BCA Assessment Report

1 Alexander & 4 Collaroy Street, Collaroy

Project:	1 Alexander & 4 Collaroy Street, Collaroy
Reference No:	112605-BCA-r1
Date:	29 October 2020
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Document Control

Revision	Date	Description	
112605-BCA-r1	29 October 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 Mixed Use Development with Basement Carparking at 1 Alexander & 4 Collaroy Street, Collaroy, 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.	Reduce the Class 6 FRL's on the ground floor down to 120 minutes, similar to the FRL's for a Class 7a part	Clause C1.1, C2.7
2.	Reduce the Class 7b storage FRL's down to 120 minutes, similar to the FRL's for a Class 7a part.	Clause C1.1, C2.7
3.	To permit the use of Tyco Sprinklers over glazed internal lobby walls/doors in lieu of FRL of 120/120/120. To permit external sprinklers in the retail forecourt and Resi entry in lieu of fire rated walls to the construction edge (southern elevation of Stairs 3 & 4)	Clause C2.7 & C3.5
4.	To permit the large raked roof light in Unit 33 to be located within 3m of the roofed BBQ area. To permit the skylight in Unit 29 to be located within 3m of outdoor common area terrace wall/barrier.	Clause 3.6 of Specification C1.1
5.	To permit the two (2) northern non-fire-isolated stairs (1 & 2) to connect five (5) storeys in lieu of the required four (4) storeys.	Clause D1.3
6.	To permit extended travel distances (55m in lieu of 40m) throughout the ground floor level car park.	Clause D1.4
7.	To permit the alternate exits that discharge to Alexander and Collaroy Street to be located approximately 67m apart in lieu of the required 60m.	Clause D1.5
8.	<u>Non-fire-isolated stairs 1 & 2:</u> To allow the total travel distance from the top floor units to be greater than 60m to both alternate exits (Collaroy Street and Service Lane exits) To permit the internal non-fire-isolated stairs to be located within 15m of each other (smoke separation strategy to be designed at solution stage)	Clause D1.9
9.	Remove the fire hose reels from the Class 6 and 9b parts and rely upon portable Class ABE fire extinguishers	Clause E1.4

Item	Description	BCA Provision
10.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only
Building Code of Australia Compliance Matters to be Addressed		
1.	The building design involves direct connection between the basement, ground floor and upper residential levels by virtue of the internal non-fire-isolated stairs. Therefore, to avoid the building being assessed as a large isolated building, all non-fire-stairs must be separated at the ground floor level by construction achieving an FRL of 120/120/120 Note: Where the stairs utilise glazed panels and/or doors, then a Fire Engineered performance solution will be required to allow Tyco Sprinklers to be installed on both sides of the glazing in lieu of the required 120/120/120 FRL. Furthermore, it is recommended that discussions are held with a Fire Engineer to seek an additional solution to allow the fire rated walls to fall short of the construction edge on the southern elevations of Stair 3 & 4, subject to external sprinklers being installed adjacent to the entry doors in the forecourt and Resi entries.	Clause C2.2
2.	The ground floor level carpark has parts which are greater than 20m from a point of choice in which travel in different directions to two alternative exits is available, in which case the travel distance also exceeds the required 40m. The current travel distances involve a distance of 32m to a point of choice and a further 26m to an exit (total distance 58m). An egress path and door are required adjacent to the Bulky good store, as well as a fire engineered solution to permit extended travel distances (greater than 40m).	Clause D1.4
3.	The final exit door at the base of Stair 4 must be modified to swing in the direction of egress (outwards).	Clause D2.20
4.	<u>Internal Hydrant coverage</u> *Basement Carpark* The basement carpark fire-isolated stairs do not have internal hydrants proposed inside the stairs. Amended plans are required to show internal hydrant in all fire stairs. Note: Coverage is achieved by all parts of the carpark being within 40m of the hydrant (30m of hose with a 10m spray). *Ground floor level carpark and retail tenancies* The ground floor level has internal hydrants located within 4m of the non-fire-isolated stairs, however coverage is not achieved throughout the carpark and retail areas. An additional external attack hydrant must be installed on Collaroy Street (adjacent to the residential waste room) as well as an attack hydrant fitted into the booster assembly on Alexander Street.	Clause E1.3

Item	Description	BCA Provision
5.	To achieve system coverage throughout the ground floor car park, an additional fire hose reel is required near the residential waste room as well as an attack hydrant fitted into the booster assembly on Alexander Street.	Clause E1.4
Further Information Required		
1.	Further information will be required during design development to ensure all external walls, flooring of lift pits and non-load bearing internal walls required to be fire-resisting are non-combustible construction in accordance with C1.9	Clause C1.9
2.	The building has multiple window openings that are located within 3m of a fire source feature, however the openings do not have suitable protection in accordance with C3.4. The following openings require further design development. - The sliding doors that open onto the northern terraces (all levels) - The north-western window openings (adjacent to Collaroy Street – all levels) - The bedroom windows in units 2,16 & 30 that face south	Clause C3.2 & C3.4
3.	The building has multiple exits which have flood gates that are likely to block or impinge the use of the exits. Further details are required to confirm the operation of the flood gates to make a detailed assessment.	Clause D1.10
4.	The external balconies, terraces and common areas will require a waterproofing membrane in accordance with AS 4654.1 & .2. Further information will be required during design development to ensure there is a step down or grated drain installed at the door thresholds which leads onto the external above ground membrane.	Clause F1.4
5.	Clause F2.3 requires separate male and female facilities, except where the facilities are built as accessible sanitary compartments or are intended to be used by staff members only (no more than 10 staff members). Further information is required regarding the use of the unisex sanitary compartments located adjacent to retail 03 and the surfboard room. If these toilets are for common use by the public, or for staff members greater than 10, then these facilities will need to be removed (subject to complaint sanitary facility numbers being provided) or replaced with accessible sanitary compartments. Note: Where sanitary compartments are provided, at least one male and female ambulant facility must be provided at each bank of toilets.	Clause F2.3

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 1 Alexander & 4 Collaroy Street, Collaroy. The development comprises five storey mixed use development which has a common roof top area, three (3) levels of residential units, one (1) level of commercial / parking and another level of basement car parking. The building has two principle pedestrian entrances, one via Collaroy street and another via Alexander Street. Access into the basement car park is via the Collaroy vehicular entrance.

Photo sourced from Google maps

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4. Limitations

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

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

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

(c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the National Construction Code – Plumbing Code of Australia Volume 3

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to)

(c) The deemed to satisfy provision 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 five (5)

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
2	Ground floor – 04	Residential units and common areas, including the stair lobby on the ground floor
6	Ground floor	Retail and café areas
7a	Ground floor – Basement 01	Ground floor and basement car parking
7b	Ground floor – Basement 01	Storage areas and waste rooms
9b	Ground floor	Community room / gym

2.3. Effective Height (Clause A1.0)

The building has an *effective height* of 12.83m.

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

The building is required to be of Type A Construction.

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

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

Class 9b	Maximum Floor Area	8 000m^2
	Maximum Volume	48 000m^3
Class 6, 7b	Maximum Floor Area	5 000m^2
	Maximum Volume	30 000m^3
Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area.	
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.	

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) The combined basement and ground floor level*

(b) The Level 01 – 04 residential levels

* Subject to fire separation being undertaken at the ground floor level around the non-fire-isolated stairs.

2.7. Exits

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

(a) The point of open space past the pedestrian entrance doors from Alexander Street (adjacent to retail 02)

(b) The point of open space at the bottom of the non-fire-isolated stair that provide egress from the surf showers (service Lane)

(c) The point of open space past the pedestrian entrance doors from Collaroy Street (adjacent to the Café)

(d) The final exit door in the residential waste bin storage room (ground floor carpark area)

(e) The three fire-isolated stairs in the basement carpark

(f) The four non-fire-isolated stairs that provide access to the residential unit levels and roof top

(g) The Residential entry door into Stair 3 & 4

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 5

2.9. Location of Fire-source features

The fire source features for the subject development are:

North: The far boundary of Collaroy Street and the common boundary of 1 Alexander Street (existing substation) and 1119 Pittwater road

South: The far boundary of Alexander Street

East: The far boundary of Service Lane and the common boundary of 1 Collaroy Street (Existing substation)

West: The common boundary of 7 Alexander Street and 36 Collaroy Street

3 MATTERS FOR FURTHER CONSIDERATION

3.1. General

Assessment of the Architectural design documentation against the Deemed-to Satisfy Provisions of the Building Code of Australia, 2019 (BCA) has revealed the following areas where compliance with the BCA may require further consideration and/or may involve assessment as Performance Based (Fire Engineered) *Performance Solutions*. Any *Performance Solutions* will be required to clearly indicate methodologies for achieving compliance with the relevant *Performance Requirements*.

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

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

3.2. Dimensions and Tolerances

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

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

3.3. Performance Based Design – Performance Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters will need to be address in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover:

Table 2. Performance Solutions

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
1.	The construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions	FP1.4
2.	Reduce the Class 6 FRL's on the ground floor down to 120 minutes, similar to the FRL's for a Class 7a part	Clause C1.1, C2.7	To be confirmed at Solution stage
3.	Reduce the Class 7b storage FRL's down to 120 minutes, similar to the FRL's for a Class 7a part.	Clause C1.1, C2.7	To be confirmed at Solution stage
4.	To permit the use of Tyco Sprinklers over glazed internal lobby walls/doors in lieu of FRL of 120/120/120. To permit external sprinklers in the retail forecourt and Resi entry in lieu of fire rated	Clause C2.7 & C3.5	To be confirmed at Solution Stage

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
	walls to the construction edge (southern elevation of Stairs 3 & 4)		
5.	To permit the large raked roof light in Unit 33 to be located within 3m of the roofed BBQ area. To permit the skylight in Unit 29 to be located within 3m of outdoor common area terrace wall/barrier.	Clause 3.6 of Specification C1.1	To be confirmed at Solution stage
6.	To permit the two (2) northern non-fire-isolated stairs (1 & 2) to connect five (5) storeys in lieu of the required four (4) storeys.	Clause D1.3	To be confirmed at Solution stage
7.	To permit extended travel distances throughout the ground floor level car park	Clause D1.4	To be confirmed at Solution stage
8.	To permit the alternate exits that discharge to Alexander and Collaroy Street to be located approximately 67m apart in lieu of the required 60m.	Clause D1.5	To be confirmed at Solution stage
9.	Non-fire-isolated stairs 1 & 2: To allow the total travel distance from the top floor units to be greater than 60m to both alternate exits (Collaroy Street and Service Lane exits) To permit the internal non-fire-isolated stairs to be located within 15m of each other (smoke separation strategy to be designed at solution stage)	Clause D1.9	To be confirmed at Solution stage
10.	Remove the fire hose reels from the Class 6 and 9b parts and rely upon portable Class ABE fire extinguishers	Clause E1.4	To be confirmed at Solution stage

3.4. Façade Construction – Non-Combustible

As the building is required to be of Type A Construction, the external façade is required to be *non-combustible* and comply with Clause C1.9 of BCA2019 which states as follows:

(a) In a building required to be of Type A 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.

(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

(c) A l*oadbearing* 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.

Currently the external façade construction has been nominated on the plans as follows:

- Northern elevation – No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- Southern elevation – No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- Eastern elevation – No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- Western elevation – No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.

It is also noted that this clause also prohibits the use of in situ formwork containing combustible elements including PVC lined formwork products where the PVC lining remains in place for the life of the building where proposed to be used as an external wall element, common walls, the flooring and floor framing of lift pits, services riser shafts or non-*loadbearing* internal walls required to be fire resisting.

Note that perimeter walls of basement (below ground) floor levels are also deemed to be external walls.

3.5. Clause C2.2 – General floor area and volume limitations

The building design involves direct connection between the basement, ground floor and upper residential level by virtue of the internal non-fire-isolated stairs. Therefore, to avoid the building being assessed as a large isolated building, all non-fire-stairs must be separated at the ground floor level by construction achieving an FRL of 120/120/120 (shown purple).

Where the stairs utilise glazed panels and/or doors, then a Fire Engineered performance solution will be required to allow Tyco Sprinklers to be installed on both sides of the glazing in lieu of the required 120/120/120 FRL.

Furthermore, it is recommended that discussions are held with a Fire Engineer to seek an additional solution to allow the fire rated walls to fall short of the construction edge on the southern elevations of Stair 3 & 4, subject to external sprinklers being installed adjacent to the entry doors in the forecourt and Resi entries.

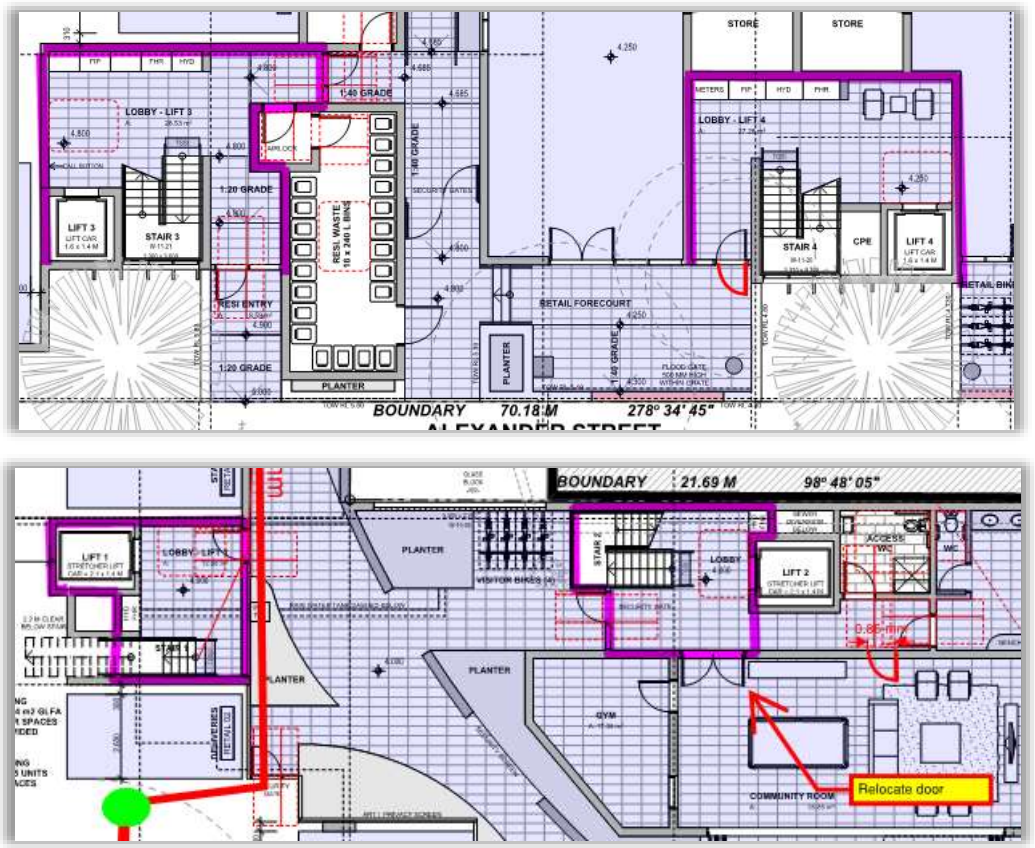

Figure 1 – Proposed compartmentation on the ground floor (FRL 120/120/120)

3.6. Clause 3.2 – Protection of openings in external walls and Clause C3.4 – Acceptable methods of protection

The building has multiple window openings that are located within 3m of a fire source feature, however the openings do not have suitable protection in accordance with C3.4.

The sliding door openings that open onto the terrace areas of the northern building (all levels) will require protection by an FRL 30/-/- blade wall (shown green) to avoid the installation of external drenchers.

Figure 2 – Sliding door openings within 3m of a fire source feature (side boundary)

The northern window openings (adjacent to Collaroy Street – all levels) are located within 3m of the side boundary fire source feature and will require a blade wall with an FRL of 30/-/- to avoid the installation of a self-closing -/60/- fire shutter.

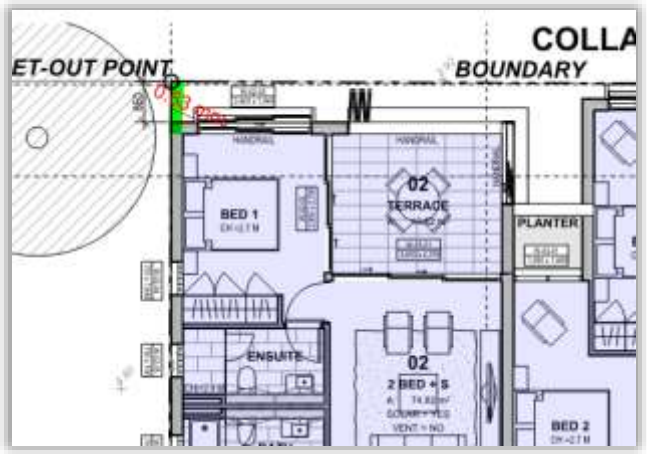

Figure 3 – Window openings within 3m of a fire source feature (side boundary)

The bedroom windows in Units 2, 16 & 30 that face south require a slightly longer blade wall to ensure the windows are greater than 3m from the fire source feature

Figure 4 – Blade wall modifications to ensure the bedroom window in units 2,16 & 30 are greater than 3m from the side boundary fire source feature

3.7. Clause D1.4 – Exit travel distances

The ground floor level carpark has parts which are greater than 20m from a point of choice in which travel in different directions to two alternative exits is available, in which case the travel distance also exceeds the required 40m. The current travel distances (shown red) involve a distance of 32m to a point of choice and a further 26m to an exit (total distance 58m).

It is recommended that are additional egress path and exit door are installed adjacent to the bulky good store which will allow a point of choice to be located within 20m, although a fire engineered performance solution will still be required as the total travel distance is greater than 40m to an exit (shown blue).

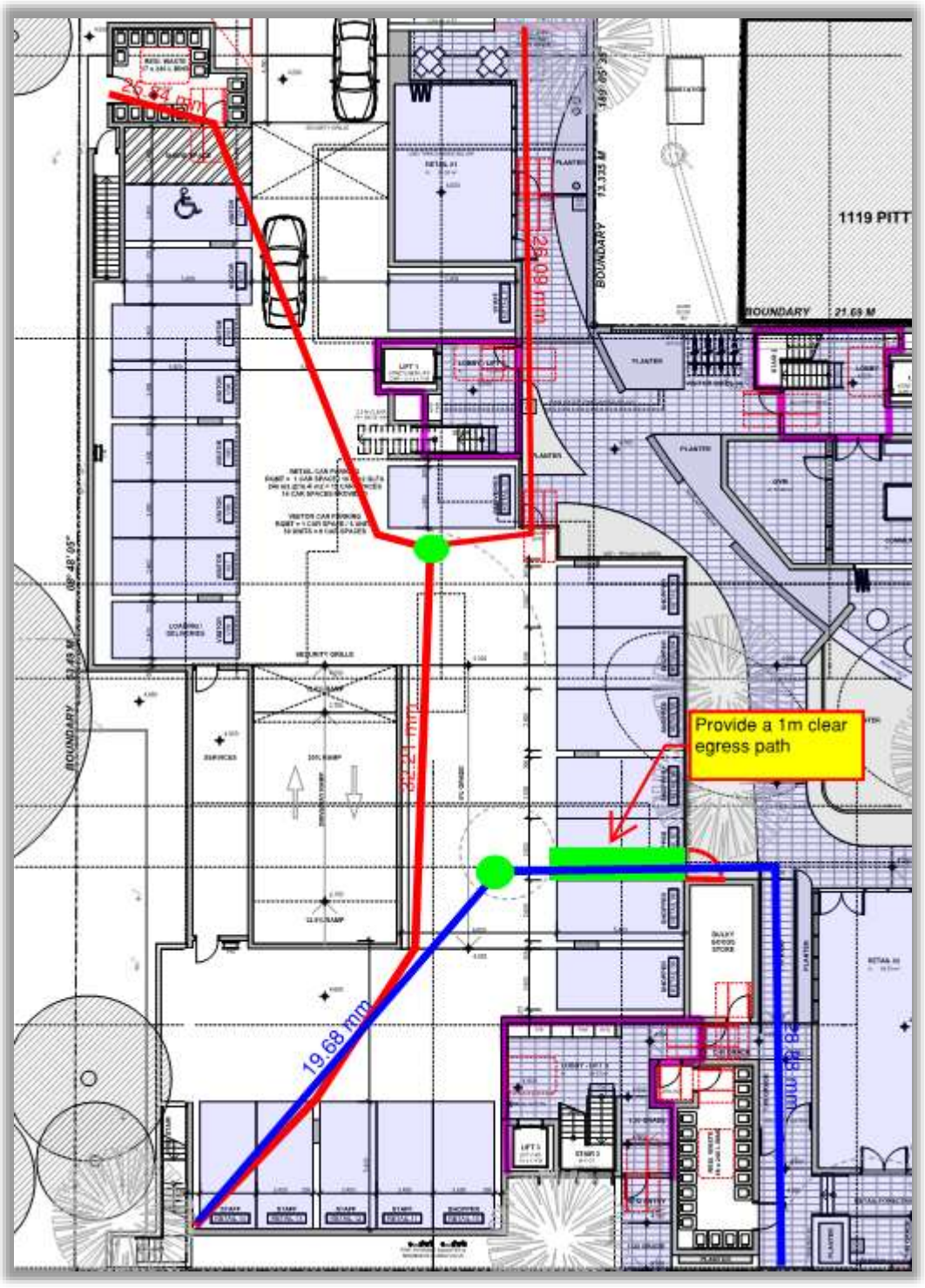

Figure 5 – Egress travel distances throughout the ground floor level carpark

3.8. Clause D1.10 – Discharge from exits

The building has multiple exits which have flood gates that are likely to block or impinge the use of the exit. Further details are required to confirm the operation of the flood gates to make a detailed assessment.

Figure 6 – Proposed flood gate adjacent to the Collaroy Street exit

3.9. Clause D2.20 – Swinging doors

The final exit door at the base of Stair 4 must be modified and swing in the direction of egress (outwards).

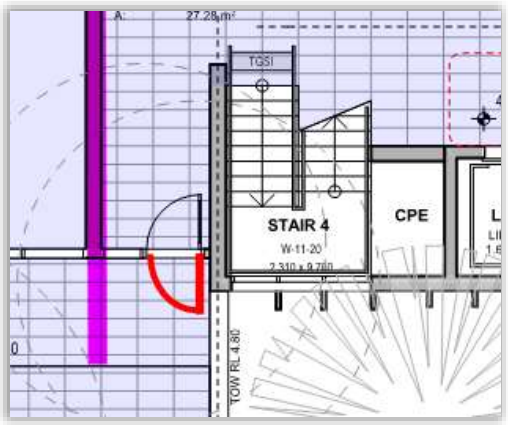

Figure 7 – Exit door modifications

3.10. Clause E1.3 – Fire hydrants

Internal Hydrant coverage

Basement Carpark

The basement carpark fire stairs do not have internal hydrant proposed inside the stairs. Amended plans are required to show internal hydrant in all fire stairs.

Note: Coverage is achieved by all parts of the carpark being within 40m of the hydrant (30m of hose with a 10m spray).

Ground floor level carpark and retail tenancies

The ground floor level has internal hydrants located within 4m of the non-fire-isolated stairs, however coverage is not achieved throughout the carpark and retail areas. An additional external attack hydrant

must be installed on Collaroy Street (adjacent to the residential waste room) as well as an attack hydrant fitted into the booster assembly on Alexander Street.

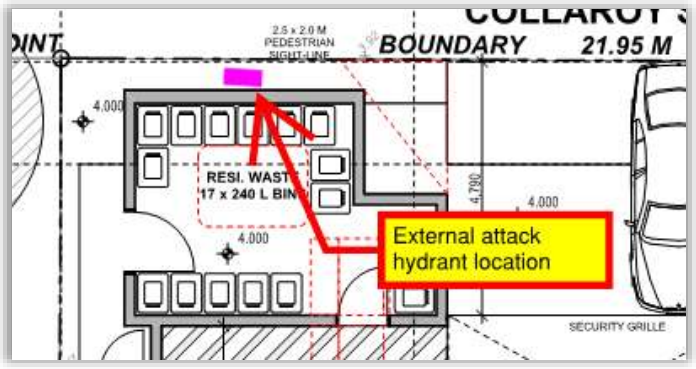

Figure 8 – Proposed attack hydrant location (Collaroy Street)

3.11. Clause E1.4 – Fire hose reels

Class 7a parts

The hose reels provided throughout the basement car park will provide sufficient coverage by all points being within 40m of a hose reel (36m of hose with a 4m spray).

However, an additional hose reel will be required near the residential waste room to provide coverage throughout the northern aspect of the ground floor level carpark.

Note: The shared zone will need to be altered so the hose reel does not encroach within the 2.4m x 5.4m shared zone.

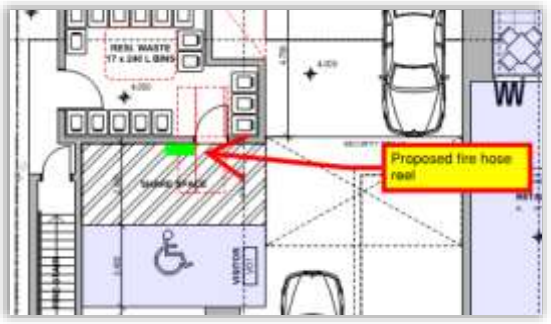

Figure 9 – Proposed fire hose reel location (ground floor carpark)

3.12. Cluse F1.4 – External above ground membranes

The external balconies, terraces and common areas will require a waterproofing membrane in accordance with AS 4654.1 & .2. Further information will be required during design development to ensure there is a step down or grated drain installed at the door thresholds which leads onto the external above ground membrane.

Note: where disabled access is required, a grated drain will be required in lieu of a step down.

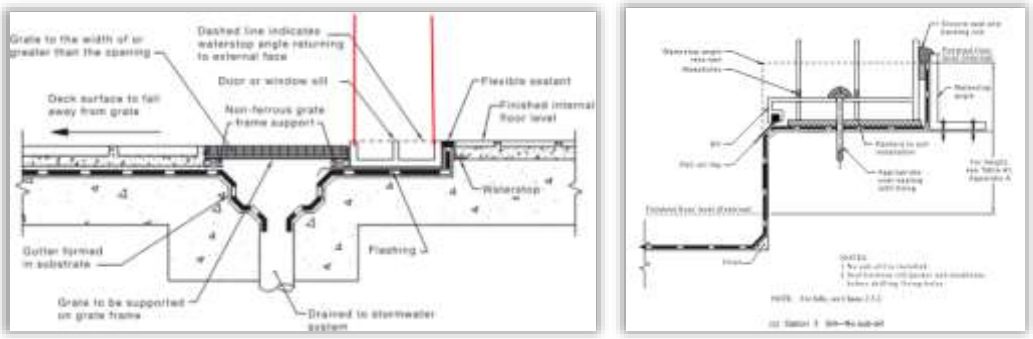

Figure 10 – Grated drain and step-down methods in accordance with AS 4654.2

3.13. Clause F2.3 – Facilities in Class 3 to 9 buildings

Clause F2.3 requires separate male and female facilities, except where the facilities are built as accessible sanitary compartments or are intended to be used by staff members only (no more than 10 staff members).

Further information is required regarding the use of the unisex sanitary compartments located adjacent to retail 03 and the surfboard room. If these toilets are for common use by the public, or for staff members greater than 10, then these facilities will need to be removed or replaced with accessible sanitary compartments.

Note: Where sanitary compartments are provided, at least one male and female ambulant facility must be provided at each bank of toilets.

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 Qartnertrovato Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA-01	P3	16.09.2020	Site Plan
DA-02	P9	22.10.2020	Basement Plan
DA-03	P10	22.10.2020	Ground Floor Plan
DA-04	P10	22.10.2020	Level 1 Plan
DA-05	P7	22.10.2020	Level 2 Plan
DA-06	P8	22.10.2020	Level 03 Plan
DA-07	P7	22.10.2020	Level 04 Plan
DA-12	P2	18.09.2020	North & South Elevations
DA-13	P2	18.09.2020	East & West Elevations

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

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

Table 4. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2019 C3.13** (Openings in Shafts) **BCA2019 Spec C3.4** AS 1905.1:2015 (Fire Resistant Doorsets) AS 1905.2:2005 (Fire Resistant roller shutters)
2.	Fire doors	**BCA2019 C2.12** (Separation of Equipment) **BCA2019 C2.13** (Electricity Supply Systems) **BCA2019 C3.4** (Acceptable methods of Protection) **BCA2019 C3.5** (Doors in Fire Walls) **BCA2019 C3.8** (Openings in Fire Isolated Exits) **BCA2019 C3.10** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2019 C3.11** (Bounding Construction) **BCA2019 C3.13** (Opening in Shafts) **BCA2019 D2.8** (Enclosure of Space under Stairs) Spec C3.4 AS1905.1: 2015
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
4.	Fire windows > Fixed External wall-wetting sprinklers (if proposed on the terraces adjacent to the sliding doors) > -/60/- Fire Windows fixed closed	**BCA2019 C3.2** (Protection of Openings) **BCA2019 C3.4** (Acceptable Methods of Protection) **BCA2019 Spec. C3.4** identical to tested porotype AS1905.2-2005 (Fire Resistant Roller Shutters)

Item	Essential Fire and Other Safety Measures	Standard of Performance
5.	Lightweight construction > Fire Rating of Walls/floors/ceiling located throughout the Class 2 parts > Enclosure of Shafts (Service Shafts, Lift Shafts and Fire Isolated Stairs)	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C3.11** (Bounding Construction) AS1530.4:2014
General		
6.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
General Egress		
7.	Automatic fail safe devices > Auto open security gates/doors > Break Glass release	**BCA2019 D2.21** (Operation of Latches) AS 1670.1:2018 (Fire)
8.	Operation of Door latches > Failsafe > Manual Push Button Control	**D2.21** (Operation of Latch) AS 1670.1:2018
9.	Required Automatic Doors	**D2.19** (Doorways and Doors)
10.	Swing of Exit Doors	**D2.20** (Swinging Doors)
11.	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		
12.	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'
13.	Stretcher Lifts including > Fire Service Controls > Recall Operation > Drive control switch	**BCA2019 E3.2** **BCA2019 E3.7** (Fire Service Controls) **BCA2019 E3.9** (Fire Service Recall Operation Switch) **BCA2019 E3.10** (Lift Car Fire Service drive control switch) **BCA2019 Spec E3.1** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		

Item	Essential Fire and Other Safety Measures	Standard of Performance
14.	Automatic fire detection & alarm: > Clause 5 – AS 3786:2014 Smoke Alarm systems powered from consumer mains to all residential SOU's, and spaced, interlinked to AS 1670.1:2018. Note: No Clause 4 detectors to be provided throughout the common areas as there is an AS 2118 sprinkler system installed throughout.	**BCA2019 E2.2**, NSW Table E2.2a, **Spec E2.2a** **Spec E2.2a** - Clause 5 (Combined smoke alarm and smoke detection system) **Spec E2.2a** - Clause 7 (BOWS) AS 3786:2014 (Amdt 1-4)
15.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
16.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.7** (Residential Concession) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
17.	Smoke detectors & heat detectors 1. Auto-shutdown of Air-handling System. > Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1; > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: ○ non-ducted individual room units with a capacity of not more than 1000 L/s; or ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS/NZS 1668.1:2015.	**BCA2019 E2.2, Spec E2.2a** AS 1668.1:2015
Hydraulic Services		
18.	Automatic fire suppression systems > General Sprinklers	**BCA2019 E1.5** **BCA2019 E1.5a** AS 2118.1:2017 (Sprinklers) AS 2118.6:2012 (Combined Sprinklers/Hydrant)
19.	Fire hydrant systems > NSW Storz Couplings	**BCA2019 E1.3** **BCA2019 C2.12 (Separation of Equipment)**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
20.	Hose reel systems	**BCA2019 E1.4** AS 2441:2005
21.	Wall-wetting sprinkler / drenchers (is used over windows/doors not protected by -/60/- fire rated blocks)	**BCA2019 C3.4,** AS 2118.2: Wall-wetting sprinkler / drenchers
Mechanical Services		
22.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark. 3. Auto-shutdown of Air-handling System. > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system	**BCA2019 E2.2, Table E2.2a, Table E2.2b** **Spec E2.2a** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.
Performance Solutions		

	Description of Performance Solution	DTS Provision	Performance Requirements	Method of meeting performance solutions
23.	Reduce the Class 6 FRL's on the ground floor down to 120 minutes, similar to the FRL's for a Class 7a part	Clause C1.1, C2.7	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
24.	Reduce the Class 7b storage FRL's down to 120 minutes, similar to the FRL's for a Class 7a part.	Clause C1.1, C2.7	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
25.	To permit the use of Tyco Sprinklers over glazed internal lobby walls/doors in lieu of FRL of 120/120/120.	Clause C2.7 & C3.5	To be confirmed at Solution stage	To be confirmed by the Fire Engineer

Item	Essential Fire and Other Safety Measures		Standard of Performance	
	To permit external sprinklers in the retail forecourt and Resi entry in lieu of fire rated walls to the construction edge (southern elevation of Stairs 3 & 4)			
26.	To permit the large raked roof light in Unit 33 to be located within 3m of the roofed BBQ area. To permit the skylight in Unit 29 to be located within 3m of outdoor common area terrace wall/barrier.	Clause 3.6 of Specification C1.1	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
27.	To permit the two (2) northern non-fire-isolated stairs (1 & 2) to connect five (5) storeys in lieu of the required four (4) storeys.	Clause D1.3	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
28.	To permit extended travel distances (55m in lieu of 40m) throughout the ground floor level car park	Clause D1.4	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
29.	To permit the alternate exits that discharge to Alexander and Collaroy Street to be located approximately 67m apart in lieu of the required 60m.	Clause D1.5	To be confirmed at Solution stage	To be confirmed by the Fire Engineer
30.	<u>Non-fire-isolated stairs 1 & 2:</u> To allow the total travel distance from the top floor units to be greater than 60m to both alternate exits (Collaroy Street and Service Lane exits) To permit the internal non-fire-isolated stairs to be located within 15m of each other (smoke separation strategy to be	Clause D1.9	To be confirmed at Solution stage	To be confirmed by the Fire Engineer

Item	Essential Fire and Other Safety Measures		Standard of Performance	
	designed at solution stage)			
31.	Remove the fire hose reels from the Class 6 and 9b parts and rely upon portable Class ABE fire extinguishers	Clause E1.4	To be confirmed at Solution stage	To be confirmed by the Fire Engineer

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 A Construction

Table 5. Type A Construction

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

Item	Class 2 part	Class 7a or 9b	Class 6	Class 7b
Ventilating, pipe, garbage and like shafts: - Loadbearing - Non-loadbearing	90/90/90 -/90/90	120/90/90 -/90/90	180/120/120 -/120/120	240/120/120 -/120/120
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

Note 1: A performance solution will be required to reduce the Class 6 FRL's on the ground floor down to 120 minutes, similar to the Class 7a car park. This will remove the need for a Fire wall to separate the classifications.

Note 2: A performance solution will be required to reduce the Class 7b FRL's down to 120 minutes, similar to the Class 7a car park. This is required to remove the Fire walls around the basement storage areas (combined floor area greater than 10%), although the bin storerooms on the ground floor will still require separation by a 120-minute wall.

Note 3: The roof need not comply with any FRL's due to the sprinkler protection of the entire building.

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	Clause Requirements	Comment	Status
Section B: Structure			
Part B1 – Structural Provisions			
B1.0: Deemed-to-Satisfy Provisions	Informational	Noted	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 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 at CC stage.	CRA – Refer Annexure F
B1.6 Construction of buildings in flood hazard areas	A Class 2 building, in a flood hazard area (refer to Council maps) must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA

Section C: Fire Resistance			
Part C1 – Fire Resistance and Stability			
C1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C1.1: Type of construction required	The minimum Type of fire-resisting construction of a building must be determined in accordance with Table C1.1 of the Clause.	The building is required to be Type A Construction. Performance solutions are required to reduce the FRL's of the Class 7b and 6 parts down to 120 minutes, similar to the Class 7a car park areas. For the remainder of the building, no FRL details have been provided, however compliance is readily achievable, subject to further details being provided at CC stage.	PS CRA – Refer Annexure F
C1.2: Calculation of rise in storeys	The rise in storeys is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys with the roof space.	The building has a rise in storeys of five (5) Note: as the roof top area has a sanitary compartment and roof, this area is considered a storey.	Noted
C1.3: Buildings of multiple classification	Informational	Noted	Noted
C1.4: Mixed Types of construction	N/A	N/A	N/A
C1.5: Two Storey Class 2, 3 or 9c buildings	N/A	N/A	N/A
C1.6: Class 4 Parts of building	N/A	N/A	N/A
C1.7: Open spectator stands and indoor sports stadium	N/A	N/A	N/A

Section C: Fire Resistance			
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C1.9: Non-combustible building elements	(a) In a building required to be of Type A 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. (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 (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.	No details have been provided; however, compliance is readily achievable subject to further information being provided during design development to ensure all external, flooring of lift pits and non-load bearing internal walls required to be fire rated must be non-combustible.	FI - Refer to part 3

Section C: Fire Resistance			
	(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.		
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*.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C1.11: Performance of external walls in fire	N/A	N/A	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.	Noted	Noted

Section C: Fire Resistance			
C1.13: Fire-protected timber: Concession	N/A	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— (i) meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section C: Fire Resistance			
	(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	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 (other than an FPAA101D or FPAA101H system), an open-deck carpark or an open spectator stand.	Applicable to the car park areas.	Noted
C2.2: General floor area and volume limitations	The size of *fire compartments* in the building must not exceed that specified in Table C2.2.	The size of the fire compartments do not exceed the maximum limitations provided in this clause, subject to the residential stairways being fire separated from the ground floor/car park fire compartment.	FI – Refer to part 3
C2.3: Large isolated buildings	N/A	N/A	N/A

Section C: Fire Resistance				
C2.4:	Requirements for open spaces and vehicular access	N/A	N/A	N/A
C2.5:	Class 9a and 9c Buildings	N/A	N/A	N/A
C2.6:	Vertical separation of openings in external walls	Type A Construction Note: The following applies to buildings that are not provided with an AS 2118.1:2017 sprinkler system installed throughout. Where the vertical projection of an opening in an external wall falls no further than 450 mm outside an opening in the storey next below, the openings must be provided with vertical separation complying with Clause C2.6, that is: > They must be protected with a 900mm high (*FRL* 60/60/60) spandrel extending at least 600mm above the separating slab, or > They must be provided with a 1.1m horizontal projection (*FRL* 60/60/60) also extending at least 450mm either side of the openings. The above does not apply to openings within the same stairway. For the purposes of this clause, opening means that part of the external wall of a building that does not have an *FRL* of 60/60/60 or greater.	The client has advised that the building will be protected by an AS 2118 sprinkler system throughout, therefore spandrel separation is not required due to the concession under Clause C2.6 (b)(iii).	Complies
C2.7:	Separation by fire walls	**Construction** - A *fire wall* must be constructed in accordance with the following: > Any openings in a *fire wall* must not reduce the *FRL* required by Specification C1.1 for the *fire wall*,	The Class 7b bin and surfboard storage areas on the ground floor will require separation by a fire wall, although a performance solution will be required to reduce the FRL's down to 120/120/120 in lieu of the required 240/240/240.	PS

Section C: Fire Resistance			
	except where permitted by the Deemed-to-Satisfy Provisions of Part C3. > Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not pass through or cross the *fire wall* unless the required fire resisting performance of the *fire wall* is maintained. **Separation of *fire compartments*** – A part of a building separated from the remainder of the building by a *fire wall* may be treated as a separate *fire compartment* if it is constructed in accordance with this clause and the *fire wall* extends to the underside of – > a floor having an *FRL* required for a *fire wall*; or > the roof covering.	Furthermore, the class 6 retail and café areas will also require some degree of separation from the ground floor common areas and carpark, although this will require Fire Engineering and FRL's shall be determined throughout the solution stage.	
C2.8: Separation of classifications in the same storey	Where a storey has different classifications located alongside one another: > each building element in that storey must have the higher *FRL* prescribed in Specification C1.1 for that element for the classifications concerned; or > the parts must be separated in that storey by a *fire wall* having the higher *FRL* prescribed in Table 3;	<u>Basement car park level:</u> The basement carpark has storage areas that are greater than 10% of the total floor area, therefore they must be assessed as Class 7b storage areas which require 240-minute FRL's. A Performance solution is required under Clause C1.1 to permit reduced FRL's down from 240 minutes to 120 minutes which is similar to the FRL's of a Class 7a car park, therefore no fire wall separation will be required around the individual storage areas. <u>Ground floor level:</u> The ground floor level contains a Class 7a carpark, Class 9b community room and Class 6 retail/café areas. There is no separation between the classifications, however a performance solution is recommended under C1.1 to reduce the Class 6 FRL's down to a 120 minute FRL's, similar to Class 7a and 9b parts, therefore no fire separation will be required around the Class 6 parts.	PS – See Clause C1.1 & C2.7 PS – See Clause C1.1 & C2.7

Section C: Fire Resistance			
		It is noted that fire separation/protection will still be required in some areas, however this can be firmed up at Solution stage when discussions are held with the fire engineer. As discussed under Clause C2.2, the Class 2 parts at the base of the stairways (ground floor) are being separated with 120/120/120 fire rated walls to separate the Class 2 parts from the ground floor.	
C2.9: Separation of classifications in different storeys	Type A Buildings: - 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.	There have been no FRL details shown for the floor slab, however compliance is readily achievable subject to further details being provided at CC stage. Subject to fire engineering being obtained to reduce the FRL's throughout the basement and ground floor levels, then the ground floor and level 1 slabs must achieve an FRL of 120/120/120, while the level 02,03 and 04 slabs must achieve an FRL of 90/90/90.	CRA – Refer Annexure F PS – See Clause C1.1 & C2.7
C2.10: Separation of lift shafts	Type A Buildings: - 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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C2.11: Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	The northern stairways that provide access to the residential levels are proposed to be addressed via a Fire Engineered solution to allow them to not be constructed as a fire-isolated stair. Furthermore, the southern non-fire-isolated stairs that provide access to the residential levels are not required to be fire isolated as they comply with D1.3.	CRA – Refer Annexure F

Section C: Fire Resistance			
C2.12: Separation of equipment	Any of the following equipment located in the building must be separated from the remainder of the building: > lift motors and lift control panels; or > emergency generators used to sustain emergency equipment operating in the emergency mode; or Equipment need not be separated in if the equipment comprises: > a lift installation without a machine room; or > equipment otherwise adequately separated from the remainder of the building. Separation must be by construction having an *FRL* as required by Specification C1.1, but not less than *FRL* 120/120/120 with openings protected by self-closing fire doors having an *FRL* of not less than –/120/30. Separation of on-site fire pumps must comply with the requirements of AS 2419.1:2005.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C2.13: Electricity supply system	> Any electrical substation located within the building must be separated from the remainder of the building by construction having an *FRL* of not less than 120/120/120, and doorways protected with self-closing fire doors having an *FRL* of not less than –/120/30. > A main switchboard which sustains emergency equipment operating in the emergency mode must be fire separated from any other part of the building by construction having an *FRL* of not less than 120/120/120 and have the doorway fitted with self-closing fire door having an *FRL* of not less than –/120/30. > Any electrical conductors located within the building that supply a substation or main switchboard for	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section C: Fire Resistance			
	emergency equipment must comply with BCA clause C2.13. > Emergency equipment switchgear must be separated from non-emergency equipment switchgear by metal partitions designed to minimize the spread of a fault from the non-emergency equipment switchgear. > Emergency equipment includes but is not limited to the following: o fire hydrant booster pumps; o sprinkler pumps; o hose reel pumps; o air-handling systems designed to exhaust and control the spread of smoke;		
C2.14: Public corridors in Class 2 and 3 Buildings	Public corridors in Class 2 parts that exceed 40 m in length must be divided at intervals of not more than 40m with smoke-proof walls complying with Clause 2 of Specification C2.5.	The corridor lengths throughout the Class 2 parts are not greater than 40m, therefore no smoke separation is required.	CRA – Refer Annexure F
Part C3 – Protection of Openings			
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C3.1: Application of Part	Informational	Noted	Noted
C3.2: Protection of openings in external walls	Openings in an external wall that is required to have an *FRL* must be protected in accordance with C3.4 if the distance between the opening and the *fire-source feature* is: > less than 3 m from a side or rear boundary; or	The building has multiple window locations which are located within 3m of the side boundary fire source feature. Further design development is required.	FI – Refer to part 3

Section C: Fire Resistance				
		> less than 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or > less than 6 m from another building on the allotment that is not Class 10; and if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand. Where wall-wetting sprinklers are used, they must be located externally.		
C3.3:	Separation of external walls and associated openings in different fire compartments	N/A	N/A	N/A
C3.4:	Acceptable methods of protection	Where protection is required, openings must be protected as follows: <u>Doorways:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing; or (ii) –/60/30 fire doors that are self-closing. <u>Windows:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (ii) –60/– fire windows that are automatically closing or permanently fixed in the closed position; or (iii) –/60/– automatic closing fire shutters.	The building has multiple window locations which are located within 3m of the side boundary fire source feature. Further design development is required.	FI – Refer to part 3

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		Other openings: (i) Excluding voids – internal or external wall-wetting sprinklers; or (ii) Construction having an *FRL* not less than –/60/– Fire doors, fire windows and fire shutters must comply with BCA Specification C3.4.		
C3.5:	Doorways in fire walls	Doorways in the fire walls must be protected by a self-closing fire door that achieves an *FRL* of not less than that required by Specification C1.1 for the *fire wall* except that each door must have an insulation level of at least 30.	Subject to fire engineering being obtained to reduce the FRL's of the Class 7b storage areas down to 120 minutes, then the doorways to the bin, bulky goods store and surfboard stores must achieve an FRL of -/120/30. Furthermore, subject to the Fire Engineering strategy, then the doorways to the retail, community room and café may also need an FRL, however this can be confirmed at Solution stage. Where glazed doors are located in an FRL 120/120/120 wall, then Tyco sprinklers shall be installed on both sides to ensure the FRL's are achieved.	CRA – Refer Annexure F PS
C3.6:	Sliding fire doors	N/A	N/A	N/A
C3.7:	Protection of doorways in horizontal exits	N/A	There are no required horizontal exits required in the building.	N/A
C3.8:	Openings in fire-isolated exits	Doorways that open to fire-isolated stairways, fire-isolated passageways or fire-isolated ramps, and are not doorways opening to a road or open space, must be protected by –/60/30 fire doors that are self-closing, or automatic-closing in accordance with (ii) and (iii) of Clause C3.8.	The doorways to the fire-isolated stairs in the basement must be fitted with self-closing -/60/30 fire doors. The northern stairways are recommended to be addressed by a fire engineered solution to allow them to be treated as a non-fire-isolated stairs, therefore this clause is not applicable as the stairways are not classified as a fire-isolated exit.	CRA – Refer Annexure F

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		However, as part of the fire engineered solution, the doorways may need to achieve an FRL, however this can be confirmed by the Fire Engineer at Solution stage.	
C3.9: Service penetrations in fire-isolated exits	The fire isolated *exits* are not to be penetrated by any services **other** than: > electrical wiring associated with: o a lighting, detection; 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. > water supply pipes for fire services.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	> The doorways between sole occupancy units and the public lobbies and any common / service rooms and the public lobbies (class 2 parts) must be protected by self–closing -/60/30 fire doors. > The doorway in a Class 2 part must be protected by an FRL -/60/30 self-closing fire door where the	All doorways that provide access from a SOU to the public corridor must be protected with a self-closing -/60/30 fire door. Furthermore, any rooms not within a sole occupancy that open to a public corridor must also be protected with a self-closing -/60/30 fire door.	CRA – Refer Annexure F

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	doorway provides access from a room not within a sole occupancy units to a public corridor or lobby.	Further details to be shown at CC stage.	
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. Where a service passes through a floor which is required to be protected by a *fire-protective* covering, the penetration must not reduce the fire performance of the covering.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C3.13: Openings in shafts	Openings in shafts must be protected by: (a) if it is in a sanitary compartment – a door or panel which together with its frame, is *non-combustible* or has an *FRL* of not less than –/30/30; or (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an *FRL* of not less than –/60/30; or (d) if the shaft is a garbage shaft – a door or hopper of *non-combustible* construction.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
C3.15: Openings for service installations	Where services pass through an element which is required to achieve an *FRL* (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15. **Note:** contractors should check with PCA to confirm compliance with their proposed fire stopping method.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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	manner identical with a prototype tested in accordance with AS 1530.4:2014 to achieve the required *FRL*.		
C3.17: Columns protected with lightweight construction to achieve an FRL	N/A	N/A	N/A
Specification C1.1 – Fire-Resisting Construction			
2.0: General Requirements	Informational	Noted	Noted
2.1: Exposure to fire-source features	A building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the *fire-source feature*, or vertical projection of the feature, is not obstructed by another part of the building that– (i) has an *FRL* of not less than 30/–/–; and (ii) is neither transparent nor translucent.	Noted	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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).	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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— (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) Other service units that are *non-combustible* and do not contain flammable or combustible liquids or gases.	Concession applicable for the lift motor equipment and air-conditioning chillers.	CRA – Refer Annexure F
2.6:	Mezzanine floors: Concession	N/A	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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2.8:	Carparks in Class 2 and 3 Buildings	N/A	N/A	N/A
2.9:	Residential Aged Care building: Concession	N/A	N/A	N/A
3.0:	Type A fire-resisting construction	Type A fire-resisting construction is applicable to the development.	Refer to part 3 clauses below for the relevant Type A Construction requirements appliable to the project.	Noted
3.1:	Fire-resistance of building elements	> The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report. > External walls, common walls and the flooring and floor framing of lift pits must be *non-combustible*. (Note: insulation and sarking used must be *non-combustible*) > Internal walls required to be fire rated must extend to– (i) to the underside of the floor next above; or (ii) the underside of a roof complying with Table 3; or (iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must 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.	Class 2 parts No details have been provided; however, compliance is readily achievable subject to further design development at CC stage. Class 6 parts (Ground floor) It is recommended that a fire engineered solution is obtained to reduce the Class 6 FRL's down to 120 minutes, similar to Class 7a FRL's. This is required to remove the need to impose higher FRL's throughout the entire basement and/or construction of fire walls around the Class 6 parts. Class 7a carpark No details have been provided; however, compliance is readily achievable subject to further design development at CC stage. Class 7b storage areas It is recommended that a fire engineered solution is obtained to reduce the Class 7b FRL's down to 120 minutes, similar to Class 7a FRL's. This is required to remove the need to impose higher FRL's throughout the basement and ground floor levels and/or construction of 240-minute fire walls around the storage areas. It is noted that the storage areas on the ground floor will still require separation by 120-minute fire rated walls, although the combined storage areas throughout the	CRA – Refer Annexure F PS CRA – Refer Annexure F PS

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	> 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*.	basement carpark will not require separation (combined floor area greater than 10%). Class 9b Community room / gym No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
3.2: Concessions for floors	A floor need not comply with Table 3 if— (a) it is laid directly on the ground.	The concrete floor slab in the basement car park does not require an FRL as it will be laid directly on the ground.	Noted
3.3: Floor Loading of Class 5 and 9b buildings: Concession	N/A	N/A	N/A
3.4: Roof superimposed on concrete slab: Concession	A roof superimposed on a concrete slab roof need not comply with Clause 3.1 as to fire-resisting construction if— (a) the superimposed roof and any construction between it and the concrete slab roof are non-combustible throughout; and (b) the concrete slab roof complies with Table 3.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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3.5: Roof: Concession	A roof need not comply with Table 3 if its covering is *non-combustible* and the building— (a) has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout; or (b) is of Class 2; or (c) has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.	The building will be protected by an AS 2118 sprinkler system, therefore the roof does not require an FRL, instead it must have a non-combustible roof covering.	CRA – Refer Annexure F
3.6: Roof lights	If a roof is required to have an *FRL* or its covering is required to be *non-combustible*, roof lights or the like installed in that roof must— (a) have an aggregate area of not more than 20% of the roof surface; and (b) be not less than 3 m from— (i) any boundary of the allotment other than the boundary with a road or public place; and (ii) any part of the building which projects above the roof unless that part has the *FRL* required of a *fire wall* and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with C3.4; and (iii) any rooflight or the like in an adjoining *sole-occupancy unit* if the walls bounding the unit are required to have an *FRL*; and (iv) any rooflight or the like in an adjoining fire-separated section of the building; and (c) if a ceiling with a resistance to the incipient spread of fire is required, be installed in a way that will	Unit 33 has a large raked roof light proposed which is within 3m of the Service Lane fire source feature as well as the common roofed BBQ area. This will require a fire engineered performance solution. Furthermore, Unit 29 has a roof light located in the roof which is located within 3m of the outdoor terrace wall/barrier, therefore a fire engineered will be required or an FRL 90/90/90 wall/barrier will need to be installed.	PS PS

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		maintain the level of protection provided by the ceiling to the roof space.		
3.7:	Internal columns and walls: Concession	For a building with an *effective height* of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the storey immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and internal walls other than *fire walls* and shaft walls may have— (a) in a Class 2 or 3 building: FRL 60/60/60;	Applicable. Details to be provided at CC stage.	CRA – Refer Annexure F
3.8:	Open spectator stands and indoor sports stadiums concession	N/A	N/A	N/A
3.9:	Carparks	N/A	N/A	N/A
3.10:	Class 2 and 3 buildings Concession	N/A	N/A	N/A

Section D: Access and Egress				
Part D1 – Provision for Escape				
D1.0:	Deemed-to-Satisfy Provisions	Informational	Noted	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 building.	Noted	Noted
D1.2:	Number of exits required	**Basements–**	**Basement –**	Complies

Section D: Access and Egress			
	Not less than 2 *exits* must be provided from any storey if egress from that storey involves a vertical rise within the building of more than 1.5 m, unless – (i) the floor area of the storey is not more than 50 m^2; and (ii) the distance of travel from any point on the floor to a single *exit* is not more than 20 m. **Buildings under 25m –** > Every building must have at least one exit from each storey. **General –** Without passing through another *sole-occupancy unit*, every occupant of a storey or part of a storey must have access to an *exit* or at least 2 *exits*, if 2 or more are required.	The basement carpark has access to three (3) fire-isolated exits. **Buildings under 25m –** Each level of proposed mixed-use development has access to at least one exit. The exits are considered to be the non-fire-isolated stairways and the final exit doors throughout the ground floor level.	Complies
D1.3: When fire-isolated stairways and ramps are required	Every stairway in a Class 2 building must be fire-isolated, unless it connects, passes through or passes by not more than- (i) 3 consecutive storeys in a Class 2 building; And one extra storey of any classification may be included if – (i) The building has a sprinkler system (other than a FPAA101D system) complying with Specification E1.5 installed throughout.	The building will be protected by an AS 2118 sprinkler system in accordance with Specification E1.5, therefore the non-fire-isolated stairs are permitted to connect 3 storeys of Class 2 parts and an additional storey of any other class (total 4 storeys). Therefore the two non-fire-isolated stairways located in the southern portion of the building are compliant as they connect the upper 3 storeys of the Class 2 as well as the ground floor level storey of the Class 6, 7a & 9b (four storeys in total). Due to the common roof top area being classified as a storey, the two northern non-fire-isolated stairs connect four storeys of Class 2 as well as the ground floor level Class 6, 7a & 9b, therefore the total connection is five storeys. These two stairs will require a fire engineered performance solution to permit the non-fire-isolated stairs to connect five storeys.	CRA – Refer Annexure F PS

Section D: Access and Egress			
D1.4: Exit travel distances	Class 2 residential — > The entrance doorway of each *sole-occupancy unit* must be not more than – o 6 m from an *exit* or from a point from which travel in different directions to 2 *exits* is available; or o 20 m from a single *exit* serving the storey at the level of egress to a road or open space; and > No point on the floor of a room which is not in a *sole-occupancy unit* must be more than 20 m from an *exit* or from a point at which travel in different directions to 2 *exits* is available. Class 6, 9b & 7a carpark— No point on a floor must be more than 20 m from an *exit*, or a point from which travel in different directions to 2 *exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m. > no point on a floor must be more than 20 m from an *exit*, or a point from which travel in different directions to 2 *exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m; and > in a Class 6 building, the distance to a single *exit* serving a storey at the level of access to a road or open space may be increased to 30 m.	Class 2 parts Subject to the building being protected by an AS 2118.1 sprinkler system, then concessions are granted under Specification E1.5 to permit 12m travel distances to an exit in lieu of 6m, therefore using this concession, the travel distance from the unit entry doors to the top riser of the non-fire-isolated stair will comply. Confirmation of the sprinkler system must be provided at CC stage. Class 6 parts All points throughout the Class 6 tenancies are located within 20m of an exit or a point of choice in which travel to two alternative exits is available, in which case the total travel distance to one of those exits does not exceed 40m Class 7a parts The basement has access to three exits. All points throughout the basement carpark including the storage areas are located within 20m of an exit or a point of choice in which travel in different directions to two alternative exits is available, in which case the total travel distance to one of those exits does not exceed 40m. There are multiple points throughout the ground floor car park which have extended travel distances (greater than 20m or 40m when there are two alternative exits). Further design development is required or a performance solution, however discussions should be held with a fire engineer to confirm the feasibility. Class 9b parts All points throughout the Class 9 part are located within 20m of an exit or a point of choice in which travel to two	CRA – Refer Annexure F Complies Complies DNC – Refer to part 3 Complies

Section D: Access and Egress			
		alternative exits is available, in which case the total travel distance to one of those exits does not exceed 40m	
D1.5: Distance between alternative exits	*Exits* that are required as alternative means of egress must be– (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 *exits* is readily available from all points on the floor including lift lobby areas; and (b) not less than 9 m apart; and (c) not more than— (i) in a Class 2 building — 45 m apart; or (ii) in all other cases — 60 m apart; and (d) located so that alternative paths of travel do not converge such that they become less than 6 m apart. Note: the distance between *exits* must be measured through the point at which travel two *exits* is available.	Based upon the recommended egress mark up under Clause D1.4, the distance between alternate exits (Alexander Street and Collaroy Street exits) will exceed 60m and therefore require a fire engineered performance solution.	PS
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.	Each storey is considered to have less than 100 persons. All non-fire-isolated stairs will be required to maintain a minimum width of 1m, measured clear of the double handrails. There are four (4) exit doors from the ground floor level, these exit doors will maintain the minimum egress width required for the population numbers. Furthermore, the basement carpark has three (3) fire stairs which will also provide sufficient egress width. Dimension details of all exits shall be shown at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	> 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.		
D1.7: Travel via fire-isolated exits	> A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from – (i) a public corridor, public lobby or the like; or (ii) a *sole-occupancy unit* occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. > D1.7 (b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— (i) to a road or open space; or (ii) to a point— (A) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and (B) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or (iii) into a covered area that— (A) adjoins a road or open space;	The fire stairs from the basement discharge external to the building. The sprinkler pump room is accessed via an airlock in accordance with (a)(iii).	CRA – Refer Annexure F

Section D: Access and Egress			
	(B) and is open for at least 1/3 of its perimeter; and (C) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and (D) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m. > D1.7 (c) - Where a path of travel from the point of discharge of a fire-isolated *exit* necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have— (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4, (iii) for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. > D1.7 (d) If more than 2 access doorways, not from a sanitary compartment or the like open to a required fire-isolated *exit* in the same storey – o a smoke lobby in accordance with D2.6 must be provided; or o the *exit* must be pressurized in accordance with AS 1668.1:2015		
D1.8: External stairways or ramps in lieu of fire-isolated exits	N/A	N/A	N/A

Section D: Access and Egress			
D1.9: Travel by non-fire-isolated stairways or ramps	> A non-fire-isolated stairway serving as a required *exit* must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. > In a Class 2 building, the distance between the doorway of a room or *sole-occupancy unit* and the point of egress to a road or open space by way of a stairway or ramp that is not fire-isolated and is required to serve that room or *sole-occupancy unit* must not exceed 60m. > In a Class 2 building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than – (i) 15 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or (ii) 30 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions. > In a Class 2 building, if 2 or more *exits* are required and are provided by means of internal non-fire-isolated stairways or non-fire-isolated ramps, each *exit* must— (i) provide separate egress to a road or open space; and (ii) be suitably smoke-separated from each other at the level of discharge.	Non-fire-isolated stairs 1 & 2 utilise the concession to permit the bottom riser to be located within 30m from one of 2 such doorways that provides access to a road or open space, however the total travel distance from the top floor unit entry doors to both alternate exits on the ground floor exceeds the maximum 60m permitted under D1.9(b) and therefore will require a fire engineered performance solution or design modifications. Stairs 1 & 2 discharge internal within the building and are not considered to be adequately smoke separated, therefore Fire Engineering input will be required to form a strategy via a performance solution. Stairs 3 & 4 comply as the unit doors are within 60m of the Alexander street as well as the bottom riser being within 15m of the final exit door to Alexander street.	PS PS Complies
D1.10: Discharge from exits	*Exits* must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the *exit*.	Multiple exits have flood gates located at the discharge point that may block egress to the road. Further information is required to confirm the operation of the flood gates.	FI – Refer to part 3

Section D: Access and Egress			
	If a required *exit* leads to open space, the path of travel to the road must have an unobstructed width of not less than 1m. 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* must be as far apart as practical	The stairway adjacent to the surf shower exit will need to be constructed in accordance with Part D2 & D3. Details to be provided at CC stage. The discharge points of the alternative exits are considered to be located far enough apart as deemed practicable.	CRA – Refer Annexure F
D1.11: Horizontal exits	N/A	N/A	N/A
D1.12: Non-required stairways, ramps or escalators	N/A	N/A	N/A
D1.13: Number of persons accommodated	Informational– The number of persons accommodated in a storey or room must be determined within consideration to the purpose for which it is used and the layout of the floor area by– (a) calculating the sum of the numbers obtained by dividing the floor area of each part of the storey by the number of square metres per person listed in BCA Table D1.13 according to the use of that part, excluding spaces set aside for— (i) lifts, stairways, ramps and escalators, corridors, hallways, lobbies and the like; and (ii) service ducts and the like, sanitary compartments or other ancillary uses; or (b) reference to the seating capacity in an assembly building or room; or (c) any other suitable means of assessing its capacity.	Occupant numbers to be reconfirmed when the fit out / use is known for the Class 6 retail / café parts.	Noted

Section D: Access and Egress			
	Based on floor area and Table D1.13, the population numbers are as follows:		
D1.14: Measurement of distances	Informational	Noted	Noted
D1.15: Method of Measurement	Informational	Noted	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Informational – (a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100 m2; or (ii) all but one point of egress from a plant room, a lift machine room or a Class 8 electricity network substation with a floor area of not more than 200 m2. (b) A ladder permitted under (a)— (i) may form part of an *exit* provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) for a plant room or a Class 8 electricity network substation, must comply with AS 1657.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
D1.18: Egress from early childhood centres	N/A	N/A	N/A
Part D2 – Construction of Exits			
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted	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	Noted
D2.2: Fire-isolated stairways and ramps	The fire isolated stairways must be constructed of *non-combustible* materials and constructed so that if there is local failure it will not cause structural damage to or impair the fire-resistance of the shaft.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
D2.3: Non-fire-isolated stairways and ramps	Required stairs and ramps (including landings and any supporting building elements) must be constructed according to D2.2, or only of- (a) reinforced or 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	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	formaldehyde or resorcinol phenol formaldehyde glue".		
D2.4: Separation of rising and descending stair flights	If a stairway serving as an *exit* is required to be fire-isolated— (a) there must be no direct connection between— (i) a flight rising from a storey below the lowest level of access to a road or open space; and (ii) a flight descending from a storey above that level; and (b) any construction that separates or is common to the rising and descending flights must be (i) non-combustible; and (ii) smoke proof in accordance with Clause 2 of Specification C2.5.	There is no direct connection between the stairs rising from the basement levels and the stairs descending from the residential levels.	Complies
D2.5: Open access ramps and balconies	N/A	N/A	N/A
D2.6: Smoke lobbies	N/A	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*	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

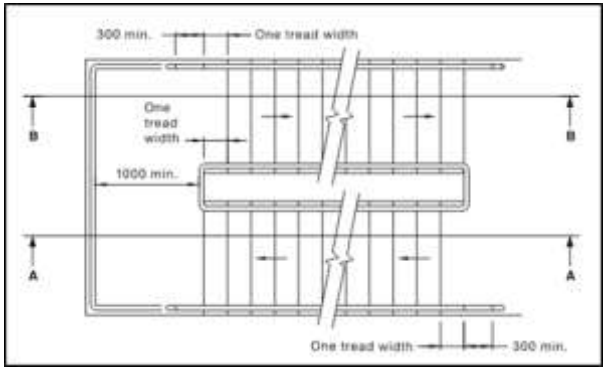
Section D: Access and Egress			
	construction or a fire protective covering with doorways suitably sealed against smoke spread. > Electrical wiring may be installed in a fire-isolated *exit* if the wiring is associated with: ○ a lighting or detection, serving the *exit*; or ○ a security, surveillance or management system serving the *exit*; or ○ an intercommunication system; or ○ the monitoring of hydrant or sprinkler isolating valves.		
D2.8: Enclosure of space under stairs and ramps	The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space. The space below a required non fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
D2.9: Width of stairways and ramps	Informational	None of the stairs are greater than 2 metres wide	N/A
D2.10: Pedestrian ramps	> A ramp serving as a required *exit* must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1:2009; or (ii) in any other case, have a gradient not steeper than 1:8. > The floor surface of a ramp must have a slip-resistance classification complying with Table	The 1:14 ramp located adjacent to retail 02 is not considered to be a required exit, rather it is a ramp located within a path of travel to an exit. However, the 1:14 ramp will be required to comply with AS 1428.1-2009 for accessibility purposes.	CRA – Refer Annexure F

Section D: Access and Egress			
	D2.14 when tested in accordance with AS 4586:2013.		
D2.11: Fire-isolated passageways	The enclosing construction of a fire isolated passageway must have an FRL not less than that required for the fire isolated stair.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
D2.12: Roof as open space	If an exit discharges to a roof of a building, the roof must – (a) have an FRL of not less than 120/120/120; and (b) not have any roof lights or other openings within 3m of the path of travel of persons using the exit to reach a road or open space.	The roof of Basement must achieve an FRL of 120/120/120 as the ground floor exits discharge onto the roof.	CRA – Refer Annexure F
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 240 mm and 355 mm within the residential units; > Goings must be between 250 mm and 355 mm; > Risers must be between 115 mm high and 190 mm high; > The slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; > The goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

<table>
<tr><th colspan="4">Section D: Access and Egress</th></tr>
<tr><td></td><td>(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.</td><td></td><td></td></tr>
<tr><td>D2.14: Landings</td><td>Landings must be not less than 750 mm long and have either a surface with a slip-resistance classification complying with Table D2.14 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
<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>
</table></td><td>No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.</td><td>CRA – Refer Annexure F</td></tr>
</table>

Section D: Access and Egress			
	<table><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>		
D2.15: Thresholds	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.	Where doorways have a step at the threshold and lead to open space, then a threshold or step ramp shall be installed in accordance with AS 1428.1-2009. Further details required at CC stage to determine the level transitions at the doorway thresholds.	CRA – Refer Annexure F
D2.16: Barriers to prevent falls	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; > 865 mm above landings to a stair where the barrier is provided along the inside edge of the landing and does not exceed 500 mm in length; and > 1 m in all other locations. <u>Balustrade openings – fire-isolated stairs</u>	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	> 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 <u>Balustrade openings – other than fire-isolated stairs</u> > A 125 mm sphere must not be able to pass through any opening and for stairways, the 125 mm is measured above the nosing line of the stair treads. <u>Climbability – other than fire-isolated stairs</u> For floors more than 4m above the surface beneath, the balustrade must not incorporate any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that could facilitate climbing.		
D2.17: Handrails	Handrails to stairways must: > be located along at least one side of the ramp or flight (a flight being 2 or more risers); and > be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and > be continuous between stair flight landings and have no obstruction that will break a hand-hold. > be constructed to comply with clause 12 of AS 1428.1:2009 (including handrails to the fire stairs). > Handrails in common areas (other than fire stairs) must also accord with D3.3.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	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. 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		
D2.18: Fixed platforms, walkways stairways and ladders	N/A	N/A	N/A
D2.19: Doorways and doors	> Sliding doors serving as *exit* doors must be openable manually under a force of not more than 110N.	The garage doors in the basement carpark are considered to be power operated doors located within in a path of travel, however it is assumed that the doors will have a manual override lever that can open the door under the force of not more than 110N. Details from the	CRA – Refer Annexure F

Section D: Access and Egress			
	> *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.	garage door manufacturer shall be obtained to confirm this.	
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).	The exit door in the residential bin storeroom is considered to serve a part which is less than 200m2, therefore the door is permitted to swing inwards, subject to hold open devices being fitted. The security gates will need to be designed as swinging doors with D2.21 latches. The final exit door on the ground floor level at the base of Stair 4 is required to swing in the direction of egress (outwards). All other exit doors swing in the direction of egress and would satisfy the provisions of D2.20.	CRA – Refer Annexure F DNC – Refer to part 3 Complies
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–	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	(iii) 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 (iv) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. (v) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (aa) not less than 500 mm from an internal corner; and (bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that –		

Section D: Access and Egress			
	(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 6 or 7 building with a floor area not more than 200m2; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building and is readily openable when unlocked.		
D2.22: Re-entry from fire-isolated exits	N/A	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	(ii) A device or screen required by (i) must– (A) not permit a 125 mm sphere to pass through the window opening or screen; and (B) resist an outward horizontal action of 250 N against the– (aa) window restrained by a device; or (bb) screen protecting the opening; and (C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. (c) A barrier with a height not less than 865 mm above the floor is required to an openable window– (i) in addition to window protection, when a child resistant release mechanism is required by (b)(ii)(C); and (ii) where the floor below the window is 4m or more above the surface beneath if the window is not covered by (a). (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; and		

Section D: Access and Egress			
	(A) must not permit a 300mm sphere to pass through it.		
D2.25: Timber stairways: concession	N/A	N/A	N/A
Part D3 – Access for People with A Disability – Assessed under a separate cover			

Section E: Services and Equipment			
Part E1 – Fire Fighting Equipment			
E1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E1.3: Fire hydrants	As the building has a floor area greater than 500 m2, a fire hydrant system complying with AS 2419.1:2005 must be provided to serve the building.	There is a hydrant booster assembly proposed along Alexander Street. Further details will be required at CC stage to confirm the system complies with AS 2419.1-2005. The building will be protected by an AS2118 sprinkler system, therefore no FRL 90/90/90 blast wall is required. The building has internal fire hydrant located on each level within 4m of the non-fire-isolated stairs. Coverage is not achieved throughout the basement, ground floor level of the carpark and retail areas; therefore, additional internal hydrant will be required. Note: Coverage is achieved by all areas being within 30m of hose from the internal hydrant with a 10m spray, however the hose must extend at least 1m into all rooms throughout the building.	CRA – Refer Annexure F DNC – Refer to part 3
E1.4: Fire hose reels	A fire hose reel system complying with BCA clause E1.4 and AS 2441:2005 must be provided to the building (excluding Classes 2, 3, 4, 5, 8 and 9c).	Class 7a parts:	

Section E: Services and Equipment			
	All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m.	The hose reels provided throughout the basement car park will provide sufficient coverage by all points being within 40m of a hose reel (36m of hose with a 4m spray). However, an additional hose reel will be required near the residential waste room to provide coverage throughout the northern aspect of the ground floor level carpark. Class 2, 6 & 9b parts: It is recommended that a fire engineered performance solution is obtained to remove the fire hose reels from the Class 6 and 9b parts and rely upon portable fire extinguishers.	DNC – Refer to part 3 PS
E1.5: Sprinklers	The building must be provided with a sprinkler system complying with Table E1.5 and Specification E1.5 installed throughout. The sprinkler valve room location should be indicated on the plans. The room must have direct egress to road or open space.	The building will require a sprinkler system in accordance with Specification E1.5. Details to be provided during design development.	CRA – Refer Annexure F
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*	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section E: Services and Equipment			
	unit to the nearest fire extinguisher is not more than 10 m.		
E1.8: Fire control centres	N/A	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 > 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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	Noted
E1.10: Provision for special hazards	N/A	N/A	N/A
Specification E1.5a – Class 2 and 3 Buildings Not More Than 25m In Effective Height			
1. Scope and application	This specification sets out the design options and installation requirements for sprinklers in a class 2 residential building four or more storeys.	Noted	Noted
2. System requirements	A required automatic fire sprinkler system installed in a Class 2 or 3 building with an *effective height* of not more than 25 m and a rise in storeys of 4 or more must comply with— (iv) AS 2118.1:2017; or (v) AS 2118.4:2012, as applicable; or (vi) FPAA101H, except for residential care buildings	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section E: Services and Equipment			
3. Permitted concessions	AS 2118.1:2017 or AS 2118.4:2012 system concession: (i) The FRL for self-closing fire doors, as required by C3.8 and C3.11, may be reduced to not less than -/30/30. (ii) The FRL for— (A) all non-loadbearing internal walls and shafts constructed of fire-protected timber, as required by Specification C1.1 to have FRLs greater than -/60/60, may be reduced to -/60/60 and service penetrations through non-loadbearing internal walls and shafts constructed of fire-protected timber, as required by C3.15, may be reduced to not less than -/60/15; and (B) all other non-loadbearing internal walls, as required by Specification C1.1, may be reduced to -/45/45 and the FRL for service penetrations through internal non-loadbearing walls and shafts, as required by C3.15, may be reduced to -/45/15. (iii) The FRL for fire-isolated stairways enclosed with non-loadbearing construction, as required by D1.3, may be reduced to -/45/45. (iv) Except in a residential care building, the maximum distance of travel, as required by D1.4(a)(i)(A), may be increased from 6 m to 12 m. (v) The maximum distance of travel from a single *exit* serving the storey at the level of egress to a road or open space, as required by D1.4(a)(i)(B), may be increased from 20 m to 30 m.	Pending the sprinkler system proposed throughout the building, concessions in accordance with this clause will be applicable. Further assessment to be carried out at CC stage.	CRA – Refer Annexure F

Section E: Services and Equipment			
	(vi) The maximum distance between alternative *exits*, as required by D1.5(c)(i), may be increased from 45 m to 60 m. (vii) Internal fire hydrants in accordance with E1.3 are not required where— (A) the building is served by external fire hydrants that provide compliant coverage installed in accordance with E1.3, except that in a residential care building the nozzle at the end of the length of hose need only reach the entry door of any *sole-occupancy unit* to be considered as covering the area within the sole occupancy unit; or (B) a dry fire hydrant system that otherwise complies with AS 2419.1 is installed in the building and— (aa) each fire hydrant head is located in accordance with E1.3 and fitted with a blank end cap or plug; and (bb) the pipework is installed in accordance with E1.3 (as for a required fire main) except that it need not be connected to a water supply; and (cc) a hydrant booster inlet connection is provided in accordance with E1.3; and (dd) an external street or feed hydrant capable of providing the required system flow is located within 60 m of the hydrant booster connection. (viii) An emergency warning and intercom system need not be provided in a residential care building in accordance with E4.9 if a warning		

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	system with an override public address facility is installed in accordance with Specification E2.2d. <u>FRAA101H system concessions:</u> (i) Window openings need not be protected in accordance with C3.11(g) provided the room served by the window is sprinkler protected. (ii) The FRL for— (A) service penetrations through non-loadbearing internal walls and shafts, as required by C3.15, may be reduced to - /60/15; and (B) non-loadbearing fire-resisting lift and stair shafts, as required by Specification C1.1, may be reduced to - /60/60. (iii) The maximum distance of travel, as required by D1.4(a)(i)(A), may be increased from 6 m to 12 m. (iv) The maximum distance of travel from a single *exit* serving the storey at the level of egress to a road or open space, as required by D1.4(a)(i)(B), may be increased from 20 m to 30 m. (v) The maximum distance between alternative *exits*, as required by D1.5(c)(i), may be increased from 45 m to 60 m.		
Part E2 – Smoke Hazard Management			
E2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E2.1: Application of Part	Informational	Noted	Noted

Section E: Services and Equipment				
E2.2:	General requirements (including Tables E2.2a and E2.2b)	**General smoke hazard management requirements** An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one *fire compartment* to another *fire compartment* or operates in a manner that may unduly contribute to the spread of smoke from one *fire compartment* to another *fire compartment* (such as lobby air supply) must— (i) be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the *fire compartments* served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1668.1:2015; and for the purposes of this provision, each *sole-occupancy unit* in a Class 2 or 3 building is treated as a separate *fire compartment*. Miscellaneous air-handling systems covered by Sections 5 and 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. A smoke detection system must be installed in accordance with Clause 6 of Specification E2.2a to operate AS1668.1:2015 systems that are provided for	**Air handling systems** Further mechanical ventilation details must be provided at CC stage. **Class 2 parts** The Class 2 parts will require a Clause 5 smoke detection and alarm system throughout the units and common areas in accordance with Specification E2.2a. further details required at CC stage. Note: detectors won't be required in the common areas due to the sprinkler system. **Class 6, 7b & 9b parts** The building will be protected with an AS2118 sprinkler system in accordance with E1.5, therefore no detection is required. **Class 7a basement carpark** Further mechanical ventilation details must be provided at CC stage to ensure the system complies with AS 1668.1 & AS 1668.2 – 2005.	CRA – Refer Annexure F

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	zone pressurisation and automatic air pressurisation for fire-isolated *exits*. **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 6 & 9b parts** The building must be provided with an automatic smoke detection and alarm system complying with Specification E2.2a; or A Sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5. **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. <u>Auto shutdown for Class 9b</u> > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: > ○ non-ducted individual room units with a capacity of not more than 1000 L/s; or > ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.		

Section E: Services and Equipment				
E2.3:	Provisions for special hazards	N/A	N/A	N/A
Specification E2.2a – Smoke Detection and Alarm System				
1.	Scope	Informational	Noted	Noted
2.	Type of system	A required automatic smoke detection and alarm system must be provided in accordance with the following: (a) Class 2 buildings — (i) a smoke alarm system complying with Clause 3; or (ii) a smoke detection system complying with Clause 4; or (iii) a combination of a smoke alarm system and a smoke detection system complying with Clause 5.	The Class 2 parts will require a Clause 5 smoke detection and alarm system installed throughout. Details to be provided at CC stage.	CRA – Refer Annexure F
3.	Smoke alarm system	N/A	N/A	N/A
4.	Smoke detection system	N/A	N/A	N/A
5.	Combined smoke alarm and smoke detection system	(a) A Class 2 or 3 building or Class 4 part of a building provided with a combination of a smoke alarm system and smoke detection system in accordance with Clause 2 must— (i) be provided with a smoke alarm system complying with Clause 3 within sole-occupancy units; and (ii) subject to (b), be provided with a smoke detection system complying with Clause 4 in areas not within sole-occupancy units.	The Class 2 units will require Clause 3 smoke detectors to be installed throughout each unit. However Clause 4 detectors wont be required in the common areas as the building will be protected by an AS 2118 sprinkler system.	CRA – Refer Annexure F

Section E: Services and Equipment				
		(b) In a Class 2 or 3 building or Class 4 part of a building protected with a sprinkler system complying with Specification E1.5 (other than a FPAA101D or FPAA101H system), smoke detectors are not required in public corridors and other internal public spaces.		
6.	Smoke detection for smoke control system	N/A	N/A	N/A
7.	Building occupant warning system	Subject to E4.9, a building occupant warning system provided as part of a smoke hazard management system must comply with clause 3.22 of AS 1670.1 to sound through all occupied areas except— (a) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke alarm system in accordance with Clause 3(b)(iii)— (i) the sound pressure level need not be measured within a sole-occupancy unit if a level of not less than 85 dB(A) is provided at the door providing access to the sole-occupancy unit; and (ii) the inbuilt sounders of the smoke alarms may be used to wholly or partially meet the requirements; and (b) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke detection system in accordance with Clause 4(b), the sound pressure level from a building occupant warning system need not be measured within a sole-occupancy unit if a level of not less than 100 dB(A) is provided at the door providing access to the sole-occupancy unit.	Further details of the Building occupant warning system to be provided at CC stage. The BOWS must be activated by the AS2118 sprinkler system.	CRA – Refer Annexure F
8.	System Monitoring	N/A	N/A	N/A
Part E3 – Lift Installations				

Section E: Services and Equipment				
E3.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E3.1:	Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E3.2:	Stretcher facility in lifts	A stretcher facility must be provided to an emergency lift required by E3.4. A stretcher facility must be provided to passenger lifts installed to serve any storey above an *effective height* of 12 m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.	The passenger lifts provided in the southern aspect of the building do not serve a storey above an effective height of 12m, however the northern aspect passenger lifts do serve a storey above an effective height of 12m and are provided with stretcher facilities (2.1m x 1.4m proposed floor area).	Complies
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E3.4:	Emergency lifts	N/A	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.	The landings are considered to be sufficient to accommodate wheelchair turning spaces, subject to detailed landing sizes (clear of obstructions) being provided at CC stage.	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 northern lifts have floor dimensions of 2.1m x 1.4m which will comply with the minimum required of E3.2 and E3.6. Moreover, the southern lifts have flood dimensions of 1.6m x 1.4m which complies with E3.6.	CRA – Refer Annexure F

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		Further details of the lifts will be required to ensure the accessible features comply with this clause.	
E3.7: Fire service controls	The lifts serving any storey above an *effective height* of 12 m must be provided with: (a) A fire service recall control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the storey. (b) A lift car fire service drive control switch complying with E3.10 for every lift.	The northern lifts shall be fitted with a fire service controls in accordance with this clause.	CRA – Refer Annexure F
E3.8: Aged care buildings	N/A	N/A	N/A
E3.9: Fire service recall switch	The fire service control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E3.10: Lift car service drive control switch	The lift car service drive control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
Part E4 – Visibility In An Emergency, Exit Signs And Warning Systems			
E4.0: Deemed-to-Satisfy Provisions	Informational	Noted	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E4.3: Measurement of distance	Informational	Noted	Noted

Section E: Services and Equipment				
E4.4:	Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1:2018.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Noted	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
E4.9:	Emergency warning and intercom systems	An Emergency warning and intercom system complying where applicable with AS 1670.4:2018 must be installed within the building.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section F: Health and Amenity				
Part F1 – Damp and Weatherproofing				
F1.0:	Deemed-to-Satisfy Provisions	*Performance Requirement* FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this *Performance Requirement* in respect of external walls. The assessment contained within this	Site specific performance solution required at CC stage as there are no DTS provisions.	PS

Section F: Health and Amenity				
		report does not include an assessment against Performance Provision FP1.4.		
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS/NZS 3500.3:2018.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	The external balconies and common areas will require a waterproofing membrane in accordance with AS 4654.1 & .2. Further information will be required during design development to ensure there is a step down or grated drain installed at the door threshold.	FI – Refer to part 3
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
F1.6:	Sarking	*Sarking-type materials* used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2:2017.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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).	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section F: Health and Amenity			
F1.11: Provision of floor wastes	In Class 2 buildings, 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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
F1.12: Sub-floor ventilation	N/A	N/A	N/A
F1.13: Glazed Assemblies	Glazed assemblies are to comply with AS 2047:2014 and AS 1288:2006.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
Part F2 – Sanitary and Other Facilities			
F2.0: Deemed-to-Satisfy Provisions	Informational	Noted	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.	The Class 2 units have a kitchen, bathroom and sanitary compartment proposed. Further details will be required at CC stage to ensure the laundries have a washtub and space for a washing machine. Furthermore more, there must be space for a clothes 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	Noted	Noted

Section F: Health and Amenity				
		(d) For the purpose of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary towels		
F2.3:	Facilities in Class 3 to 9 buildings (including Table F2.3)	(a) Except where permitted by (b), (c), (f), F2.4(a) and F2.4(b), separate sanitary facilities for males and females must be provided for Class 6, 7 and 9 buildings in accordance with Table F2.3. (b) If not more than 10 people are employed, a unisex facility may be provided instead of separate facilities for each sex. (c) If the majority of employees are one sex, not more than 2 employees of the other sex may share toilet facilities if the facilities are separated by means of walls, partitions and doors to afford privacy. (d) Employees and the public may share the same facilities in a Class 6 and 9b building (other than a school or early childhood centre) provided the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public. (e) Adequate means of disposal of sanitary towels must be provided in sanitary facilities for use by females.	Separate male and female facilities must be provided throughout the ground floor level, except for any accessible sanitary compartments. Therefore, the unisex sanitary compartments must either be removed or replaced with an accessible sanitary compartment, unless the compartment is for staff use only and the staff members do not exceed 10.	FI – Refer to part 3
F2.4:	Accessible sanitary facilities (including Table F2.4)	Noted	Assessed in the Access Report	Noted
F2.5:	Construction of sanitary compartments	(a) Sanitary compartments must have doors and partitions that separate adjacent compartments and extend— (i) from floor level to the ceiling in the case of a unisex facility; or	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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	(ii) to a height of not less than 1.5 m above the floor if primary school children are the principal users; or (iii) 1.8 m above the floor in all other cases. (b) The door to a fully enclosed sanitary compartment must— (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway.		
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	Noted
F2.8: Waste Management	N/A	N/A	N/A
F2.9: Accessible adult change facilities	N/A	N/A	N/A
Part F3 – Room Sizes			

Section F: Health and Amenity				
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted	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 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 (c) in a Class 6 and 7 building— (i) except as allowed in (ii) and (f) — 2.4 m; and (ii) a corridor, passageway, or the like — 2.1 m; and (d) in a Class 9b building— (i) a school classroom or other assembly building or part that accommodates not more than 100 persons — 2.4 m; and (e) in any building— (i) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and (ii) a commercial kitchen — 2.4 m; and (iii) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.	Based upon the section drawings provided, the ceiling heights throughout the development are deemed to meet the minimum requirements of this clause. The ceiling heights will need to be reassessed after the services have been designed.	CRA – Refer Annexure F

Section F: Health and Amenity				
Part F4 – Light and Ventilation				
F4.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F4.1:	Provision of natural light	Class 2 Natural light must be provided to all habitable rooms.	Noted	Noted
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). (b) A required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must be not less than a horizontal distance from that boundary or wall that is the greater of – 1m; and 50% of the square root of the exterior height of the wall in which the window is located, measured from its sill.	In order to carry out a detailed natural light assessment, a window/door schedule will be required at CC stage. The windows and doors must be designed to ensure an aggregate light transmitting area no less than 10% of the floor area is provided to all habitable rooms. Natural light can be borrowed from adjoining rooms in accordance with Clause F4.3. Where the internal studies do not have direct natural light, then borrow light from an adjoining room can be used, however the doorway between the two rooms must allow light to transmit through, when the door is left in a close position.	CRA – Refer Annexure F

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F4.3: Natural light borrowed from adjoining room	(a) Natural light to a room in a Class 2 building, may come through one or more glazed panels or openings from an adjoining room (including an enclosed verandah) if— (i) both rooms are within the same sole-occupancy unit or the enclosed verandah is on common property; and (ii) the glazed panels or openings have an aggregate light transmitting area of not less than 10% of the floor area of the room to which it provides light; and (iii) the adjoining room has— (A) windows , excluding roof lights, that— (aa) have an aggregate light transmitting area of not less than 10% of the combined floor areas of both rooms; and (bb) 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 (B) roof lights , that— (aa) have an aggregate light transmitting area of not less than 3% of the combined floor areas of both rooms; and (bb) are open to the sky; or (C) a proportional combination of windows and roof lights required by (A) and (B). (b) The areas specified in (a)(ii) and (a)(iii) may be reduced as appropriate if direct natural light is provided from another source.	Where the internal studies do not have access to direct natural light, the doorway between the study and the adjacent room must allow light to transmit through to achieve compliance with F4.3. Further details to be provided throughout design development.	CRA – Refer Annexure F

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F4.4: Artificial Lighting	Lighting to all areas is to comply with AS/NZS 1680.0:2009.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
F4.7: Ventilation borrowed from adjoining room	Ventilation may be 'borrowed' from adjoining rooms in some instances in accordance with this clause.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
F4.8: Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a – > kitchen or pantry > public dining room or restaurant > dormitory in a Class 3 building	Where the sanitary compartments open directly into any of the specified rooms, the compartments will require mechanical ventilation, although this will be required in most instances due to the lack of mechanical ventilation.	CRA – Refer Annexure F

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	> room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) > workplace normally occupied by more than one person.		
F4.9: Airlocks	If sanitary compartments are prohibited from opening directly to another room: <u>Class 2</u> > access must be by an airlock, hallway or other room; or > the sanitary compartments must be provided with mechanical exhaust ventilation. <u>Class 6, 7 & 9</u> > access must be by an airlock, hallway or other room with a floor area of not less than 1.1m2 and fitted with self-closing doors at all access doorways; or > the sanitary compartments must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.	The Sanitary Compartments will require mechanical ventilation to satisfy the ventilation provision of F4.5.	CRA – Refer Annexure F
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
F4.12: Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1:2015 and AS 1668.2:2012 where:	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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		> any cooking apparatus has: o a total maximum electrical power input exceeding 8 kW; or o a total gas power input exceeding 29 MJ/h; or > the total maximum power input to more than one apparatus exceeds: o 0.5 kW electrical power; or o 1.8 MJ gas, Per m2 of floor area of the room or enclosure.		
Part F5 – Sound Transmission and Insulation				
F5.0:	Deemed-to-Satisfy Provisions	Informational	Noted	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.	Applicable to the Class 2 parts	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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	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.		
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 > An SOU from a plant room, lift shaft, public corridor, public lobby or parts of a different classification.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
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	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section F: Health and Amenity			
	(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.		
F5.6: Sound insulation rating of services	(a) If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one *sole-occupancy unit*, the duct or pipe must be separated from the rooms of any sole occupancy unit by construction with an $R_w + C_{tr}$ (airborne) not less than— (i) 40 if the adjacent room is a habitable room (other than a kitchen); or	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

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		(ii) 25 if the adjacent room is a kitchen or non-habitable room. (b) If a storm water pipe passes through a *sole-occupancy unit* it must be separated in accordance with (a)(i) and (ii).		
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
Part F6 – Condensation Management				
F6.0:	Deemed-to-satisfy provisions	Informational	Noted	Noted
F6.1:	Application of Part	Informational	Noted	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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	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— (i) directly or via a shaft or duct to outdoor air; or	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section F: Health and Amenity			
	(ii) to a roof space that is ventilated in accordance with F6.4		
F6.4: Ventilation of roof spaces	(a) 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. (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is greater than 22º, or 1/150 of the respective ceiling area if the roof pitch is less than or equal to 22º. (c) 30% of the total unobstructed area required by (b) must be located more than 900 mm below the ridge or highest point of the roof space, measured vertically, with the remaining required area provided by eave vents.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section G: Ancillary Provisions			
Part G1 – Minor Structures and Components			
G1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G1.1: Swimming pools	N/A	N/A	N/A
G1.2: Refrigerated chambers, strong-rooms and vaults	N/A	N/A	N/A
G1.3: Outdoor play spaces	N/A	N/A	N/A

Section G: Ancillary Provisions			
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.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
Part G6 – Occupiable Outdoor Areas			
G6.1: Application of part	(a) The Deemed-to-Satisfy Provisions of this Part apply to buildings containing an occupiable outdoor area in addition to the other Deemed-to-Satisfy Provisions of the BCA. (b) The Deemed-to-Satisfy Provisions of this Part take precedence where there is a difference to the Deemed-to-Satisfy Provisions of Sections C, D, E, F and G. (c) Except for G6.2, the Deemed-to-Satisfy Provisions of this Part do not apply to – (i) an occupiable outdoor area of a *sole-occupancy unit* in a Class 2 or 3 building, Class 9c building or Class 4 part of a building; or (ii) an occupiable outdoor area with an area less than $10m^2$.	The communal open space on level 05 is classified as an occupiable outdoor area.	Noted
G6.2: Fire hazard properties	(a) Subject to (b), a lining material or assembly in an occupiable outdoor area must comply with C1.10 as for an internal element. (b) The following fire hazard properties of a lining, material or assembly in an occupiable outdoor area are not required to comply with C1.10:	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section G: Ancillary Provisions			
	(i) *Average specific extinction area.* (ii) Smoke-Developed Index. (iii) Smoke development rate. (iv) *Smoke growth rate index* (SMOGRA$_{RC}$).		
G6.3: Fire Separation	For the purposes of the Deemed-to-Satisfy Provisions of C2.7, C2.8 and C2.9, a reference to a storey includes an occupiable outdoor area, however a *fire wall* cannot be used to separate an occupiable outdoor area into different *fire compartments*.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
G6.4: Provision for escape	For the purposes of the Deemed-to-Satisfy Provisions of Part D1, a reference to a storey or room includes an occupiable outdoor area.	The occupiable areas have access to a non-fire-isolated stair and are within 20m of the top riser.	CRA – Refer Annexure F
G6.5: Construction of exits	For the purposes of the Deemed-to-Satisfy Provisions of Part D2, a reference to a storey or room includes an occupiable outdoor area.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
G6.6: Fire fighting equipment	Except for Clause 7(b)(i) of Specification E1.5, for the purposes of the Deemed-to-Satisfy Provisions of Part E1, a reference to a storey includes an occupiable outdoor area.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
G6.7: Lift installations	For the purposes of the Deemed-to-Satisfy Provisions of Part E3, a reference to a storey includes an occupiable outdoor area.	Noted	Noted
G6.8: Visibility in an emergency, exit signs and warning systems	For the purposes of the Deemed-to-Satisfy Provisions of Part E4, a reference to a storey includes an occupiable outdoor area.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section G: Ancillary Provisions			
G6.9: Light and ventilation	For the purposes of the Deemed-to-Satisfy Provisions of F4.4, F4.8 and F4.9, a reference to a room includes an occupiable outdoor area.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F
G6.10: Fire orders	For the purposes of the Deemed-to-Satisfy Provisions of G4.9, a reference to a storey includes an occupiable outdoor area.	No details have been provided; however, compliance is readily achievable subject to further design development at CC stage.	CRA – Refer Annexure F

Section J: Energy Efficiency – To be assessed by separate Section J Consultant
Part J0 – Energy Efficiency

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.

Loadbearing

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

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

Occupiable outdoor area

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

(a) that is open to the sky; and

(b) to which access is provided, other than access only for maintenance; and

(c) that is not open space or directly connected with open space.

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

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. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
6. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
7. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
8. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
9. 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.
10. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
11. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
12. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C3.8 of BCA2019.
13. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C3.9 of BCA2019.
14. 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.
15. 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.
16. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.
17. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.

18. 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 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.
19. 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.
20. 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.
21. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
22. Fire shutters and fire windows will be in accordance with Specification C3.4 of BCA2019.
23. The required exits will be fire-isolated in accordance with Clause D1.3 of BCA2019 or addressed via a fire engineered performance solution.
24. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019 or addressed via a fire engineered performance solution.
25. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more that 45m apart in the residential portion or patient care areas in the health-care building or 60m, in accordance with Clause D1.5 of BCA2019 or addressed via a fire engineered performance solution.
26. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
27. The fire-isolated exits will be in accordance with Clause D1.7 of BCA2019.
28. Smoke separation will be provided between the exit stairs at the level of discharge in accordance with Clause D1.9 of BCA2019.
29. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
30. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
31. 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.
32. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
33. 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.
34. The enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60, and have a self-closing -/60/30 fire door, in accordance with Clause D2.8 of BCA2019.
35. New pedestrian ramps will comply with AS 1428.1:2009, 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 AS 4586:2013.
36. The fire-isolated passageway will be in accordance with Clause D2.11 of BCA2019.
37. The roof of the building where the exit discharges will have an FRL of 120/120/120, and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D2.12 of BCA2019.

38. 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 AS 4586:2013.
39. 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 AS 4586:2013 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 where the edge ledge to a flight below.
40. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
41. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
42. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
43. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
44. The openable portion of a window in a bedroom of a Class 2 building will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
45. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
46. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of BCA2019.
47. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
48. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
49. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
50. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
51. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
52. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
53. Sub-floor ventilation will be provided in accordance with Clause F1.12 of BCA2019.
54. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
55. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
56. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
57. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
58. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
59. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
60. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.

61. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
62. 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.
63. 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.
64. 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.
65. The incinerator room including hoppers will in accordance with Clause G2.4 of BCA2019.
66. 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.

Electrical Services Design Certification:

67. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
68. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
69. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
70. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.

Hydraulic Services Design Certification:

71. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
72. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
73. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
74. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and appropriate part(s) of AS 2118.
75. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.

Mechanical Services Design Certification:

76. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
77. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
78. 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 AS 1668.2:2012 as applicable.
79. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2019, and AS 1668.1:2015 and AS 1668.2:2012.

80. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 s*ole-occupancy unit* will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.

81. 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.

82. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

83. 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:

    a. Dead and Live Loads – AS/NZS 1170.1:2002

    b. Wind Loads – AS/NZS 1170.2:2011

84. Earthquake actions – AS 1170.4:2007

85. Masonry – AS 3700:2018

86. Concrete Construction – AS 3600:2018

87. Steel Construction AS 4100:1998

88. Aluminium Construction – AS/NZS 1664.1 or 2:1997

89. Timber Construction – AS 1720.1:2010

90. ABCB Standard for Construction of Buildings in Flood Hazard Areas.

91. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 3 for a building of Type A Construction, including Table 4

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

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

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

Lift Services Design Certification:

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

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

97. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3.9.

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

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

100. 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.
101. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.
102. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

Acoustic Services Design Certification:

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

NSW Specification Design Certificate:

104. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10, NSW Clause C1.10, Specification C1.10 and NSW Specification C1.10 of BCA2019.
105. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C3.11, and NSW Clause C3.11(d) of BCA2019.
106. The discharge points of exits will be in accordance with Clause D1.10, and NSW Clause D1.10(f) of BCA2019.
107. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6, and NSW Clause D1.6(f)(vi)&(j) of BCA2019.
108. Stair geometry to the new stairways will be in accordance with Clause D2.13, and NSW Clause D2.13(a)(ix)(x)(xi) of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a nosing strip with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
109. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15, and NSW Clause D2.15(d)&(e) of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge leads to a flight below.
110. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, NSW Clause D2.16 & NSW Table D2.16a 1 and D2.17 of BCA2019.
111. The doorways and doors will be in accordance with Clause D2.19, NSW Clause D2.19(b)(v) and D2.20 of BCA2019.
112. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 and NSW Clause D2.21(c)&(d) of BCA2019.
113. A smoke detection and alarm systems will be installed throughout the building in accordance with Table E2.2a, NSW Table E2.2a and NSW Specification E2.2a of BCA2019.
114. Exit signage will be installed in accordance with Clause E4.5, NSW Clause E4.6, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
115. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5(b) of BCA2019 and AS 1668.2:2012.