BCA LOGIC PTY LTD

Building Regulation, BCA,
Fire, Access and Energy Consultants

To:	Louise and Todd Campling Alceon Group Pty Ltd
Project:	2 Greenwich Road, Greenwich
Report:	BCA Assessment Report
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DOCUMENT CONTROL

Revision	Date	Description	
111609-BCA-r1	27 Apr 2020	Draft BCA Assessment Report	
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1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at 2 Greenwich Road, Greenwich, where it is proposed to construct a new Seniors Living project. The building will contain twelve (12) different levels, being three (3) levels of car parking and remaining nine (9) levels associated with the Seniors Living functions.

Courtesy of Six Maps

1.2 Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. 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 Series Volume 1 – Building Code of Australia, 2019 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is 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 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 only);

(c) Demolition Standards not referred to by the BCA;

(d) Work Health and Safety Act 2011;

(e) Requirements of Australian Standards unless specifically referred to;

(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.

1.6 Definitions

Effective height

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

Exit

Exit means–

(a) Any, or any combination of the following if they provide egress to a road or open space—

(i) An internal or external stairway.
(ii) A ramp.
(iii) A fire-isolated passageway.
(iv) A doorway opening to a road or open space.

(b) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire-resistance level (FRL)

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

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

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

Fire-source feature

Fire-source feature means—

(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

Performance Requirement

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

Sole-occupancy unit

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

(a) a dwelling; or

(b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

(c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or

(d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident

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 nine (9).

2.2 Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
3	Lower Ground – Roof Top	Long term accommodation for the aged (seniors) and associated areas.
5	Ground	The Commercial part.
7a	Basement 1, 2 & 3	Carparking
7b	Basement 1	Storage use (includes Garbage area), attracts a separate classification as it equates to more than 10% of the storey's floor area.
9b	Ground	Library/Gallery
10b	Roof Top	Swimming Pool, Pergola Structures

Notes;

a) It is understood that occupants, who reside, will not need physical assistance to conduct their daily activities and are able to self-evacuate.

b) The ground floor café and lower ground cinema are less than 10% of the floor area of the storey and does not need to be separately classified.

c) The proposed Beauty, Wellness and Roof Top facilities are understood to not provide direct services to the public and are common use to the residents.

2.3 Effective Height (Clause A1.0)

The building has an *effective height* of more than 25.3 metres.

2.4 Type of Construction Required (Table C1.1)

The building is required to be of Type A Fire Resisting Construction.

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

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

Class 3	No limits are imposed on this class due to the requirements for fire resisting bounding construction.	
Class 5, 9b	Maximum Floor Area	8 000m^2
	Maximum Volume	48 000m^3

Class 6, 7b	Maximum Floor Area	5 000m^2
	Maximum Volume	30 000m^3
Class 7a	The carpark is to be provided with a sprinkler system (complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area.	

2.6 Fire Compartments

The following *fire compartments* have been assumed:

1. The combined Lower Ground and Ground Levels.

2.7 Exits

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

(a) The fire isolated stairways.

(b) The internal non-fire isolated stairway between lower ground and ground floor.

2.8 Climate Zone (Clause A1.0)

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 adjoining allotment boundary.

South: The adjoining allotment boundary.

East: The adjoining allotment boundary.

West: The far side boundary of the Greenwich road lot.

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
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2019 C3.13** (Openings in Shafts) **BCA2019 Spec C3.4** AS1905.1:2015 (Fire Resistant Doorsets) AS1905.2-2005 (Fire Resistant roller shutters)
2.	Construction Joints	**BCA2019 C1.1, Spec C1.1** **BCA2019 C3.16** AS1530.4:2014 & AS4072.1-2005
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 C3.16** (Construction joints) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
4.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** AS1530.4:2014
General		
5.	Fire control centres & rooms	**BCA2019 E1.8, Spec E1.8** (Fire Control Centres)
6.	Portable fire extinguishers	**BCA2019 E1.6** AS2444–2001
7.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
Lifts		
8.	Emergency lifts	**BCA2019 E3.4** AS1735.1-2003 (Appendix A) or AS1735.2-2001

Item	Essential Fire and Other Safety Measures	Standard of Performance
Electrical Services		
9.	Automatic fire detection & alarm: **Note:** EWIS applies different dB(A) **i.e.** At bedheads not SOU doors.	**BCA2019 E2.2**, NSW Table E2.2a, Table 2.2b, **Spec E2.2a** AS1670.1:2018 (Fire)
10.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1 –2018
11.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1 –2018
12.	Emergency warning and intercom systems for Emergency Purposes (EWIS)	**BCA2019 E4.9** AS1670.4:2018 (EWIS)
13.	Standby power systems	**BCA2019 Spec G3.8** AS4509.3-1999
14.	System Monitoring	**BCA2019 E2.2 , Table E2.2a,Spec E2.2a** AS1670.3-2018
Hydraulic Services		
15.	Automatic fire suppression systems	**BCA2019 E1.5** AS2118.1–2017 (Sprinklers) AS2118.6–2012 (Combined Sprinklers/Hydrant)
16.	Fire hydrant systems	**BCA2019 E1.3** AS2419.1–2005
17.	Hose reel systems (N/A to Class 3 parts)	**BCA2019 E1.4** AS2441–2005
Mechanical Services		
18.	Mechanical air handling systems 1. Mechanical ventilation to carpark. 2. Auto-shutdown of Air-handling System. • Class 9b 3. Fire Isolated Exit Pressurisation System (including Basements as they are more than two below ground)	**BCA2019 E2.2, Table E2.2a, Table E2.2b** **Spec E2.2a, Spec E2.2b** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not

Item	Essential Fire and Other Safety Measures	Standard of Performance
		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.

4 FIRE RESISTANCE LEVELS

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

Type A Construction

Table 3. Type A Construction

Item	Class 3 part	Class 5, 7a or 9b	Class 6	Class 7b or
Loadbearing External Walls (including columns and other building elements incorporated therein)	90/90/90	120/120/120	180/180/180	240/240/240
• Less than 1.5m to a *fire-source feature*	90/60/60	120/90/90	180/180/120	240/240/180
• 1.5 – less than 3m from a *fire-source feature*	90/60/30	120/60/30	180/120/90	240/180/90
• 3m or more from a *fire source feature*				
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:	90/90/90 -/60/60	120/-/- -/-/-	180/-/- -/-/-	240/-/- -/-/-

Item	Class 3 part	Class 5, 7a or 9b	Class 6	Class 7b or
• Loadbearing • Non-loadbearing				
Ventilating, pipe, garbage and like shafts: • Loadbearing • Non-loadbearing	90/90/90 -/90/90	120/90/90 -/90/90	180/120/120 -/120/120	240/120/120 -/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]	-	-	-	-

[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, 2019 (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 maters 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 will need to be address in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover:

Table 4. Performance Solutions

Item	Description of Performance Solution	DTS Provision
1.	There are unit entrance doors that are more than 6m to an exit or point of choice. The South Eastern corner of the Roof and Ground Floor Terraces a more than 20m to an exit.	D1.4
2.	The alternative exits, serving the residential areas, are less than 9m and not distributed around the storey.	D1.5
3.	The fire isolated stairways do not discharge to the open space or fire isolated passageway.	D1.7
Non-fire related Performance Solution		
4.	The construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions

6 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in 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, for the purposes of a Development Application.

ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation.

Table 5. Architectural Plans

Architectural Plans Prepared by Marchese Partners			
Drawing Number	**Revision**	**Date**	**Title**
1.1	A	21 Apr 2020	Table of contents – Project Overview
2.1	A	21 Apr 2020	Aerial view
2.2	A	21 Apr 2020	Site context
2.3	A	21 Apr 2020	Local context
2.4	A	21 Apr 2020	Urban design analysis
3.1	A	21 Apr 2020	Scheme evolution
3.2	A	21 Apr 2020	Precedents study
3.3	A	21 Apr 2020	Mood board
4.0	A	21 Apr 2020	Development Data
4.1	A	21 Apr 2020	Survey
4.2	A	21 Apr 2020	Existing trees to be removed
4.3	A	21 Apr 2020	Basement 3
4.4	A	21 Apr 2020	Basement 2
4.5	A	21 Apr 2020	Basement 1
4.6	A	21 Apr 2020	Lower ground
4.7	A	21 Apr 2020	Ground level
4.8	A	21 Apr 2020	Level 1
4.9	A	21 Apr 2020	Level 1-2
4.10	A	21 Apr 2020	Level 3
4.11	A	21 Apr 2020	Level 4-6
4.12	A	21 Apr 2020	Roof top level
4.13	A	21 Apr 2020	North elevation
4.14	A	21 Apr 2020	South elevation
4.15	A	21 Apr 2020	East elevation
4.16	A	21 Apr 2020	West elevation
4.17	A	21 Apr 2020	Section 1
4.18	A	21 Apr 2020	Section 2
4.19	A	21 Apr 2020	Access ramp sections
4.20	A	21 Apr 2020	GFA calculations LEP
4.21	A	21 Apr 2020	GFA calculation SEPP
4.22	A	21 Apr 2020	Cross ventilation
4.23	A	21 Apr 2020	Solar access 1
4.24	A	21 Apr 2020	Solar access 2
4.25	A	21 Apr 2020	Shadow study 1
4.26	A	21 Apr 2020	Shadow study 2
4.27	A	21 Apr 2020	Deep soil

ANNEXURE B - DETAILED BCA 2019 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 is not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, with further design development, compliance can readily be achievable. This item is to be read in conjunction with the BCA Specification included within Annexure C of this report.
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

Table 6. Deemed to Satisfy Clause Assessment

Clause	Comment	Status
SECTION B: STRUCTURE		
PART B1 – STRUCTURAL PROVISIONS		
B1.0: Deemed-to-Satisfy Provisions	Informational	Noted
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	A Class 3 building, in a flood hazard area (refer to Council maps) must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	FI
SECTION C: FIRE RESISTANCE		
PART C1 – FIRE RESISTANCE AND STABILITY		
C1.0: Deemed-to-Satisfy Provisions	Informational	Noted
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.	CRA – Refer Annexure C
C1.2: Calculation of rise in storeys	The building has a rise in storeys of nine (9).	Noted
C1.3: Buildings of multiple classification	Informational	Noted
C1.4: Mixed Types of construction	The building will be a single type of fire resisting construction.	N/A
C1.5: Two Storey Class 2, 3 or 9c buildings	-	N/A
C1.6: Class 4 Parts of building	-	N/A
C1.7: Open spectator stands and indoor sports stadium	-	N/A

SECTION C: FIRE RESISTANCE		
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8. This relates to the ability to resist impact damage.	CRA – Refer Annexure C
C1.9: Non-combustible building elements	(a) The following building elements and their components must be *non-combustible*: (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (ii) The flooring and floor framing of lift pits. (iii)Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of *non-combustible* construction. (c) A loadbearing internal wall and a loadbearing *fire wall*, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses. (e) The following materials, may be used wherever a *non-combustible* material is required: (i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish. (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting. (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) *Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5. (vii) Bonded laminated materials where— (A) each lamina, including any core, is *non-combustible*; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	material as a whole do not exceed 0 and 3 respectively.	
C1.10: Fire hazard properties	Fire hazard properties of internal linings, materials and assemblies 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
C1.11: Performance of external walls in fire	-	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.	Noted
C1.13: Fire-protected timber: Concession	-	N/A
C1.14: Ancillary elements	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be *non-combustible* unless it is one of the following: (a) An ancillary element that is *non-combustible*. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing. (d) A grate or grille not more than 2 m² in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign. (h) A sign other than one provided under (a) or (g) that— (i) achieves a *group number* of 1 or 2; and (ii) does not extend beyond one storey; and (iii) does not extend beyond one *fire compartment*; and (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that— (i) meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and (ii) serves a storey— (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an *exit*, where it would render the *exit* unusable in a fire.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	(j) A part of a security, intercom or announcement system. (k) Wiring. (l) A paint, lacquer or a similar finish. (m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).	
PART C2 – COMPARTMENT AND SEPARATION		
C2.0: Deemed-to-Satisfy Provisions	Informational	Noted
C2.1: Application of Part	Informational - C2.2 does not apply to the carpark or residential parts of the building.	Noted
C2.2: General floor area and volume limitations	The size of *fire compartments* in the building must not exceed that specified in Table C2.2.	CRA – Refer Annexure C
C2.3: Large isolated buildings	-	N/A
C2.4: Requirements for open spaces and vehicular access	-	N/A
C2.5: Class 9a and 9c Buildings	-	N/A
C2.6: Vertical separation of openings in external walls	The building is required to be fully sprinkler protected to AS 2118.1.	N/A
C2.7: Separation by fire walls	**Construction -** A *fire wall* must be constructed in accordance with the following: – 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 – – 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	Where a storey has different classifications located alongside one another: • each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	• the parts must be separated in that storey by a *fire wall* having the higher FRL prescribed in Table 3.	
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 Specification C1.1 for the classification of the lower storey.	CRA – Refer Annexure C
C2.10: Separation of lift shafts	Passenger lifts 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. Emergency lifts must be in fire-rated shafts not less than FRL 120/120/120.	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	Any of the following equipment located in the building must be separated from the remainder of the building: • 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 system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. Equipment need not be separated in if the equipment comprises: • 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 1668.1; or • a lift installation without a machine room; or • equipment otherwise adequately separated from the remainder of the building. 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. Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.	CRA – Refer Annexure C
C2.13: Electricity supply system	A main switchboard which sustains emergency equipment operating in the emergency mode must be fire separated from any other part of the building by construction having an FRL of not less than 120/120/120	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	and have the doorway fitted with self-closing fire door having an FRL of not less than –/120/30. 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. Emergency equipment includes but is not limited to the following: – 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	The public corridor length, on each level, is less than 40m. No smoke separation proposed.	Complies
PART C3 – PROTECTION OF OPENINGS		
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted
C3.1: Application of Part	Informational	Noted
C3.2: Protection of openings in external walls	The building's external walls are sufficient distance from fire source features to avoid protection under this Clause.	Complies
C3.3: Separation of external walls and associated openings in different fire compartments	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— (a) those parts of each wall have an FRL not less than 60/60/60; and (b) any openings protected in accordance with C3.4. Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS	CRA – Refer Annexure C

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>	
C3.4: Acceptable methods of protection	Where protection is required, openings must be protected as follows: <u>Doorways:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing; or (ii) –/60/30 fire doors that are self-closing. <u>Windows:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (ii) –60/– fire windows that are automatically closing or permanently fixed in the closed position; or (iii) –/60/– automatic closing fire shutters. <u>Other openings:</u> (i) Excluding voids – internal or external wall-wetting sprinklers; or (ii) Construction having an FRL not less than –/60/– 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	-	N/A
C3.7: Protection of doorways in horizontal exits	-	N/A
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	CRA – Refer Annexure C

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	automatic-closing in accordance with (ii) and (iii) of Clause C3.8	
C3.9: Service penetrations in fire-isolated exits	The fire isolated *exits* are not to be penetrated by any services **other** than: • electrical wiring associated with: – 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. • ducting associated with a pressurisation system if it; (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; or • water supply pipes for fire services.	CRA – Refer Annexure C
C3.10: Openings in fire-isolated lift shafts	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 discharging or receiving, passengers, goods or vehicles. 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 mm^2 in area.	CRA – Refer Annexure C
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 3 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	Openings in shafts must be protected by: 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	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	d) if the shaft is a garbage shaft – a door or hopper of *non-combustible* construction.	
C3.15: Openings for service installations	Where services pass through an element which is required to achieve an FRL (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15. Note: contractors should check with PCA to confirm compliance with their proposed fire stopping method.	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		
2.0: General Requirements	Informational	Noted
2.1: Exposure to fire-source features	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.	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 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.	CRA – Refer Annexure C
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	The method of attaching or installing a finish, lining, ancillary element or service installation to a building element must not reduce the fire-resistance of that element to below that required.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE			
2.5:	General concessions	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— (i) lift motor equipment; or (ii) one or more of the following: (A) Hot water or other water tanks. (B) Ventilating ductwork, ventilating fans and their motors. (C) Air-conditioning chillers. (D) Window cleaning equipment. (E) Other service units that are *non-combustible* and do not contain flammable or combustible liquids or gases.	CRA – Refer Annexure C
2.6:	Mezzanine floors: Concession	-	N/A
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. 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.	CRA – Refer Annexure C
2.8:	Carparks in Class 2 and 3 Buildings	-	N/A
2.9:	Residential Aged Care building: Concession	It is understood that the residents do not require physical assistance to go about their daily activities or evacuation.	N/A
3.0:	Type A fire-resisting construction	-	Noted
3.1:	Fire-resistance of building elements	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– (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	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE			
		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. The FRLs specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5m of a window and are exposed through that window to a *fire-source feature*.	
3.2:	Concessions for floors	The floor of basement 3 need not maintain an FRL.	Noted
3.3:	Floor Loading of Class 5 and 9b buildings: Concession	-	N/A
3.4:	Roof superimposed on concrete slab: Concession	-	N/A
3.5:	Roof: Concession	The roof need not have an FRL due to the sprinkler protection throughout.	CRA – Refer Annexure C
3.6:	Roof lights	No roof lights proposed.	N/A
3.7:	Internal columns and walls: Concession	-	N/A
3.8:	Open spectator stands and indoor sports stadiums concession	-	N/A
3.9:	Carparks	-	N/A
3.10:	Class 2 and 3 buildings Concession	-	N/A
SPECIFICATION C1.10 – FIRE HAZARD PROPERTIES			
1.	Scope	Informational	-
2.	Application	Informational	Noted
3.	Floor linings and floor coverings	A floor lining or floor covering must have– a) a *critical radiant flux* not less than that listed in Table 2; and b) 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	A wall or ceiling lining system must comply with the *group number* specified in Table 3 and A *group number* of a wall or ceiling lining and the *smoke growth rate index* or	CRA – Refer Annexure C

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		average specific extinction area must be determined in accordance with AS 5637.1.	
5.	Air-handling ductwork	Rigid and flexible ductwork must comply with the *fire hazard properties* set out in AS 4254 Parts 1 and 2.	CRA – Refer Annexure C
6.	Lift cars	Materials used as— a) floor linings and floor coverings must have a *critical radiant flux* not less than 2.2; and b) 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
SPECIFICATION C3.4 – FIRE DOORS, SMOKE DOORS, FIRE WINDOWS AND SHUTTERS			
1.	Scope	Informational	Noted
2.	Fire doors	Fire doorsets must comply with AS1905.1 and not fail by radiation through any glazed part during the period specified for integrity in the required FRL.	CRA – Refer Annexure C
3.	Smoke doors	-	N/A
4.	Fire shutters	-	N/A
5.	Fire windows	-	N/A

SECTION D: ACCESS AND EGRESS			
PART D1 – PROVISION FOR ESCAPE			
D1.0:	Deemed-to-Satisfy Provisions	Informational	Noted
D1.1:	Application of Part	The *Deemed-to-Satisfy Provisions* of this Part do not apply to the internal parts of the residential units.	Noted
D1.2:	Number of exits required	All storeys of the building must contain at least two exits. All parts of the building must contain access to at least two.	CRA – Refer Annexure C
D1.3:	When fire-isolated stairways and ramps are required	The stairways are required to be fire isolated.	CRA – Refer Annexure C
D1.4:	Exit travel distances	Class 3 residential — • The entrance doorway of each *sole-occupancy unit* must be not more than – – 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	**PS** **Refer to Part 5.3 of Report**

SECTION D: ACCESS AND EGRESS		
	• 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. Class 5 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. Class 7a carpark— 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.	
D1.5: Distance between alternative exits	*Exits* that are required as alternative means of egress must be– (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 (b) not less than 9 m apart; and (c) not more than— (i) in a Class 3 building — 45 m apart; or (ii) in all other cases — 60 m apart; and (d) located so that alternative paths of travel do not converge such that they become less than 6 m apart. Note: the distance between *exits* must be measured through the point at which travel two *exits* is available.	**PS** **Refer to Part 5.3 of Report**
D1.6: Dimensions of exits and paths of travel to exits	In a required *exit* or path of travel to an *exit*– • 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.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
D1.7: Travel via fire-isolated exits	• A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from – (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— (i) to a road or open space; or (ii) 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.	**PS** **Refer to Part 5.3 of Report**
D1.8: External stairways or ramps in lieu of fire-isolated exits	-	N/A
D1.9: Travel by non-fire-isolated stairways or ramps	The non-fire isolated stairway suitably continuously connects the Lower and Ground Levels. The distance between the doorway of a room or *sole-occupancy unit* and the point of egress to a road or open space by way of a stairway or ramp that is not fire-isolated and is required to serve that room or *sole-occupancy unit* must not exceed 60m. The required non-fire-isolated stairway suitably discharges within 15m of the main entry or point of point choice to the different exits.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
D1.10: Discharge from exits	*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*. The path of travel to the road must have an unobstructed width of not less than 1m. 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. The discharge points of alternative *exits* must be as far apart as practical.	CRA – Refer Annexure C
D1.11: Horizontal exits	-	N/A
D1.12: Non-required stairways, ramps or escalators	-	N/A
D1.13: Number of persons accommodated	Informational	Noted
D1.14: Measurement of distances	Informational	Noted
D1.15: Method of Measurement	Informational	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	It is noted that the plant rooms will not require ladder access or egress.	N/A
D1.17: Access to lift pits	Access to the lift pit is assumed to be through the bottom landing doors as the pit is assumed to be less than 3m deep.	CRA – Refer Annexure C
PART D2 – CONSTRUCTION OF EXITS		
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted
D2.1: Application of Part	Informational– Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17(e), D2.21 and D2.24, the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of the residential 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	The stair serving lower ground and ground (including landings and any supporting building elements) must be constructed according to D2.2, or only of- (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that—	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	(i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m3 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".	
D2.4: Separation of rising and descending stair flights	(a) There must be no direct connection between— (i) a flight rising from a storey below the lowest level of access to a road or open space; and (ii) a flight descending from a storey above that level; and (b) any construction that separates or is common to the rising and descending flights must be (i) *non-combustible*; and (ii) smoke proof in accordance with Clause 2 of Specification C2.5.	CRA – Refer Annexure C
D2.5: Open access ramps and balconies	-	N/A
D2.6: Smoke lobbies	-	N/A
D2.7: Installations in exits and paths of travel	• 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: – 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

SECTION D: ACCESS AND EGRESS		
D2.8: Enclosure of space under stairs and ramps	The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space.	CRA – Refer Annexure C
D2.9: Width of stairways and ramps	The stairways are not required to more than 2m in width.	N/A
D2.10: Pedestrian ramps	A ramp serving as a required *exit* must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1; or (ii) in any other case, have a gradient not steeper than 1:8. The floor surface of a ramp 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 passageway must have an FRL not less than that required for the fire isolated stair.	CRA – Refer Annexure C
D2.12: Roof as open space	-	N/A
D2.13: Goings and risers	Stairways must comply with the following: • stairways must have not more than 18 and not less than 2 risers in each flight; • goings must be between 250 mm and 355 mm; • 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– (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.	CRA – Refer Annexure C

<table>
<tr><th colspan="3">SECTION D: ACCESS AND EGRESS</th></tr>
<tr><td></td><td>

- 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 4586-2013 Slip resistance classification of new pedestrian surface materials.*

</td><td></td></tr>
<tr><td>D2.14: Landings</td><td>

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.

<table>
<tr><th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr>
<tr><th>Dry</th><th>Wet</th></tr>
<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>
</table>

</td><td>CRA – Refer Annexure C</td></tr>
<tr><td>D2.15: Thresholds</td><td>

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–

a) in a building required to be accessible, the doorway–

(i) opens to a road or open space; and

(ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or

b) in other cases–

(i) the doorway opens to a road or open space, external stair landing or external balcony; and

(ii) 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.

</td><td>CRA – Refer Annexure C</td></tr>
<tr><td>D2.16: Barriers to prevent falls</td><td>

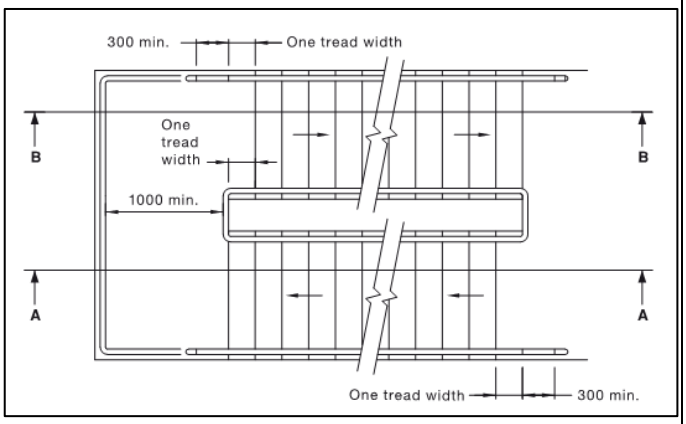
Balustrades must be provided to stairs and balconies, driveway ramps etc where there is a fall of more than 1m. Balustrades must comply with the following:

<u>Balustrade minimum heights</u>

- 865 mm above stair nosings;

</td><td>CRA – Refer Annexure C</td></tr>
</table>

SECTION D: ACCESS AND EGRESS		
	• 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. <u>Balustrade openings – fire-isolated stairs</u> • maximum openings of 300 mm; or • where rails are used– – a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like; and – the opening between rails must not be more than 460 mm <u>Balustrade openings – other than fire-isolated stairs</u> • 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. <u>Climbability – other than fire-isolated stairs</u> 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.	
D2.17: Handrails	Handrails to stairways must: • be located along at least one side of the ramp or flight (a flight being 2 or more risers); 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. <u>Clause 12 of AS 1428.1-2009</u> 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. 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	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	accordance with Figure 28 in AS1428.1-2009 or with larger landings to accommodate required handrail extensions.  *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	Sliding doors serving as *exit* doors 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	Swinging doors in a required *exit* must not encroach– (i) at any part of its swing by more than 500 mm on the required 1m width of the *exit* and (ii) when fully open, by more than 100 mm on the required 1m *exit* width; and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door. A swinging door in a required *exit* must swing in the direction of egress unless– • it serves a building or part with a floor area not more than 200 m^2, 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	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	• it serves a sanitary compartment or airlock (in which case it may swing in either direction).	
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 be readily openable without a key from the side that faces a person seeking egress, by– (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 – 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. (iii) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (aa) not less than 500 mm from an internal corner; and (bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that – (i) serves only or is within a residential unit; or (ii) serves the Café tenancy; 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 and is readily openable when unlocked.	CRA – Refer Annexure C
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		
	(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	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. Note: Fire signage in accordance with clause 183 of the Environmental Planning and Assessment Regulation 2000 is also required.	CRA – Refer Annexure C
D2.24: Protection of openable windows	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: (i) The openable portion of the window must be protected with– A. a device to restrict the window opening; or B. a screen with secure fittings. (ii) A device or screen required by (i) must– 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– 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– (i) in addition to window protection, when a child resistant 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).	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	d) A barrier covered by (c) except for (e) must not– (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. e) A barrier *required* by (c) to an openable window in— (i) fire-isolated stairways, fire-isolated ramps and other areas used primarily for emergency purposes, excluding external stairways and external ramps; must not permit a 300mm sphere to pass through it. 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.	
D2.25: Timber stairways: concession	-	N/A
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
D3.0: Deemed-to-Satisfy Provisions	The building is required to be accessible for persons with a disability.	Refer to separate Access Report.

SECTION E: SERVICES AND EQUIPMENT		
PART E1 – FIRE FIGHTING EQUIPMENT		
E1.0: Deemed-to-Satisfy Provisions	Informational	Noted
E1.3: Fire hydrants	As the building has a floor area greater than 500 m^2, a fire hydrant system complying with AS 2419.1-2005 must be provided to serve the building.	CRA – Refer Annexure C
E1.4: Fire hose reels	A fire hose reel system complying with BCA clause E1.4 and AS 2441-2005 must be provided to the non-residential parts of the building.	CRA – Refer Annexure C
E1.5: Sprinklers	The building must be provided with a sprinkler system complying with Table E1.5 and Specification E1.5 installed throughout.	CRA – Refer Annexure C
E1.6: Portable fire extinguishers	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 Residential parts, portable fire extinguishers must be– (i) an ABE type fire extinguisher; and (ii) a minimum size of 2.5 kg; and (iil) distributed outside a *sole-occupancy unit*— (A) to serve only the storey at which they are located; and	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		(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.	
E1.8:	Fire control centres	The building must be provided with a fire control centre facility in accordance with BCA Specification E1.8. The fire control centre must be located so that egress from any part of its floor to a public road or open space does not involve changes in level which in aggregate exceed 300 mm.	CRA – Refer Annexure C
E1.9:	Fire precautions during construction	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.	CRA – Refer Annexure C
E1.10:	Provision for special hazards	-	N/A
PART E2 – SMOKE HAZARD MANAGEMENT			
E2.0:	Deemed-to-Satisfy Provisions	Informational	Noted
E2.1:	Application of Part	Informational	Noted
E2.2:	General requirements (including Tables E2.2a and E2.2b)	The building 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 required to be interconnected. The basement car parking must be provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS 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. The exits must be provided with an automatic air pressurisation system for fire-isolated *exits* in accordance with AS 1668.1. The automatic air pressurisation system applies to the entire *exit*.	CRA – Refer Annexure C
E2.3:	Provisions for special hazards	-	N/A
PART E3 – LIFT INSTALLATIONS			
E3.0:	Deemed-to-Satisfy Provisions	Informational	Noted
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	A stretcher facility must be provided to an emergency lift required by E3.4. A stretcher facility must be provided to passenger lifts installed to serve any storey above an *effective height* of 12 m.	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		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.	
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
E3.4:	Emergency lifts	The passenger lifts are required to operate as emergency lifts in accordance with this Clause.	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	The lifts serving any storey above an *effective height* of 12 m must be provided with: a) A fire service recall control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the *storey*. b) A lift car fire service drive control switch complying with E3.10 for every lift.	CRA – Refer Annexure C
E3.8:	Aged care buildings	-	N/A
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			
E4.0:	Deemed-to-Satisfy Provisions	Informational	Noted
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 2293.1-2018.	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 2293.1-2018.	CRA – Refer Annexure C
E4.5:	Exit signs	Exits 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

SECTION E: SERVICES AND EQUIPMENT			
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Noted
E4.8:	Design and operation of exit signs	*Exit* signs must comply with AS 2293.1-2018 and be clearly visible at all times when the building is occupied.	CRA – Refer Annexure C
E4.9:	Emergency warning and intercom systems	An Emergency warning and intercom system 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. The assessment contained within this report does not include an assessment against Performance Provision FP1.4.	PS Refer to Part 5.3 of Report
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, unless it is not necessary for the particular purpose.	CRA – Refer Annexure C
F1.11:	Provision of floor wastes	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	Any subfloor spaces must be provided with ventilation and clearances in accordance with this Clause.	CRA – Refer Annexure C
F1.13:	Glazed Assemblies	Glazed assemblies are to comply with AS2047 and AS1288.	CRA – Refer Annexure C
PART F2 – SANITARY AND OTHER FACILITIES			
F2.0:	Deemed-to-Satisfy Provisions	Informational	Noted
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; a bath or shower; a closet pan; wash basin; laundry wash tub and space for a washing machine and dryer.	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
F2.2:	Calculation of number of occupants and facilities	Informational	CRA – Refer Annexure C
F2.3:	Facilities in Class 3 to 9 buildings (including Table F2.3)	Except where permitted by (b), (c), (f), F2.4(a) and F2.4(b), separate sanitary facilities for males and females must be provided for employees and café patrons if it is proposed to seat more than 20 patrons.	CRA – Refer Annexure C
F2.4:	Accessible sanitary facilities (including Table F2.4)	Employee sanitary facility required by Clause F2.1 is to be an accessible unisex compartment compliant with AS 1428.1-2009.	CRA – Refer Annexure C
F2.5:	Construction of sanitary compartments	The door to a fully enclosed sanitary compartment must— (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	Informational	Noted
F2.8:	Waste Management	-	N/A
F2.9:	Accessible adult change facilities	-	N/A
PART F3 – ROOM SIZES			
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F3.1:	Height of rooms and other spaces	The height of rooms and other spaces must be not less than— (a) in residential parts of the building — (i) a kitchen, laundry, or the like — 2.1 m; and (ii) a corridor, passageway or the like — 2.1 m; and (iii) a habitable room excluding a kitchen — 2.4 m; (b) in other parts of the building— (i) except as allowed in (ii) and (f) — 2.4 m; and (ii) a corridor, passageway, or the like — 2.1 m; and (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 (ii) a commercial kitchen — 2.4 m; and (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.	CRA – Refer Annexure C
PART F4 – LIGHT AND VENTILATION			
F4.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F4.1:	Provision of natural light	Natural light must be provided to all bedrooms and dormitories.	CRA – Refer Annexure C
F4.2:	Methods and extent of natural lighting	Natural light must be provided by: (i) Windows:	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		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. 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 – – 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	-	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	Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened— (i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— (A) a suitably sized court, or space open to the sky; or (B) an open verandah, carport, or the like; or (C) an adjoining room in accordance with F4.7.	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	Sanitary compartments must not open directly into a – • kitchen or pantry • public dining room or restaurant • dormitory in a Class 3 building • 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	If sanitary compartments are prohibited from opening directly to another room: • 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
F4.11:	Carparks	Every storey of a carpark (except an open deck carpark) must have:	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		• 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.	
F4.12:	Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1 and AS 1668.2 where: • any cooking apparatus has: – 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: – 0.5 kW electrical power; or – 1.8 MJ gas, Per m^2 of floor area of the room or enclosure.	CRA – Refer Annexure C
PART F5 – SOUND TRANSMISSION AND INSULATION			
F5.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F5.1:	Application of Part	Informational– The Deemed-to-Satisfy Provisions of this Part apply to the Residential Parts of the building.	Noted
F5.2:	Determination of airborne sound insulation ratings	A form of construction required to have an airborne sound insulation rating must— (a) have the required value for weighted sound reduction index (Rw) or weighted sound reduction index with spectrum adaptation term (Rw + Ctr) determined in accordance with AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements; or (b) comply with Specification F5.2.	CRA – Refer Annexure C
F5.3:	Determination of impact sound insulation ratings	(a) A floor in a building required to have an impact sound insulation rating must— (i) have the required value for weighted normalised impact sound pressure level with spectrum adaptation term (Ln,w + CI) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or (ii) comply with Specification F5.2. (b) A wall in a building required to have an impact sound insulation rating must be of discontinuous construction; and (c) For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and (i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery.	CRA – Refer Annexure C
F5.4:	Sound insulation rating of floors	A floor in a Class 3 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: SOU's; or	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		An SOU from a plant room, lift shaft, public corridor, public lobby or parts of a different classification.	
F5.5:	Sound insulation rating of walls	A wall in a Class 3 building must: (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: 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: (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: (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 3 *sole-occupancy units* from a stairway, public corridor, public lobby or the like must be provided with a door assembly that has an Rw not less than 30.	CRA – Refer Annexure C
F5.6:	Sound insulation rating of services	If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one *sole-occupancy unit*, the duct or pipe must be separated from the rooms of any sole occupancy unit by construction with an Rw + Ctr (airborne) not less than— (i) 40 if the adjacent room is a habitable room (other than a kitchen); or (ii) 25 if the adjacent room is a kitchen or non-habitable room. If a storm water pipe passes through a *sole-occupancy unit* it must be separated in accordance with (a)(i) and (ii).	CRA – Refer Annexure C
F5.7:	Sound isolation of pumps	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump.	CRA – Refer Annexure C
PART F6 – CONDENSATION MANAGEMENT			
F6.0:	Deemed-to-satisfy provisions	Informational	Noted
F6.1:	Application of Part	Informational	Noted

SECTION F: HEALTH AND AMENITY			
F6.2:	Pliable building membrane	Where a pliable building membrane is installed in an external wall it shall comply with AS/NZS 4200.1 and installed in accordance with AS 4200.2.	CRA – Refer Annexure C
F6.3:	Flow rate and discharge of exhaust systems	An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of— (i) 25 L/s for a bathroom or sanitary compartment; and (ii) 40 L/s for a kitchen or laundry. (b) Exhaust from a kitchen must be discharged directly or via a shaft or duct to outdoor air. (c) Exhaust from a bathroom, sanitary compartment, or laundry must be discharged— (i) directly or via a shaft or duct to outdoor air; or (ii) to a roof space that is ventilated in accordance with F6.4	CRA – Refer Annexure C
F6.4:	Ventilation of roof spaces	Where an exhaust system covered by F6.3 discharges directly or via a shaft or duct into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings.	CRA – Refer Annexure C

SECTION G: ANCILLARY PROVISIONS			
PART G1 – MINOR STRUCTURES AND COMPONENTS			
G1.0:	Deemed-to-Satisfy Provisions	Informational	Noted
NSW G1.101:	Provision for cleaning windows	A safe manner for cleaning of windows located 3 or more storeys above ground level must be provided, and compliance is achieved where: • 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

SECTION J: ENERGY EFFICIENCY			
PART J0 – ENERGY EFFICIENCY			
J0.1:	Application of Section J	The building will be required to meet the requirements of this Section. Separate energy reports will be prepared as required.	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 building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
6. The external walls and openings of separate fire compartments will be protected in accordance with Clause C3.3.
7. 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 BCA2019.
8. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
9. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
10. Any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
11. The external walls and openings of separate fire compartments will be protected in accordance with Clause C3.3.
12. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
13. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C3.8 of BCA2019.
14. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C3.9 of BCA2019.
15. Services penetrating elements required to possess an 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 BCA2019.
16. 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.
17. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C3.10 of BCA2019.
18. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.

19. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.

20. 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 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.

21. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause 2.4 of Specification C1.1 of BCA2019.

22. 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 BCA2019.

23. Fire doors will comply with AS1905.1 and Specification C3.4 of BCA2019.

24. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.

25. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.

26. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.

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 BCA2019.

28. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.

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 BCA2019.

30. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 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 BCA2019.

32. New pedestrian ramps will comply with AS1428.1-2009, Clause D2.10 and Part D3 of BCA2019. 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 fire-isolated passageway will be in accordance with Clause D2.11 of BCA2019..

34. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. 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 BCA2019. 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 BCA2019.

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 BCA2019.

38. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
39. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 of BCA2019.
40. Re-entry doors from the fire-isolated exits will be in accordance with Clause D2.22 of BCA2019.
41. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
42. The openable portion of a window in a bedroom will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
43. The fire control centre will be in accordance with Specification E1.8 or BCA2019.
44. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
45. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2.
46. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
47. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
48. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS3740.
49. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
50. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
51. Sub-floor ventilation will be provided in accordance with Clause F1.12 of BCA2019.
52. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS1288 / AS2047.
53. 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 BCA2019.
54. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
55. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
56. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
57. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
58. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
59. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
60. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.

61. 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 BCA2019.

62. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.

63. The swimming pool associated with the new building will comply with Clause G1.1 of the BCA2019 and AS1926 parts 1 and 2. (Note: Excludes NSW. See NSW G1.1 Variation below)

64. 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.

65. 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.

66. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.

67. Glazing will be in accordance with Part J1 of BCA2019.

68. Building sealing will be in accordance with Part J3 of BCA2019.

69. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

70. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.

71. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS2293.1.

72. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS2293.1.

73. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4.9 of BCA2019.

74. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0.

75. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.

Hydraulic Services Design Certification:

76. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and ASNZS3500.3

77. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS2419.1 as required.

78. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS2441.

79. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and appropriate part(s) of AS2118.

80. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS2444.

81. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

Mechanical Services Design Certification:

82. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1.

83. Stair pressurisation will be installed in the building in accordance with Table E2.2a of BCA2019 and AS 1668.1.

84. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS1668.2.

85. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS1668.2 as applicable.

86. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a residential sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.

87. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F6.4 of BCA2019.

88. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019.

Structural Engineers Design Certification:

89. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 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.

90. The FRL's of the structural elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.

91. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.

92. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.

93. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

94. 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 BCA2019 for the fire isolated stairs.

Lift Services Design Certification:

95. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3.2 of BCA2019 and will be capable of accommodating a stretcher with a patient lying horizontally by proving a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.

96. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.

97. An emergency lift will be provided in the building in accordance with Clause E3.4 of BCA2019.

98. 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.

99. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3.10.

100. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.

101. 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 BCA2019.

102. The lifts will comply with AS1735.12 in accordance with Clause E3.6 of BCA2019.

103. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

Acoustic Services Design Certification:

104. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2019.