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Regulatory Compliance Report

Rhodes East Mixed-Use Development (SSD-68363729)

Rhodes East Mixed-Use Development

15-17 and 25-27 Blaxland Road and 440-442 Concord Road, Rhodes

Prepared for: **Sterling Project Solutions Pty Ltd**
Date: **19/12/2024**
Revision: **02**

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Assessed By	Approved By	Date Approved
06/12/24	01	55	Draft for comment	Steve Hanna	Kingsley Lunt	06/12/24
19/12/24	02	58	Draft for comment 2	Steve Hanna	Kingsley Lunt	19/12/24

1. Executive Summary

Introduction

This report has been prepared for Ecove Group Pty Limited (Ecove) to accompany a State Significant Development Application (SSDA) (SSD-68363729) for the construction and operation of a mixed-use development comprising retail, fire station, commercial, seniors housing and residential uses on land identified as 15-17 and 25-27 Blaxland Road and 440-442 Concord Road, Rhodes (the site).

The proposed development seeks to facilitate high quality housing and aged care living at a strategically located site with high amenity through access to public open space. It seeks to provide landscaped open space with retail uses to support activation, as well as deliver an upgraded fire station replacing the existing station on the site. It delivers a built form outcome that is consistent with the desired future character of the Rhodes Place Strategy and the outcomes of the Design Competition undertaken.

This report/letter has been prepared in response to the requirements contained within the Planning Secretary's Environmental Assessment Requirements (SEARs) for SSD-68363729 and directly responds to the relevant SEAR(s) outlined in Table 1 below.

Table 1 SEARs Compliance Table

SEARs Requirement	Report Section / Response
Item 4	
Built Form and Urban Design • Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach. • Demonstrate how: - the development considers the design principles in Part 5, Division 6 of *State Environmental Planning Policy (Housing) 2021* and the *Seniors Housing Guidelines 2021*. - the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality. • the building design will deliver a high-quality development, including consideration of façade design, articulation, activation, roof design, materials, finishes, colours, any signage and integration of services.	• Architectural drawings • Design Report • Survey Plan • Building Code of Australia Compliance Report

The Site

The site is identified as 15-17 and 25-27 Blaxland Road and 440-442 Concord Road, Rhodes. It is located within the Canada Bay Local Government Area (LGA) and comprises seven (7) lots with an area of 5,608m2. It includes an approximate 130m frontage to Concord Road to the east and 113m frontage to Blaxland Road to the west.

Concord Road is classified as a State road and includes six (6) lanes of traffic. Rhodes railway station is located directly adjacent to the site to the west across Blaxland Road and is serviced by the T9 Northern line on the Sydney Trains heavy rail network.

The existing development on the site comprises multiple buildings including Rhodes Fire Station operated by Fire and Rescue NSW, a low-rise residential flat building, dwelling houses and a commercial building.
The site is described in Table 2 below and illustrated in Figure 1 below.

Table 2 Site Description

Ref.	Legal description	Address
1	Lot C DP 432340	442 Concord Road
2	Lot C DP 411859	440 Concord Road
3	Lot D DP 411859	
4	Lot E DP 411859	
5	Lot F DP 411859	27 Blaxland Road
6	SP 71065	25 Blaxland Road
7	Lot 1 DP 833959	15-17 Blaxland Road

Figure 1 Site Aerial Map

Source: Nearmap, edits by Ethos Urban

Project Description

The SSDA seeks development consent for the following:

- Site preparation works, including demolition of existing structures, bulk excavation and tree removal.
- Construction and operation of a mixed-use development including:
  - Ground level retail uses.
  - A fire station at the north-eastern corner of the ground level at the Concord Road frontage.

- Three podium levels of seniors housing including 30 independent living units and a residential aged care facility with 93 beds.
- Two (2) residential towers with a maximum height of 22 and 26 storeys respectively, above Blaxland Road, accommodating 348 residential dwellings.
- Four (4) basement levels including car, bicycle and motorcycle parking.

- Landscaping and public domain works including a public plaza along the southern boundary and a central garden courtyard fronting Blaxland Road; and
- Extension and augmentation of services and infrastructure as required.

The two interconnected towers are classified as a united building under Clause A7 of the Building Code of Australia 2022, Vol.1 (BCA).

For a detailed description of the proposed development, refer to the Environmental Impact Statement prepared by Ethos Urban.

Compliance Summary

As Registered Certifiers we have reviewed the concept architectural design documents prepared by BATESSMART (refer appendix A) for compliance with the building assessment provisions currently outlined in BCA 2022, as current project timeframes indicate that BCA 2022 will be that which applies to the development. Should however an application for a Construction Certificate involving works to the entrance floor not be made prior to 1 May 2025, then BCA 2025, (which is currently in draft format at the time of writing,) may be applicable.

This report has been prepared to assess the project against the BCA's prescriptive Deemed-to-Satisfy (DtS) provisions to enable issuance of construction approvals (Construction Certificates raised under the Environmental Planning and Assessment Act 1979). Further assessment of the design will be undertaken as the design develops to ensure compliance is achieved prior to approval being issued.

Deviations from the Deemed-to-Satisfy Provisions

The assessment of the schematic design documentation has revealed that the following areas deviate from the DtS provisions of the BCA. These items are to be addressed to ensure compliance is achieved, either through design amendment to achieve compliance with the DtS provisions, or through a performance solution demonstrating compliance with the Performance Requirements of the BCA:

No.	Description	DTS Clause	Performance Requirements
Fire Safety Items			
1	**General floor area and volume limitations** The aged care part has a prescriptive limitation of the maximum fire compartment size of 8,000m² and 48,000m³. Further details of the compartmentation strategy of the building (e.g., fire rating plans, details of open stair shafts, storey interconnection etc.) are necessary to determine the maximum fire compartment size, however it appears DtS limitations may be exceeded.	C3D3	C1P2, C1P2
2	**Class 9 Buildings** • Aged care parts must be divided into areas not more than 500 m2 by smoke-proof walls complying with Specification 11. • Ancillary files/ archive storage room in aged care parts having a floor area of 15m2 (>10m2) used for storage of	C3D6(3)	C1P2, C1P3

<table>
<tr><th>No.</th><th>Description</th><th>DTS Clause</th><th>Performance Requirements</th></tr>
<tr><td></td><td>administrative records to be separated from neighbouring Sole Occupancy Unit via smoke proof walls complying Specification 11.</td><td></td><td></td></tr>
<tr><td>3</td><td>Separation of Lift Shafts
Open stair within aged care part is within a shaft that is not separated from the adjacent lifts.</td><td>C3D12</td><td>C1P2, C1P4</td></tr>
<tr><td>4</td><td>Public corridors in Class 2 and 3 buildings
Level 1-3 residential enclosed corridor has a combined aggregate length of approx. 62m, whereas DtS limits are 40m.</td><td>C3D15</td><td>C1P2, E2P2</td></tr>
<tr><td>5</td><td>Protection of Openings in external walls
Protection of openings required for East elevation of class 9c aged care part as the distance to the fire source feature (side and rear boundaries) is less than 3m.</td><td>C4D3</td><td>C1P2, C1P8</td></tr>
<tr><td>6</td><td>Separation of external walls and associated openings in different fire compartments
External walls and any openings in the aged care parts within proximity of residential parts are required to be fire rated and protected as per Table C4D4;
Table C4D4 Distance between external walls and associated openings in different fire compartments
<table><tr><th>Angle between walls</th><th>Minimum distance (m)</th></tr><tr><td>0° (walls opposite)</td><td>6</td></tr><tr><td>more than 0° to 45°</td><td>5</td></tr><tr><td>more than 45° to 90°</td><td>4</td></tr><tr><td>more than 90° to 135°</td><td>3</td></tr><tr><td>more than 135° to less than 180°</td><td>2</td></tr><tr><td>180° or more</td><td>Nil</td></tr></table></td><td>C4D4</td><td>C1P2</td></tr>
<tr><td>7</td><td>When fire-isolated stairways and ramps are required
Aged care lobby stairs are not illustrated as being fire isolated.</td><td>D2D4</td><td>D1P4</td></tr>
<tr><td>8</td><td>Exit travel distances
Lower Ground (Retail 1) Class 9b Gym:
Travel to a point of choice 22m in lieu of 20m.
Level 1-3 Residential part:
9m in lieu of 6m to a point of choice.
Level 1-3 aged care part:
30m to a point of choice in lieu of 20m.
Travel to nearest of multiple exit choices 53m in lieu of 40m.
Travel to an exit from communal balcony 23m in lieu of 20m.
Level 4:
9m to a point of choice in lieu of 6m.
Level 5-14:
16m to a point of choice in lieu of 6m.
Level 15:
14m to a point of choice in lieu of 6m.</td><td>D2D5</td><td>D1P4, E2P2</td></tr>
</table>

No.	Description	DTS Clause	Performance Requirements

	• Level 16:
	  ○ 13m to a point of choice in lieu of 6m.
	• Level 17:
	  ○ 13m to a point of choice in lieu of 6m.
	• Level 21
	  ○ Travel to an exit from A/C plant room 22m in lieu of 20m.
	• Level 21
	  ○ 9m to a point of choice in lieu of 6m.		

9	**Distance between alternative exits**
	• Basement
	  ○ 97m between exits in lieu of 60m.
	• Upper Ground (Retail 2):
	  ○ 76m between exits in lieu of 60m.
	• Level 1-3 aged care part:
	  ○ 67m between exits in lieu of 60m.
		D2D6	D1P4, E2P2

10	**Travel via fire-isolated exits** • Retail 1 and Retail 2 open directly into fire stair and tenancy do not occupy the whole of storey respectively. • Upper ground fire stair egresses past Retail 6. Protection of retail 6 external wall and any openings within 6m of the external egress path of the fire stair required.	D2D12	D1P4, D1P5
11	**Travel by non-fire-isolated stairways or ramps** Distance from upper most storey in the class 9c portion using the required non-fire isolated stairway to point of discharge to open space on Upper Ground is greater than 80m.	D2D14	D1P2, D1P4
12	**Doorways and doors** The sliding doors in the aged care lobby class 9c part are within a residential part.	D3D24	D1P2, D1P4
13	**Swinging doors** Egress door in Retail 1 tenancy leading to open space on UG doors do not swing in direction of egress.	D3D25	D1P2, D1P4
14	**Fire hydrants** Details to be provided. Booster location to be confirmed as on main entrance façade.	E1D2	E1P3
15	**Fire Hose Reels** Fire Hose Reels not within 4m of the exits in UG retail tenancies. Further details to be provided.	E1D3	E1P1
16	**Fire control centres** The proposed Fire Control Centre/Room details are insufficient to assess at this stage. As the design develops, details will be	E1D15	E1P6

No.	Description	DTS Clause	Performance Requirements
	assessed for compliance. It is noted that the room is not illustrated as having two entrances and the location of the main entry of the building is to be confirmed		
Miscellaneous Items			
1	**Weatherproofing of External Walls** If the external walls are proposed to be constructed of a material not nominated in F3D5, a performance solution is to be provided by the façade engineer/registered architect demonstrating that the external walls comply with the requirements of Performance Requirement F3P1 (previously FP1.4).	F3D5	F3P1 (previously FP1.4).
2	**Restriction on location of sanitary compartments** Accessible toilet in Class 9c part opens directly to public dining area.	F6D9	F6P5

The feasibility and any additional requirements that will apply as a result of the performance solution will need to be confirmed by the professional preparing the performance solution. Any performance solution will need to be prepared by a suitably qualified/accredited professional.

Fire Safety Services

The following key fire safety services are required to meet the minimum DtS requirements.

1.	Sprinklers system throughout the building.
2.	Fire hydrant system throughout the building.
3.	Fire hose reels throughout the Retail (class 6), carpark (Class 7a) and Gym (Class 9b) portions of the building.
4.	Smoke hazard management.
5.	Fire precautions during construction. Once the building has reached 12m in height, fire hydrants and hose reels are required to be operational in at least every storey that is covered by the roof or the floor structure above, except the 2 uppermost storeys and any required booster connections must be installed. Not less than one 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 exit or temporary stairway or exit.
6.	Emergency Warning and Intercommunications System throughout the building.
7.	Emergency lifts.
8.	Automatic smoke detection and alarm system throughout the building.
9.	Carpark ventilation systems must comply with Clause 5.5 of AS/NZS1668.1-2015 except that fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated.

Refer to parts 9 and 10 of this report for further details regarding the required services.

Further Assessment

The assessment of the design documentation has also revealed that the following additional information is required in order to complete the assessment, and/or the following areas need to be further reviewed.

No.	Further Information / Review Required	Report Reference

1.	Compartmentation Plans and Structural Design to be provided for assessment of FRL separation per Spec 5 for type A construction, between parts of different classification and compartment sizes, specifically for areas of concern as follows:
	• Separation of classifications in the same storey.
	• Separation of classifications in different storeys.
	• Separation of shafts from building that connect more than 3 storeys.
	• FRL of walls separating lift and stair shaft.
	• Separation of equipment:
	  ○ Central Plant exhaust equipment in basement levels.
	  ○ On site fire pump room on Upper Ground.
	• Separation of the main switch rooms 1 and 2 located in basement and UG be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than –/120/30.
	• Bounding construction in class 2 part.	

2.	Window and door schedule to be provided to assess acceptable methods of protection, openings in fire isolated exits, openings in fire isolated lift shafts, openings in shafts.	
3.	Services penetration schedule and test reports for tested systems used to be provided to assess service penetrations in fire isolated exits, openings in floors and ceilings for services, openings for service penetrations.	
4.	Specifications and structural design to be provided for fire isolated stairways to confirm non-combustible construction and designed so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the shaft.	
5.	Services design documentation to be provided to confirm compliance with BCA provisions, including plans and design certificates to be provided for: • Hydraulic Services to confirm compliance with part J8, F and • Mechanical Services to confirm compliance with Some Hazard Management requirements and ventilation. • Electrical Services to confirm the provision of adequate services for visibility in an emergency and warning systems, artificial lighting and Power and light. • Fire (Wet and Dry) services, to confirm the nominated fire services on the proposed fire safety schedule are available. • Lift services to confirm compliant lift installations. • Stormwater connections/ civil design.	
6.	Stair design to be provided to confirm compliance for: • Goings and risers • Landings • Tactiles • Handrails • Barriers • Barrier openings and heights	
7.	Accessibility report to be provided to confirm compliance with part D4 of BCA 2022.	

8.	Energy Efficiency report to be provided to confirm compliance with Section J from a qualified ESD professional.	
9.	Façade and external wall details to be provided from a professional engineer.	
10.	A report from the acoustic engineer verifying design compliance with the provisions of Part F7	

Documentation to enable assessment and demonstrate compliance will be required to address the above items prior to approval.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.

2. Introduction

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The Site

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Figure 2 Site Aerial Map

Source: Nearmap, edits by Ethos Urban

Project Description

The SSDA seeks development consent for the following:

- Site preparation works, including demolition of existing structures, bulk excavation and tree removal.
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- Three podium levels of seniors housing including 30 independent living units and a residential aged care facility with 93 beds.
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- Extension and augmentation of services and infrastructure as required.

The two interconnected towers are classified as a united building under Clause A7 of the Building Code of Australia 2022, Vol.1 (BCA).

For a detailed description of the proposed development, refer to the Environmental Impact Statement prepared by Ethos Urban.

This report is based upon the review of the design documentation listed in Appendix A of this Report

The report is intended as an overview of the relevant provisions of the Building Code of Australia for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Registered Certifier for the Construction Certificate. For the purposes of this Report, BCA 2022 has been utilised as it is anticipated that BCA 2022 will apply to the project based on project timeframes.

3. Compliance with the Building Code of Australia

The Building Code of Australia is a performance based document, whereby compliance is achieved by complying with the Governing Requirements and the Performance Requirements.

Performance Requirements are satisfied by one of the following:

1) A Performance Solution
2) A Deemed-to-Satisfy Solution
3) A combination of (1) and (2)

4. Documentation of Performance Solutions

A Performance Solution must demonstrate compliance with all relevant Performance Requirements, or the solution must be at least equivalent to the Deemed-to-Satisfy provisions.

Compliance with the Performance Requirements is to be demonstrated through one or a combination of the following:

a) Evidence of suitability in accordance with Part A5 of the BCA that shows the use of a material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements.
b) A Verification Method including the following:
    i. The Verification Methods provided in the NCC.
    ii. Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements
c) Expert Judgement
d) Comparison with the Deemed-to-Satisfy Provisions

Where a Performance Solution is proposed as the method to achieve compliance, the following steps must be undertaken:

a) Prepare a performance-based design brief in consultation with relevant stakeholders
b) Carry out analysis, using one or more of the assessment methods nominated above, as proposed by the performance-based design brief.
c) Evaluate results from (b) against the acceptance criteria in the performance-based design brief
d) Prepare a final report that includes:
    i. All Performance Requirements and/or Deemed-to-Satisfy Provisions identified as applicable
    ii. Identification of all assessment methods used
    iii. Details of required steps above
    iv. Confirmation that the Performance Requirement has been met; and
    v. Details of conditions or limitations, if an exist, regarding the Performance Solution.

5. Preliminaries

5.1. Building Assessment Data

Summary of Construction Determination:

Part of Project	Tower 1	Tower 2
Classification	2, 6, 7a, 9b, 9c	2, 6, 7a, 9b, 9c
Number of Storeys	30	26
Rise In Storeys	26	21
Type of Construction	A	A
Effective Height (m)	82 (> 50)	66 (> 50)

Note: The effective height of the project includes all stories included in the rise in stories of the project.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Approximate Volume (m^3)	Assumed Population
Basement 1, 2, 3, 4	7a	17,200	43,119	573
Lower Ground Gym (Gym and Wellness)	9b	1,602.7	6,281	534
Upper Ground Retail	6	1,952	4,191	650
L1 – L3 Podium Aged care	9c	7,347	32,706	
Podium Rooftop with occupiable outdoor area (Level 4)	2	1953.05	6,308	
Apartments (Levels 5 – 26)	2	30,551	109,027	
Total		60,605.75	197,838	

Notes:

- The above populations have been based on floor areas and calculations in accordance with Table D2D18 (prev. Table D1.13) of the BCA.
- The floor areas to retail portions have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.
- The carpark areas have been considered ancillary to the use for the purposes of population numbers

Occupiable Outdoor Areas

BCA 2022 introduced specific provisions regarding occupiable outdoor areas. These provisions outline requirements with regards to fire ratings, egress provisions and coverage from essential services and are contained in this report.

An occupiable outdoor area is defined in the BCA as follows:

'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'

5.2. Council Development Approval

A Development Approval (DA) will be required from the relevant planning approval authority for the development. A copy of the Development Approval conditions and approved drawings will be required prior to the issuing of the Building Approval for that component of works.

The proposed development must not be inconsistent with the endorsed drawings and all relevant conditions will need to be satisfied and accurately reflect the construction issue drawings.

6. Structure

6.1. Structural Provisions (BCA B1):

Structural works are to comply with the applicable requirements of BCA Part B1, including AS/NZS 1170.0-2002, AS/NZS 1170-1-2002, AS/NZS 1170.2-2021 and AS 1170.4-2007.

Depending on the importance level of the building as determined by AS/NZS 1170.0-2002, the non structural elements of the building, including partitions (and non-structural fire walls), ceilings, services and racking/shelving may be required to comply with the seismic restraint requirements of AS 1170.4-2007. Where this is required, certification will be required confirming that the design of the seismic restraints comply with AS 1170.4-2002. This may be provided by a specialist seismic consultant or by the architect and services design engineers.

It is noted that BCA 2019 introduced a new Verification Method, B1V2 (previously BV2), which is a pathway available to verify compliance with BCA Performance Requirement B1P1 (1)(c) (previously BP1.1(a)(iii)).

Glazing is to comply with AS1288-2021, and AS2047-2014.

Prior to the issue of the Construction Certificate structural certification is required to be provided by a Professional Engineer registered on the National Engineering Register.

7. Fire Protection

7.1. Fire Compartmentation (BCA C2D2 (previously C1.1))

The BCA stipulates three levels of fire resistant construction, which is based upon the rise in storeys and classification of the building. Each of these types of construction has maximum floor area and volume limitations as per BCA Table C3D3 (previously C2.2).

Based upon the rise in storeys and use of the building, it is required to be constructed in accordance with the requirements of Type A Construction, in accordance with Tables S5C11a-g of Specification 5 of the Building Code of Australia 2022.

The building has been assessed on the basis of the following fire separation / compartmentation within the development:

- Bounding construction to the sole occupancy units of 90 minutes, 60 minutes if non-loadbearing,
- Separation between the carpark levels and the Gym facilities on lower Ground of 120 minutes.
- Separation between the retail portions and aged care of 180 minutes,
- Separation between the aged care and residential apartments of 120 minutes,
- Fire compartmentation of the building at each floor level,

The maximum floor area and volume limitations of a fire compartment as nominated in the deemed to satisfy provisions are as follows:

Classification		**Type of Construction**		
		A	**B**	**C**
9b Gym and 9c aged care building	max floor area—	8 000 m^2	5 500 m^2	3 000 m^2
	max volume—	48 000 m^3	33 000 m^3	18 000 m^3
6, 7b (Retail and carpark)	max floor area—	5 000 m^2	3 500 m^2	2 000 m^2
	max volume—	30 000 m^3	21 000 m^3	12 000 m^3

7.2. Fire Resistance (BCA C2D2 (previously C1.1))

The building should be constructed generally in accordance with the relevant provisions of Specification 5 (previously Specification C1.1) of the BCA applicable to Type A Construction, Please refer to Appendix D which outlines the required fire rating to be achieved by the development.

Where a fire wall is proposed, it is noted that the wall is to achieve a structural rating regardless of whether it is loadbearing or not. Refer to Appendix D for required FRLs.

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift Motor Rooms;
- Emergency Power Supply;
- Emergency Generators;
- Electricity Supply;
- Boilers or Batteries;
- Hydrant Pump Rooms;
- Sprinkler Pump Rooms;
- Fire Control Room

The above areas are to be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

Please note that with regards to fire separation, the provisions and required FRL's that apply to the building also apply to an occupiable outdoor space associated with the building.

7.3. Class 9c Fire and Smoke Compartmentation Provisions (BCA C3D6 (previously C2.5))

In addition to the above general fire compartmentation requirements, the BCA also contains additional prescriptive fire and smoke compartmentation provisions for Class 9c aged care areas. The deemed to satisfy requirements are as follows:

- Bounding construction to the sole occupancy units of 120 minutes where the dividing walls are loadbearing,
- Separation between the non-residential portions and the residential portions of 120 minutes,
- Residential portions separated into areas not more than 500 m^2 by smoke proof walls complying with Specification 11 (previously Specification C2.5)

Ancillary use areas containing equipment or materials that are a high potential fire hazard, must be separated from the sole-occupancy units by smoke proof walls. Ancillary use areas include, but are not limited to, the following:

- A kitchen and related food preparation areas having a combined floor area of more than 30 m^2.
- A laundry, where items of equipment are of the type that is potential fire sources (e.g. gas fire dryers).
- Storage areas greater than 10m^2 used predominantly for the storage of administrative records.

7.4. Fire Hazard Properties (BCA C2D10 and C2D11 (previously C1.10 and BCA C1.9))

External Wall Cladding

Since the building is of Type A construction, the following components are required to be completely non-combustible:

- External walls and common walls, including façade coverings, framing, insulation;
- Flooring and floor framing of lift pits;
- Non-loadbearing internal walls required to have an FRL;
- All non-loadbearing shafts;
- All loadbearing internal walls and loadbearing fire walls, including those that are part of loadbearing shafts.

Please provide product specifications and test reports to AS 1530.1-1994 for all materials to demonstrate compliance

For materials and assemblies that are required to be non-combustible, the material or system must be not deemed combustible when tested in accordance with AS 1530.1-1994.

Combustible Materials

The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required:

a) Plasterboard.
b) Perforated gypsum lath with a normal paper finish.
c) Fibrous-plaster sheet.
d) Fibre-reinforced cement sheeting.
e) 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.
f) Sarking type materials that do not exceed 1mm in thickness and have a Flammability Index not greater than 5.
g) Bonded laminated materials where -
   (i) each laminate is non-combustible; and
   (ii) each adhesive layer does not exceed 1 mm in thickness; and
   (iii) the total thickness of the adhesive layers does not exceed 2 mm; and
   (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

Any Aluminium Composite Panels must be labelled in accordance with SA TS 5344.

The BCA 2022 has included additional items that are not required to comply with the above, including glazing, fixings, packers, paints, sealants to joints, adhesives and the like.

Furthermore, the BCA now considers the following items as non-combustible, therefore non-combustibility does not need to be demonstrated to achieve compliance. These items are concrete, steel, masonry, aluminium, autoclaved aerated concrete, iron, terracotta, porcelain, ceramic, natural stone, copper, zinc, lead, bronze, brass.

The BCA does nominate that ancillary elements may not be fixed to an external wall that is required to be non-combustible unless they comprise 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 S7C7 as for an internal element; and
   ii) serves a storey—
      A. at ground level; or
      B. immediately above a storey at ground level; and
   iii) does not serve an exit, where it would render the exit unusable in a fire.
j) A part of a security, intercom or announcement system.
k) Wiring.
l) Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface.
m) Collars, sleeves and insulation associated with service installations.
n) Screens applied to vents, weepholes and gaps complying with AS 3959.
o) Wiper and brush seals associated with doors, windows or other openings.
p) A gasket, caulking, sealant or adhesive directly associated with (a) to (o)

Please provide fire hazard properties reports for any proposed signs and confirm their extent i.e. not spanning more than one storey or fire compartment:

Interior Linings

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification 7 (previously Specification C1.10) of the Building Code of Australia. The following requirements apply:

Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 2.2 kW/m^2 for class 9c portion and not less than 1.2 kW/m^2 for class 2, 6, 7 and 9b portions.
b) Wall and Ceiling Linings – Material Group No. 1, 2 and 3. All fire isolated exits and fire control room to have a group number of 1 only.
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 5.

Non-Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 2.2 kW/m^2 a maximum smoke development rate of 750 percent-minutes
b) Wall and Ceiling Linings – Material Group No. 1 & 2 and with a smoke growth rate index not more than 100, or an average specific extinction area less than 250m^2/kg
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8 (if Spread of Flame if >5)

Rigid and flexible air handling ductwork must comply with AS4254 Parts 1 & 2 2012.

Floor linings and floor coverings used in lift cars must have a critical radiant flux not less than 2.2, and wall and ceiling linings must be a Material Group No. 1 or 2.

7.5. Separation of equipment (C3D13 (previously C2.12))

Equipment listed below must be separated from the remainder of the building providing a FRL as required by Specification 5 (previously Spec C1.1) but not less than 120/120/120 with a self-closing fire door with an FRL or not less than -/120/30. When separating a lift shaft and life motor room, an FRL of not less than 12/-/- is required.

a) Lift motors and lift control panels; or
b) Emergency generators used to sustain emergency equipment operating in the emergency mode; or
c) Central smoke control plant; or
d) Boilers; or
e) A battery system installed in that building that has total voltage of 12 volts or more and a storage capacity of 200kWh or more.

7.6. Public Corridors: Class 2 and 3 Buildings (BCA C3D15 (previously C2.14))

Public corridors exceeding 40m in length to be divided into intervals of not more than 40m by smoke proof walls complying with Clause 2 of BCA Specification 11 (previously Specification C2.5)

Details of smoke proof walls and smoke doors to be provided.

7.7. Protection of Openings in External Walls (BCA C4D3, C4D4, C4D5 (previously C3.2 / C3.3 / C3.4))

The prescriptive provisions of the BCA stipulate that any external opening within 3m of the boundary, within 6m of the far boundary of a road, river, lake or the like that adjoins the allotment, or within 6m of another building on the allotment requires protection by -/60/- fire rated construction, or externally located wall wetting sprinklers.

Where a building is separated into fire compartments, the distance between parts of external walls and openings within them must be not less than the table below unless those parts of each external wall has an FRL not less than 60/60/60 and openings are protected.

Angle Between Walls	Minimum Distance
0º (walls opposite)	6m
More than 0º to 45º	5m
More than 45º to 90º	4m
More than 90º to 135º	3m
More than 135º to 180º	2m
More than 180º	Nil

Where the residential and aged care compartment external walls and any openings within are within the distances and angles tabled above, protection and fire rating is required.

As the external wall of the subject building are within 3m of the boundary, any openings within would need to be protected or a performance solution is to be sought.

Fire source feature is defined as;

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

7.8. Protection of Openings fire rated building elements (BCA C4D6, C4D11 (previously C3.5 and BCA C3.10))

The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:

a) Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving an FRL the same as the FRL of the floor it is passing through;
b) Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving an FRL the same as the FRL of the floor it is passing through; (or 120/120/120 where it is a room such as a substation);
c) Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

As the design develops, details will need to be included in relation to sealing of penetrations / construction of fire rated shafts.

8. Access and Egress

8.1. Provision for Escape (BCA D2 (previously D1))

The egress provisions for the proposed building are provided by the following:

- Fire isolated stairways
- Required non-fire isolated stairways
- Non Fire isolated Stairs
- External Doors
- Fire isolated passageway

The egress provisions that apply to the building also apply to any occupiable outdoor areas.

Detailing issues that will need to be addressed as the design develops include:

- Door Hardware
- Exit Door Operation
- Stair Construction
- Handrail and Balustrade construction
- Details of Separation of Rising and Descending Stairs
- Discharge from Fire Isolated Exits
- Details of the egress provisions to the Road.
- Door swings

8.2. Required Fire Isolation of Exits (BCA Clause D2D5 (previously D1.3))

Stairs are required to be fire isolated (in the non-aged care parts) as they connect and pass through more than 3 storeys. Stairs leading from basement connect 4 storeys and those in the residential and aged care levels pass through the entire building, hence requiring fire isolated stair.

Stairs serving the aged care parts are required to be fire isolated. Further details are required to be provided as the design progresses to demonstrate whether DtS will be met or a fire engineered solution.

8.3. Travel via Fire Isolated Exits (BCA D2D12 (previously D1.7))

The BCA requires each fire isolated stairway to provide independent egress from each storey served and discharge directly, or by way of its own fire isolated passageway to:

- A road or open space; or
- To a point in a storey 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 an unimpeded path of travel not more than 20m to a road or open space; or
- A covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter, has an unobstructed clear height throughout of not less than 3m, and provides an unimpeded path of travel to a road or open space of not less than 6m.

Additionally, where the path of travel from the point of discharge requires occupants to pass within 6m of any part of the external wall of the same building (measured horizontally), that external wall must have a 60/60/60 FRL and have any openings protected internally for a distance of 3m above or below the path of travel.

Areas where the design requires further information have been tabled in the compliance summary of this report.

8.4. Fire Stair Re-Entry (BCA D3D27 (previously D2.22))

The doors of a fire isolated exit must not be locked from the inside so as to allow provision for fire stair re-entry in Class 9c parts, or within fire isolated exits serving any storey above any effective height of 25m.

The requirement for doors to remain unlocked do not apply to a door fitted with a fail-safe device that automatically unlocks the door upon activation of a fire alarm and –

a) On at least every fourth storey the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or
b) An intercommunication system, or an audible or visual alarm system operated from within the enclosure is provided, and a sign is fixed adjacent to such doors explaining its purpose and method of operation.

8.5. Exit Travel Distances (BCA D2D5, D2D6 (previously D1.4, D1.5))

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would be satisfied.

The travel distances to exits should not exceed:

Class 5 to 9

- no point on the floor must be more than 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m

Class 2 & 3

- 6m from an exit or from a point of choice from the entrance doorway of a sole occupancy unit
- 20m from a single exit at the level of egress to a road or open space
- Alternate exits not more than 45m apart

The locations of the proposed exits indicate that the travel distances within the building are as follows:

Exit travel distances

- Lower Ground (Retail 1) Class 9b Gym:
  - Travel to a point of choice 22m in lieu of 20m.
- Level 1-3 Residential part:
  - 9m in lieu of 6m to a point of choice.
- Level 1-3 aged care part:
  - 30m to a point of choice in lieu of 20m.
  - Travel to nearest of multiple exit choices 53m in lieu of 40m.
  - Travel to an exit from communal balcony 23m in lieu of 20m.
- Level 4:
  - 9m to a point of choice in lieu of 6m.
- Level 5-14:
  - 16m to a point of choice in lieu of 6m.

• Level 15:
  ○ 14m to a point of choice in lieu of 6m.
• Level 16:
  ○ 13m to a point of choice in lieu of 6m.
• Level 17:
  ○ 13m to a point of choice in lieu of 6m.
• Level 21
  ○ Travel to an exit from A/C plant room 22m in lieu of 20m.
• Level 21
  ○ 9m to a point of choice in lieu of 6m.

Distance between alternative exits
• Basement
  ○ 97m between exits in lieu of 60m.
• Upper Ground (Retail 2):
  ○ 76m between exits in lieu of 60m.
• Level 1-3 aged care part:
  ○ 67m between exits in lieu of 60m.

The extended travel distances and distance between the exit stairs will need to addressed to comply with the deemed to satisfy provisions noted above, or be assessed as performance solutions by the Fire Safety Engineer using BCA Performance Requirements D1P4 and E2P2 (previously DP4 & EP2.2).

8.6. Dimensions of Exits (BCA D2D7, D2D8, D2D9, D2D10, D2D11 (previously D1.6))

Minimum dimensions of 1000mm width and 2000mm height to be provided within exit paths to areas accommodated by max 100 persons (note that all maintenance access ladders etc. may comply with AS1657-2018 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e. minimum 920 mm doors).

8.7. Travel via Required Non-Fire Isolated Stairs (BCA D2D14 (previously D1.9)

A required non-fire isolated stair must provide direct egress, via its own flights from every storey served to the level of road or open space.

The following additional travel distance parameters apply where a required non-fire isolated stair is utilised for egress:

- In Class 5-9 buildings, the distance from any point of a floor to road or open space is not to exceed 80m
- In a Class 5 to 8 or 9b building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than:
  - 20 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or
  - 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire isolated ramp is in opposite or approximately opposite directions

8.8. Balustrades and Handrails (BCA D3D17, D3D18, D3D19, D3D20, D3D22, D3D29 (previously D2.16 / BCA D2.17 / D2.24))

Generally

Balustrading to a minimum height of 1000mm with a maximum opening of 124mm in any direction should be provided adjacent to balconies, landings, corridors etc were located adjacent to a change in level exceeding 1000mm, or where it is possible to fall through an openable window located more than 4m above the surface beneath.

Where it is possible to fall more than 4m to the surface below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing between 150 – 760mm above the floor. It is noted that these provisions also apply to any building elements, including AC covers and the like, that are within 1m of the required balustrade.

Where a required barrier is fixed to the vertical face forming an edge of a landing, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

The public stairs and ramps located along an accessible path of travel should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

In addition to the above, handrails are required to both sides of all stairs with a width of 2m or more.

Strength and rigidity of all balustrades to play spaces are to comply with AS 1926.1.

(Class 9c) aged care part - please also note handrails are required on both sides of all corridors used by residents and they are to be fixed not less than 50mm from the wall. The above dimensions are to be measured clear of the handrails.

Openable Windows in Bedrooms

In bedrooms of the Class 2 apartments where the distance from the floor level to the level below exceeds 2m, window openings shall be provided with protection in accordance with BCA Clause D2.24.

Where the lowest part of the window opening is less than 1.7m above a floor, the window opening must be:

a) Fitted with a device to restrict the opening; or
b) Fitted with a screen with secure fittings

The device or screen required must –

a) Not permit a 125mm sphere to pass through it; and
b) Resist an outward horizontal action of 250N; and
c) Have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden

Further review will be undertaken to ensure compliance as the design develops.

8.9. Slip Resistance (BCA D3D15 (previously D2.14))

The adoption of BCA 2014 introduced a requirement for slip resistance of stairway treads and ramp surfaces. The requirements are as follows:

Table D3D15 (prev. Table D2.14) SLIP-RESISTANCE CLASSIFICATION

Application	Surface conditions	
	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

9. Services and Equipment

The following section of this report describes the essential fire safety measures and the minimum performance requirements of those measures. A draft essential fire safety schedule can be found in Appendix B.

It is noted that the provisions below also apply to occupiable outdoor areas.

9.1. Fire Hydrants (BCA E1D2 (previously E1.3))

A system of Fire Hydrants is required to be provided in accordance with BCA Clause E1D2 (prev. E1.3) and AS2419.1-2021.

Pressure and flow information will be required to confirm the required pressures and flow to the system, depending on the type of hydrant to be utilised.

The fire services/hydraulic engineer is to confirm the required flow rates for the development.

The building is required to be provided with a booster assembly as part of the fire hydrant requirements. The booster is required to be located attached to the building at the main entry. If remote from the building, the booster is to be located at the main vehicle entry or with sight of the main entry of the building within 20m of a hardstand area.

The fire pump location is to be checked by the fire services consultant for any non-compliance.

9.2. Fire Hose Reels (BCA E1D3 (previously E1.4))

A Fire Hose Reel System is required to BCA Clause E1D3 (previously E1.4) and AS2441-2005.

The system is required to provide coverage to the Class 7a basement, class 6 retail and class 9b gym zones only.

Fire hose reels are to be located within 4m of exits and provide coverage within the building based on a 36m hose length and 4m of water spray. Where required, additional fire hose reels shall be located internally as required to provide coverage. These hose reels are to be located adjacent to internal hydrants.

Fire hose reel cupboards must not contain any other services such as water meters, etc., and doors to fire hose reel cupboards are not to impede the path of egress unless a performance solution is developed under BCA Performance Requirement E1P1 (previously EP1.1).

Fire Hose reels are not to extend through Fire and Smoke Walls, except areas including main switchboard rooms, fire rated rooms to meet C3D14/ C3D14.

Some Fire hose reel locations where not shown on plans, shortfalls to be assessed once fire services documentation is provided.

9.3. Fire Extinguishers (BCA E1D14 (previously E1.6))

The provision of portable fire extinguishers is required to BCA Clause E1D14 (previously E1.6) and AS2444 – 2001.

Table E.6 details when portable fire extinguishers are required:

Occupancy Class	Risk Class (as defined in AS 2444)
General provisions – Class 2 to 9 buildings (except within sole-occupancy	a) To cover Class AE or E fire risks associated with emergency

Occupancy Class	Risk Class (as defined in AS 2444)
units of a Class 9c building)	services switchboards. (Note 1) b) To cover Class F fire risks involving cooking oils and fats in kitchens. c) To cover Class B fire risks in locations where flammable liquids in excess of 50 litres are stored or used (not excluding that held in fuel tanks of vehicles). d) To cover Class A fire risks in normally occupied fire compartments less than 500m^2 not provided with fire hose reels (excluding open deck carparks). e) To cover Class A fire risks in classrooms and associated schools not provided with fire hose reels. f) To cover Class A fire risks associated with Class 2 or 3 building or class 4 part of building.
Specific provisions (in addition to general provisions) – a) Class 9a health care building b) Class 3 parts of detention and correctional occupancies c) Class 3 accommodation for children, aged persons and people with disabilities d) Class 9c building	To cover class A and E fire risks. (Note 2)

In addition, extinguishers are to be provided to the class 2 portions of the building in accordance with the below:

- an ABE type fire extinguisher is to be installed with a minimum size of 2.5 kg; and
- extinguishers are to be distributed outside a sole-occupancy unit:
  a) to serve only the storey at which they are located; and
  b) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10 m.

Fire extinguishers are to be located in accordance with AS 2444 - 2001, often collocated with fire hydrants and/or fire hose reels.

9.4. Automatic Sprinkler Protection (BCA E1D4 – E1D13 (previously E1.5))

Automatic sprinkler protection is required to Specification 17 (previously Spec. E1.5) and AS2118.1-2017 to the following areas:

- Throughout the entire building as the effective height exceeds 25m.

A sprinkler system is required to be provided throughout the whole building in the Class 2 part. The system to the residential portions is to comply with Specification 17 (previously Spec E1.5) and the relevant parts of Specification 18 (previously Spec. E1.5a). This specification requires that a system complying with one of the following be provided:

- AS 2118.1

The sprinkler system shall be connected to and activate an occupant warning system complying with BCA Specification 20 (prev. Spec E2.2a).

Details of the proposed sprinkler system design will need to be reviewed as the design develops.

An occupant warning system should be provided in accordance with BCA Specification 17 (previously Spec E1.5).

9.5. Smoke Hazard Management (BCA E2D3 – E2D20 (previously E2.2)

Smoke hazard management shall be provided throughout the building by means of the following systems:

- Automatic Shutdown of Mechanical Systems in accordance with the requirements of AS/NZS 1668.1-2015 Amendment 1;
- Automatic Smoke Detection/Alarm System in accordance with the requirements of BCA Spec 20 Clause 3, 4 or a combination of Clause 3 and 4 (previously E2.2a) and AS 3786 and/or AS 1670.1-2018;
- Automatic Smoke Detection System complying with BCA Specification 20 Clause 4 (previously E2.2a) and AS 1670.1-2018
- Automatic Smoke Detection System to activate the smoke hazard management systems to BCA Spec 20 (previously E2.2b), AS 1670.1-2018and AS/NZS1668.1-2015 Amendment 1;
- Building Occupant Warning System activated by the smoke alarm/detection in accordance with BCA Specification 20 Clause 7 (previously Spec E2.2a) and Clause 3.22 of AS 1670.1-2018
- Automatic Pressurisation to Fire Isolated Exits in accordance with the requirements of AS/NZS 1668.1-2015 Amendment 1. It is noted that this is to be provided to the entire exit.
- Carpark ventilation systems must comply with Clause 5.5 of AS/NZS1668.1-2015 Amendment 1

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

9.6. Lift Services (BCA E3D3, E3D4, E3D5, E3D9, E3D10, E3D11E3.4 and BCA E3.6)

The passenger lifts to be installed are to be:

- Fitted with warning signs, fire service controls in accordance with Clauses E3D4, Figure E3D4, E3D9, E3D11, andE3D12 (previously E3.3, Figure E3.3, E3.7, E3.9 and E3.10) of the BCA.
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high.
- At least two emergency lifts with stretcher facilities in accordance with Clause E3D5 (previously Part E3.4) of the BCA. The two emergency lifts shall be located in separate shafts. These lifts are to serve all storeys that are served by passenger lifts.
- Be provided with the following in order to satisfy accessibility requirements:
  - A handrail in accordance with AS1735.12-1999,
  - Minimum internal floor dimensions of 1400 x 1600mm for lifts which travel more than 12m, or 1100 x 1400mm for lifts which travel not more than 12m,
  - Fitted with a series of door opening sensory devices which will detect a 75mm diameter or across the door opening between 50mm and 1550mm above floor level,
  - Have a set of buttons for operating the lift located at heights above level complying with AS1735.12 - 1999
  - For lifts serving more than 2 levels, automatic audible information within the lift car identifying the level each time the car stops, and audible and visual indication at each lift landing to indicate the arrival of a car

9.7. Exit Signs and Emergency Lighting (BCA E4D2, E4D4, E4D5, E4D6 and E4D8 (previously E4.2 E4.5, E4.6, E4.8))

Emergency Lighting and Exit Signs indicating exit location paths of travel to exits to be provided in accordance with BCA Part E4 and AS/NZS 2293.1-2018, including the potential use of photo luminescent exit signs.

Where exit signs are proposed to be above 2.7m, this will need to be documented as a performance solution by an accredited fire safety engineer. This would need to be assessed to BCA Performance Requirement E4P2 (previously EP4.2).

Details are required to be provided for review.

9.8. Emergency Warning and Intercommunications System (BCA E4D9 (previously E4.9))

An EWIS System is required in accordance with AS1670.4-2018 and BCA Clause E4D9 (previously E4.9) is required.

Details are to be provided for our review.

9.9. Fire Control Centre (BCA E1D15 (previously E1.8))

As the building has an effective height of greater than 50m, a fire control room is required accordance with BCA Specification 19 (previously Spec E1.8)

The proposed Fire Control Centre/Room details are insufficient to assess at this stage. As the design develops, details will be assessed for compliance.

It is noted that the room is not illustrated as having two entrances and the location of the main entry of the building is to be confirmed.

9.10. Fire Precautions During Construction (BCA E1D16 (previously E1.9))

After the building has reached an effective height of 12m, the following fire services are required to be operational:

- Required fire hydrants and fire hose reels on every storey covered by the roof/floor structure (except the 2 uppermost storeys); and
- Booster connections installed.

Due to the height of the building this will need to be considered and implemented during construction.

10. Health and Amenity

10.1. Stormwater Drainage (BCA Clause F1D3 (previously Clause F1.1)

Stormwater drainage systems serving the building are to comply with AS3500.3 - 2018.

Details are to be provided as the design progresses.

10.2. Surface Water Management (BCA Part F1)

Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must not be located beneath or run through a planter box, water feature or similar part of the building.

Joints are to be protected in accordance with Section 2.9 of AS 4654.2.

All external above ground areas (roof slabs, balconies etc.) shall be protected by a waterproofing system in accordance with AS4654 Parts 1 and 2 – 2012.

10.3. Floor Wastes (BCA Clause F2D4 (previously F1.11)

Floor wastes to be provided within bathrooms and laundries where located above another sole occupancy unit. The floor shall be sloped towards these wastes.

Floor wastes are required to be provided where wall hung urinals are provided and the floor shall be sloped towards these wastes.

Floor wastes are not indicated.

10.4. Roof & Wall Cladding (BCA Part F3 (previously Part F1))

BCA 2022 has introduced some deemed to satisfy provisions that relate to the waterproofing of external walls. These provisions apply as follows:

- Masonry, including masonry veneer, unreinforced and reinforced masonry is to comply with AS 3700
- Autoclaved aerated concrete is to comply with AS 5146.3
- Metal wall cladding is to comply with AS 1562.1

Where the installation is not proposed to comply with the above, or a different material is proposed to be used, a performance solution can be utilised to demonstrate compliance.

Performance Requirement F3P1 (previously FP1.4) which relates to the prevention of the penetration of water through external walls, must be complied with. Where a performance solution is proposed, it is to be prepared by a suitably qualified professional (façade engineer with NER for structural engineering) that demonstrates that the external walls of the proposed building comply with Performance Requirement F3P1 (previously FP1.4) which reads as follows:

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—

a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
b) undue dampness or deterioration of building elements.

10.5. Wet Areas & Overflow Protection (BCA Part F2 (previously Part F1)

Internal wet areas throughout the development (e.g. bathrooms, laundries) shall be waterproofed in accordance with AS3740 - 2010 requirements.

Further review will be undertaken as the design develops with respect to the specification of waterproofing membrane, provision of water-stops at doorways etc.

10.6. Sanitary Facilities (BCA F4D2, F4D3, F4D4, F4D5, F4D6 (previously F2.2 and F2.3)

Retail

Separate sanitary facilities are required to be provided for male & female employees. In relation to the public, sanitary facilities are required to be provided either where more than 600 persons can be accommodated (standard shops) or for café / restaurant where there are more than 20 seats.

Apartments

Each apartment is required to be provided with the following:

- A kitchen sink and facilities for the preparation and cooking of food; and
- A bath or shower; and
- A closet pan and wash basin; and
- Clothes washing facilities comprising at least one wash tub and space for a washing machine; and
- Clothes line of at least 7.5m, or space for one heat operated drying device within the same space as the clothes washing.

The design submitted indicates that each apartment should satisfy the above requirements.

The following table summarises the sanitary facilities required / provided:

Sanitary Facilities Required / Provided			
Class 9b Gym	WC	Urinals	Basins
Male – 267	14	7	9
Female - 267	18	0	9
Accessible	1	0	1
The Above Facilities are adequate for 267 males & 267 females			
The Following additional facilities would be required			
Male	5	1	3
Female	5	0	2
Accessible	0	0	0

Sanitary Facilities Required / Provided			
Class 6 retail	WC	Urinals	Basins

Sanitary Facilities Required / Provided			
Male – 325	17	8	11
Female – 325	22	0	11
Accessible	1	0	1
The Above Facilities are adequate for 325 males & 325 females			
The Following additional facilities would be required			
Male	13	4	8
Female	17	0	8
Accessible	0	0	0

Detailed designs will need to be developed as to the layout, dimensions, etc of the sanitary facilities.

Note: The Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

Bathroom Construction

Where bathrooms or rooms containing water closets have the WC within 1200mm of the doorway, the door shall be either sliding, open outwards, or be provided with removable hinges.

10.7. Light and Ventilation (BCA Part F6 (previously Part F4)

Class 2 Part:

Natural light and ventilation is to be provided to all habitable rooms at a rate of 10% and 5% of the floor area of the rooms respectively.

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 not be less than a horizontal distance from that boundary or wall that is the greater of:

(i) generally — 1 m; and
(ii) 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill.

Class 6, 7 & 9c Part:

Natural Ventilation is required to be provided to rooms at a rate of 5% of the floor area in openings. Alternatively, mechanical ventilation is required in accordance with AS1668.2-2012

Artificial lighting complying with AS/NZS1680.0-2009 is to be incorporated with the final detailed design to be developed to confirm this.

These provisions also apply to areas considered as occupiable outdoor areas.

(Class 9c) A required window must be transparent and located:

(i) in an external wall with the window sill not more than 1 m above the floor level; and

(ii) where the window faces an adjoining allotment, another building or another wall of the same building, it must not be less than a horizontal distance of 3 m from the adjoining allotment, other building or wall.

10.8. Sound Transmission and Insulation (BCA Part F7 (previously Part F5))

Building elements within Class 2 buildings should provide the following sound insulation levels.

Location	Notes	Sound Insulation Requirement
Walls separating habitable rooms		$R_w + C_{tr} \geq 50$
Walls separating habitable room and kitchen or bathroom	Wall must be of Discontinuous Construction	$R_w + C_{tr} \geq 50$
Floor separating habitable rooms	Impact isolation required	$R_w + C_{tr} \geq 50$ $L_{n,w} + C_l \leq 62$
Duct, soil, waste or water supply pipe, including pipes that is located in a floor or wall cavity, serves or passes through more than one room	Adjacent habitable room or Adjacent non-habitable room	$R_w + C_{tr} \geq 40$ or $R_w + C_{tr} \geq 25$
Door to habitable room		$R_w \geq 30$

Building elements within Class 9c buildings should provide the following sound insulation levels.

Location	Notes	Sound Insulation Requirement
Floors separating sole occupancy units		$R_w \geq 45$
Walls separating sole occupancy units	Wall must be of Discontinuous Construction	$R_w \geq 45$
Wall separating a sole-occupancy unit from a kitchen, bathroom, sanitary compartment (not being an associated ensuite), laundry, plant room or utilities room		$R_w \geq 45$

Please note for walls requiring impact resistance an air gap between leafs of the wall construction is required to be provided.

Please provide a report from the acoustic engineer verifying design compliance with the provisions of Part F7 (previously Part F5) of the BCA.

10.9. Condensation management (BCA Part F8 (previously Part F6)

External Wall Construction

Pliable building membranes installed to an external wall must:

- achieve compliance with AS 4200.1, and
- be installed in accordance with AS4200.2, and
- be located on the exterior side of the primary insulation layer or the wall assembly and except for the single skin mason and single skin concrete be separated from water sensitive materials.

Where a pliable building membrane, sarking-type material or insulation layer is installed on the exterior side of the primary insulation layer, it must have a vapour permeance of not less than: 0.143µg/N.s in climate zones 4 and 5, and not less than 1.14µg/N.s in climate zones 6,7 and 8.

Exhaust Systems

Exhaust systems must achieve a minimum flow rate of 25L/s for bathrooms and sanitary compartments and 40L/s for kitchens and laundries. These exhaust systems must all discharge directly or via a shaft/duct to outdoor air.

An exhaust system that is not run continuously and is serving a bathroom or sanitary compartment that is not ventilated in accordance with F6D7 is to be:

- Interlocked with the rooms light switch; and
- Include a run on timer so that the exhaust system continues to operate for 10 minutes after the light switch is turned off.

11. Energy Efficiency

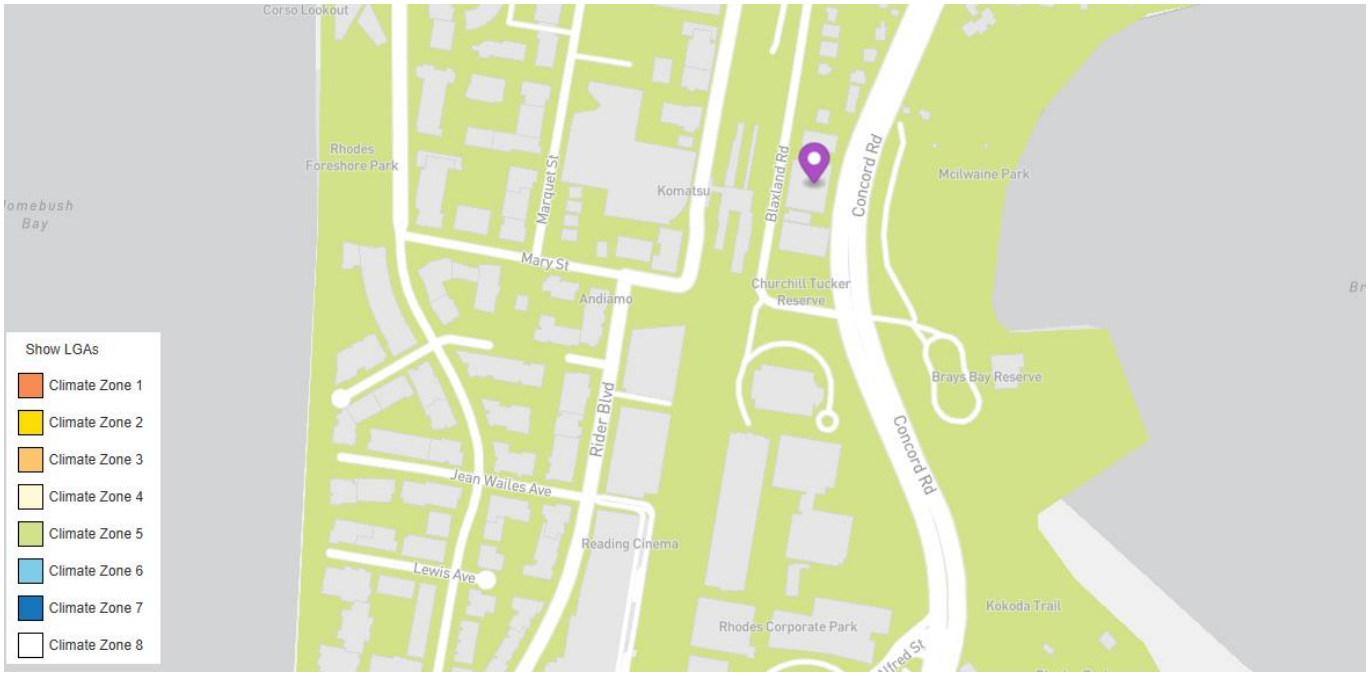
The residential (Class 2) portions of the building are subject to BASIX, and a BASIX Certificate will be required prior to the issuance of the Construction Certificate for the works. It is noted that some provisions outlined in the BCA still apply in addition to BASIX.

11.1. SECTION J (JP1 Energy Efficiency)

Efficient energy use must be achieved appropriate to the function and use of the building, level of human comfort, solar radiation, energy source of the services and sealing of the building envelope. To achieve this JV1, JV2, JV3, JV4 and JV5 verification methods have been introduced as options available to achieve compliance.

It is noted that a deemed to satisfy pathway is still available.

The proposed site will be located in a climate zone 5.



Due to special nature of the building some energy provisions may not be appropriate.

Certification from an appropriately qualified engineer should be provided for either option with a report / computation outlining how compliance is achieved.

Verification Methods

The Verification Methods available to demonstrate compliance with the BCA on a performance basis are as follows:

J1V1 NABERS Energy for Class 2 (Other than Sole Occupancy Units)

For a Class 2 building, other than sole-occupancy units, compliance with J1P1 is verified when—

a) a minimum 4-star NABERS Energy for Apartment Buildings Commitment Agreement is obtained; and
b) air-conditioning, which operates not less than 18 hours per day, is provided to all enclosed common lift lobbies and corridors; and
c) the energy model required for (a) demonstrates—

i. the greenhouse gas emissions of the services are less than 90% of the 5-star level; and

ii. a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor area of the air-conditioned common area occupied zones, excluding indoor swimming pool chambers, for not less than 98% of the annual hours of operation of the building; and

iii. the space temperature in any indoor swimming pool chamber is maintained at 2°C above the pool temperature during occupied hours of not less than 12 hours per day; and

d) the building complies with the additional requirements in Specification 33.

The calculation method must comply with ANSI/ASHRAE Standard 140

J1V2 (previously JV3) Green Star

To achieve compliance with J1P1 (previously JP1) for Class 6, 7 & 9 Parts and common area of Class 2 buildings Green Star can be used as a verification method when the calculation method complies with ANSI/ASHRAE Standard 140, Specification 34 (previously Spec JVb) and when:

- The building complies with simulation requirements and is registered for a Green Star – Design & As-Built rating; and
- The annual greenhouse gas emissions of the proposed building are less than 90% of the annual greenhouse gas emissions of the reference building; and
- In the proposed building, a thermal comfort level of between predicted mean vote of -1 to +1 is achieve across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation of the building; and

J1V3 (previously JV3) Verification Using a Reference Building

To achieve compliance with JP1 for Class 6, 7 & 9 Parts and common area of Class 2 buildings verification using a reference building can be used when the calculation method complies with ANSI/ASHRAE Standard, Specification 34 (previously Spec JVb) and when:

- It is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when
  - the proposed building is modelled with the proposed services; and
  - the proposed building is modelled with the same services as the reference building.
  - The proposed building thermal comfort level is to be between predicted mean vote of -1 to +1 across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation; and
  - The building achieves the additional requirements in Specification 33 (previously Spec JVa); and
  - The greenhouse gas emissions of the proposed building may be offset by renewable energy generated and use on site and another process such as reclaimed energy used on site.

J1V4 (previously JV4) Building Envelope Sealing

Compliance with J1P1(e) (previously JP1) and J1P2 (previously JP2) is verified for building envelope sealing when the envelope is sealed at an air

- permeability rate, tested in accordance with Method 1 of AS/NZS ISO 9972, of not more than—For the class 2 part of the building, 10m³hr.m² at 50 Pa reference pressure; or
- For the class 6 Part, 5 m³/hr.m² at 50 Pa reference pressure; or
- For class 9c Part, 5m³/hr.m² at 50 Pa reference pressure.

Part J3 and performance solution that uses on of the other NCC assessment Methods which verifies that compliance with JP1 (e) will be achieve can also be used as verification methods.

In the sole-occupancy unit of the Class 2 Part, where an air permeability rate of not more than 5 m3/hr.m2 at 50 Pa reference pressure is achieved—

a) a mechanical ventilation system must be provided that—
   i. can be manually overridden; and
   ii. provides outdoor air, either—
      A. continuously; or
      B. intermittently, where the system has controls that enable operation for not less than 25 per cent of each 4 hour segment; and
   iii. provides a flow rate not less than that achieved with the following formula:
      Q = (0.05 x A + 3.5 x (N + 1)) / p (refer J1V4 for full articulation of equation.
b) any space with a solid-fuel burning combustion appliance must be ventilated with permanent openings directly to outside with a free area of not less than half of the cross-sectional area of the appliance's flue; and
c) any space with a gas-fuelled combustion appliance must be ventilated in accordance with—
   i. clause 6.4 of AS/NZS 5601.1; and
   ii. clause 6.4.5 of AS/NZS 5601.1.

   The volume of the space is considered to be 1 m3 for determining ventilation requirements.

J1V5 Verification Using a Reference Building for a Class 2 Sole Occupancy Unit

Compliance with J1P2 is verified when each Class 2 sole-occupancy unit of a proposed building—

a) in climate zone 5, has a heating load less than or equal to—
   i. that of a reference building; and
   ii. 120% of J1P2(1); and
b) in climate zone 5, has a cooling load less than or equal to—
   i. that of a reference building; and
   ii. 120% of J1P2(2); and
c) complies with the additional requirements in Specifications 33 and 45 as applicable.

Compliance with J1P3 is determined when the energy value of the domestic services, including all centralised domestic services infrastructure, of a proposed building is less than that of a reference building when—

a) each sole-occupancy unit of a reference building has—
   i. a 3-star ducted air-to-air heat pump, rated under the 2019 GEMS determination, heating all spaces that
   ii. are provided with heating; and
   iii. a 3-star ducted heat pump, rated under the 2019 GEMS determination, cooling all spaces that are provided with cooling; and
   iv. a 5-star instantaneous gas water heater, rated under the 2017 GEMS determination, providing all domestic heated water; and
   v. a lighting power density of 4 W/m2 serving all internal spaces that are provided with artificial lighting; and
b) the proposed building and a reference building comply with the additional requirements in Specifications 33 and 45 as applicable.

The calculation method used above must—

a) comply with ANSI/ASHRAE Standard 140; and
b) not be house energy rating software.

11.2. Elemental Provisions for a Sole Occupancy Unit (Part J3)

These provisions apply to the building fabric and energy efficiency of domestic services of a sole occupancy unit of a Class 2 building.

Reducing Heating and Cooling Loads

The sole occupancy units of the Class 2 part must, for reducing the heating or cooling loads, collectively achieve an average energy rating of not less than 7 stars, including the separate heating and cooling load limits. Individually, an energy rating of not less than 6 stars must be achieved for each unit. This also must include separate heating and cooling load limits.

The units must also comply with the following:

- for thermal breaks, comply with J3D5 and J3D6; and
- for compensating for a loss of ceiling insulation, other than where the house energy rating software has compensated for a loss of ceiling insulation, comply with Table J3D7w; and
- for general thermal construction, comply with J4D3; and
- for floor edge insulation, comply with J3D10(3), J3D10(5) and J3D10(6); and
- for building sealing, comply with Part J5

Ceiling Fans

Ceiling fans must be installed in climate zones1, 2 and 3, and in climate zone 5 in New South Wales and Queensland. Ceiling fans must be permanently installed an have a speed controller, and are to be installed as follows:

Size of room (m2)	Minimum number and diameter (mm) of ceiling fans required for a bedroom in climate zones 1, 2 and 3	Minimum number and diameter (mm) of ceiling fans required in a habitable room other than a bedroom
< 15	1 x 900	1 x 900
≥ 15 to < 20	1 x 1200	1 x 1200
≥ 20 to < 25	1 x 1200	1 x 1400
≥ 25 to < 30	1 x 1400	2 x 1200
≥ 30 to < 45	1 x 1400	2 x 1400
≥ 45 to < 50	2 x 1400	3 x 1200
≥ 50	2 x 1400	3 x 1400

Thermal Breaks

A roof that has metal sheet roofing directly fixed to metal purlins, metal rafters or metal battens; and does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens, must have a thermal break, consisting of a material with an R-Value of greater than or equal to R0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.

A metal-framed wall that forms part of the building envelope must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed at all points of contact between the external cladding and the metal frame if the wall does not have a wall lining or has a wall lining that is fixed directly to the same metal frame, and is clad with weatherboards, fibre-cement or the like, or metal sheeting fixed to a metal frame.

This does not apply to roofs or walls constructed using insulated sandwich panels.

Roofs and Ceilings

Roof and ceiling insulation must achieve the minimum R-value as nominated in Clause J3D7 of the BCA.

Reflective insulation installed to comply with this clause must have a surface emittance of not more than 0.05, be adjacent to a roof space of not less than 20mm and, in climate zones 3-8, be downward facing.

The thermal bridging in a metal framed roof must be addressed as follows:

- For a pitched roof with a horizontal ceiling –
  a) achieving the Total R-Value in Table J3D7s, calculated using a method that accounts for the effects of thermal bridging; or
  b) increasing the R-Value of the insulation between the ceiling frames by R0.5 more than the R-Value derived by roof and ceiling insulation requirements in Clause J3D7; or
  c) adding a continuous ceiling insulation layer with a minimum R-Value of R0.13 above or below the ceiling joists or the bottom chords of the trusses; or
  d) achieving the required ceiling R-Value derived from (1) by stacking two layers of insulation immediately on top of each other, such that the top layer is orientated to cover the ceiling joists or bottom chord of the trusses and has an R-Value of at least R0.5; or
- for a flat, skillion or cathedral roof—
  a) achieving the Total R-Value in Table J3D7t, calculated using a method that accounts for the effects of thermal bridging; or
  b) complying with Table J3D7u.

Where F8D5(1) applies, continuous insulation placed above the primary insulation layer to mitigate thermal bridging
must have a vapour permeance of not less than that of the primary insulation layer.

Where, for operational or safety reasons, the area of ceiling insulation required is reduced, the loss of insulation must
be compensated for in accordance with Table J3D7w.

Where the ceiling insulation required by (1) to (5) has an R-Value—

a) greater than R3.0 and less than or equal to R4.5, it may be reduced to R3.0 within 450 mm of an external wall; or
b) greater than R4.5, it may be reduced to R3.0 within 450 mm of an external wall, provided all other required ceiling insulation is increased by R0.5.

These requirements do not apply to roofs constructed using insulated sandwich panels. Roofs constructed using insulated sandwich panels must achieve the minimum Total R-Value in Table J3D7x.

In climate zones 1 to 5, the solar absorptance of the upper surface of a roof must not be more than 0.64

External Walls

The Total R-Value of an external wall—

a) in climate zone 5 —
   i. where the ratio of the area of opaque external walls to the floor area of the sole-occupancy unit is less than 20%, must be at least R1.15; and
   ii. where the ratio of the area of opaque external walls to the floor area of the sole-occupancy unit is greater than or equal to 20% but less than 35%, must be at least R2.04; and
   iii. where the ratio of the area of opaque external walls to the floor area of the sole-occupancy unit is greater than or equal to 35%, must be at least R2.24; and

The Total R-Value of an external wall must be determined in accordance with—

a) for a spandrel panel in a curtain wall system, in accordance with Specification 38; and
b) for all other walls, in accordance with AS/NZS 4859.2.

The solar absorptance of an external wall must in climate zones 1 to 6, be in accordance with Table J3D8a; and, in climate zones 7 and 8, be in accordance with Table J3D8b.

Wall Glazing

The Total System U-Value of wall-glazing construction that forms part of the external building fabric must not be greater than—

- in climate zones 1 to 5, U2.2;

The Total System U-Value of wall-glazing construction that forms part of the external building fabric, and the solar admittance must be calculated in accordance with Specification 37.

Wall components of wall-glazing construction must achieve a minimum Total R-Value of—

- where the wall is less than 80% of the area of the wall-glazing construction, R1.0; or
- where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J4D6a for a Class 3 building.

In climate zones 1 to 6, the solar admittance of externally facing wall-glazing construction must be not greater than that shown in Table J3D9.

The solar absorptance of an external wall must be in accordance with J3D8(3).

Floors

Where a sole-occupancy unit of the Class 2 part of a building has a concrete floor above an unenclosed carpark, under croft, or the like, underfloor insulation must be installed with an R-Value at least—

- in climate zone 2 and climate zones 5 to 8, R2.0;

Where a sole-occupancy unit of the Class 2 part of a building has a concrete floor above an enclosed carpark, under croft or the like, underfloor insulation must be installed with an R-Value at least—

- in climate zones 4 and 5, R1.0;

A concrete slab-on-ground with an in-slab or in-screed heating or cooling system must have insulation with an R-Value at least 1.0 installed around the vertical edge of its perimeter. This does not apply to an in-screed heating or cooling system used solely in a bathroom, amenity area or the like.

Insulation required by the above must be water resistant, continuous from the adjacent finished ground level to a depth of not less than 300 mm, or, for at least the full depth of the vertical edge of the concrete slab-on-ground.

Winter Glazing

In climate zones 2 to 8, the ratio of the conductance (CU) and solar heat gain (CSHGC) of the glazing of each storey, including any mezzanine, of a sole-occupancy unit of the Class 2 part of a building must not exceed the allowance obtained from Table J3D11a; and be calculated in accordance with the formula outlined in Clause J3D11.

Summer Glazing

In climate zones 1 to 7, the aggregate solar heat gain of the glazing in each storey, including any mezzanine, of a sole-occupancy unit of the Class 2 part of a building must not exceed the allowance resulting from multiplying the floor area of the storey, including any mezzanine, measured within the enclosing walls, by the constant CSHGC obtained from Table J3D12a; and be calculated in accordance with the formula outlined in Clause J3D12.

Shading

Where shading is required to comply with J3D11 or J3D12, it must be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves, shading hood or carport, which extends horizontally

on both sides of the glazing for a distance greater than or equal to the projection distance P in Figure S37C7 or provide the equivalent shading to the above with a reveal or the like.

Alternatively, shading is to be provided by an external shading device, such as a shutter, blind, vertical or horizontal building screen with blades, battens or slats, which is capable of restricting at least 80% of the summer solar radiation, and, if adjustable, is readily operated either manually, mechanically or electronically by the building occupants.

Net Equivalent Energy Usage

The net equivalent energy usage of a sole occupancy unit of the Class 2 part must not exceed the allowance calculated. The usage and allowance must be calculated in accordance with the formulas outlined in Clause J3D14.

A sole-occupancy unit of the Class 2 part of the building must achieve a whole-of-home rating of not less than 50 using house energy rating software.

11.3. Building Fabric (Part J4 (previously Part J1))

Roof and Ceiling Construction (Part J4D4 (previously J1.3))

For a deemed-to-satisfy solution roofs and or ceilings are to be constructed to provide a total R-Value greater than or equal to-

(i) in climate zones 1, 2, 3, 4 and 5, R3.7 for a downward direction of heat flow;

In climate zones 1, 2, 3, 4, 5, 6 and 7, the solar absorptance of the upper surface of a roof must be not more than 0.45.

Where the layer of insulation is penetrated by the percentages as tabled below, additional upgrading of the remainder of the insulation level is required.

To achieve compliance with J0.2 (c) a roof that has a metal sheet roofing fixed to metal purlins, metal rafters or metal battens and does not have a celling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens must have a thermal break. The thermal break to be consisting of a material with a R-Value of not less than R0.2, installed at all points of contact between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.

Roof lights (Part J4D5 (previously J1.4))

Where roof lights are installed they must have:-

(a) a total area of not more than 5% of the floor area of the room or space served; and
(b) transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of: -
  (i) for Total system SHGC, in accordance with the below table; and
  (ii) for Total system U-value, not more than U3.9.

Roof light shaft index (see Note 1)	Total area of roof lights up to 3.5% of the floor area of the room or space	Total area of roof lights more than 3.5% and up to 5% of the floor area of the room or space
Less than 1.0	Not more than 0.45	Not more than 0.29

Roof light shaft index (see Note 1)	Total area of roof lights up to 3.5% of the floor area of the room or space	Total area of roof lights more than 3.5% and up to 5% of the floor area of the room or space
1.0 to less than 2.5	Not more or equal to than 0.51	Not more than 0.33
Greater than 2.5	Not more than or equal to 0.76	Not more than 0.49

External Walls and Glazing (Part J4D6 (previously J1.5))

For walls and glazing construction, the total system U-value must not be greater than-

(i) for the Class 2 common area, a Class 6, and 7 part, U2.0; and
(ii) for the Class 9c building–
(a) in climate zones 2 or 5, U2.0;

The total system U-value of wall-glazing construction should be calculated in accordance with Specification 37 (previously J1.5a).

Wall components of the wall-glazing construction must achieve a minimum total R-Value of R1.0 where the wall is less 80% if the area and reflect the value specified in Table J4D6a (previously J1.5a) where the wall is *0% or more of the area.

There are further design parameters for display glazing and solar admittances for wall-glazing construction, both of which should comply with the relevant provisions of J4D6 (previously J1.5).

Floors (Part J4D7 (previously J1.6))

Floors are to achieve an R rating of 2.0 for a floor without an in-slab heating or cooling system and an R Rating of 3.25 for a floor with an in-slab heating or cooling system.

11.4. Building sealing (Part J5 (previously J3))

Windows and Doors (Part J5D5 (previously J3.4))

a) A door, openable window or the alike must be sealed –
(i) When forming part of the envelope; or
(ii) In climate zones 4,5,6,7 or 8
b) The requirements of (a) do not apply to –
(i) A window complying with AS2047; or
(ii) A fire door or smoke door; or
(iii) A roller shutter door, roller shutter grille or other security door or device installed only for out of house security
c) A seal to restrict air infiltration –
(i) For the bottom edge of a door, must be draft protection device; and
(ii) For the other edged of a door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like.
d) An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, rapid roller door, revolving door or the like, other than –
(i) When the conditioned space has a floor area of not more than 50m²; or
(ii) Where a café, restaurant, open front shop or the like has –

(A) A 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and

(B) At all other entrances to the café, restaurant, open front shop or the like, self-closing doors.

(iii) A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like

Exhaust fans (Part J5D6 (previously J3.5))

An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space or a habitable room in climate zone 5.

Construction of ceilings, walls and floors (Part J5D7 (previously J3.6))

A seal to restrict air infiltration must be fitted to each edge of the external doors and openable windows. The seals may be foam or compressible strip, fibrous seal or the like. The main entry doors must have either an airlock, or self-closing doors, or a revolving door.

Ceilings, walls, floors and any openings such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage in accordance with the below when forming part of –

(i) The envelope; or
(ii) In climate zone 5.

Construction required by above must be –

(iii) Enclosed by internal lining systems that are close fittings at ceiling, wall and floor junctions; or
(iv) Sealed at junctions and penetrations with –
  (A) Close fitting architrave, skirting or cornice; or
  (B) Expanding foam, rubber compressible strip, caulking or the like

The above does not apply to openings, grilles or the like required for smoke hazard management.

Evaporative coolers (Part J5D8 (previously J3.7))

An evaporative cooler must be fitted with a self-closing damper or the like –

(a) When serving a heated space; or
(b) In climate zone 5.

11.5. Air Conditioning and Ventilation systems (Part J6 (previously J5))

Air conditioning and ventilation systems must be designed to comply with the following provisions:

- Be capable of being deactivated when the building or part of a building being served by that system is not occupied;
- Where motorised dampers are in place, they should close when the system is deactivated
- Time switches should be provided to control an air-conditioning system of more than 2kWr and a heater of more than 1kW $_{\text{heating}}$ used for air-conditioning, and be capable of switching electric power on and off at variable pre-programmed times on variable pre-programmed days.
- Ductwork and fittings in an air-conditioning system should have insulation complying with AS/NZS 4859.1 and have an insulation R-Value greater than or equal to:-

- for flexible ductwork R1.0; or
- for cushion boxes, that of the connecting ductwork; or
- That specified in Table J6D6 (previously J5.5)

Table J6D6 (previously Table J5.5)

Location of ductwork and fittings	Climate zone 1, 2, 3, 4, 5, 6 or 7	Climate zone 8
Within a conditioned space	1, 2	~~2.0~~
Where exposed to direct sunlight	3.0	~~3.0~~
All other locations	2.0	~~3.0~~

Mechanical:

- Be capable of being deactivated where the building or part of the building served by that system is not occupied
- Time switches must be provided to a mechanical ventilation system with an air flow rate of more than 1000 L/s, capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days;

Heaters

A heater used for air-conditioning or as part of an air-conditioning system must be a either a solar heater, gas heater, heat pump heaters, a heater using reclaimed heat or an electric heater.

A gas water heater, that is used as part of an air-conditioning system must:-

(i) if rated to consume 500 MJ/hour of gas or less, achieve a minimum gross thermal efficiency of 86% ; or
(ii) If rated to consume more than 500 MJ/hour of gas, achieve a minimum gross thermal efficiency of 90%

Refrigerant chillers

An air-conditioning system refrigerant chiller must comply with MEPS and the full load operation energy efficiency ratio and integrated part load energy efficiency ratio laid out under clause J5.10 of the BCA when determined in accordance with AHRI 551/591

Unitary air-conditioning equipment

Unitary air-conditioning equipment including packaged air-conditioners, split systems, and variable refrigerant flow systems must comply with MEPS and for a capacity greater than or equal to 65 kWr –

(a) Where water cooled, have a minimum energy efficiency ratio of 4.0 W_r/ $W_{input\ power}$ for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power; or
(b) Where air cooled, have a minimum energy efficiency ratio of 2.9 W_r / $W_{input\ power}$ for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power.

11.6. Artificial Lighting and Power (Part J6)

Interior Artificial Lighting and Power Control (Part J6.2 & 6.3)

In the sole-occupancy units of the Class 2 part the lamp power density/illumination power density of artificial lighting must not exceed the allowance of 5 W/m^2 within a sole-occupancy unit and 4 W/m^2 on a verandah, balcony or the like attached to a sole-occupancy unit.

In the building other than the sole-occupancy unit of a Class 2 part for artificial lighting, the aggregate design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum illumination power density below:-

The maximum illumination power density;

Common rooms, spaces and corridors in the Class 2 part	4.5W/m^2
Stairways, including fire-isolated stairways	2W/m^2
Toilet, locker room, staff room, rest room or the like	3W/m^2
Lift cars	3W/m^2
Service area, cleaner's room and the like	3W/m^2
Control room, switch room or the like	
(A) intermittent monitoring	3W/m^2
(B) Constant monitoring	4.5W/m^2
Plant room:	
(A) Where an average of 160 lx vertical illuminance is required on a vertical panel such as in switch rooms	4W/m^2
(B) With a horizontal illuminance target of 80 lx	2W/m^2
Retail:	14W/m^2
Corridors:	5W/m^2
Common rooms, spaces & corridors in a Class 2 building	4.5W/m^2
Lounge area for communal use in 9c building	4.5W/m^2
Storage	1.5W/m^2
Kitchen and food preparation area:	4W/m^2
Car parks:	
(A) General	2W/m^2
(B) Entry zone (first 15m of travel during the daytime	11.5W/m^2
(C) Entry zone (next 4m of travel) during the day	2.5W/m^2
(D) Entry zone (first 20m of travel) during nighttime	2.5W/m^2
Restaurant, café, bar:	14W/m^2

Artificial Lighting must be controlled by a time switch, other control device or a combination of both.

Each light control in a building must not operate lights within an area of more than;

- 250m^2 if in the Class 6 part.
- Not operate lighting for an area more than -
  a) 250m^2 for a space of not more than 2000m^2;
  b) 1000m^2 for a space of more than 2000m^2
  if in the Class 6, 7, or 9 building;
- 1000m^2 for a space of more than 2000m^2

<u>Interior decorative and display lighting</u>

Interior decorative and display lighting, such as for a foyer mural or art display, must be controlled -

- Separately from other artificial lighting; and
- By a manual switch for each area other than when operating times of the displays are the same in a number of areas (e.g. where in a museum) in which case they may be combined; and
- By a time switch in accordance with Specification 40 (previously J6) where the display lighting exceeds 1 kW

Window display must be controlled separately from other display lighting exceeds 1kW.

Exterior artificial lighting

Artificial lighting attached to or directed at the façade of the building if it exceeds a total of 100W must;

- Use LED luminaires for 90% of the total lighting load; or
- Be controlled by a motion detector in accordance with Specification J6 of the BCA;
- When used for decorative purposes, such as façade lighting or signage lighting, have a separate switch in accordance with Specification J6.

Lifts (Part J7D8 (previously J6.7))

Lifts must be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes and achieve the idle and standby energy performance level required, and the energy efficiency class under J7D8 (previously J6.7) of the BCA.

Escalators and moving walks (Part J7D9 (previously J6.8))

Escalators and moving walkways must have the ability to slow to between 0.2 m/s and 0.05 m/s when unused for more than 15 minutes.

11.7. Energy Monitoring and On-Site Distributed Energy Resources (Part J9 (previously Part J8))

Facilities for Energy Monitoring (J9D3 (previously J8.3))

A building with a floor area of more than 2 500 m2 must have energy meters configured to enable individual time-of-use energy data recording, in accordance with the below, of—

a) artificial lighting; and
b) appliance power; and
c) central hot water supply; and
d) internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and
e) on-site renewable energy equipment; and
f) on-site electric vehicle charging equipment; and
g) on-site battery systems; and
h) other ancillary plant.

Energy meters required by the above must be interlinked by a communication system that collates the time-of-use energy data to a single interface monitoring system where it can be stored, analysed and reviewed.

These provisions do not apply to energy meters serving—

a) The Class 2 part where the total floor area of the common areas is less than 500 m2; or
b) individual sole-occupancy units with a floor area of less than 2 500 m

Facilities for Electric Vehicle Charging Equipment (Clause J9D4)

The carpark associated with the Class 2, 6, or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging in accordance with Table J9D4 in each storey of the carpark, and labelled to indicate use for electric vehicle charging equipment.

Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must—

a) be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and
b) when associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily; and
c) when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and
d) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in—
    i. 100% of the car parking spaces associated with a Class 2 building; or
    ii. 10% of car parking spaces associated with a Class 5 or 6 building; or
    iii. 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and
e) contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and
f) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.

Facilities for Solar Photovoltaic and Battery Systems

The main electrical switchboard of a building must—
a) contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for—
    i. a solar photovoltaic system; and
    ii. a battery system; and
b) be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area.

At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except for buildings—

a) with installed solar photovoltaic panels on—
    i. at least 20% of the roof area; or
    ii. an equivalent generation capacity elsewhere on-site; or
b) where 100% of the roof area is shaded for more than 70% of daylight hours; or
c) with a roof area of not more than 55 m2; or
d) where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like.

The requirements do not apply to a building with solar photovoltaic panels installed on at least 20% of the roof area or to a building with battery systems installed.

12. Access for People with Disabilities

The development is required to comply with the accessibility provisions contained within:

- The Building Code of Australia 2022;
- Disability (Access to Premises – Buildings) Standards 2010;
- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4.1 -2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Note: With the introduction of the Commonwealth *Disability Discrimination Act (DDA)* in 1992 (enacted in 1993), all organisations have a responsibility to provide equitable and dignified access to goods, services and premises used by occupants. Organisations and individuals since its introduction, are required to work to the objects of the Act which are to eliminate, as far as possible, discrimination against persons on the ground of disability in the **areas of work, accommodation, education, access to premises, clubs and sports, and the provision of goods, facilities, services and land, existing laws and the administration of Commonwealth laws and programs.**

This report assesses against the requirements contained with the Building Code of Australia (and documents referred to therein) and is not considered to be a full assessment against the Disability Discrimination Act.

12.1. General Building Access Requirements (BCA D4D2 (previously D3.1))

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D4D3, D4D4 and D4D5 (previously D3.2, D3.3 and D3.4) of the BCA 2022 and AS 1428.1. Parts of the building required to be accessible shall comply with the requirements of:-

- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4.1 -2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Access for persons with a disability is to be provided as follows:

Apartment (Class 2 part)

- From the pedestrian entrance to at least 1 floor containing Sole Occupancy Units and to the entrance door of all Sole Occupancy Units on that floor, and to at least one type of each common facility, such as gyms, shops, laundries (shared), gaming rooms etc.
- Where an AS1428.1 compliant lift or ramp is provided in addition to the above and access is required to and within all spaces, and to the entrance of doors to single occupancy units on the levels, served by the lift or ramp.

Shops (Class 6 part)

To and within all areas normally used by the occupants

Car parks (Class 7a buildings)

To and within any level containing accessible car parking spaces.

Where the uses of these areas could be deemed inappropriate, confirmation is required as the appropriateness of the areas in question by the owners or tenant. Where an exemption is sought from providing access under clause D4D5 (previously D3.4), this is to be applied for as part of the application for building work approval.

Aged Care Facilities

From a pedestrian entrance required to be accessible, to at least 1 floor containing single occupancy units, and to the entrance doorway of single occupancy units located on that level, and to and within each type of common facility e.g. hairdressers, shops, laundries, TV rooms and public dining.

Where a ramp or a lift complying with AS1428.1 is provided, to and within all areas of the level served by the lift or ramp.

Where a group of sole occupant units or individual units are provided, the following ratio is required.

1 to 10 single occupancy units	To and within 1 accessible sole occupancy units
11 to 40	To and within 2 accessible sole occupancy units
41 to 60	To and within 3 accessible sole occupancy units
61 to 80	To and within 4 sole occupancy units
81 to 100	To and within 5 sole occupancy units
101 to 200	To and within 5 sole occupancy units and 1 for every 25 sole occupancy units over 100 or part thereof in excess of 100.
201 to 500 single occupancy units	To and within 9 accessible sole occupancy units, plus 1 for every 30 units in excess of 200 units or part thereof in excess of 200.
More than 500	To and within 19 accessible sole occupancy units plus 1 for every 50 units in excess of 500 units

Where more than 2 single occupancy units are required to be accessible they must be indicative of the range of units/rooms available.

12.2. Provision for Access to Buildings (BCA Clause D4D3 (previously D3.2)

The BCA prescribes access to be provided to and within the building as follows:

- Via the principle pedestrian entry and at least 50% of all other entrances from the allotment boundary
- From designated car parking spaces for the use of occupants with a disability.
- From another accessible building connected by a pedestrian link.
- All areas used by the occupants.

In buildings over 500m^2 in floor area, a non-accessible entrance must not be located more than 50m from an accessible entrance.

Where a pedestrian entry contains multiple doors, the following is required;

- Entrance containing not more than 3 doors, at least one of the doorways must be accessible.
- Where an entrance contains more than 3 doors, not less than 50% of the doorways must be accessible.

A door is considered to be accessible if it is automatic (open and closing) or is more than 850mm in clear opening width and contains the required door circulation space.

12.3. Accessibility within Building (BCA Clause D4D4 (previously D3.3))

A building required to be accessible is required to be equipped with either a AS 1428.1 compliant lift or AS 1428.1 compliant ramp, (but the maximum vertical rise of a ramp must not exceed 3.6m).

Within the building the following are required;

- Door circulation space as per AS1428.1 Clause 13.3.
- Doorways must have a clear opening of 850mm;
- Passing spaces (1.8m wide passages) must be provided at maximum of 20m intervals
- Within 2.0m of end access ways/corridors, turning areas spaces are required to be provided.
- Carpet pile height of not more than 11mm to an adjacent surface and backing <4mm
- Any glazing capable of being mistaken for a doorway or opening must be clearly marked (or contain chair rail, hand rail or transom as per AS 1288 requirements)

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

12.4. Car Parking (BCA Clause D4D6 (previously D3.5))

Accessible car parking spaces are required to comply with AS 2890.6-2009 at the rate of 1 accessible space for every 100 car spaces or part thereof allocated to the Class 9c parts and 1 for every 50 car spaces serving the Class 6, 9b parts.

A ‘shared zone’ of minimum 5400mm x 2400mm is required adjacent to accessible car parking spaces, protected with a bollard.

Further details are to be provided as the design progresses.

12.5. Tactile Indicators (BCA Clause D4D9 (previously D3.8))

Tactile indicators are required to be provided to warn occupants of all stairs (except Fire Isolated stairs) and ramps regardless of public nature or private environment and where an overhead obstruction occurs less than 2.0m above the finished floor level.

12.6. Stairs (BCA Clause D4D4 (previously clause D3.3 inter Alia AS1428.1))

Stairs shall be constructed as follows:

a) Where the intersection is at the property boundary, the stair shall be set back by a minimum of 900mm so that the handrail and TGSIs do not protrude into the transverse path of travel.
b) Where the intersection is at an internal corridor, the stair shall be set back one tread width plus 300mm (nominally 700mm as per AS 1428.1-2009 Fig 26(b)), so the handrails do not protrude into transverse path of travel.
c) Stairs shall have opaque risers.
d) Stair nosing shall not project beyond the face of the riser and the riser may be vertical or have a splay backwards up to a maximum 25mm.
e) Stair nosing profiles shall;
    - Have a sharp intersection;
    - Be rounded up to 5mm radius; or

- Be chamfered up to 5mm x 5mm

f) All stairs, including fire isolated stairs shall, at the nosing of each tread have a strip not less than 50mm and not more than 75mm deep across the full width of the path of travel. The strip may be set back a maximum of 15mm from the front of the nosing. The strip shall have a minimum luminance contrast of 30% to the background. Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall not exceed a difference of 5mm.

12.7. Accessible Sanitary Facilities (BCA Clause F4D5, F4D6, F4D7 (previously F2.4))

Unisex Accessible Sanitary Facilities

An accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only and provided in accordance with AS 1428.1-2009 and must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary products and as per following.

Building Type	Minimum accessible unisex sanitary compartments to be provided
Residential apartments	Where sanitary compartments are provided in common areas, not less than 1.
Class 9c aged care building	a) In every accessible sole-occupancy unit provided with sanitary compartments within the accessible sole-occupancy unit, not less than 1; and b) At each bank of sanitary compartments containing male and female sanitary compartments provided in common areas, not less than 1.

Ambulant Facilities

At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1-2009 must be provided for use by males and females.

Where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations.

An accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not provided with a passenger lift or ramp complying with AS 1428.1-2009

Accessible unisex showers

Accessible unisex showers must be provided in accordance with AS 1428.1 and at the following rates;

Building	Minimum accessible unisex showers to be provided
Residential apartments	Where showers are provided in common areas, not less than 1
Class 9c aged care part	a) In every accessible sole – occupancy unit provided with showers within the accessible sole-occupancy unit, not less than 1; and b) 1 for every 10 showers or part thereof provided in common areas
Gym	1 for every 10 showers or part thereof provided

12.8. Signage (BCA Clause D4D7 (previously D3.6))

As part of the detailed design package, specifications will need to be developed indicating:

- Sanitary Facility Identification Signs (note that they are to comply with BCA Specification 15 (previously Spe. D3.6) and include the use of Braille, Tactile, etc and be placed on the wall on the latch side of the facility);
- Directional / Way Finding signs to the Lifts, Sanitary Facilities, etc;
- Hearing Augmentation System;
- Identify each door required by BCA Clause E4D5 (previously E4.5) to be provided with an exit sign, stating 'EXIT' and 'Level" number
- Braille and tactile signs must be illuminated to ensure *luminance contrast* requirements are met at all times during which the sign is required to be read.

12.9. Hearing Augmentation (BCA Clause D4D8 (previously D3.7))

A hearing augmentation system shall be installed throughout the building in accordance with the requirements of Clause D4D8 (previously D3.7) of the BCA, wherever in meeting room, contain a PA system not used for emergency purposed or any ticket office or teller's booth or reception where the public is screened from the service provider.

12.10. Lifts (BCA Clause E3D7, E3D8 (previously E3.6))

Lifts compliant to BCA E3D7, E3D8, and E3D9 (previously E3.6, E3.7) must be provided, where required to be provided, with a minimum size of 1400 x 1600mm or 1100mm x 1400mm (whichever is appropriate) in size – with appropriate handrails and auditory commands.

13. Conclusion

This report has assessed the proposed development against the requirements of the Building Code of Australia (BCA). The analysis demonstrates that the development has the potential to achieve compliance with the BCA.

Multiple pathways to compliance have been identified. The development can potentially achieve compliance by adhering to relevant Deemed-to-Satisfy (DTS) provisions outlined in the BCA. Alternatively, a performance-based solution can be developed to demonstrate compliance with the specific performance requirements of the BCA. This approach provides greater flexibility in achieving the desired outcomes while meeting the code's objectives.

Further detailed design and engineering will be required to finalize the most suitable compliance path and ensure that all relevant BCA requirements are met.

14. Appendix A - Reference Documentation

The following documentation was used in the assessment and preparation of this report:

Drawing No.	Title	Revision	Date	Prepared By
DA00.001	Drawing List	01	17/12/2024	BATESSMART
DA01.001	Proposed Site Plan	01	17/12/2024	BATESSMART
DA01.002	General Arrangement Plan Demolition Plan	01	17/12/2024	BATESSMART
DA03.0LG	General Arrangement Plan Lower Ground - Concord Road	01	17/12/2024	BATESSMART
DA03.0UG	General Arrangement Plan Upper Ground -Blaxland Road	01	17/12/2024	BATESSMART
DA03.001	General Arrangement Plan Level 01-03 -Typical Podium	01	17/12/2024	BATESSMART
DA03.004	General Arrangement Plan Level 04 - Podium Rooftop	01	17/12/2024	BATESSMART
DA03.005	General Arrangement Plan Level 05-14 - Typical Tower	01	17/12/2024	BATESSMART
DA03.015	General Arrangement Plan Level 15	01	17/12/2024	BATESSMART
DA03.016	General Arrangement Plan Level 16	01	17/12/2024	BATESSMART
DA03.017	General Arrangement Plan Level 17	01	17/12/2024	BATESSMART
DA03.018	General Arrangement Plan Level 18	01	17/12/2024	BATESSMART
DA03.019	General Arrangement Plan Level 19	01	17/12/2024	BATESSMART
DA03.020	General Arrangement Plan Level 20	01	17/12/2024	BATESSMART
DA03.021	General Arrangement Plan Level 21	01	17/12/2024	BATESSMART
DA03.022	General Arrangement Plan Level 22	01	17/12/2024	BATESSMART
DA03.023	General Arrangement Plan Level 23-24	01	17/12/2024	BATESSMART
DA03.025	General Arrangement Plan Level 25-26	01	17/12/2024	BATESSMART
DA03.B01	General Arrangement Plan	01	17/12/2024	BATESSMART

Drawing No.	Title	Revision	Date	Prepared By
	Basement 01			
DA03.B02	General Arrangement Plan Basement 02	01	17/12/2024	BATESSMART
DA03.B03	General Arrangement Plan Basement 03	01	17/12/2024	BATESSMART
DA03.B04	General Arrangement Plan Basement 04	01	17/12/2024	BATESSMART
DA09.000	East Elevation - Concord Road	01	17/12/2024	BATESSMART
DA09.001	West Elevation - Blaxland Road	01	17/12/2024	BATESSMART
DA09.002	North Elevation	01	17/12/2024	BATESSMART
DA09.003	South Elevation	01	17/12/2024	BATESSMART
DA09.004	Courtyard Elevations	01	17/12/2024	BATESSMART
DA10.001	Section AA	01	17/12/2024	BATESSMART
DA10.002	Section BB and Section CC	01	17/12/2024	BATESSMART
DA13.000	North Tower - 1 Bed Unit Types	01	17/12/2024	BATESSMART
DA13.001	North Tower - 2 Bed Unit Types 01	01	17/12/2024	BATESSMART
DA13.002	North Tower - 2 Bed Unit Types 02	01	17/12/2024	BATESSMART
DA13.003	North Tower - 3 Bed Unit Types 01	01	17/12/2024	BATESSMART
DA13.004	North Tower - 3 Bed Unit Types 02	01	17/12/2024	BATESSMART
DA13.005	North Tower - 4 & 5 Bed Unit Types 01	01	17/12/2024	BATESSMART
DA13.006	North Tower - 4 & 5 Bed Unit Types 02	01	17/12/2024	BATESSMART
DA13.010	South Tower - 1 Bed Unit Types	01	17/12/2024	BATESSMART
DA13.011	South Tower - 2 Bed Unit Types	01	17/12/2024	BATESSMART
DA13.012	South Tower - 3 Bed Unit Types	01	17/12/2024	BATESSMART
DA13.013	South Tower - 4 Bed Unit Types	01	17/12/2024	BATESSMART
DA13.015	South Tower - ILU Unit Types	01	17/12/2024	BATESSMART
DA13.020	Adaptable Unit Types	01	17/12/2024	BATESSMART
DA21.001	Shadow Diagrams	01	17/12/2024	BATESSMART
DA21.002	Sun Eye Views	01	17/12/2024	BATESSMART
DA21.003	Sun Eye Views	01	17/12/2024	BATESSMART
DA21.004	Solar Access	01	17/12/2024	BATESSMART
DA21.005	Cross Ventilation	01	17/12/2024	BATESSMART
DA22.001	Area Plans	01	17/12/2024	BATESSMART

15. Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers	BCA 2022 Clause C4D14
2.	Automatic Fail Safe Devices	BCA 2022 Clause D3D24 & D3D26
3.	Automatic Smoke Detection and Alarm System	BCA 2022 Clause E2D3, E2D5, E2D7, E2D8, E2D9, E2D10, E2D11, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, Spec 20 Clause S20C3/S20C4/S20C5, AS 1670.1 – 2018, AS/NZS 1668.1 – 2015, AS 3786-2014
4.	Automatic Fire Suppression System	BCA 2022 Clause C3D4, E1D5, E1D6, E1D7, E1D8, E1D9, E1D10, E1D11, E1D13, E2D8, E2D9, E2D10, E2D11, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, G3D8, Spec 17, Spec 31 & AS 2118.1 – 2017 Amdt 1 & 2, AS 2118.6 – 2012 (Combined sprinkler & hydrant)
5.	Building Occupant Warning System activated by the Sprinkler System	BCA 2022 Spec 17 & Spec 20 Clause S20C7 & AS 1670.1 – 2015 – Clause 3.22
6.	Emergency Lifts	BCA 2022 Clause E3D5 & AS 1735.2 - 2001
7.	Emergency Lighting	BCA 2022 Clause E4D2, E4D4 & AS/NZS 2293.1 – 2018
8.	EWIS	BCA 2022 Clause E4D9 & AS 1670.4 - 2018
9.	Exit Signs	BCA 2022 Clauses E4D5, E4D6 & E4D8 and AS/NZS 2293.1 – 2018
10.	Fire Control Centres and Rooms	BCA 2022 Spec. 19
11.	Fire Dampers	BCA 2022 Clause C3D13, C4D15, Spec 11, D2D12, E2D3, E2.3, F4.12, Spec E2.2, E2D21, Spec 21, Spec 31 & AS 1668.1 – 2015
12.	Fire Doors	BCA 2022 Clause C4D3, C4D5, C4D6, C4D7, C4D8 & C4D9 and AS 1905.1 – 2015
13.	Fire Hose Reels	BCA 2022 Clause E1D3 & AS 2441 – 2005 Amdt 1
14.	Fire Hydrant System	BCA 2022 Clause C3D13, E1D2, Spec 18, I3D9 & AS 2419.1 – 2021
15.	Fire Seals	BCA 2022 Clause C4D15, C4D16, Spec 13, Spec 14, & AS 1530.4 –2014
16.	Fire Windows	BCA 2022 C4D5, Spec 12
17.	Lightweight Construction	BCA 2022 Clause C2D9, Spec 6
18.	Mechanical Air Handling System	BCA 2022 Clause E2D3, E2D4, E2D6, E2D7, E2D8, E2D9, E2D10, E2D11, E2D12, E2D13, E2D14, E2D15, E2D16, E2D17, E2D18, E2D19, E2D20, G3D8, Spec 21, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012
19.	Portable Fire Extinguishers	BCA 2022 Clause E1D14 & I3D11, AS 2444 – 2001
20.	Pressurising Systems	BCA 2022 Clause E2D3, E2D4, E2D6, E2D7, E2D9, E2D11, E2D12 & AS/NZS 1668.1 – 2015
21.	Smoke Hazard Management System	BCA 2022 Clause E2D3, E2D4, E2D6, E2D7, E2D8, E2D9, E2D10, E2D11, E2D12, E2D13, E2D14, E2D15, E2D16, E2D17, E2D18, E2D19, E2D20, G3D8, Spec 21, AS/NZS

	Essential Fire Safety Measures	Standard of Performance
		1668.1 – 2015
22.	Smoke and/or Heat Alarm System	BCA 2022 Spec 20 & AS 3786 – 2014
23.	Smoke Dampers	BCA 2022 Clause E2D3, E2D21, Spec 21, Spec 31 & AS/NZS 1668.1 – 2015
24.	Smoke Doors	BCA 2022 Spec 11
25.	Stand-by Power System	BCA 2022 Clause G3D8, Spec 31
26.	Wall-Wetting Sprinklers	BCA 2022 Clause C4D5, G3D8, Spec 31
27.	Warning and Operational Signs	BCA 2022 Clause C4D7, D3D28, E3D4, AS 1905.1 –2015