BCA Assessment Report

45 Lantana Avenue, Wheeler Heights

Project:	45 Lantana Avenue, Wheeler Heights
Reference No:	112947-BCA-r2
Date:	7 December 2020
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Document Control

Revision	Date	Description	
112947-BCA-r1	25/11/2020	BCA Assessment Report (Draft DA Stage)	
112947-BCA-r2	7/12/2020	BCA Assessment Report (DA Stage)	
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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed three (3) storey SEPP Seniors building containing self contained sole occupancy units. The development consists of a basement level carpark with two (2) levels of residential apartments located above thedevelopment at 45 Lantana Avenue, Wheeler Heights, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 5 'Matters for Further Consideration' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	Description	BCA Provision
Performance Solutions Required		
1.	Reduction in Type of Construction to Type C Construction to permit a. No fire resistance levels required to external walls due to boundary setback of more than 1500mm; and b. No protection of openings to bathrooms and ensuites located within 3000mm to boundary.	C1.1/C1.5
2.	The path of travel from the basement exit stairs travel within 3 metres of openings from the carpark and require protection	D2.12
3.	Weatherproofing of walls to be the subject of a performance solution as there is no Deemed to Satisfy requirements.	F1.0
Building Code of Australia Compliance Matters to be Addressed with Design Development		
1.	An external egress path shall be provided to the street via the battleaxe driveway. The walkway shall have a gradient of not more than 1:20 otherwise a handrail will be required in accordance with BCA Clause D1.10.	D1.10
2.	The ensuite and bathroom windows to Units 2, 4, 6 & 7 are located within 3 metres to the western boundary and require protection.	C3.2/C3.4

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

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at 45 Lantana Avenue, Wheeler Heights and comprises a three (3) storey SEPP Seniors building containing self contained sole occupancy units.

The development consists of a basement level carpark with two (2) levels of residential apartments located above the development at 45 Lantana Avenue, Wheeler Heights, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

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 Amendment 1 (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2019.

1.4. Limitations

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

(b) the structural adequacy or design of the building;

(c) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

(d) 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),

(c) The deemed to satisfy provisions of Part D3 and F2.4 of BCA2019;

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

(e) Work Health and Safety Act 2011;

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

(g) 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

(h) Conditions of Development Consent issued by the Local Consent Authority.

1.5. Design Documentation

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

2 BUILDING DESCRIPTION

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

2.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of two (2)

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
2	Ground, first	Residential sole occupancy units (Independent living units deemed Class 2 rather than Class 3)
7a	Basement	Carpark

2.3. Effective Height (Clause A1.0)

The building has an *effective height* of less than 12 metres.

2.4. Type of Construction Required (Table C1.1)

The building is required to be of Type B Construction due to the rise in storeys of two (2).

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

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

Class 7a	Maximum Floor Area	3500m^2
	Maximum Volume	21,000m^3
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.	

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) Basement carpark and the residential levels form a single fire compartment.

2.7. Exits

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

(a) Basement – The first riser of the two (2) non-fire isolated stairs. Note: whilst it is recommended that a fire door is provided to separate the rear stair, this is for compliance with building construction requirements of BCA Clause C3.11 rather than creating a fire isolated stair.

(b) Ground Floor – external walkways leading from the ground floor lobby

(c) First Floor – first riser of the main residential stairs

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 5.

2.9. Location of Fire-source features

Due to the battleaxe allotment, the fire source features for the subject development are:

North: The side allotment boundary

South: The side allotment boundary

East: The side allotment boundary

West: The side allotment boundary

A *fire-source* feature is defined in Part A1.0 – Schedule 3 of the BCA as–

(a) the far boundary of a road, river, lake or the like adjoining the allotment; or

(b) a side or rear boundary of the allotment; or

(c) an external wall of another building on the allotment which is not a Class 10 building.

A building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

(i) has an FRL of not less than 30/–/–; and

(ii) is neither transparent nor translucent.

3 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure D) with that Code

3.1. 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.

3.2. 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:

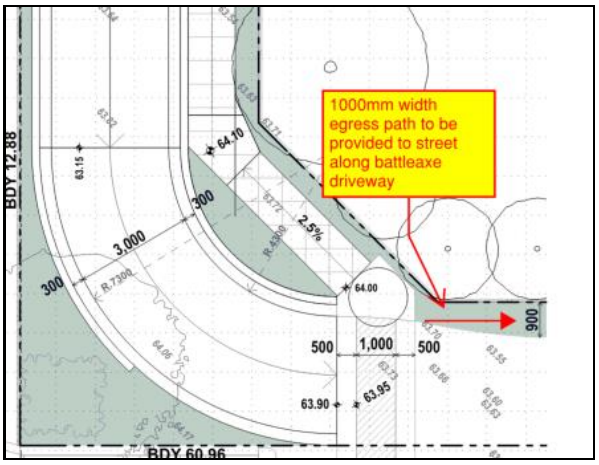
Table 2. Performance Solutions

Item	Description of Performance Solution	DTS Provision
1.	Reduction in Type of Construction to Type C Construction to permit a. No fire resistance levels required to external walls due to boundary setback of more than 1500mm; and b. No protection of openings to bathrooms and ensuites located within 3000mm to boundary.	C1.1/C1.5
2.	The path of travel from the basement exit stairs travel within 3 metres of openings from the carpark and require protection	D2.12
3.	Weatherproofing of walls to be the subject of a performance solution as there is no Deemed to Satisfy requirements.	F1.0

3.3. BCA Compliance Matters to be Addressed

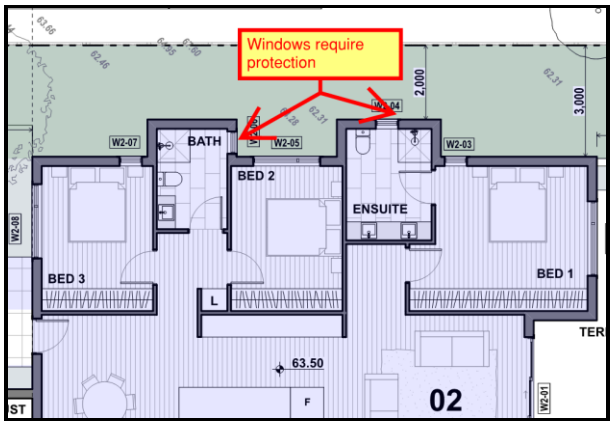
Prior to issue of future Construction Certificate the following matters will require further design development to ensure compliance is achieved with the provisions of the Building Code of Australia:-

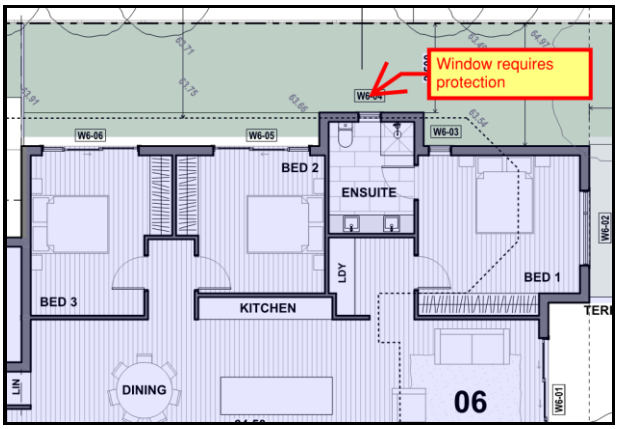
1. An external egress path shall be provided to the street via the battleaxe driveway. The walkway shall have a gradient of not more than 1:20 otherwise a handrail will be required in accordance with BCA Clause D1.10.

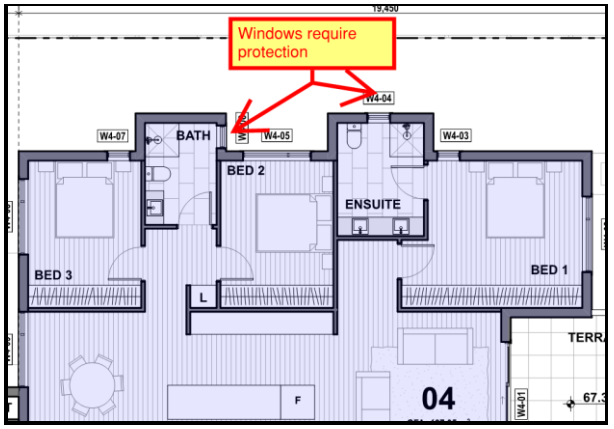


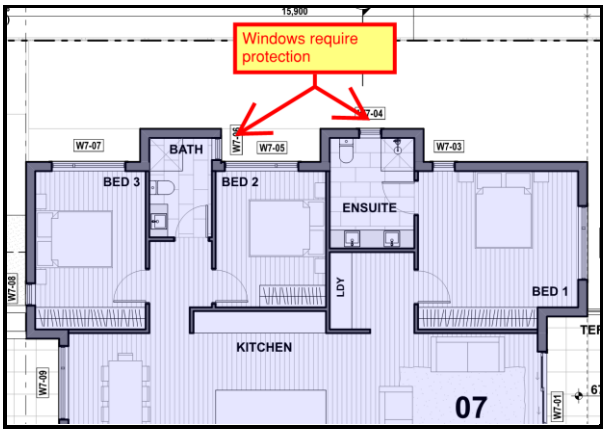
2. The ensuite and bathroom windows to Units 2, 4, 6 & 7 are located within 3 metres to the western boundary and require protection in accordance with BCA Clause C3.2/C3.4.

   Note: If it is possible to justify a fire engineered performance solution in accordance with BCA Clause C1.5 to reduce Type of Construction to Type C Construction then it will not be necessary for protection of openings to be applied as the building is greater than 1500mm to boundary.





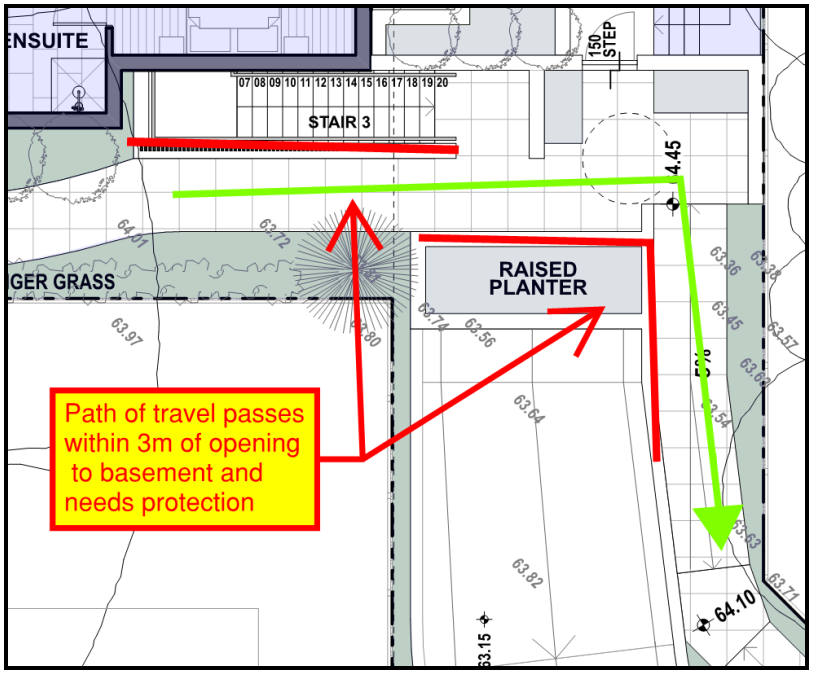




3. The external exit path from the rear building travels within 3 metres of openings to the carpark and results in a technical non-compliance with BCA Clause D2.12.

   It is recommended to provide an FRL --/60/30 fire door at the base of the front stair aswell as a minimum 1000mm solid balustrade to afford occupants radiant heat protection as they travel past the openings.

   Furthermore, it will be necessary for a fire engineered performance to permit there being openings within 3 metres of the path of travel.



ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 3. Architectural Plans

Architectural Plans Prepared by Gartner Trovato Architects			
Drawing Number	**Revision**	**Date**	**Title**
A.00	A	4/12/2020	Cover Sheet
A.01	A	4/12/2020	Site Analysis
A.02	A	4/12/2020	Site Plan
A.03	A	4/12/2020	Basement
A.04	A	4/12/2020	Ground Floor
A.05	A	4/12/2020	First Floor
A.06	A	4/12/2020	Elevations
A.07	A	4/12/2020	Sections and East Elevations

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

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 4. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire doors (Lift and basement fire stair separation)	**BCA2019 C3.10** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 AS1905.1: 2015
2.	Solid Core Doors	**BCA2019 C3.11**
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) AS1530.4:2014 & AS4072.1-2005
General		
4.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
General Egress		
5.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
6.	Warning & operational signs	**BCA2019 D2.23 (**Signs on Fire Doors) **BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs)) **BCA2019 E3.3** (Lift Signs)
Lifts		
7.	Access to Lift Pits > Located at lowest level or if >3m provided through an access door	**BCA2019 D1.17** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
Electrical Services		
8.	Automatic fire detection & alarm: > Clause 3 – AS 3786:2014 Smoke Alarm systems powered from consumer mains to all residential SOU's, and spaced, interlinked to AS 1670.1:2018 to all common areas connected to a BOWS @ 85dB(A). > Incorporating a thermal detection system in the basement carpark	**BCA2019 E2.2**, NSW Table E2.2a, Table 2.2b, **Spec E2.2a** - Clause 3 (Smoke alarm system) **Spec E2.2a** - Clause 7 (BOWS) AS 3786:2014 (Amdt 1-4)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	Note: if there is a SSISEP or EWIS applies different dB(A) i.e. At bedheads not SOU doors.	
9.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
10.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
Hydraulic Services		
11.	Fire hydrant systems > NSW Storz Couplings	**BCA2019 E1.3** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V6 issued 11.04.17, 'Compatible Hose Connections'
12.	Fire hose reel (basement)	**BCA2019 E1.4** AS2441-2005
Mechanical Services		
13.	Mechanical air handling systems	**BCA2019 E2.2, Table E2.2a,** AS 1668.1:2015 **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.
Notes: Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1:2015 serving more than one *fire compartment* (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard.		

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

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

Type B Construction

Table 5. Type B Construction

Item	Class 2
Loadbearing External Walls - Less than 1.5m to a *fire- source feature* - 1.5 – less 3m from *fire- source feature* - 3 – less 9m from *a fire- source feature* - 9 – less 18m from a *fire- source feature* - 18m or more from a *fire- source feature*	90/90/90 90/60/30 90/30/30 90/30/- -/-/-
Non-Loadbearing External Walls - Less than 1.5m to a *fire- source feature* - 1.5 – less 3m from *fire- source feature* - 3m or more from a *fire- source feature*	-/90/90 -/60/30 -/-/-
Loadbearing External Columns - Less than 18m - 18m or more	90/-/- -/-/-
Non-Loadbearing External Columns	-/-/-
Common Walls & Fire Walls	90/90/90
Stair and Lift Shafts required to be fire-resisting - Loadbearing Stair & Lift shaft - Non-loadbearing Stair shaft only	90/90/90 -/90/90
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	60/60/60 -/60/60
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	60/60/60 -/60/60
Other loadbearing internal walls and columns	60/-/-
Roofs	-/-/-

N.B. Due to the building being not more than four storeys there is a concession under BCA Clause 2.8 of Specification C1.1 for the class 7a parts to have the same FRL as the class 2 parts.

ANNEXURE D DETAILED BCA 2019 ASSESSMENT

Annexure D – 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 – Refer Annexure F	'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 F 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 F
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 F
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 F
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 F
B1.6 Construction of buildings in flood hazard areas	A Class 2 or 3 building, Class 9a health care building, Class 9c aged-care building or Class 4 part of a building, in a flood hazard area (refer to Council maps) must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	CRA – Refer Annexure F

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 B Construction based upon the rise in storeys Refer to Specification C1.1 requirements at the end of this Section.	CRA – Refer Annexure F
C1.2:	Calculation of rise in storeys	The building has a rise in storeys of two (2) The land slopes away toward the north western elevation, however, the finished ground level to this elevation will ensure that the height to the underside of the basement slab is not more than 1000mm above finished ground level Note: whilst the drawings at this stage are only indicative of the finished ground levels, it is possible to increase soil levels as necessary to ensure that the basement does not protrude more than 1000mm above finished ground level. 	Noted

Section C: Fire Resistance			
C1.3:	Buildings of multiple classification	Informational	Noted
C1.4:	Mixed Types of construction	The building is a single type of construction	Noted
C1.5:	Two Storey Class 2, 3 or 9c buildings	N/A – the building is more than 2x storeys and does not have independent egress from each sole occupancy unit to the upper level. Note: The rear Unit 05 does have independent exit stair and it could potentially be possible for the rear portion of the building to be Type C Construction however, it would be necessary for a fire wall to separate the building in accordance with BCA Clause C2.7 to enable Type C rear and Type B Construction (front) portion of building which would create design difficulties. This type of fire wall is an unobstructed vertical wall and would need a fire shutter at basement level. Instead it may be possible for a fire engineered performance solution to be formulated to allow the entire building to be constructed in Type C Construction due to the separation of front and rear portions via the fire doors to the basement carpark as this would enable design flexibility with external walls not requiring a fire resistance level as it is more than 1500mm from the side allotment boundary. To be further assessed at Construction Certificate stage.	N/A
C1.6:	Class 4 Parts of building	N/A	N/A
C1.7:	Open spectator stands and indoor sports stadium	N/A	N/A
C1.8:	Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	CRA – Refer Annexure F
C1.9:	Non-combustible building elements	(a) In a building required to be of Type B construction, 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.	CRA – Refer Annexure F

Section C: Fire Resistance		
	(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 in— (i) a building required to be of Type A construction; and (ii) a building required to be of Type B construction, subject to C2.10, in— (A) a Class 2, 3 or 9 building; and (B) Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (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 material as a whole do not exceed 0 and 3 respectively.	

Section C: Fire Resistance		
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 F
C1.11: Performance of external walls in fire	N/A	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.	Noted
C1.13: Fire-protected timber: Concession	N/A	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—	CRA – Refer Annexure F

Section C: Fire Resistance		
	(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. (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, C2.3 and C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5, an open-deck carpark or an open spectator stand.	Noted
C2.2: General floor area and volume limitations	The size of *fire compartments* in the building do not exceed that specified in Table C2.2. The entire building is considered a single fire compartment for the following reasons:- a. The rear stair to basement level is interconnected to the residential stair and it is a recommendation that the door at the basement level is an FRL --/60/30 fire door for compliance with bounding construction requirements of BCA Clause C3.11 b. Due to the number of storeys the basement level class 7a carpark is granted a concession to have similar FRLs to that of the residential portion ie FRL 90/90/90 and therefore, the FRLs needed for a fire compartment aren't mandatory in accordance with Clause 2.8 of Specification C 1.1 The floor area is as follows:	Complies

Section C: Fire Resistance			
		Ground Floor Front = 320m2 Ground Floor Rear = 485m2 First Floor Front = 320m2 First Floor Rear = 235m2 Basement = 874m2 Total = 2234m2	
C2.3:	Large isolated buildings	N/A	N/A
C2.4:	Requirements for open spaces and vehicular access	N/A	N/A
C2.5:	Class 9a and 9c Buildings	N/A	N/A
C2.6:	Vertical separation of openings in external walls	As the building is Type B Construction there is no spandrel separation	N/A
C2.7:	Separation by fire walls	N/A – fire walls not needed to building	N/A
C2.8:	Separation of classifications in the same storey	There are no different classifications located in same storey.	N/A
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. However, due to the number of storeys being less than four (4) the concession for the carpark FRLs to be consistent with the class 2 part can be utilised in accordance with Clause 2.8 of Specification C1.1.	CRA – Refer Annexure F

Section C: Fire Resistance		
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.	CRA – Refer Annexure F
C2.11: Stairways and lifts in one shaft	N/A	N/A
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 > 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. 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 F
C2.13: Electricity supply system	N/A	N/A
C2.14: Public corridors in Class 2 and 3 Buildings	N/A – corridors are less than 40m.	N/A
Part C3 – Protection of Openings		
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted
C3.1: Application of Part	(a) The Deemed-to-Satisfy Provisions of this Part do not apply to– (i) Control joints, weep holes and the like in external walls of masonry construction and joints between panels in external walls of pre-cast concrete panel construction if, in all cases they are not larger than necessary for the purpose; and (ii) Non-combustible ventilators for subfloor or cavity ventilation, if each does not exceed 45 000 mm2 in face area and is spaced not less than 2 m from any other ventilator in the same wall; and (iii) Openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like; and	Noted

Section C: Fire Resistance			
		(iv) In a carpark– (A) Service penetrations through; and (B) Openings formed by a vehicle ramp in, (aa) A floor other than a floor that separates a part not used as a carpark, providing the connected floors comply as a single fire compartment for the purposes of all other requirements of the Deemed-to-Satisfy Provisions of Sections C, D and E. (b) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings in building elements required to be fire-resisting include doorways, windows (including any associated fanlight), infill panels and fixed or openable glazed areas that do not have the required FRL. (c) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings, other than those covered under (a)(iii), between building elements such as columns, beams and the like, in the plane formed at the construction edge or perimeter of the building, are deemed to be openings in an external wall.	
C3.2:	Protection of openings in external walls	The ensuite and bathroom windows to Units 2, 4, 6 & 7 are located within 3 metres to the western boundary and require protection for a building of Type B Construction. However, it may be possible via a fire engineered performance solution to reduce the Type of Construction via Clause C1.5 due to the first floor level unit at rear having access to its own exit and the front part of building having shared but ability for protected exit. If possible to justify Type C Construction then the boundary setbacks required are 1500mm and the building at it closest is approx. 2500mm and wouldn't require protection.	FI refer to part 3.3 of Report
C3.3:	Separation of external walls and associated openings in different fire compartments	N/A	N/A
C3.4:	Acceptable methods of protection	Subject to whether a fire engineered performance solution is possible via BCA Clause C1.5 it may not be necessary to protect windows located within 3m to the western boundary. To be further assessed with design development Fire doors to basement stairs must comply with BCA Specification C3.4.	CRA – Refer Annexure F
C3.5:	Doorways in fire walls	N/A- It is otherwise recommended to provide fir separating doors to the basement level stairs for the following reasons:-	CRA – Refer Annexure F

Section C: Fire Resistance		
	a. Rear stair – To comply with BCA Clause C3.11 bounding construction requirements as the stair is interconnected to residential levels; and b. Front stair – To assist future fire engineered performance solution for exit path passing within 3 metres of an opening from basement level it is recommended to provided a fire rated door to the base of stair to prevent radiant heat/fire exposure.	
C3.6: Sliding fire doors	N/A	N/A
C3.7: Protection of doorways in horizontal exits	N/A	N/A
C3.8: Openings in fire-isolated exits	There are no fire isolated exits	N/A
C3.9: Service penetrations in fire-isolated exits	N/A	N/A
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 mm2 in area.	CRA – Refer Annexure F
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	As a building of Type B Construction, doorways to sole occupancy units must be protected by self–closing solid core doors. As an added level of redundancy it is recommended to instead provide a fire rated door to fire separate the basement level from the rear stair. Note: a similar fire rated door is also recommended to the front exit stair from the basement to assist BCA Clause D2.12 compliance	CRA – Refer Annexure F
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 F
C3.13: Openings in shafts	N/A – Building is Type B Construction	N/A

Section C: Fire Resistance		
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.	CRA – Refer Annexure F
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 1530.4:2014 to achieve the required *FRL*.	CRA – Refer Annexure F
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 F
Specification C1.1 – 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– (ii) has an *FRL* of not less than 30/–/–; and (iii) 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 F
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 F
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 F
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—	CRA – Refer Annexure F

Section C: Fire Resistance			
		(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.	
2.6:	Mezzanine floors: Concession	N/A	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 F
2.8:	Carparks in Class 2 and 3 Buildings	The building is less than 4x storeys so the basement level carpark is permitted to have the same FRLs as the class 2 part which is 90 minutes. However, due to the carpark also being a “roof as open space” then it still requires FRL 120 minutes. Note: the carpark roof slab is not generally considered “roof as open space” as the external egress path does not travel above the slab except across the driveway entrance where there is a raised planter. In this location. It would be possible to increase re-enforcement cover in this location to achieve FRL 120 minutes if necessary.	CRA – Refer Annexure F
2.9:	Residential Aged Care building: Concession	N/A	N/A
4.0:	Type B fire-resisting construction	Noted	-

Section C: Fire Resistance			
4.1:	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 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. **Note:** This includes *non-combustible* insulation. When an insulation material is not certified as *non-combustible*, this material will need to be the subject of a Fire Engineering Assessment at the CC stage. > The *FRL*s 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*. > It should also be noted that if Dincel material is to be used as an element where the BCA requires such element to be *non-combustible*, this material will need to be the subject of a Fire Engineering Assessment at the CC stage Note: In accordance with Clause C1.5 it is not possible for a reduction in Type of Construction due to the front part of the building having two units relying upon a shared stair. However, due to the rear part of the building having the upper level unit with access to its own exit then there is merit in applying a performance solution that enables a reduction in the type of construction to Type C Construction as this would enable:- a. Fire resistance levels not required due to boundary setback more than 1500mm b. Protection of openings to ensuite and bathroom windows not required due to no FRL being needed.	PS Refer to Part 3.2 of Report

Section C: Fire Resistance			
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) in a building not protected by a sprinkler system complying with Specification E1.5, a maximum smoke development rate of 750 percent-minutes; and (c) 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 F
4.	Wall and ceiling linings	(a) A wall or ceiling lining system must comply with the *group number* specified in Table 3 and for buildings not fitted with a sprinkler system complying with Specification E1.5 have– (i) a *smoke growth rate index* not more than 100; or (ii) an *average specific extinction area* less than 250 m2/kg. (b) A *group number* of a wall or ceiling lining and the *smoke growth rate index* or *average specific extinction area* must be determined in accordance with AS 5637.1:2015.	CRA – Refer Annexure F
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 F
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 5637.1:2015.	CRA – Refer Annexure F
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 F
Specification C3.4 – Fire Doors, Smoke Doors, Fire Window and Shutters			

Section C: Fire Resistance			
1.	Scope	Noted	-
2.	Fire doors	Fire doorsets must comply with AS 1905.1:2015 and not fail by radiation through any glazed part during the period specified for integrity in the required *FRL*.	CRA – Refer Annexure F
3.	Smoke doors	N/A	N/A
4.	Fire shutters	N/A	N/A
5.	Fire windows	N/A	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 a *sole-occupancy unit* in a Class 2 or 3 building or a Class 4 part of a building.	Noted
D1.2:	Number of exits required	The basement has two exits as required.	Complies
D1.3:	When fire-isolated stairways and ramps are required	<u>Basement</u> -The rear stair is a rising non-fire isolated stair. The descending stair from residential levels above is connected to the rising stair and together total three (3) storeys and are permitted to be non-fire isolated stairs. The front stairs are separate non-fire isolated stairs.	N/A

Section D: Access and Egress			
D1.4:	Exit travel distances	Basement The exit travel distance is less than 20m to a point of choice and then not more than 40m to an exit as required. Ground Floor Exit travel distance from ground floor units leads to the external walkway as required. First Floor Exit travel distance from the rear block Unit 07 to the top riser of the non-fire isolated stair exceeds 6 metres (9.34m) and will be required to be addressed within a performance solution report.	PS Refer to Part 3.2 of Report
D1.5:	Distance between alternative exits	Distance between alternative exits is less than 60 metres apart. The external egress path from the rear basement exit passes by the front exit stair however, as the exits (ie open space) have already been reached it is not considered to be a non-compliance.	Complies
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 F
D1.7:	Travel via fire-isolated exits	There are no fire isolated stairs	N/A
D1.8:	External stairways or ramps in lieu of fire-isolated exits	N/A	N/A

Section D: Access and Egress		
D1.9: Travel by non-fire-isolated stairways or ramps	All stairs are non-fire isolated stairs and they all discharge externally as required	Complies
D1.10: Discharge from exits	> Exits are not able to be blocked at the point of discharge as required. > The path of travel to the road has an unobstructed width of not less than 1m. min width as required. > If an exit discharges to open space that is at a different level that the public road to which it is connected, the path of travel to the road must be by a ramp or other incline not steeper than 1:8, or a BCA compliant stairway. The discharge points of alternative exits are as far apart as practical. The current basement carpark stairs discharge separately as required.	Complies
D1.11: Horizontal exits	N/A	N/A
D1.12: Non-required stairways, ramps or escalators	N/A	N/A
D1.13: Number of persons accommodated	It is estimated to be not more than 5 persons per dwelling. And not more than 20 persons to basement level.	Noted
D1.14: Measurement of distances	Informational – The nearest part of an *exit* means in the case of— (a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access to them; and (b) a non-fire-isolated stairway, the nearest part of the nearest riser; and (c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and (d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a *horizontal exit*, the nearest part of the doorway.	Noted
D1.15: Method of Measurement	Informational	Noted

Section D: Access and Egress		
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	N/A	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 F
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), D2.18 & D2.24, the deemed-to-satisfy Provisions of this Part do not apply to internal parts of the Class 2 *sole-occupancy units.*	Noted
D2.2: Fire-isolated stairways and ramps	N/A	N/A
D2.3: Non-fire-isolated stairways and ramps	Buildings more than 2 storeys Required stairs and ramps (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— (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".	CRA – Refer Annexure F
D2.4: Separation of rising and descending stair flights	N/A – does not apply to non-fire isolated stairs	N/A

Section D: Access and Egress		
D2.5: Open access ramps and balconies	Smoke hazard management does not apply to the open balconies. Design to be assessed by electrical consultant at CC stage.	CRA – Refer Annexure F
D2.6: Smoke lobbies	N/A	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: o a lighting, detection, or pressurization system serving the *exit*; or o a security, surveillance or management system serving the *exit*; or o an intercommunication system or an audible or visual alarm system in accordance with D2.22; or o the monitoring of hydrant or sprinkler isolating valves.	CRA – Refer Annexure F
D2.8: Enclosure of space under stairs and ramps	N/A – there is no storage	N/A
D2.9: Width of stairways and ramps	Informational– A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.	Noted
D2.10: Pedestrian ramps	Majority of walkways are not more than 1:20 The design of all external walkways and ramps to be considered by the access consultant as they form accessways to/from the building and would need to meet the requirements of Clause D3.1, D3.2 and D3.3 of BCA2019	CRA – Refer Annexure F
D2.11: Fire-isolated passageways	There are no fire isolated passageways	N/A

Section D: Access and Egress		
D2.12: Roof as open space	The carpark slab roof does not form part of the path of travel from the rear exit stair until such time as the path of travel passes the front stair and the driveway opening courtyard and therefore, will require the roofslab in the vicinity of the planter to be FRL120/120/120. Where the path of travel passes within 3 metres of the front exit stair from basement level and to the side of the carpark opening this is a technical non-compliance that would require a fire engineered performance solution at Construction Certificate stage. To assist it is recommended that a self closing fire door is provided at basement level to afford occupants radiant heat protection. It is also recommended to provide at least a 1000mm height solid barrier in these locations.	FI Refer to Part 3.3 of Report
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; > Goings must be between 250 mm and 355 mm in other areas; > Risers must be between 115 mm high and 190 mm high; > The slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; > The goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm. > Risers must not contain any openings that would permit a 125 mm sphere to pass through. > Each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosings; > Treads must be of solid construction (not mesh or perforated) if the stairway is more than 10 m high or connects more than 3 storeys. > In the case of a required stairway, no winders in lieu of a landing > Treads must have a surface or nosing strip with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 4586-2013 Slip resistance classification of new pedestrian surface materials.	CRA – Refer Annexure F

<table>
<tr><th colspan="3">Section D: Access and Egress</th></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 4586:2013.
<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 F</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 1428.1:2009; 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 F</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 F</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. Balustrade openings – fire-isolated stairs > maximum openings of 300 mm; or > where rails are used– o 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 o the opening between rails must not be more than 460 mm Balustrade openings – other than fire-isolated stairs > 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. Climbability – other than fire-isolated stairs 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 > located along each side if the total width of the stairway or ramp is 2m or more; and > be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and > be continuous between stair flight landings and have no obstruction that will break a hand-hold. > be constructed to comply with clause 12 of AS 1428.1:2009 (including handrails to the fire stairs). > Handrails in common areas (other than fire stairs) must also accord with D3.3. Clause 12 of AS 1428.1:2009 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 AS 1428.1:2009.	CRA – Refer Annexure F

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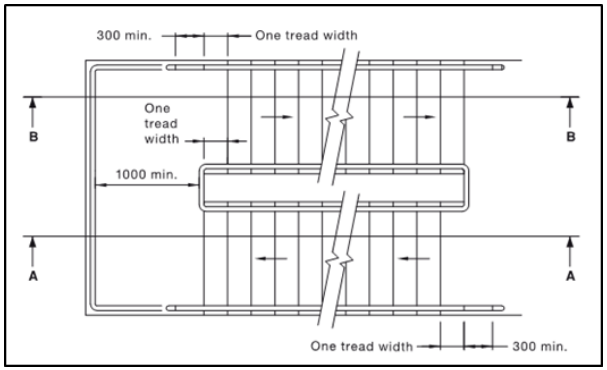
	The handrail shall follow the angle of the nosings and be consistent height through the stair flight and any landings with no vertical sections at the landing. Compliance can be achieved via offset risers at the bottom of the flight in accordance with Figure 28 in AS 1428.1:2009 or with larger landings to accommodate required handrail extensions.  Figure 28 in AS 1428.1:2009 **Note: The handrail to the main residential non-fire isolated stair currently extends up continually around stair flights and landings and to the top landing. The issue with this design is that the handrail is to be in the range 865-1000mm throughout stair flights but more than 1000mm where landings are more than 500mm length. And at the top landing the handrail needs to comply with Clause 11 of AS1428.1-2009 and have a 300mm horizontal extension at 865-1000mm rather than transitioning up to 1000mm+ balustrade height. Therefore, with design development it is recommended that the handrail is provided separate to the balustrade at the landings otherwise a non-compliance with occur.**	
D2.18: Fixed platforms, walkways stairways and ladders	N/A	N/A
D2.19: Doorways and doors	> *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 F

Section D: Access and Egress		
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 m2, it is the only required *exit* from the building or part and it is fitted with a device for holding it in the open position; or > it serves a sanitary compartment or airlock (in which case it may swing in either direction).	CRA – Refer Annexure F
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.	CRA – Refer Annexure F

Section D: Access and Egress		
	The above requirements do not apply to a door that – (i) serves only or is within a *sole-occupancy unit* in a Class 2 building; or (ii) serves a *sole-occupancy unit* in a Class 5, 6, 7 or 8 building with a floor area not more than 200m2; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building and is readily openable when unlocked.	
D2.22: Re-entry from fire-isolated exits	N/A	N/A
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 F
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.	CRA – Refer Annexure F

Section D: Access and Egress		
	(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). (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	N/A
Part D3 – Access for People with A Disability		
D3.0: Deemed-to-Satisfy Provisions	Access to be addressed by separate access consultant. The stairs are all non-fire isolated stairs and will need to comply with BCA Clause D3.3 requirements.	Noted

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 500m2 (2234m2), a fire hydrant system complying with AS 2419.1:2005 must be provided to serve the building.	CRA – Refer Annexure F

Section E: Services and Equipment			
		As a battleaxe allotment it may be problematic to obtain a fully compliant design with respect to hydrant booster location and attack hydrants not less than 10 metres from the building due to the need to situate fire hydrants nearby the rear part of the building to obtain fire hydrant coverage. Details to be firmed up at Construction Certificate stage.	
E1.4:	Fire hose reels	A fire hose reel system is not required to Class 2 parts of the building. As the carpark is more than 500m2 (874m2) a fire hose reel system is required.	CRA – Refer Annexure F
E1.5:	Sprinklers	The building has a rise in storeys of two (2) so is not required to be sprinkler protected in accordance with this clause. The development is a SEPP seniors development but based upon information supplied it is not considered to meet the definition of a "residential aged care building" as the units are independent living units and 10% or more of residents aren't considered to need physical assistance in conducting daily activities or to evacuate the building.	N/A
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 Class 2 parts, portable fire extinguishers must be– (i) an ABE type fire extinguisher; and (ii) a minimum size of 2.5 kg; and (iii) distributed outside a *sole-occupancy unit*— (A) to serve only the storey at which they are located; and (B) so that the travel distance from the entrance doorway of any *sole-occupancy unit* to the nearest fire extinguisher is not more than 10 m.	CRA – Refer Annexure F
E1.8:	Fire control centres	N/A	N/A
E1.9:	Fire precautions during construction	Informational– > 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	Noted

Section E: Services and Equipment			
		> 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.	
E1.10:	Provision for special hazards	N/A	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)	**Class 2 parts** Class 2 parts must be provided with an automatic smoke detection and alarm system complying with BCA Specification E2.2a. Note: Smoke alarms in sole occupancy units are now required to be interconnected. **Class 7a buildings** A Class 7a building including a basement provided with a mechanical ventilation system in accordance with AS 1668.2:2012 must comply with clause 5.5 of AS 1668.1:2015 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.	CRA – Refer Annexure F
E2.3:	Provisions for special hazards	N/A	N/A
Specification E2.2a – Smoke Detection and Alarm System			
1.	Scope	Noted	Noted
2.	Type of system	A Clause 3 smoke alarm is the minimum system required	Noted

Section E: Services and Equipment			
3.	Smoke alarm system	AS3786 smoke alarms to be provided to each sole occupancy unit. Within common areas an interlinked smoke alarm system is required. This should be extended into the carpark to activate the operation of the carpark ventilation system as per Clause 5.5 of AS1668.1	CRA – Refer Annexure F
4.	Smoke detection system	A smoke detection system is not formally required if a Clause 3 system is installed. However, if a panel based system is preferred a Combined Clause 3 &4 system could be used as per Clause 5 below	N/A
5.	Combined smoke alarm and smoke detection system	A combined system is possible but not required where a Clause 3 system is installed. Where panel based system is proposed a combined system in accordance with this clause could be used whereby smoke detectors are installed to common area and a Building Occupant Warning System as per Clause 7.	Noted
6.	Smoke detection for smoke control system	N/A	N/A
7.	Building occupant warning system	The inbuilt sounders to the smoke alarms may be relied upon as the BOWS subject to 85dBa at the doorways	CRA – Refer Annexure F
8.	System Monitoring	System monitoring is not required	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 F
E3.2:	Stretcher facility in lifts	The building has an effective height of less than 12m and does not require a stretcher facility	N/A
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 F

Section E: Services and Equipment			
E3.4:	Emergency lifts	N/A	N/A
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 F
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. The lift car sizes need to be at least 1100x1400mm lift car.	CRA – Refer Annexure F
E3.7:	Fire service controls	The building has an effective height of less than 12m and does not require fire service controls	N/A
E3.8:	Aged care buildings	N/A	N/A
E3.9:	Fire service recall switch	N/A	N/A
E3.10:	Lift car service drive control switch	N/A	N/A
Specification E3.1 – Lift Installations			
1.	Scope	Noted	-
2.	Lift cars exposed	The lift car is not exposed	N/A
3.	Lift car emergency lighting	Emergency lighting required to lift	CRA – Refer Annexure F
4.	Cooling of lift shaft	N/A	N/A
5.	Lift foyer access	The lift foyer is not secure and egress is possible at all times	Complies

Section E: Services and Equipment			
6.	Emergency access doors in a single enclosed lift shaft	The lift shaft is not a size that requires emergency access	N/A
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/NZS 2293.1:2018.	CRA – Refer Annexure F
E4.3:	Measurement of distance	Informational	Noted
E4.4:	Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1:2018.	CRA – Refer Annexure F
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 F
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 F
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Non-illuminated exit signs may be used to residential areas	Noted
E4.8:	Design and operation of exit signs	*Exit* signs must comply with AS/NZS 2293.1:2018 and be clearly visible at all times when the building is occupied.	CRA – Refer Annexure F
E4.9:	Emergency warning and intercom systems	N/A	N/A

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.	PS Refer to Part 3.2 of Report
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS/NZS 3500.3:2003.	CRA – Refer Annexure F
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS 4654 Parts 1 and 2:2012.	CRA – Refer Annexure F
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	CRA – Refer Annexure F
F1.6:	Sarking	*Sarking-type materials* used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2:1994.	CRA – Refer Annexure F
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 F
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 F
F1.10:	Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870:2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions).	CRA – Refer Annexure F
F1.11:	Provision of floor wastes	In Class 2 or 3 buildings or Class 4 part of a building, a bathroom or laundry is to have a floor waste where the floor is graded to the floor waste to permit the drainage of water.	CRA – Refer Annexure F
F1.12:	Sub-floor ventilation	N/A	N/A

Section F: Health and Amenity			
F1.13:	Glazed Assemblies	Glazed assemblies are to comply with AS 2047:2014 and AS 1288:2006.	CRA – Refer Annexure F
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 F
F2.2:	Calculation of number of occupants and facilities	Informational – (a) The number of persons accommodated must be calculated according to D1.13 if it cannot be more accurately determined by other means (b) Unless the premises are used predominantly by one sex, sanitary facilities must be provided on the basis of equal numbers of males and females (c) In calculating the number of sanitary facilities to be provided under F2.1 and F2.3, a unisex facility required for people with a disability may be counted once for each sex (d) For the purpose of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary towels	CRA – Refer Annexure F
F2.3:	Facilities in Class 3 to 9 buildings (including Table F2.3)	No facilities for staff required	N/A
F2.4:	Accessible sanitary facilities (including Table F2.4)	N/A	N.A
F2.5:	Construction of sanitary compartments	The door to a fully enclosed sanitary compartment must— (i) open outwards; or	CRA – Refer Annexure F

Section F: Health and Amenity			
		(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.	
F2.6:	Interpretation: urinals and washbasins	Informational– (a) A urinal may be— (i) an individual stall or wall-hung urinal; or (ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— (i) an individual basin; or (ii) a part of a hand washing trough served by a single water tap.	Noted
F2.8:	Waste Management	N/A	N/A
F2.9:	Accessible adult change facilities	N/A	N/A
Part F3 – Room Sizes			
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F3.1:	Height of rooms and other spaces	(a) The height of rooms and other spaces must be not less than— (b) in a Class 2 part of a 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; and (iv) in a room or space with a sloping ceiling or projections below the ceiling line	CRA – Refer Annexure F

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	(v) within— (A) a habitable room— (aa) in an attic — a height of not less than 2.2 m for not less than two thirds of the floor area of the room or space; and (bb) in other rooms — a height of not less than 2.4 m for not less than two thirds of the floor area of the room or space; and (B) a non-habitable room — a height of not less than 2.1 m for not less than two thirds of the floor area of the room or space; and (aa) when calculating the floor area of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and (vi) the number of persons accommodated must be calculated according to D1.13. The ceiling heights throughout is unknown without detailed sections but is likely to comply given the height requirements of SEPP65/apartment design guide.	
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 habitable rooms.	Complies
F4.2: Methods and extent of natural lighting	(a) Natural light must be provided by: (i) Windows: (A) with an aggregate light transmitting area of not less than 10% the floor area of the room; and (B) that are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (ii) Rooflights, that: (A) have an aggregate light transmitting area of not less than 3% the floor area of the room; or (iii) a proportional combination of windows and roof lights required by (i) and (ii).	CRA – Refer Annexure F

Section F: Health and Amenity			
F4.3:	Natural light borrowed from adjoining room	N/A	N/A
F4.4:	Artificial Lighting	Lighting to all areas is to comply with AS/NZS 1680.0:2009.	CRA – Refer Annexure F
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 F
F4.6:	Natural ventilation	(a) 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 F
F4.7:	Ventilation borrowed from adjoining room	N/A	N/A
F4.8:	Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a kitchen or pantry	Complies
F4.9:	Airlocks	No airlock required	N/A
F4.11:	Carparks	Every storey of a carpark (except an open deck carpark) must have: > a system of mechanical ventilation complying with AS 1668.2:2012; or > a system of natural ventilation complying with Section 4 of AS 1668.4:2012.	CRA – Refer Annexure F

Section F: Health and Amenity			
F4.12:	Kitchen local exhaust ventilation	N/A	N/A
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 Class 2 and 3 buildings and Class 9c buildings.	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 (R_w) or weighted sound reduction index with spectrum adaptation term (R_w + Ctr) determined in accordance with AS/NZS ISO 717.1 using results from laboratory measurements; or (b) comply with Specification F5.2.	CRA – Refer Annexure F
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 ($L_{n,w}$ + 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 F
F5.4:	Sound insulation rating of floors	A floor in a Class 2 building must achieve an $R_w + C_{tr}$ (airborne) not less than 50, and an $L_{n,w}+C_I$ (impact) not more than 62, if separating: > SOU's; or	CRA – Refer Annexure F

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) A wall in a Class 2 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. (b) 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. (c) 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. (d) Doorways in walls separating the Class 2 *sole-occupancy units* from a stairway, public corridor, public lobby or the like must be provided with a door assembly that has an R_w not less than 30.	CRA – Refer Annexure F
F5.6:	Sound insulation rating of services	If a soil or waste pipe passes through more than one unit the pipe must be separated from the rooms with construction that has a Rw + Ctr (airborne) not less than 40 if adjacent to a habitable room (other than a kitchen), or 25 if adjacent to a kitchen or other room.	CRA – Refer Annexure F
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 F
Specification F5.2 – Sound Insulation for Building Elements			
1.	Scope	Noted	-

Section F: Health and Amenity			
2.	Construction Deemed-to-Satisfy	Information only	Noted
Specification F5.5 – Impact Sound – Test of Equivalence			
1.	Scope	Noted	-
2.	Construction to be Tested	Information only	Noted
3.	Method	Information only	Noted
Part F6 – Condensation Management			
F6.0:	Deemed-to-satisfy provisions	Informational	Noted
F6.1:	Application of Part	Informational	Noted
F6.2	Pliable building membrane	Where a pliable building membrane is installed in an external wall it shall comply with AS/NZS 4200.1:2017 and installed in accordance with AS 4200.2:2017. Note: There are constructability issues with unique wall systems such as Rediwall, Logicwall, Dincel & Ritek to have a pliable building membrane installed internal to a cavity. So where a pliable building membrane is not proposed then a drained cavity is required behind the primary water control layer. For unique wall systems then a drained cavity will subsequently result in likely failure of the weatherproofing requirements under FP1.4 and FV1.1.	CRA – Refer Annexure F
F6.3:	Flow rate and discharge of exhaust systems	(a) 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—	CRA – Refer Annexure F

Section F: Health and Amenity		
	(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	
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 F

Section G: Ancillary Provisions		
Part G1 – Minor Structures and Components		
G1.0: Deemed-to-Satisfy Provisions	Informational	Noted
G1.1: Swimming pools	N/A	N/A
G1.2: Refrigerated chambers, strong-rooms and vaults	N/A	N/A
G1.3: Outdoor play spaces	N/A	CRA – Refer Annexure F
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.	N/A
Part G2 – Boilers, Pressure Vessels, Heating Appliances, Fireplaces, Chimneys and Flues		
G2.0: Deemed-to-Satisfy Provisions	Noted	-
Part G3 – Atrium Construction		

Section G: Ancillary Provisions		
G3.1: Atriums Affected by the Part	N/A	N/A
Part G4 – Construction in Alpine Areas		
G4.0: Deemed-to-Satisfy Provisions	N/A	N/A
Part G5 – Construction in Bushfire Prone Areas		
G5.0: Deemed-to-Satisfy Provisions	If building is within a bushfire prone area then compliance with AS3959 required relevant to the BAL level	CRA – Refer Annexure F
Part G6 – Occupiable Outdoor Areas		
G6.1: Application of part	N/A	N/A

Section H: Special Use Buildings		
Part H1 – Class 9b Buildings		
NSW H1.1: Application of Part	N/A	N/A

Section I: Maintenance
Part I1 – Equipment and Safety Installations
This Part has been deleted in BCA2019.

Section J: Energy Efficiency (Class 3, 5, 6, 7b, 8, 9)		
Part J0 – Energy Efficiency		
J0.1: Application of Section J	This is a specialist are that needs to be assessed by energy consultant	Noted

ANNEXURE E DEFINITIONS

Annexure E - 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.

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

Fire compartment

Fire compartment means –

(a) the total space of a building; or

(b) when referred to in—

(i) the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

(ii) the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

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

(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

(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

Fire wall

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

Non-combustible

Non-combustible means—

(a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and

(b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Performance Solution

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

Sole-occupancy unit

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

(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.

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – 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. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
2. Building elements must be non-combustible in accordance with C1.9.
3. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
4. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
5. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
6. The electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
7. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
8. 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.
9. 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.
10. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C3.10 of BCA2019.
11. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.
12. 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.
13. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non-loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.
14. 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.
15. 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.
16. Fire doors will comply with AS1905.1 and Specification C3.4 of BCA2019.

17. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
18. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.

    Note: this includes a handrail to the side of the internal driveway ramps for pedestrian egress purposes.
19. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
20. 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.
21. 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.
22. 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.
23. FRL --/60/30 Fire doors will be provided to the basement exit stairs to afford occupants enhanced protection in accordance with BCA Clause C3.11 and D2.12
24. 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.
25. 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.
26. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
27. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
28. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 of BCA2019.
29. Signage will be provided on fire doors in accordance with Clause D2.23 of BCA2019.
30. The openable portion of a window in a bedroom of a Class 2 building must be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of 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 must be installed to the openable window.
31. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
32. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of BCA2019.
33. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2.
34. The new roof covering will be in accordance with Clause F1.5 of BCA2019.

35. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
36. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS3740.
37. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
38. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
39. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS1288 / AS2047.
40. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
41. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
42. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
43. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
44. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
45. 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.
46. 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.
47. 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.
48. 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.
49. 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.
50. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
51. Glazing will be in accordance with Part J1 of BCA2019.
52. Building sealing will be in accordance with Part J3 of BCA2019.
53. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

54. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
55. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS2293.1.
56. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS2293.1.
57. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0.
58. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.

Hydraulic Services Design Certification:

59. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and ASNZS3500.3
60. Where required onsite, Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS2419.1 as required.
61. Fire hose reel system will be installed to basement carpark in accordance with Clause E1.4 of BCA2019 and AS2441-2005 as required.
62. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS2444.
63. 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:

64. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS1668.2.
65. 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.
66. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.
67. Where exhaust discharges directly or via shaft into a roof space of a Class 2 sole-occupancy unit, ventilation of the roof space will comply with Clause F6.4 of BCA2019.
68. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019.

Structural Engineers Design Certification:

69. 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 – AS/NZS 1170.1:2002
    - Wind Loads – AS/NZS 1170.2:2011
    - Earthquake actions – AS 1170.4:2007
    - Masonry – AS 3700:2018
    - Concrete Construction – AS 3600:2018
    - Steel Construction AS 4100:1998
    - Aluminium Construction – AS/NZS 1664.1 or 2:1997
    - Timber Construction – AS 1720.1:2010
70. The FRL's of the structural elements for the proposed works have been designed in accordance with Table 4 of Specification C1.1 of BCA2019 for a building of Type B Construction.
71. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.
72. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
73. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

74. 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:

75. 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 1100mm wide x 1400mm width.
76. 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.
77. 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.
78. The lifts will comply with AS1735.12 in accordance with Clause E3.6 of BCA2019.
79. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

Acoustic Services Design Certification:

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