lighting in accordance with the Deemed-to-Satisfy Provisions of Part E4 must be provided in a fire control room, except that an illumination level of not less than 400 lux must be maintained at the surface of the plan table.	CRA – Refer Annexure C
PART E2 – SMOKE HAZARD MANAGEMENT			
E2.2:	General requirements (including Tables E2.2a and E2.2b)	<p><u>General smoke hazard management requirements</u></p> <p>An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b 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 (such as lobby air supply) must—</p> <ul style="list-style-type: none">(i) be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1; or(ii)<ul style="list-style-type: none">(A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and(B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 4.10 of AS/NZS 1668.1; and	<p>PS Refer to Part 5 of Report</p>

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for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment.

Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 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 that Section of the Standard.

A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS1668.1 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.

Fire-isolated exits

The fire-isolated exits must be provided with an automatic air pressurisation system for fire-isolated exits in accordance with AS/NZS 1668.1. The automatic air pressurisation system applies to the entire exit.

Class 2 parts

Class 2 parts must be provided with an automatic smoke detection and alarm system complying with BCA Specification E2.2a. Note: Smoke alarms in sole occupancy units are now required to be interconnected.

Class 5, 6, 7b & 9b

Class 5, 6, 7b and 9b parts must be provided with a zone smoke control system in accordance with AS/NZS 1668.1.

Class 6 (containing an enclosed common walkway or mall serving more than one Class 6 sole-occupancy unit)

(a) Where the floor area of a Class 6 part of a fire compartment is more than 2000 m², the fire compartment, including the enclosed common walkway or mall, must be provided with an automatic smoke exhaust system complying with Specification E2.2b.

(b) The provisions of (a) do not apply to—

(i) a Class 6 sole-occupancy unit that—

(A) opens onto the enclosed common walkway or mall if the Class 6 sole-occupancy unit has a floor area of not more than 1000 m²; or

(B) does not open onto the enclosed common walkway or mall if the Class 6 sole-occupancy unit—

(aa) has a floor area of not more than 2000 m²; and

(bb) is single storey with a main entrance opening to a road or open space; and

(cc) is separated from other parts of the fire compartment by construction, including openings, penetrations and junctions with other building elements, that prevents the free passage of smoke; and

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	<p>(ii) parts of any other classification that are smoke separated from a Class 6 part by construction complying with (i)(B)(cc).</p> <p><u>Class 7a buildings</u></p> <p>A Class 7a building including a basement provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that fans with metal blades for operation at normal temperatures may be used, and the electrical power and control cabling need not be fire rated.</p> <p><u>Class 9b</u></p> <p>The library must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS/NZS 1668.1) which does not form part of the smoke hazard management system, on the activation of—</p> <p>(i) smoke detectors installed complying with Clause 5 of Specification E2.2a; and</p> <p>(ii) any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5.</p> <p>The following Performance Solutions are proposed in relation to Clause E2.2:</p> <ul style="list-style-type: none"> • Zone smoke control will be omitted from certain areas of the building. • It is proposed to provide a stair pressurisation system to the basement levels such that 1m/s airflow across the doorway is achieved when only two doors entering the basement fire-isolated stairs and the discharge doors are open. • It is proposed to not provide smoke exhaust to the back of house area of the supermarket and the smoke reservoir will be approximately 2850 m². 	
E2.3: Provisions for special hazards	Not applicable	NA
PART E3 – LIFT INSTALLATIONS		
E3.1: Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1	CRA – Refer Annexure C
E3.2: Stretcher facility in lifts	<p>A stretcher facility must be provided to an emergency lift required by E3.4.</p> <p>A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.</p>	CRA – Refer Annexure C
E3.3: Warning against use of lifts in fire	Warning signs indicating “DO NOT USE LIFTS IF THERE IS A FIRE” shall be displayed near every call button for a passenger lift or group of lifts throughout a building as per E3.3.	CRA – Refer Annexure C

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E3.4: Emergency lifts	<ul style="list-style-type: none"> Where two or more passenger lifts are installed and serve the same storeys— <ul style="list-style-type: none"> (i) at least two emergency lifts must be provided to serve those storeys; and (ii) if located within different shafts, at least one emergency lift must be provided in each shaft. As the building has an effective height of more than 75m, the lift must have a rating of at least— <ul style="list-style-type: none"> (A) 600 kg if not provided with a stretcher facility; or (B) 900 kg if provided with a stretcher facility. 	CRA – Refer Annexure C
E3.5: Landings	Access and egress to and from lift-well landings must comply with the Deemed-to-Satisfy Provisions of Section D.	CRA – Refer Annexure C
E3.6: Passenger lifts	In an accessible building, every passenger lift must be one of the types specified in Table E3.6a, have accessible features in accordance with Table E3.6b, and not rely on a constant pressure device for its operation if the lift car is fully enclosed.	CRA – Refer Annexure C
E3.7: Fire service controls	<p>The lifts serving any storey above an effective height of 12 m must be provided with:</p> <ul style="list-style-type: none"> a) A fire service recall control switch complying with E3.9 for— <ul style="list-style-type: none"> (i) a group of lifts; or (ii) a single lift not in a group that serves the <i>storey</i>. b) A lift car fire service drive control switch complying with E3.10 for every lift. 	CRA – Refer Annexure C
E3.9: Fire service recall switch	The fire service control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	CRA – Refer Annexure C
E3.10: Lift car service drive control switch	The lift car service drive control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	CRA – Refer Annexure C
PART E4 – VISIBILITY IN AN EMERGENCY, EXIT SIGNS AND WARNING SYSTEMS		
E4.2: Emergency lighting requirements	An emergency lighting system must be installed throughout the building in accordance with Clause E4.2 of the BCA and AS 2293.1-2005.	CRA – Refer Annexure C
E4.3: Measurement of distance	Informational	Noted
E4.4: Design and operation of emergency lighting	The emergency lighting system must comply with AS 2293.1-2005.	CRA – Refer Annexure C
E4.5: Exit signs	Exit signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary.	CRA – Refer Annexure C
E4.6: Direction signs	Where an exit is not readily apparent, directional signage is to be installed indicating the direction of egress.	CRA – Refer Annexure C
E4.7: Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Noted

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E4.8:	Design and operation of exit signs	Exit signs must comply with AS 2293.1-2005 and be clearly visible at all times when the building is occupied.	CRA – Refer Annexure C
E4.9:	Sound systems and intercom systems for emergency purposes	A sound system and intercom system for emergency purposes (EWIS) complying where applicable with AS 1670.4 must be installed within the building.	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
PART F1 – DAMP AND WEATHERPROOFING			
F1.0:	Deemed-to-Satisfy Provisions	Performance Requirement FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.	Noted
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS3500.3-2003.	CRA – Refer Annexure C
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS4654 Parts 1 and 2-2012.	CRA – Refer Annexure C
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	CRA – Refer Annexure C
F1.6:	Sarking	Sarking-type materials used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2-1994.	CRA – Refer Annexure C
F1.7:	Water proofing of wet areas in buildings	Wet areas must be constructed in accordance with AS 3740-2010 and F1.7 of the BCA.	CRA – Refer Annexure C
F1.9:	Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.	CRA – Refer Annexure C
F1.10:	Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870-2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions).	CRA – Refer Annexure C
F1.11:	Provision of floor wastes	In Class 2 building, a bathroom or laundry is to have a floor waste where the floor is graded to the floor waste to permit the drainage of water.	CRA – Refer Annexure C
F1.12:	Sub-floor ventilation	Not applicable	NA
F1.13:	Glazed Assemblies	Glazed assemblies are to comply with AS2047 and AS1288.	CRA – Refer Annexure C
PART F2 – SANITARY AND OTHER FACILITIES			
F2.1:	Facilities in residential buildings (including Table F2.1)	Each SOU must be provided with sanitary facilities; a kitchen sink; facility for the preparation and cooking of food; laundry wash tub and space for a washing machine and dryer. An employee facility that incorporates a washbasin and closet pan is required at or near ground floor level. The facility must be an accessible unisex toilet facility, compliant with AS 1428.1-2009.	CRA – Refer Annexure C
F2.2:	Calculation of number of occupants and facilities	Informational –	CRA – Refer Annexure C

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	<ul style="list-style-type: none"> a) The number of persons accommodated must be calculated according to D1.13 if it cannot be more accurately determined by other means b) Unless the premises are used predominantly by one sex, sanitary facilities must be provided on the basis of equal numbers of males and females c) In calculating the number of sanitary facilities to be provided under F2.1 and F2.3, a unisex facility <i>required</i> for people with a disability may be counted once for each sex d) For the purpose of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary towels 	
F2.3: Facilities in Class 3 to 9 buildings (including Table F2.3)	<ul style="list-style-type: none"> • Sanitary facilities must be provided in accordance with Table F2.3. • Except for accessible toilets and staff toilets serving up to 10 staff, separate sanitary facilities must be provided for each sex. • Employees and the public may share the same facilities in a Class 6 and 9b building provided the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public. <p>Further details are required of the proposed population numbers and sanitary compartments within the restaurant tenancies in order for compliance to be assessed.</p>	FI Refer to Part 5 of Report
F2.4: Accessible sanitary facilities (including Table F2.4)	Refer to separate Access Report prepared by BCA Logic	-
F2.5: Construction of sanitary compartments	<ul style="list-style-type: none"> a) Sanitary compartments must have doors and partitions that separate adjacent compartments and extend— <ul style="list-style-type: none"> (i) from floor level to the ceiling in the case of a unisex facility; or (ii) to a height of not less than 1.5 m above the floor if primary school children are the principal users; or (iii) 1.8 m above the floor in all other cases. b) The door to a fully enclosed sanitary compartment must— <ul style="list-style-type: none"> (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway. 	CRA – Refer Annexure C
F2.6: Interpretation: urinals and washbasins	<p>Informational—</p> <ul style="list-style-type: none"> (a) A urinal may be— <ul style="list-style-type: none"> (i) an individual stall or wall-hung urinal; or (ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— 	Noted

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	(i) an individual basin; or (ii) a part of a hand washing trough served by a single water tap.	
F2.8: Waste Management	Not applicable	NA
PART F3 – ROOM SIZES		
F3.1: Height of rooms and other spaces	<p>The height of rooms and other spaces must be not less than—</p> <p>(a) in a Class 2 building—</p> <p>(i) a kitchen, laundry, or the like — 2.1 m; and</p> <p>(ii) a corridor, passageway or the like — 2.1 m; and</p> <p>(iii) a habitable room excluding a kitchen — 2.4 m; and</p> <p>(b) in a Class 5, 6, 7 or 8 building—</p> <p>(i) except as allowed in (ii) and (f) — 2.4 m; and</p> <p>(ii) a corridor, passageway, or the like — 2.1 m; and</p> <p>(d) in a Class 9b building—</p> <p>(i) in a part that accommodates not more than 100 persons — 2.4 m; and</p> <p>(ii) in a part that accommodates more than 100 persons — 2.7 m; and</p> <p>(iii) a corridor—</p> <p>(A) that serves an assembly building or part that accommodates not more than 100 persons — 2.4 m; or</p> <p>(B) that serves an assembly building or part that accommodates more than 100 persons — 2.7 m; and</p> <p>(f) in any building—</p> <p>(i) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and</p> <p>(ii) a commercial kitchen — 2.4 m; and</p> <p>(iii) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.</p>	CRA – Refer Annexure C
PART F4 – LIGHT AND VENTILATION		
F4.0: Deemed-to-Satisfy Provisions	Informational	Noted
F4.1: Provision of natural light	Class 2 Natural light must be provided to all habitable rooms.	CRA – Refer Annexure C
F4.2: Methods and extent of natural lighting	<ul style="list-style-type: none"> Natural light must be provided by: <ul style="list-style-type: none"> (i) Windows: <ul style="list-style-type: none"> A. with an aggregate light transmitting area of not less than 10% the floor area of the room; and B. that are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or 	CRA – Refer Annexure C

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		<p>(ii) Roof lights, that:</p> <p>A. have an aggregate light transmitting area of not less than 3% the floor area of the room; or</p> <p>(iii) a proportional combination of windows and roof lights required by (i) and (ii).</p> <ul style="list-style-type: none"> A required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must be not less than a horizontal distance from that boundary or wall that is the greater of – <ul style="list-style-type: none"> 1m; and 50% of the square root of the exterior height of the wall in which the window is located, measured from its sill. 	
F4.3:	Natural light borrowed from adjoining room	Natural light may be borrowed from an adjoining room in accordance with this clause.	CRA – Refer Annexure C
F4.4:	Artificial Lighting	Lighting to the all areas is to comply with AS 1680.0.	CRA – Refer Annexure C
F4.5:	Ventilation of rooms	All rooms to be provided with Clause F4.6 compliant natural ventilation OR a mechanical ventilation or air-conditioning system complying with AS 1668.2-2012.	CRA – Refer Annexure C
F4.6:	Natural ventilation	<p>(a) Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened—</p> <p>(i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and</p> <p>(ii) open to—</p> <p>(A) a suitably sized court, or space open to the sky; or</p> <p>(B) an open verandah, carport, or the like; or</p> <p>(C) an adjoining room in accordance with F4.7.</p>	CRA – Refer Annexure C
F4.7:	Ventilation borrowed from adjoining room	Ventilation may be 'borrowed' from adjoining rooms in some instances in accordance with this clause.	CRA – Refer Annexure C
F4.8:	Restriction on position of water closets and urinals	<p>Sanitary compartments must not open directly into a –</p> <ul style="list-style-type: none"> kitchen or pantry public dining room or restaurant room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) workplace normally occupied by more than one person. 	CRA – Refer Annexure C
F4.9:	Airlocks	<p>If sanitary compartments are prohibited from opening directly to another room:</p> <p>Class 2</p> <ul style="list-style-type: none"> access must be by an airlock, hallway or other room; or the sanitary compartments must be provided with mechanical exhaust ventilation. 	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY		
	<p>Class 6, 7 & 9</p> <ul style="list-style-type: none"> access must be by an airlock, hallway or other room with a floor area of not less than 1.1m² and fitted with self-closing doors at all access doorways; or the sanitary compartments must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view. 	
F4.11: Carparks	<p>Every storey of a carpark must have:</p> <ul style="list-style-type: none"> a system of mechanical ventilation complying with AS1668.2-2012; or a system of natural ventilation complying with Section 4 of AS 1668.4-2012. 	CRA – Refer Annexure C
F4.12: Kitchen local exhaust ventilation	<p>Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2 where:</p> <ul style="list-style-type: none"> any cooking apparatus has: <ul style="list-style-type: none"> a total maximum electrical power input exceeding 8 kW; or a total gas power input exceeding 29 MJ/h; or the total maximum power input to more than one apparatus exceeds: <ul style="list-style-type: none"> 0.5 kW electrical power; or 1.8 MJ gas, <p>Per m² of floor area of the room or enclosure.</p>	CRA – Refer Annexure C
PART F5 – SOUND TRANSMISSION AND INSULATION		
F5.1: Application of Part	<p>Informational—</p> <p>The Deemed-to-Satisfy Provisions of this Part apply to Class 2 buildings.</p>	Noted
F5.2: Determination of airborne sound insulation ratings	<p>A form of construction required to have an airborne sound insulation rating must—</p> <p>(a) have the required value for weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term (R_w + C_{tr}) determined in accordance with AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements; or</p> <p>(b) comply with Specification F5.2.</p>	CRA – Refer Annexure C
F5.3: Determination of impact sound insulation ratings	<p>(a) A floor in a building required to have an impact sound insulation rating must—</p> <p>(i) have the required value for weighted normalised impact sound pressure level with spectrum adaptation term (L_{n,w} + C_I) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or</p> <p>(ii) comply with Specification F5.2.</p> <p>(b) A wall in a building required to have an impact sound insulation rating must be of discontinuous construction; and</p>	CRA – Refer Annexure C

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	<p>(c) For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and</p> <p>(i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and</p> <p>(ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery.</p>	
F5.4: Sound insulation rating of floors	<p>A floor in a Class 2 building must achieve an $R_w + C_{tr}$ (airborne) not less than 50, and an $L_{n,w} + C_i$ (impact) not more than 62, if separating:</p> <ul style="list-style-type: none"> • SOU's; or • An SOU from a plant room, lift shaft, public corridor, public lobby or parts of a different classification. 	CRA – Refer Annexure C
F5.5: Sound insulation rating of walls	<ul style="list-style-type: none"> • A wall in a Class 2 building must: <ul style="list-style-type: none"> (i) have an $R_w + C_{tr}$ (airborne) not less than 50 if it separates sole-occupancy units; and (ii) have an R_w (airborne) not less than 50 if it separates a sole occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and (iii) be of discontinuous construction in accordance with F5.3(b) if it separates: <ul style="list-style-type: none"> A. a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or B. a sole-occupancy unit from a plant room or lift shaft. • Where a wall required to have sound insulation has a floor above, the wall must continue to: <ul style="list-style-type: none"> (i) the underside of the floor above; or (ii) a ceiling that provides the sound insulation required for the wall. • Where a wall required to have sound insulation has a roof above, the wall must continue to: <ul style="list-style-type: none"> (i) the underside of the roof above; or (ii) a ceiling that provides the sound insulation required for the wall. • Doorways in walls separating the Class 2 sole-occupancy units from a stairway, public corridor, public lobby or the like must be provided with a door assembly that has an R_w not less than 30. 	CRA – Refer Annexure C
F5.6: Sound insulation rating of services	<p>If a soil or waste pipe passes through more than one unit the pipe must be separated from the rooms with construction that has a $R_w + C_{tr}$ (airborne) not less than 40 if adjacent to a habitable room (other than a kitchen), or 25 if adjacent to a kitchen or other room.</p>	CRA – Refer Annexure C
F5.7: Sound isolation of pumps	<p>A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump.</p>	

SECTION G: ANCILLARY PROVISIONS		
PART G1 – MINOR STRUCTURES AND COMPONENTS		
G1.1: Swimming pools	Swimming pools and spa pools are to be provided with safety fencing compliant with AS1926. Parts 1 and 2; and, as required by the Swimming Pools Act 1992 and the Swimming Pools Regulation 2008. A water recirculation system in a swimming pool or spa pool must comply with AS1926.3-2010.	CRA – Refer Annexure C
G1.2: Refrigerated chambers, strong-rooms and vaults	<p>(a) A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must have—</p> <ul style="list-style-type: none"> (i) a door which is capable of being opened by hand from inside without a key; and (ii) internal lighting controlled only by a switch which is located adjacent to the entrance doorway inside the chamber, strongroom or vault; and (iii) an indicator lamp positioned outside the chamber, strongroom or vault which is illuminated when the interior lights required by (a)(ii) are switched on; and (iv) an alarm that is— <ul style="list-style-type: none"> (A) located outside but controllable only from within the chamber, strongroom or vault; and (B) able to achieve a sound pressure level outside the chamber, strongroom or vault of 90 dB(A) when measured 3 m from the sounding device. <p>(b) A door required by (a)(i) in a refrigerated or cooling chamber must have a doorway with a clear width of not less than 600 mm and a clear height not less than 1.5 m.</p>	CRA – Refer Annexure C
NSW G1.101: Provision for cleaning windows	<p>A safe manner for cleaning of windows located 3 or more storeys above ground level must be provided, and compliance is achieved where:</p> <ul style="list-style-type: none"> • the windows can be cleaned wholly from within the building; or • via a method complying with the Work Health and Safety Act 2011 and regulations made under that Act. 	CRA – Refer Annexure C
PART G2 – BOILERS, PRESSURE VESSELS, HEATING APPLIANCES, FIREPLACES, CHIMNEYS AND FLUES		
G2.2: Installation of Appliances	<p>The installation of a stove, heater or similar appliance in a building must comply with:</p> <ul style="list-style-type: none"> • Domestic solid-fuel burning appliances — Installation: AS/NZS 2918. • For boilers and pressure vessels: Specification G2.2 	CRA – Refer Annexure C
G2.3: Open Fireplaces	Not applicable	NA
G2.4: Incinerator Rooms	Not applicable	NA
PART G3 – ATRIUM CONSTRUCTION		

SECTION G: ANCILLARY PROVISIONS

Part G3 is not applicable

PART G4- CONSTRUCTION IN ALPINE AREAS

Part G4 is not applicable

PART G5 – CONSTRUCTION IN BUSHFIRE PRONE AREAS

Part G5 is not applicable

SECTION H: SPECIAL USE BUILDINGS

Section H is not applicable

SECTION I: MAINTENANCE**PART I1 – EQUIPMENT AND SAFETY INSTALLATIONS**

This Part has been deleted in BCA2016.

SECTION J: ENERGY EFFICIENCY (Class 5, 6 & 9)**PART J1 – BUILDING FABRIC**

J1.1:	Application of Part	The provisions of Part J1 apply to building elements forming part of the <i>envelope</i> of the building.	CRA – Refer Annexure C
J1.2:	Thermal construction general	Where required insulation is to comply with AS4859.1 and be installed in accordance with this clause.	CRA – Refer Annexure C
J1.3:	Roof and ceiling construction	<p>a) Roof and ceiling construction must achieve the Total R-Value specified in BCA Table J1.3a for the direction of heat flow.</p> <p>b) For compliance with Table J1.3a, roof and ceiling construction is deemed to have the thermal properties listed in Specification J1.3.</p> <p>c) Where, for operational or safety reasons associated with exhaust fans, flues or recessed down lights, the area of required ceiling insulation is reduced, the loss of insulation must be compensated for by increasing the R-Value of the insulation in the remainder of the ceiling in accordance with Table J1.3b.</p> <p>d) A roof that:</p> <ul style="list-style-type: none"> (i) is required to achieve a minimum Total R-Value; and (ii) has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see Specification J1.3 Figure 2(c) and (f)), <p>must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.</p>	CRA – Refer Annexure C
J1.4:	Roof lights	Not applicable	NA

SECTION J: ENERGY EFFICIENCY (Class 5, 6 & 9)		
J1.5: Walls	<p>a) Each part of an external wall that is part of the <i>envelope</i> must satisfy one of the options in Table J1.5a except for:</p> <ul style="list-style-type: none"> (i) opaque non-glazed openings in external walls such as doors, vents, penetrations, shutters and the like; and (ii) glazing. <p>b) Any wall other than an external wall that is part of the <i>envelope</i> must achieve the Total R-Value in Table J1.5b.</p> <p>c) A wall that:</p> <ul style="list-style-type: none"> (i) is required to achieve a minimum Total R-Value; and (ii) has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and (iii) does not have a wall lining or has a wall lining fixed directly to the same metal frame, <p>must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the external cladding and the metal frame.</p> <p>d) For compliance with Table J1.5a and Table J1.5b, wall construction is deemed to have the thermal properties listed in Specification J1.5.</p>	CRA – Refer Annexure C
J1.6: Floors	<p>a) A floor that is part of the <i>envelope</i> of a building, including a floor above or below a carpark or plant room:</p> <ul style="list-style-type: none"> (i) must achieve the Total R-Value specified in Table J1.6; and (ii) with an in-slab heating or cooling system, must be insulated around the vertical edge of its perimeter with insulation having an R-Value of not less than 1.0. <p>b) The minimum Total R-Value required in (a) may be reduced by R0.5 provided R0.75 is added to the Total R-Value required for the roof and ceiling construction.</p> <p>c) A concrete slab-on-ground with an in-slab heating or cooling system must have insulation installed around the vertical edge of its perimeter.</p> <p>d) Insulation required by (c) must–</p> <ul style="list-style-type: none"> (i) have an R-Value of not less than 1.0; and (ii) be water resistant; and (iii) be continuous from the adjacent finished ground level– <ul style="list-style-type: none"> A. to a depth of not less than 300 mm; or B. for the full depth of the vertical edge of the concrete slab-on-ground. <p>e) Floor construction is deemed to have the thermal properties listed in Specification J1.6.</p>	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 5, 6 & 9)			
PART J2 – GLAZING			
J2.1:	Application of Part	This part applies to all glazing located in the <i>envelope</i> of the building.	Noted
J2.4:	Glazing	Glazing to comply with this clause, it is noted that this assessment does not include an assessment with the glazing calculator.	CRA – Refer Annexure C
J2.5:	Shading	Shading where required by Clause J2.4, must comply with BCA Clause J2.5.	CRA – Refer Annexure C
PART J3 – BUILDING SEALING			
J3.1:	Application of Part	<p>The requirements of this Part apply to elements forming the <i>envelope</i> of the building other than:</p> <ul style="list-style-type: none"> • a building in a climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; • a permanent building opening necessary for the safe operation of a gas appliance; • a building or part where mechanical ventilation required by part f4 provides sufficient pressurization to prevent infiltration; • parts of buildings that cannot be fully enclosed. 	Noted
J3.2:	Chimneys and flues	The chimney or flue of an open solid-fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue.	CRA – Refer Annexure C
J3.3:	Roof lights	Not applicable	NA
J3.4:	External windows and doors	<ul style="list-style-type: none"> • A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of: <ul style="list-style-type: none"> – the <i>envelope</i> of a conditioned space; or – the external fabric of a habitable room or public area. • The above does not apply to: <ul style="list-style-type: none"> – a window complying with AS 2047; or – a fire door or smoke door; or – a roller shutter door, roller shutter grille or other security device. • For the bottom edge of external swing doors, the seal must be a draft protection device and may otherwise be a foam or rubber compression strip, fibrous seal or the like. • An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than– <ol style="list-style-type: none"> (i) where the conditioned space has a floor area of not more than 50m²; or (ii) where a café, restaurant, open front shop or the like has– <ol style="list-style-type: none"> A. a 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and 	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 5, 6 & 9)		
	B. at all other entrances to the café, restaurant, open from shop of the like, self-closing doors.	
J3.5: Exhaust fans	The exhaust fans to the sanitary facilities and any other miscellaneous exhaust fans to other conditioned spaces, are to be pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA – Refer Annexure C
J3.6: Construction of roofs, walls and floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air leakage by being enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	CRA – Refer Annexure C
J3.7: Evaporative Coolers	Where provided an evaporative cooler is to be fitted with a self-closing damper in accordance with this clause.	CRA – Refer Annexure C
PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS		
J5.2: Air-conditioning systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.3: Mechanical ventilation systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.4: Miscellaneous exhaust systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
PART J6 – ARTIFICIAL LIGHTING AND POWER		
J6.1: Application of Part	Applies to all buildings except a Class 8 electricity network substation.	Noted
J6.2: Artificial lighting	Artificial lighting must comply with J6.2(b) and J6.2(c), relevant to maximum permitted illumination power loads. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
J6.3: Interior artificial lighting and power control	Lighting switches and control devices must comply with BCA Clause J6.3. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
J6.4: Interior decorative and display lighting	Lighting falling under this clause is to be separately switched from other lighting, be under a manual switch and controlled with a time switch. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
J6.5: Artificial lighting around the perimeter of a building	Artificial lighting around the perimeter of a building must be controlled by sensors or time switches in accordance with the specific requirements of this clause. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
J6.6: Boiling water and chilled water storage units	The power supply to a fixed boiling water or chilled water storage unit must be controlled by a time switch in accordance with BCA Specification J6. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
PART J7 – HEATED WATER SUPPLY		
J7.2: Heated water supply system	The hot water supply systems must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	CRA – Refer Annexure C
PART J8 – FACILITIES FOR ENERGY MONITORING		

SECTION J: ENERGY EFFICIENCY (Class 5, 6 & 9)		
J8.3	Facilities for energy monitoring	<ul style="list-style-type: none"> • A building with a floor area of more than 500m² must have an energy monitoring facility to record the consumption of gas and electricity. • A building with a floor area of more than 2,500m² must have the facility to record, individually the energy consumption of: <ul style="list-style-type: none"> – air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and – artificial lighting; and – appliance power; and – central hot water supply; and – internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and – other ancillary plant.
		CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 7a Carpark)		
PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS		
J5.2:	Air-conditioning systems	Compliance required, design certification to be provided by Mechanical Engineer.
J5.3:	Mechanical ventilation systems	Compliance required, design certification to be provided by Mechanical Engineer.
J5.4:	Miscellaneous exhaust systems	Compliance required, design certification to be provided by Mechanical Engineer.
		CRA – Refer Annexure C
PART J6 – ARTIFICIAL LIGHTING AND POWER		
J6.2:	Artificial lighting	Artificial lighting to comply with this clause, design certification to be provided by the electrical designer.
J6.3:	Interior artificial lighting and power control	Lighting controls are to be in accordance with this clause, which sets requirements on location of switching and sets limits on floor areas controlled by a switch.
J6.4:	Interior decorative and display lighting	Lighting falling under this clause is to be separately switched from other lighting, be under a manual switch and controlled with a time switch.
J6.5:	Artificial lighting around the perimeter of a building	Perimeter lighting is to be controlled by a daylight sensor or time switch and where it exceeds 100W have an average light source density of 60 Lumens/W or be controlled by a motion sensor complying with Specification J6.
J6.6:	Boiling water and chilled water storage units	The power supply to a fixed boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.
		CRA – Refer Annexure C
PART J7 – HEATED WATER SUPPLY		
J7.2:	Heated water supply system	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.
		CRA – Refer Annexure C
PART J8 – FACILITIES FOR ENERGY MONITORING		

SECTION J: ENERGY EFFICIENCY (Class 7a Carpark)		
J8.3: Facilities for energy monitoring	<ul style="list-style-type: none"> A building with a floor area of more than 500m² must have an energy monitoring facility to record the consumption of gas and electricity. A building with a floor area of more than 2,500m² must have the facility to record, individually the energy consumption of: <ul style="list-style-type: none"> air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and artificial lighting; and appliance power; and central hot water supply; and internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and other ancillary plant. 	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 2)		
NSW PART J(A)1 – BUILDING FABRIC		
NSW J(A)1.0: Application of Part	<p>Informational–</p> <ul style="list-style-type: none"> The Deemed-to-Satisfy Provisions of this Part only apply to thermal insulation in the Class 2 part where development consent specifies that the insulation is to be provided as part of the development. The Deemed-to-Satisfy provisions of this Part for thermal breaks apply. 	Noted
NSW J(A)1.1: Compliance with BCA Provisions	<p>Sole occupancy units of the Class 2 building must comply with the following National Provisions except that the reference to 'where required' in J1.2 is deemed to refer to 'where a development consent specifies that insulation is to be provided as part of the development.'</p> <ul style="list-style-type: none"> for general thermal construction, comply with J1.2; and for thermal breaks, comply with J1.3(d) and J1.5(c); and for compensating for a loss of ceiling insulation, comply with J1.3(c); and for floor edge insulation, comply with J1.6(c) and J1.6(d). 	CRA – Refer Annexure C
NSW PART J(A)2 – BUILDING SEALING		
NSW J(A)2.0: Application of Part	<p>The requirements of this Part are applicable to Class 2 buildings excluding:</p> <ul style="list-style-type: none"> a building in a climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler; a building ventilation opening necessary for the safe operation of a gas appliance; parts of the building that cannot be fully enclosed. 	Noted

SECTION J: ENERGY EFFICIENCY (Class 2)		
NSW J(A)2.1: Compliance with BCA Provisions	Class 2 buildings and Class 4 parts of buildings, must comply with the following National Provisions: (a) J3.2 Chimneys and flues; (b) J3.3 Roof lights; (c) J3.4 External doors and windows; (d) J3.5 Exhaust fans; (e) J3.6 Construction of roofs walls and floors; and (f) J3.7 Evaporative coolers.	CRA – Refer Annexure C
J3.2: Chimneys and flues	Not applicable	NA
J3.3: Roof lights	Not applicable	NA
J3.4: External windows and doors	<ul style="list-style-type: none"> A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of: <ul style="list-style-type: none"> the <i>envelope</i> of a conditioned space; or the external fabric of a habitable room or public area. The above does not apply to: <ul style="list-style-type: none"> a window complying with AS 2047; or a fire door or smoke door; or a roller shutter door, roller shutter grille or other security device. For the bottom edge of external swing doors, the seal must be a draft protection device and may otherwise be a foam or rubber compression strip, fibrous seal or the like. An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than– <ul style="list-style-type: none"> (iii) where the conditioned space has a floor area of not more than 50m²; or (iv) where a café, restaurant, open front shop or the like has– <ul style="list-style-type: none"> C. a 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and D. at all other entrances to the café, restaurant, open front shop or the like, self-closing doors. 	CRA – Refer Annexure C
J3.5: Exhaust Fans	The exhaust fans to the sanitary facilities, and any other miscellaneous exhaust fans to other conditioned spaces, are to be pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA – Refer Annexure C
J3.6: Construction of Roofs, Walls and Floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air leakage by being enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 2)		
J3.7: Evaporative Coolers	Where provided an evaporative cooler is to be fitted with a self-closing damper in accordance with this clause.	CRA – Refer Annexure C
NSW PART J(A)3 – AIR-CONDITIONING AND VENTILATING SYSTEMS		
NSW J(A)3.0: Compliance with BCA Provisions	Class 2 buildings must comply with the following national BCA provisions (as applicable): (a) J5.2 (a) to (d) and (f) to (g) Air conditioning systems; and (b) J5.3 Mechanical ventilation systems; and (c) J5.4 Miscellaneous exhaust systems.	
J5.2: Air-conditioning systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.3: Mechanical ventilation systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.4: Miscellaneous exhaust systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
NSW PART J(A)4 – HOT WATER SUPPLY		
NSW J(A)4.2 Compliance with BCA Provisions	The hot water supply system must comply with Clause J7.2 Heated Water Supply.	Noted
J7.2: Hot Water Supply	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	CRA – Refer Annexure C
J7.3: Swimming pool heating and pumping	a) Heating for a swimming pool must be by— (i) a solar heater not boosted by electric resistance heating; or (ii) a heater using reclaimed energy; or (iii) a gas heater; or (iv) a heat pump; or (v) a combination of (i) to (iv). b) Where some or all of the heating required by (a) is by a gas heater or a heat pump, the swimming pool must have— (i) a cover unless located in a conditioned space; and (ii) a time switch in accordance with Specification J6 to control the operation of the heater. c) A time switch must be provided in accordance with Specification J6 to control the operation of a circulation pump for a swimming pool. d) For the purpose of J7.3, a swimming pool does not include a spa pool.	CRA – Refer Annexure C
J7.4: Spa pool heating and pumping	a) Heating for a spa pool that shares a water recirculation system with a swimming pool must be by— (i) a solar heater; or (ii) a heater using reclaimed energy; or (iii) a gas heater; or (iv) a heat pump; or (v) a combination of (i) to (iv).	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 2)		
	<p>b) Where some or all of the heating required by (a) is by a gas heater or a heat pump, the spa pool must have—</p> <ul style="list-style-type: none"> (i) a cover; and (ii) a push button and a time switch in accordance with Specification J6 to control the operation of the heater. <p>c) A time switch must be provided in accordance with Specification J6 to control the operation of a circulation pump for a spa pool having a capacity of 680 L or more.</p>	
NSW PART J(A)5 – ACCESS FOR MAINTENANCE		
NSW J(A)5.1 Application of Part	<p>Informational—</p> <p>The <i>Deemed-to-Satisfy Provisions</i> of this Part apply to a Class 2 building except within a <i>sole-occupancy unit</i>.</p>	Noted
NSW J(A)5.3 Compliance with BCA Provisions	Class 2 Buildings must comply with national BCA provisions J8.3.	Noted
J8.3 Facilities for energy monitoring	<p>a) A building or sole-occupancy unit with a floor area of more than 500 m² must have the facility to record the consumption of gas and electricity.</p> <p>b) The building with a floor area of more than 2,500m² must have the facility to record, individually the energy consumption of:</p> <ul style="list-style-type: none"> – air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and – artificial lighting; and – appliance power; and – central hot water supply; and – internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and – other ancillary plant. <p>c) The provisions of (b) do not apply to a Class 2 building with a floor area of more than 2,500m² where the total area of the common areas is less than 500m².</p>	CRA – Refer Annexure C

ANNEXURE C - 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 the structural elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2016 for a building of Type A Construction other than where BCA compliance is achieved via a Performance Solution.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2016.
3. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2016.
4. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2016, other than where varied by the BCA Performance Solution.
5. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2016.
6. Equipment will be separated in accordance with Clause C2.12 of BCA2016.
7. 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 a FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2016.
8. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2016.
9. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with a FRL of not less than -/60/30 in accordance with Clause C3.8 of BCA2016.
10. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C3.9 of BCA2016.
11. Services penetrating elements required to possess a FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2016.
12. 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 C3.16.
13. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C3.10 of BCA2016.
14. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2016.
15. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2016.

16. All attachments to the external façade of the building will be of anon-combustible material, or a combustible material in accordance with Clause 2.4 of Specification C1.1 of BCA2016.
17. 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 2.7 of Specification C1.1 of BCA2016.
18. Fire doors will comply with AS1905.1 and Specification C3.4 of BCA2016.
19. The number of exits provided to the building will be in accordance with Clause D1.2 of BCA2016 other than where BCA compliance is achieved via a Performance Solution.
20. The required exits will be fire-isolated in accordance with Clause D1.3 of BCA2016.
21. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2016.
22. The fire-isolated exits will be in accordance with Clause D1.7 of BCA2016.
23. Discharge from exits will be in accordance with Clause D1.10 of BCA2016.
24. The non-required stairways, ramps and escalators will be in accordance with Clause D1.12 of BCA2016.
25. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D1.16 of BCA2016.
26. Access to the lift pit will be in accordance with Clause D1.17 of BCA2016.
27. 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 D2.2 of BCA2016.
28. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2016.
29. The construction separating rising and descending stairs in the fire-isolated exit stairway will be non-combustible and smoke proof, in accordance with Clause D2.4 of BCA2016.
30. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2016 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.
31. 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 D2.8 of BCA2016.
32. New pedestrian ramps will comply with AS1428.1-2009, Clause D2.10 and Part D3 of BCA2016. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
33. 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 D2.12 of BCA2016.
34. Stair geometry to the stairways will be in accordance with Clause D2.13 of BCA2016. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
35. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2016. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 where the edge ledge to a flight below.
36. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2016.

37. 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 AS1657-2013 or Part D2 of BCA2016.
38. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2016.
39. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 of BCA2016.
40. Re-entry doors from the fire-isolated exits will be in accordance with Clause D2.22 of BCA2016.
41. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2016.
42. The openable portion of a window of a Class 2, 3, 4 building must 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 D2.24 of BCA2016. 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 must be installed to the openable window.
43. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2016, and with AS1428.1-2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2016.
44. Accessible carparking will be in accordance with Clause D3.5, and Table D3.5 of BCA2016.
45. Braille and tactile signage will in accordance with Clause D3.6, and Specification D3.6 of BCA2016.
46. Hearing augmentation system will be provided in accordance with Clause D3.7 of BCA2016.
47. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2016 and AS1428.4.1-2009.
48. The entry/exit to the swimming pool will be in accordance with Clause D3.10, and Specification D3.10 of BCA2016.
49. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS1428.1-2009 and Clause D3.12 of BCA2016.
50. The fire control centre will be in accordance with Specification E1.8 or BCA2016.
51. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2016.
52. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2016 and AS 4654 Parts 1 & 2.
53. The new roof covering will be in accordance with Clause F1.5 of BCA2016.
54. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2016.
55. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2016 and AS3740.
56. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2016.
57. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2016.
58. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2016 and AS1288 / AS2047.

59. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2016.
60. Accessible sanitary facilities will be provided in the building in accordance with Clause F2.4, Table F2.4 (a) of BCA2016 and AS1428.1-2009.
61. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2016.
62. Ceiling heights will be in accordance with Clause F3.1 of BCA2016.
63. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2016.
64. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2016.
65. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2016.
66. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2016.
67. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2016.
68. A means of cleaning of windows in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2016.
69. The swimming pool associated with the new building will comply with Clause G1.1 and NSWG1.1(a) of the BCA2016, Swimming Pools Act 1992, Swimming Pools Regulation 2008 and AS1926.1.
70. The refrigerated or cooling chamber, strongrooms or vaults will be in accordance with Clause G1.2.
71. The stoves, heaters or similar appliances installed in the building will be in accordance with AS/NZS 2918 and Clause G2.2 of BCA2016.
72. Boilers and pressure vessels shall be installed in accordance with Specification G2.2 of BCA2016.
73. 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.
74. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
75. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2016.
76. Glazing will be in accordance with Part J2 of BCA2016.
77. Building sealing will be in accordance with Part J3 of BCA2016.
78. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2016.

Electrical Services Design Certification:

79. Class 2 parts will be provided with a smoke detection and alarm system in accordance with Table E2.2a, and Specification E2.2a of BCA2016.
80. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2016 and AS2293.1.
81. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2016 and AS2293.1.
82. A sound systems and intercom systems for emergency purposes (EWIS) will be provided to the building in accordance with Clause E4.9 of BCA2016.

83. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2016 and AS/NZS 1680.0.
84. Lighting power and controls will be installed in accordance with Part J6 of BCA2016.

Hydraulic Services Design Certification:

85. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2016 and ASNZS3500.3
86. Fire hydrants will be installed in accordance with Clause E1.3 of BCA2016 and AS2419.1 and the relevant fire engineering report.
87. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2016 and AS2441 and the relevant fire engineering report.
88. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2016, Specification E1.5 and AS2118 and the relevant fire engineering report.
89. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2016 and AS2444 and the relevant fire engineering report.
90. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2016.

Mechanical Services Design Certification:

91. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2016, and AS/NZS 1668.1.
92. Stair pressurisation will be installed in the building in accordance with Table E2.2a of BCA2016 and AS1668.1 and the relevant fire engineering report.
93. A smoke exhaust system will be installed in the building in accordance with Table E2.2b, and Specification E2.2b of BCA2016 and the relevant fire engineering report.
94. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2016 and AS1668.2.
95. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2016 and where not naturally ventilated it will be mechanically ventilated in accordance with AS1668.2 as applicable.
96. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2016, and AS/NZS 1668.1 and AS1668.2.
97. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2016.

Structural Engineers Design Certification:

98. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2016 as follows:
 - Dead and Live Loads – AS1170.1
 - Wind Loads – AS1170.2
 - Earthquake actions – AS1170.4
 - Masonry – AS3700
 - Concrete Construction – AS3600
 - Steel Construction AS4100
 - Aluminium Construction – AS/NZS1664.1 or 2
 - Timber Construction – AS 1720.1
 - ABCB Standard for Construction of Buildings in Flood Hazard Areas.

99. The FRL's of the structural elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2016 for a building of Type A Construction, Table 4 of Specification C1.1 of BCA2016, other than where BCA compliance is achieved via a Performance Solution.
100. The lift shaft will have a FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2016.
101. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2016.
102. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2016 to maintain the FRL integrity of the element concerned.
103. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D2.2 of BCA2016 for the fire isolated stairs.

Lift Services Design Certification:

104. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3.2 of BCA2016 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.
105. Warning signage in accordance with Clause E3.3 of BCA2016 will be provided to the lifts to advise not to use the lifts in a fire.
106. Emergency lifts will be provided in accordance with Clause E3.4 of BCA2016 and have a load rating of at least 600 kg if not provided with a stretcher facility and not less than 900 kg if provided with a stretcher facility.
107. 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 E3.9.
108. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3.10.
109. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2016, and will be suitable to accommodate disabled persons.
110. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2016.
111. The lifts will comply with AS1735.12 in accordance with Clause E3.6 of BCA2016.
112. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2016.

Acoustic Services Design Certification:

113. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2016.