LEPPINGTON (1) 88 DEVELOPMENT PTY LTD

BCA ASSESSMENT REPORT

Leppington Site A

Project number: 120011
Revision: BCA Site A 1.0
Date: 28 May 2026

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Quality management

Revision	Date	Revision description	
BCA Site A 1.0	28 May 2026	BCA Assessment Report - SSDA	
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Executive summary

This document provides an assessment of the architectural design drawings for the proposed mixed-use development known as Leppington Site A, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Amendment 2 Volume One.

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment is limited to the major items of the BCA with the view of identifying any major items that may impact the design of the proposed development, or additional key items that need to be included in the design.

The architectural design documentation as referred to in this report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code subject to addressing the BCA matters identified within this report during the detailed design phase.

The below Table outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions. Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements. Details are to be provided at detailed design phase to outline how compliance will be achieved.

Item	Description	BCA Provision
Performance Solutions required		
1.	Permit the shopping centre fire compartment/s to exceed the fire compartment sizes permitted for Type A Construction which shall be subject to performance assessment and formal submission to FRNSW for consideration.	C3D3, C3D4, C3D5,
2.	The following matters relating to rationalisation of fire-resistance levels are to be addressed: Basement Level 1 Car Park: The proposed auto workshop tenancy (mechanical services) is Class 8 (FRL 240 mins) and car wash tenancy is Class 6 (FRL 180 mins) which are required to have a higher FRL than the Class 7a car park. Rationalise the applicable FRLs to these proposed uses to be commensurate with the FRL 120 mins to the main Class 7a use. In addition, omit the requirement for fire separation between different classifications within the same storey, meaning the auto workshop tenancy and car wash tenancy form part of the car park fire compartment.	C2D2 & S5C11, C3D8, C3D9, C3D10, C3D3
3.	The following matters relating to rationalisation of fire separating construction are to be addressed: Basement Level 01 to 03: The travelators on these parking levels are connected directly with the Lower Ground retail shopping centre. The areas around the travelators will be enclosed with a combination of fire walls and non-fire rated construction (glazed construction) in lieu of fire walls required to separate different classifications of Class 6 retail and Class 7a car park. Level 01 Childcare centre: The fire wall separating the childcare tenancy from the central mall area may be provided in parts with glazed wall construction in lieu of fire rated construction. The areas	C3D8 & C4D6

Item	Description	BCA Provision
	of glazed construction shall be assessed subject to consultation with fire safety engineer.	
4.	Residential towers are served by garbage chutes which are contained within fire rated shafts which extend down into waste rooms. Permit the fire rated shafts to not be provided with a fire rated bottom as the chutes need to extend down and discharge into waste management system within the room.	S5C8
5.	Rationalise the method of protection to the external walls of Building 02 on Level 01 storey which are within 3m of the roof light in the external floor.	S5C16
6.	Rationalise the glass roof serving the Level 02 eastern retail level to occupy the whole roof which exceeds the permitted 20% aggregate roof area permitted for rooflights.	S5C16
7.	Residential Lobbies: Each lobby has access to a single exit direct to road or open space as permitted by BCA Clause D2D3(2)(b). Where travel distance to a single exit exceeds 20m, being up to 30m, it shall be addressed with a Performance Solution.	D2D3(2)(b)
8.	Lower Ground: Supermarket tenancy has direct access to a fire-isolated stair within the tenancy when it does not occupy the whole storey.	D2D12
9.	Building 04: One pair of fire-isolated stairs discharge into the porte cochere serving the Hotel lobby (Ground Level) which has direct egress less than 20m to a road. However, it will be necessary to undertake a Fire Engineered Performance Solution to permit the discharge into a part of the storey which is not open for 2/3 of its perimeter	D2D12
10.	Building 02/03/06/08: Permit the alternative exits serving the residential levels and the basement levels within each core to discharge adjacent to each other in lieu of being as far apart as practical.	D2D15(4)
11.	Location of fire hydrant and sprinkler booster shall be subject to performance assessment and formal submission to FRNSW for consideration.	E1D2
12.	Location of fire control room shall be subject to performance assessment and formal submission to FRNSW for consideration.	E1D15
13.	Smoke Hazard Management: The main shopping centre building will be subject to the smoke hazard management provisions of E2D15. Fire Engineer has confirmed the provision of smoke exhaust will be assessed on a performance-based occupant safety method to determine the extent of smoke exhaust to specific tenancies or areas within the building.	E2D15
14.	Rationalise the omission of zone pressurisation system from the retail levels and Class 9b tenancies.	E2D6
15.	The travelators which serve the basement retail parking levels and the Lower Ground retail area connect four storeys which is a non-compliance with BCA Clause G3D2 and D2D17. In addition, the Lower Ground mall area is connected with the levels above by other travelators. A performance solution will be pursued to rationalise the atrium which will be addressed holistically as a performance-based	Part G3 & Specification 31, D2D17

Item	Description	BCA Provision
	fire engineered solution in lieu of DTS compliance with Part G3 & Specification 31.	

1.0 Basis of assessment

1.1 Location and description

This NCC Assessment Report has been prepared by Jensen Hughes on behalf of Rickard 88 Development Pty Ltd (**the Applicant**) to address the project-specific Secretary's Environmental Assessment Requirements (SEARs) issued the proposed State Significant Development Application (SSDA) SSD-84430209. The development is located at 173-183 Rickard Road, Leppington (the Site) and is located within the South West Growth Area (**SWGA**) within the Camden Local Government Area (**LGA**).

The project seeks detailed development consent for the construction of Leppington Civic Centre, comprising shop top housing to support residential development and commercial land uses at 173-183 Rickard Road, Leppington.
Specifically, the SSDA seeks consent for:

- Demolition and earthworks to prepare the site for future development.
- Construction of 8 residential buildings to accommodate:
  - 1493 units, with a portion allocated for affordable housing.
  - Approximately 32,321 sqm of retail/commercial Gross Floor Area (GFA).
  - Approximately 156-key hotel.
  - Loading and car parking facilities on the lower ground and basement levels.-
- Approximately 6,500 sqm of open space.

The proposed development is supported by concurrent rezoning application to seek amendments to Appendix 5 Camden Growth Centres Precinct Plan within the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* pursuant to the concurrent rezoning process through the Housing Delivery Authority (**HDA**) planning pathway. This concurrent rezoning will provide the rezoning and variations to development standards required to facilitate the delivery of the Leppington Civic Centre and Leppington Town Centre, generally in accordance with the Leppington Town Centre State-Assessed Rezoning Proposal (**SARP**). Refer to Figure 1 below for an understanding of the proposed development.

1.2 Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the BCA, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of the BCA. Such assessment against relevant performance criteria will need to be addressed by means of a separate Fire Engineering Report (FER) for fire safety matters, and Performance Solution Report for non-fire-safety matters; such reports are to be prepared under separate cover.

1.3 Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code (**NCC**) Series Volume One – Building Code of Australia, 2022 Edition (BCA) Amendment 2, incorporating the State variations where applicable.

Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority, or for

Crown projects the date of the invitation for tenders to carry out the Crown building work, or in the absence of tenders the date on which the Crown building work commences.

A reference to the BCA in this report is a reference to **BCA2022** Amendment 2, being volume 1 of the NCC.

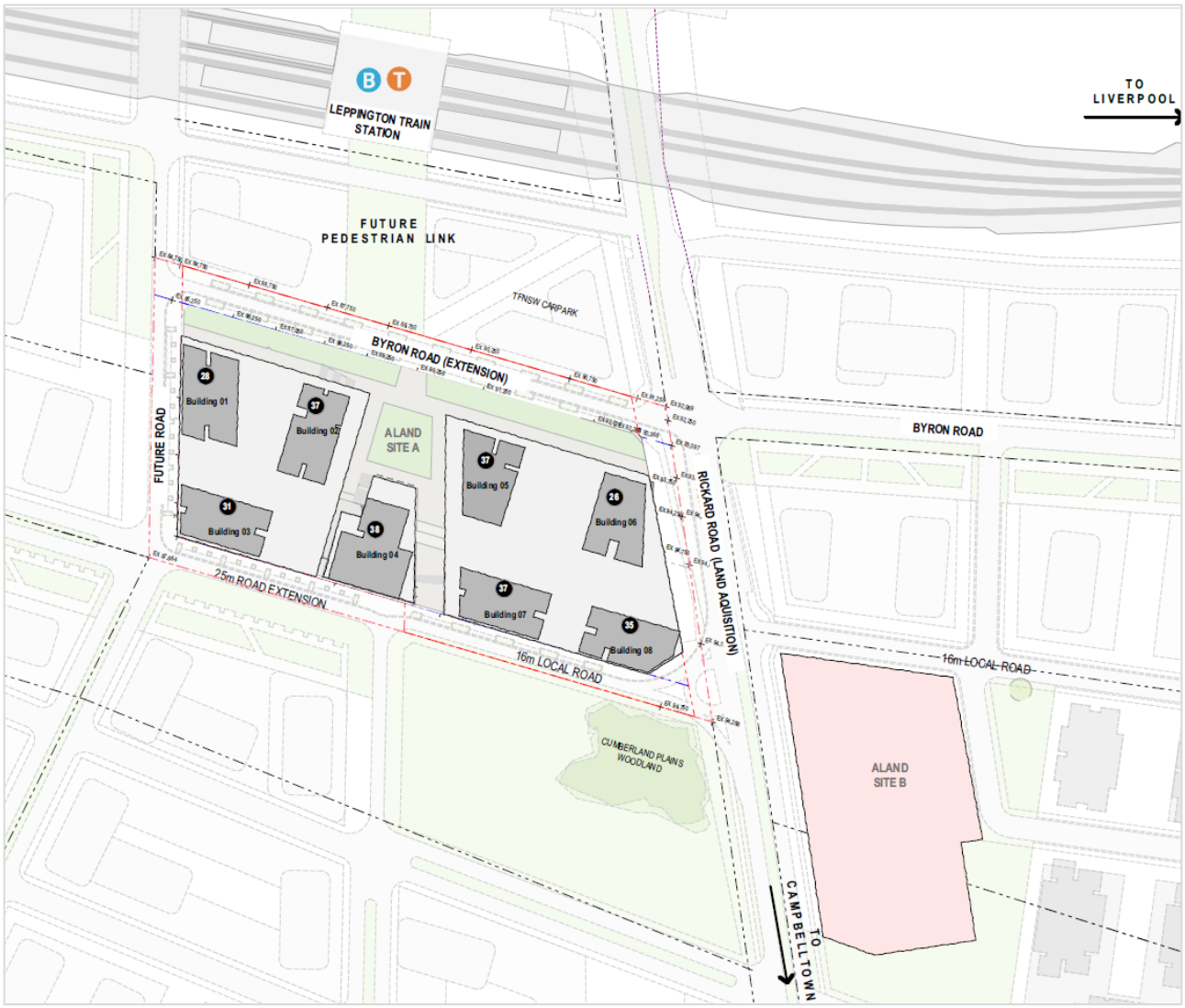

Figure 1: SSDA – proposed works

1.4 Limitations

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

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

This report does not include, or imply compliance with:

1. the National Construction Code – Plumbing Code of Australia Volume 3

2. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to. (Note: The provision of access for people with a disability for the subject development has not been assessed against the Deemed-to-Satisfy Provisions of Part D4 and Clauses E3D7, E3D8, F4D5, F4D6, F4D7 and F4D12 of BCA2022 Amendment 2 unless otherwise discussed in this report);
3. Section J of BCA2022;
4. Demolition Standards not referred to by the BCA;
5. Work Health and Safety Act 2011;
6. Requirements of Australian Standards unless specifically referred to;
7. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
8. Conditions of Development Consent issued by the Local Consent Authority.

1.5 Design documentation

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

2.0 Building description

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

2.1 Rise in storeys (Clause C2D3)

The building has a rise in storeys of 39: Taken from Lower Ground, Ground Level, Upper Ground and Level 1 to Level 36. Level 37 roof plant areas are not counted in the rise in storeys as they contain plant only.

Figure 2: Site Plan showing the eight residential towers above the shopping centre known as Building 01 to 08 and the public roads surrounding the site.

2.2 Classification (Clause A6G1)

The building has been classified as follows:

- Basement Level 04-07: The parking storeys are to be designed with the total aggregate floor area of residential storage cages for each storey to be less than 10% of the floor area of each storey. Each storey has floor area of approximately 19,360m^2, thereby residential storage cages shall not exceed 1,930m^2 per storey. Part of Basement Level 04 is separated for Hotel parking which is not expected to have any storage cages.
- Basement Level 01-03: Predominately used for Retail parking. A small portion of the NW corner of the storeys have the residential ramps to take vehicles down to Basement Level 04 for residential parking storeys. These separated areas have a small number of residential parking spaces which are also Class 7a areas.

Table 1 Building Classification(s)

Class	Level	Description
Class 7a	Basement Level 04-07	Car parking – residential & Hotel
Class 7a	Basement Level 01-03	Car parking – retail & residential
Class 9b	Part Basement Level 01 & Lower Ground	Swim School Tenancy
Class 6	Part Basement Level 01	Car Wash Tenancy
Class 8	Part Basement Level 01	Tyre & Auto Tenancy
Class 7b	Part Lower Ground, Part Ground Level	Loading dock & bin holding room
Class 6	Lower Ground, Ground Level, Upper Ground, Part Level 01	Shopping centre
Class 9b	Part Level 01	Childcare tenancy
Class 2	Part Level 1, Level 2 to Level 36	Building 01/02/03: Level 1 communal residents' facilities, Level 2 to Level 36 residential SOUs
Class 2 & 3	Part Ground Floor, Upper Ground and Level 1; Level 2 to Level 36	Building 04: Ground Floor Hotel & Residential Lobbies, Upper Ground Hotel BOH facilities, Level 01 Hotel communal facilities. Level 2 to Level 11 Hotel SOUs; Level 12 Hotel communal facilities & pool. Building 04: Level 13 to 36 Class 2 SOUs
Class 2	Part Level 2, Level 03 to Level 36	Building 05/06/07/08: Level 2 communal residents' facilities, Level 3 to Level 36 residential SOUs

2.3 Effective height (Clause A1G4)

The building has an *effective height* of more than twenty-five (25) metres and more than one hundred (100) metres.

Effective Height: Level 36 RL 218.50 – Lower Ground RL 85.00 = 133.50m

2.4 Type of construction required (Table C2D2)

The building is required to be of Type A Construction.

2.5 Floor area and volume limitations (TableC3D3)

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

Class 6, 7b, 8	Maximum Floor Area	5,000m^2
	Maximum Volume	30,000m^3

Class 9b	Maximum Floor Area	8,000m^2
	Maximum Volume	48,000m^3
Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17) and as such there are no maximum floor area or volume limitations for this area.	
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C3D3 as Specifications 5 and Clause C4D12 of the BCA regulate the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 buildings.	
Class 3	The Class 3 portions of the building are not subject to floor area and volume limitations of C3D3 as Specification 5 and Clause C4D12 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 3 classifications.	

2.6 Fire compartments

The following fire compartments have been assumed for SSDA stage:

1. Basement Level 01-07: The car parking storeys form one combined fire compartment. The driveway areas serving the basement car park levels shall be fire separated from surrounding parts to form part of the basement car park fire compartment. Refer Figure 3 below which shows the north-west corner with residential and retail car park entry areas fire separated from surrounding parts. The south-east retail driveway ramp from Upper Ground down to Basement Level 01 shall be fire separated from surrounding parts to form part of the basement car park fire compartment.
2. Basement Level 01 to 03: The travelators on these parking levels are connected directly with the Lower Ground retail shopping centre meaning they are forming part of the retail fire compartment. The areas around the travelators will be enclosed with a combination of fire walls and non-fire rated construction (glazed construction) in lieu of fire walls required to separate different classifications of Class 6 retail and Class 7a car park.
3. Basement Level 01: A Performance Solution will permit the Tyre & Auto tenancy and Car Wash tenancy to omit fire separation between classifications and form part of the car park fire compartment.
4. Basement Level 01 & Lower Ground: The swim school tenancy shall be fire separated from surrounding parts to be a separate fire compartment.
5. Lower Ground: The loading dock and bin holding room shall be fire separated from surrounding parts to be separate fire compartments.
6. Residential Lobbies: The residential apartment buildings and Hotel building lobbies can be fire separated from surrounding parts to be a separate fire compartment.
7. Ground Level: The loading dock and bin holding room shall be fire separated from surrounding parts to be a separate fire compartment.
8. Shopping Centre: The main shopping centre over the Lower Ground, Ground Level, Upper Ground and Level 1 storeys form one combined fire compartment. A Performance Solution will permit the size of the fire compartment to exceed the limitations under Clause C3D3. As part of the performance-based

approach, the shopping centre can be split into separate fire compartments on an east / west methodology as the plaza runs essentially north / south and provides sufficient physical separation between parts.

9. Upper Ground & Level 01: Building 04 Hotel has back of house / amenities use on Upper Ground and shall be a separate fire compartment to the retail areas. On Level 01 which house the hotel facilities for guests, this storey is separate from the other parts of the storey and form their own fire compartment.
10. Building 01/02/03: From Level 01 podium level up to Level 36, each storey within each separate building forms its own separate fire compartment.
11. Level 01 Childcare: The childcare tenancy is required to be a separate fire compartment from the remainder of the building by walls and floors with an FRL not less than that required for a fire wall for the higher FRL of Class 6 retail. Performance Solution will be required to permit glazed wall construction in parts of the fire wall in lieu of fire rated wall construction. Refer to Figure 4 below.
12. Building 05/06/07/08: From Level 02 podium level up to Level 36, each storey within each separate building forms its own separate fire compartment.

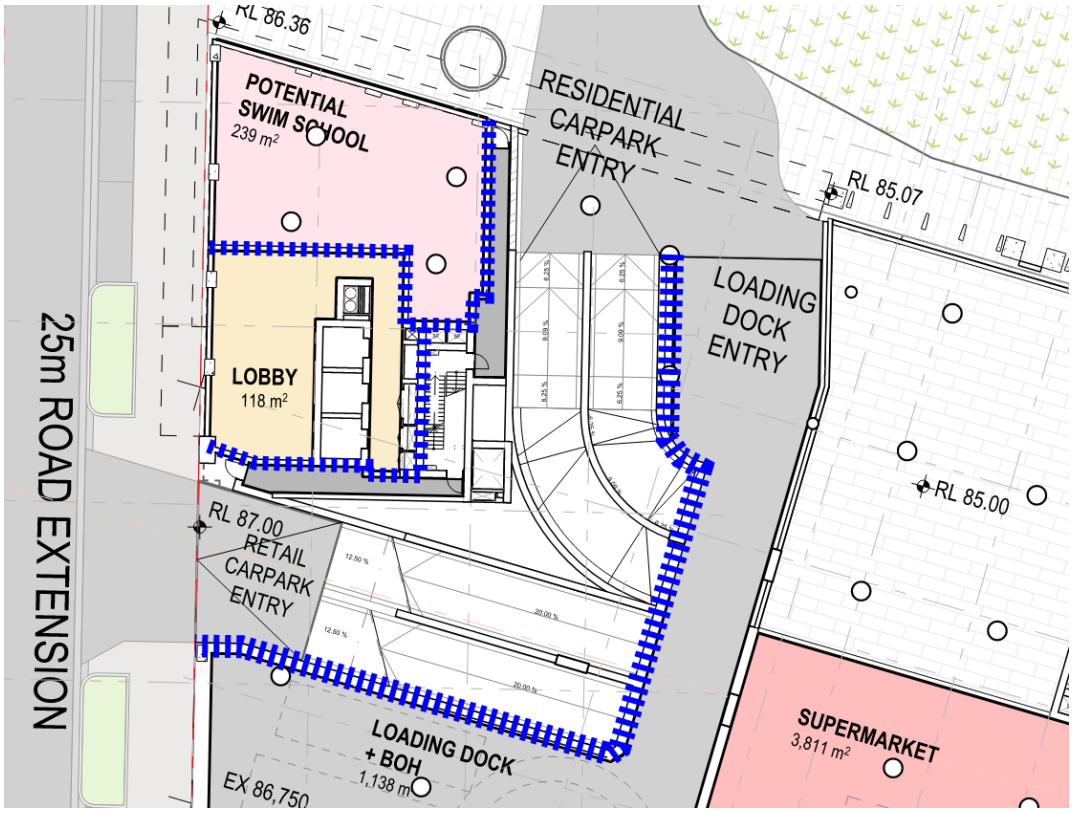

Figure 3: Lower Ground: Residential and retail car park entry areas are fire separated from surrounding parts as they form part of the basement car park fire compartment. Swim school tenancy and lobby can form separate fire compartments.

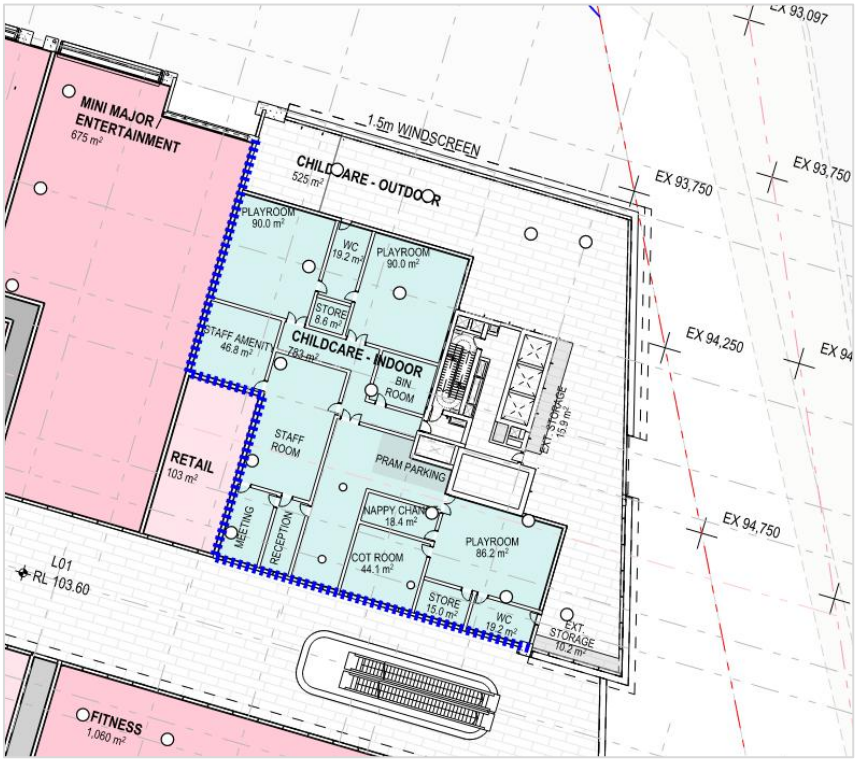

Figure 4: Level 1 childcare tenancy as a separate fire compartment.

2.7 Exits

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

1. Basement Level 01-07: Each core has two fire-isolated stairs in a scissor stair arrangement.
2. Basement Level 01: Swim school tenancy requires two exits within the basement storey of the tenancy. Access to one fire stair is provided and a second exit can be provided by an internal non-fire isolated stair which would form part of the tenancy design – to be addressed during detail design phase. At Lower Ground level, the tenancy shall provide two exits to open space.
3. Lower Ground level: The loading dock shall be provided with access to two exits. Access shall be provided to the building 03 core to access one fire stair. A second exit shall be provided either to the western roadway via an internal stairway or an exit door as part of the loading dock entry to reach open space. Details are to be provided at detailed design phase to outline how compliance will be achieved.
4. Lower Ground Level: The retail area which includes the supermarket, discount department store and BOH, and retail mall tenancies, have access to thirteen fire-isolated stairs. There is also an exit available at the northern mall entry area which leads to open space (Gridline T5). Some areas require further design attention to provide direct access to the fire stairs to improve travel distance compliance. Further details are required at detailed design phase to outline how compliance will be achieved.
    - The retail mall area will require an additional exit around the eastern end of the mall to reduce travel distances. Refer to Part 3.6.1 of the report below for further information.
5. Residential Lobbies: Each lobby has access to a single exit direct to road or open space as permitted by BCA Clause D2D3(2)(b). Where travel distance to a single exit exceeds 20m, it shall be addressed with a Performance Solution.

6. Ground Level Retail: Some of the smaller retail tenancies have access to a single exit direct to road or open space as permitted by BCA Clause D2D3(2)(b). This applies to tenancies with direct egress to the northern open space areas, southern public road and the central plaza area which is roof as open space. Refer to Figure 5 below.
7. Ground Level retail: The western portion of the storey has access to four exits – three exit points to open space and one fire stair at Building 01 core. Refer to Figure 6 below.
8. Ground Level retail: The eastern portion of the storey has access to three exits – two exit points to open space and one horizontal exit to the loading dock. Refer to Figure 7 below. Retail tenancies which face the plaza have direct egress to roof as open space.
9. Ground Level loading dock: The loading dock will require access to at least two exits. There is one fire stair at Building 08 core, and one exit can be provided into the northern fire-isolated corridor subject to future design development. Details are to be provided at detailed design phase to outline how compliance will be achieved.
10. Upper Ground retail: The western portion of the storey has access to seven exits – Building 01/02/03 have two fire stairs within each core and the non-fire isolated stair down to the plaza.
11. Upper Ground retail: The eastern portion of the storey has access to seven exits –Building 05/07 have two fire stairs within each core, Building 06 has one fire stair, the eastern mall entry to Rickard Road and the central non-fire isolated stair down to the plaza. The Pup tenancy upper level will have an internal stair for circulation between levels, therefore it will be provided with a required exit being an internal non-fire isolated stair which would form part of the tenancy design – to be addressed during detail design phase.
12. Upper Ground: Building 04 Hotel back of house / amenities level has access to the two fire stairs within the building core.
13. Level 01 retail: The eastern retail portion has access to six exits –Building 05/07/08 each have two fire stairs within each core.
14. Level 01 childcare tenancy: It will be served by two fire stairs within the tenancy.
15. Level 01: Building 04 Hotel guest amenities level has access to the two fire stairs within the building core.
16. Level 01 residential: The western podium level is served by six exits - Building 01/02/03 have two fire stairs within each core. Residents on the communal podium area will have access to all six exits.
17. Level 02 residential: The western podium level is split into two separate areas. The northern part is served by four exits - Building 05/06 have two fire stairs within each core. The southern part is served by four exits - Building 07/08 have two fire stairs within each core.
18. Building 01/02/03/04: From Level 02 and above, each storey within each building has access to two fire stairs.
19. Building 05/06/07/08: From Level 03 and above, each storey within each building has access to two fire stairs.

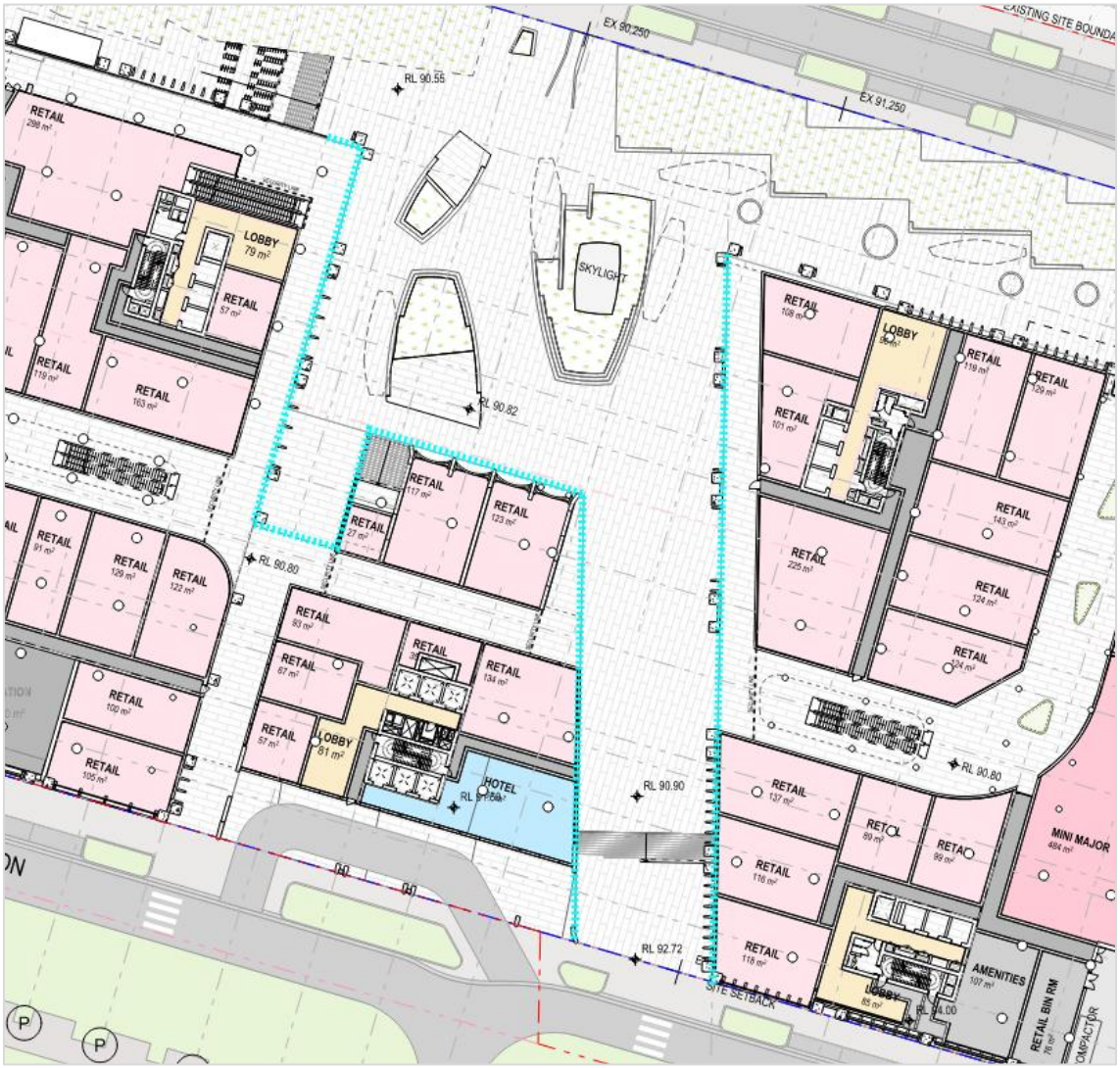

Figure 5: Ground Level Plaza area is roof as open space and allows retail tenancies to exit onto the plaza which is connected to the public road to the north and south. Aqua line indicates where roof as open space is achieved.

Figure 6: Ground Level western retail area has access to four exits.

Figure 7: Ground Level eastern retail area has access to three exits.

2.8 Climate zone

The building is located within Climate Zone 6.

2.9 Entertainment venue

The NSW variation of the BCA, Part NSWI4 contains additional requirements for entertainment venues. An entertainment venue is defined by the Environmental Planning and Assessment Act 2021 as:

*'**Entertainment venue** means a building used as a cinema, theatre or concert hall or an indoor sports stadium'.*

The subject building has not been considered an entertainment venue for the purposes of this report. There is no cinema in the proposal.

2.10 Building importance level

Certain Australian Standards (particularly structural standards) require the Importance Level of the building to be determined. The importance level relates to the individual actions on a building listed in Clause B1D3 of the BCA. The united building includes the retail complex and the eight residential towers, therefore the assessment at SSDA stage would advise the Building Importance Level would be at least three (3).

It may be pertinent to review the Building Importance Level after SSDA determination to assess whether a higher importance level may be applicable for some reason relating to the conditions of the approval. For example, it the shopping centre is designated for emergency shelter post disaster or the like.

Table B1D3a of the BCA provides the following:

Importance Level	Building Types	Jensen Hughes Interpretation and Examples
1	Buildings or structures presenting a low degree of hazard to life and other property in the case of failure.	1 and 2 storey factory buildings
2	Buildings or structures not included in Importance Level 1, 3 and 4.	Residential apartment buildings and associated carparking. Office buildings
3	Buildings or Structures that are designed to contain a large number of people.	Stadia, Entertainment venues, shopping centres. Transport facilities
4	Buildings or Structures that are essential to post-disaster recovery or associated with hazardous facilities.	Data centres, evacuation centres

The Guide to the BCA provides a generic description of building types which have Importance Levels assigned. The Guide states that the "Importance Level" concept is applicable to building structural safety only. Specific examples from the Guide are provided below. The examples provided by the Guide are not exhaustive of all building types.

Importance Level 3:

- Buildings and facilities where more than 300 people can congregate in one area.
- Any occupancy with an occupant loads greater than 5000.

Importance Level 4:

- Buildings and facilities designated as essential facilities.
- Buildings and facilities with special post disaster functions.
- Utilities required as backup for buildings and facilities of Importance Level 4.
- Designated emergency shelters.
- Importance Levels must be assigned on a case-by-case basis.

2.11 Location of fire-source features

The fire source features for the subject development are:

North: The far boundary of Byron Road.

South: The far boundary of proposed public road.

East: The far boundary of Rickard Road.

West: The far boundary of proposed public road.

3.0 BCA assessment

3.1 Introduction

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate and as such, this assessment is designed to address a higher-level assessment of the building against the provisions of the BCA.

The main purpose of this report is to identify any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E) and is subject to the limitations outlined under Section 1.4 of this report.

The summary below is to be read in conjunction with the BCA specification contained in Appendix E of the report.

3.2 Relationship to the Design and Building Practitioners Act

The Design and Building Practitioners Act requires certain specified design to be certified by a Registered Practitioner and the issuing of a Design Compliance Declaration (DCD). The declared designs include:

- Structure
- Building Enclosure (e.g. Façade);
- Fire Safety Systems (e.g. services, egress and FRLs)
- Waterproofing
- Fire Safety performance solutions

This report contains an assessment of the plans and specifications available, which are not sufficient in detail to allow any DCD to be issued by others. This report is not to be construed as, or used to support to a DCD at Construction Certificate Stage as it is based on development application drawings only.

3.3 Fire resistance and stability – Part C2 & Specification 5

The required fire resistance levels for the building elements are outlined in Appendix C of this report.

The external walls and all components of the wall, in a building of Type A Construction, are required to be non-combustible. Full details have not been provided with respect to the materials of the external wall and further details will be required to be submitted at Construction Certificate Stage for assessment.

Internal linings and materials are required to meet the specified fire hazard properties of BCA Clause C2D11 and Specification 7.

Subject to the required FRL's being provided, and the below Performance Solutions being addressed, the proposed building is capable of complying with the requirements of the BCA with respect to fire resistance.

It will be necessary to undertake a Fire Engineered Performance Solution to rationalise the glass roof serving the Level 02 eastern retail level to occupy the whole roof which exceeds the permitted 20% aggregate roof area permitted for rooflights.

It will be necessary to undertake a Fire Engineered Performance Solution to rationalise the glass roof light within 3m of the external walls of Building 02 on Level 01 storey.

3.4 Compartmentation and separation – Part C3

Under the provisions of BCA Clause C3D3, the residential towers are not the subject to any floor area and volume limitations.

The carpark is required to have an AS 2118.1 sprinkler system, as it is part of a building over 25m effective height required to have sprinklers compliant with Specification 17. Therefore, the carpark is not subject to the floor area and volume limitations under BCA Clause C3D3.

The Class 5/6/7b/9b portion of the building are required to comply with the floor area and volume limitations for fire compartment sizes permitted by BCA Clause C3D3. The following assessment of fire compartment sizes are provided:

- Basement Level 01 & Lower Ground swim school tenancy complies.
- Lower Ground loading dock complies.
- Ground Level loading dock complies.
- Level 01 childcare centre complies.
- Performance Solution is required to permit the shopping centre fire compartment/s to exceed the fire compartment size for Type A Construction and omit the requirements for a large-isolated building.

The development is Type A Construction however, the building is protected with an AS2118.1 system. As such, fire rated spandrel panels are not required under the provisions of BCA Clause C3D7.

Separation of classifications in the same storey and in different storeys can be readily achieved at Construction Certificate stage to satisfy BCA Clause C3D8, C3D9 and C3D10. Refer to Part 2.6 Fire Compartments in the report above for the DA assessment of likely fire compartments.

It will be necessary to undertake a Fire Engineered Performance Solution for the following matters relating to rationalisation of fire-resistance levels and fire separating construction:

- Basement Level 01 to 03: The travelators on these parking levels are connected directly with the Lower Ground retail shopping centre. The areas around the travelators will be enclosed with a combination of fire walls and non-fire rated construction (glazed construction) in lieu of fire walls required to separate different classifications of Class 6 retail and Class 7a car park.
- Basement Level 1 Car Park: The proposed auto workshop tenancy (mechanical services) is Class 8 (FRL 240 mins) and car wash tenancy is Class 6 (FRL 180 mins) which are required to have a higher FRL than the Class 7a car park. Rationalise the applicable FRLs to these proposed uses to be commensurate with the FRL 120 mins to the main Class 7a use. In addition, omit the requirement for fire separation between different classifications within the same storey, meaning the auto workshop tenancy and car wash tenancy form part of the car park fire compartment.
- Level 01 Childcare centre: The fire wall separating the childcare tenancy from the central mall area may be provided in parts with glazed wall construction in lieu of fire rated construction.

As there will be a future DA approval required for the use and fitout of the childcare tenancy, it will be subject to further assessment during detailed design phase in relation to providing separate fire compartments within the tenancy required under BCA Clause C3D6(2).

As the united building is over 25m effective height, the emergency lifts are required to be fire separated by shafts with FRL 120/120/120 under the provisions of BCA Clause C3D11. Under the provisions of BCA Clause C3D13, the central smoke control plant rooms and systems are to be fire separated with FRL 120/120/120 from the remainder of the building. Details are to be provided at detailed design phase to outline how compliance will be achieved.

Substations on the Ground Level and Upper Ground storeys are required to be fire separated from the remainder of the building with an FRL of 120/120/120. Details are to be provided at detailed design phase to outline how compliance will be achieved.

Any main switchboard located in the building where the switchboard is required to sustain emergency equipment operating in an emergency, the switch room is to be fire separated from the remainder of the building with an FRL of 120/120/120. Details are to be provided at detailed design phase to outline how compliance will be achieved.

Under the provisions of BCA Clause C3D15, the Class 2 or 3 building is required to have public corridor lengths less than 40m lengths or divided at intervals of not more than 40m with smoke-proof walls and doors. The following assessment is provided for all residential buildings:

- Building 01/02/03: Each building has public corridor lengths less than 40m.
- Building 04 Hotel Levels: The total corridor length is up to 60m in length. The provision of smoke doors can be provided to reduce the corridor lengths to less than 40m to achieve DTS compliance. Details are to be provided at detailed design phase to outline how compliance will be achieved.
- Building 04 residential levels: Public corridor lengths are just below 40m.
- Building 05/06/07/08: Each building has public corridor lengths less than 40m.

3.5 Protection of Openings – Part C4

3.5.1 Openings in external walls

The external walls are located more than six (6) metres from the far boundary of the public roads. As such there is no requirement to protect any openings within the external walls under BCA Clause C4D3.

3.5.2 Bounding construction

Residential Class 2 & 3 buildings: For the levels with SOUs, the walls between the Sole-Occupancy-Units (SOUs) and between the SOUs and corridor are internal walls that require an FRL. In addition, the walls to the lift and stairs require an FRL. As such, the doors to the sole occupancy units and fire stairs are required to be self-closing FRL --/60/30 fire doors in accordance with BCA Clause C4D12. The doors to the lift are required to have an FRL of -/60/- in accordance with BCA Clause C4D11.

In addition, the walls to the common rooms used by residents, services rooms and bin storage rooms, located off the public corridor require an FRL -/60/60 and the doors are required to be self-closing FRL --/60/30 fire doors in accordance with BCA Clause C4D12.

For the podium levels serving the residential buildings which contain the communal facilities and communal external landscape areas for residents (Building 01/02/03/04 Level 1 and Building 05/06/07/08 Level 2), these levels are not serving any residential SOUs therefore public corridors do not require compliance with BCA Clauses S5C11 / Table S5C11f and C3D11.

Details are to be provided at detailed design phase to outline how compliance will be achieved.

3.5.3 Openings to fire walls

The building design includes fire wall separation and will require fire doors or fire shutters to be provided to protect openings. As such, the openings to fire walls are required to be FRL --/xx/30 in accordance with BCA Clause C4D6, where “xx” is the structural integrity rating required for the fire wall separating the differing Classifications each side of the fire wall. Details are to be provided at detailed design phase to outline how compliance will be achieved.

3.5.4 Openings in floors for services and service installations

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables tested in accordance with AS1530.4-2014. Fire sealing of services is a design element that will require detailed assessment and specification at Construction Certificate stage.

3.6 Occupant access and egress – Section D

3.6.1 Egress from the building

General Requirements

As the development is over twenty-five (25) metres effective height, each *storey*, or each part of a storey, are required to have no less than two (2) exits. Residential Class 2 & 3 buildings have each storey with access to no less than two (2) exits to satisfy BCA Clause D2D3.

The basement levels and retail shopping centre have multiple exits and compliance can be readily achieved to ensure all parts of the storeys shall access to no less than two (2) exits to satisfy BCA Clause D2D3. As per Part 2.7 Exits above, there are some areas which require further design coordination to provide all parts of the storeys shall access to no less than two (2) exits. Details are to be provided at detailed design phase to outline how compliance will be achieved.

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of BCA Clause D2D15(2)&(3) are readily satisfied.

The ground level plaza acts as roof as open space which requires the floor to have FRL not less than 120/120/120 (FRL 180/120/120 when above retail use below) in accordance with BCA Clause D3D13. Egress paths can maintain 3m separation to the skylight within the plaza to reach the northern road.

Details of treads and risers, landings, thresholds, balustrades, and handrails have not been provided however compliance is readily achievable. The design of these elements can be assessed at the Construction Certificate Stage.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA Clause D3D8. The doors are to be lined internally with fire grade plasterboard or metal backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitably sealed against smoke spread by sealing with non-combustible mastic.

Basement Car Park levels

Egress from the carpark levels shall ensure that no point on the floor is more than twenty (20) metres from an exit, or where a point of choice of two (2) exits is available, the distance to the nearest of those exits can

increase up to forty (40) metres, as permitted by BCA Clause D2D5. The distance between alternative exits is required by BCA Clauses D2D6 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice.

It will be necessary to undertake a Fire Engineered Performance Solution to permit the extended travel distances for the basement levels:

- BCA Clause D2D5 – Exit travel distance

  Permit up to 30m to a point of choice between alternative exits in lieu of 20m.

  Permit up to 55m to the nearest exit in lieu of 40m.

- BCA Clause D2D6 – Distance between alternative exits

  Permit up to 90m between alternative exits when measured via the point of choice in lieu of 60m.

There will be further design coordination required at detailed design phase to provide clarification on egress paths providing direct egress to some fire stairs without having to pass through parking spaces to ensure travel distances are within acceptable limits for performance-based assessment.

Retail levels

Egress from the retail areas shall ensure that no point on the floor is more than twenty (20) metres from an exit, or where a point of choice of two (2) exits is available, the distance to the nearest of those exits can increase up to forty (40) metres, as permitted by BCA Clause D2D5. The distance between alternative exits is required by BCA Clauses D2D6 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice.

Under BCA Clause D2D3(2)(b), parts of a storey with direct egress to a road or open space are permitted to have access to a single exit subject to travel distance complying with D2D5 by the provision of one exit. For Ground Level and Upper Ground, there are retail tenancies which can comply with this requirement to have less than 30m to a single exit to road or open space. For the Residential Lobbies, each lobby has access to a single exit direct to road or open space as permitted by BCA Clause D2D3(2)(b). Where travel distance to a single exit exceeds 20m, being up to 30m, it shall be addressed with a Performance Solution.

In relation to the retail levels, the plans assessed are developed to a standard suitable for submission as a development application and are more conceptual in nature. Required exits are generally uniformly distributed around the storey with the intent for travel distances to be within acceptable limits for performance-based assessment. However, as the design is at DA stage it is understandable that minor amendments may be required during detailed design phase to improve travel distance compliance within the acceptable limits for performance-based assessment. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the Fire Safety Engineer.

For example, at Lower Ground level the retail mall area will require an additional exit around the eastern end of the mall to reduce travel distances. Example location of a fire stair is shown in Figure 8 below. In addition, the public mall area at the amenities will require the public corridor to provide access to the fire stair in Building 04 core to reduce travel distances.

Residential Floors

Residential Class 2 & 3 buildings: As the buildings are over twenty-five (25) metres effective height, the residential buildings are required to have fire-isolated stairs in accordance with BCA Clause D2D4. For the residential floors, the travel distance to an exit is to be no more than six (6) metres to an exit, or where a point of choice exists, and the distance between alternative exits is to be no greater than forty-five (45)

metres. Refer below to the required Performance Solutions where travel distances are not within DTS parameters.

It will be necessary to undertake a Fire Engineered Performance Solution to permit the extended travel distances within the following buildings:

- BCA Clause D2D5 – Exit travel distance

  Building 01: Permit the SOUs to have up to 8m to a point of choice in lieu of 6m.

  Building 02: Permit the SOUs to have up to 9m to a point of choice in lieu of 6m.

  Building 03 & 07: Permit the SOUs to have up to 12m to a point of choice in lieu of 6m.

  Building 04: Hotel Levels 2-11 - Permit the SOUs to have up to 12m to a point of choice in lieu of 6m.

  Building 8: Permit the SOUs to have up to 7m to a point of choice in lieu of 6m.

In relation to the residential podium levels with communal facilities for residents, being Level 01 for Building 01/02/03 and Level 02 for Building 05/06 and Building 07/08, the plans show the required exits are generally uniformly distributed around the storey with two fire stairs within each core of each building. The intent for travel distances to be within acceptable limits for performance-based assessment will require minor amendments during detailed design phase to improve travel distance compliance within the acceptable limits for performance-based assessment. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the Fire Safety Engineer. Refer to Figure 9 below for an example of additional egress paths recommended to reduce travel distances.

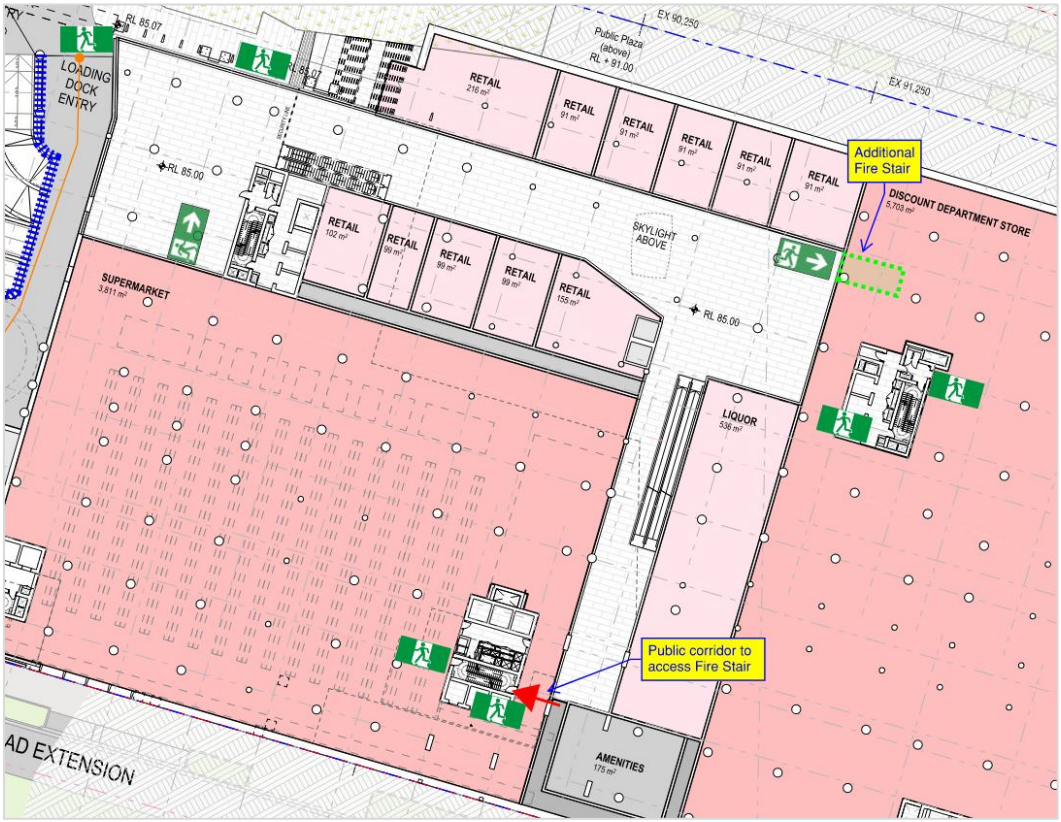

Figure 8: Lower Ground: Retail mall area will require an additional exit around the eastern end of the mall to reduce travel distances. Example location of a fire stair is shown above. In addition, the public mall area at

the amenities will require the public corridor to provide access to the fire stair in Building 04 core to reduce travel distances.

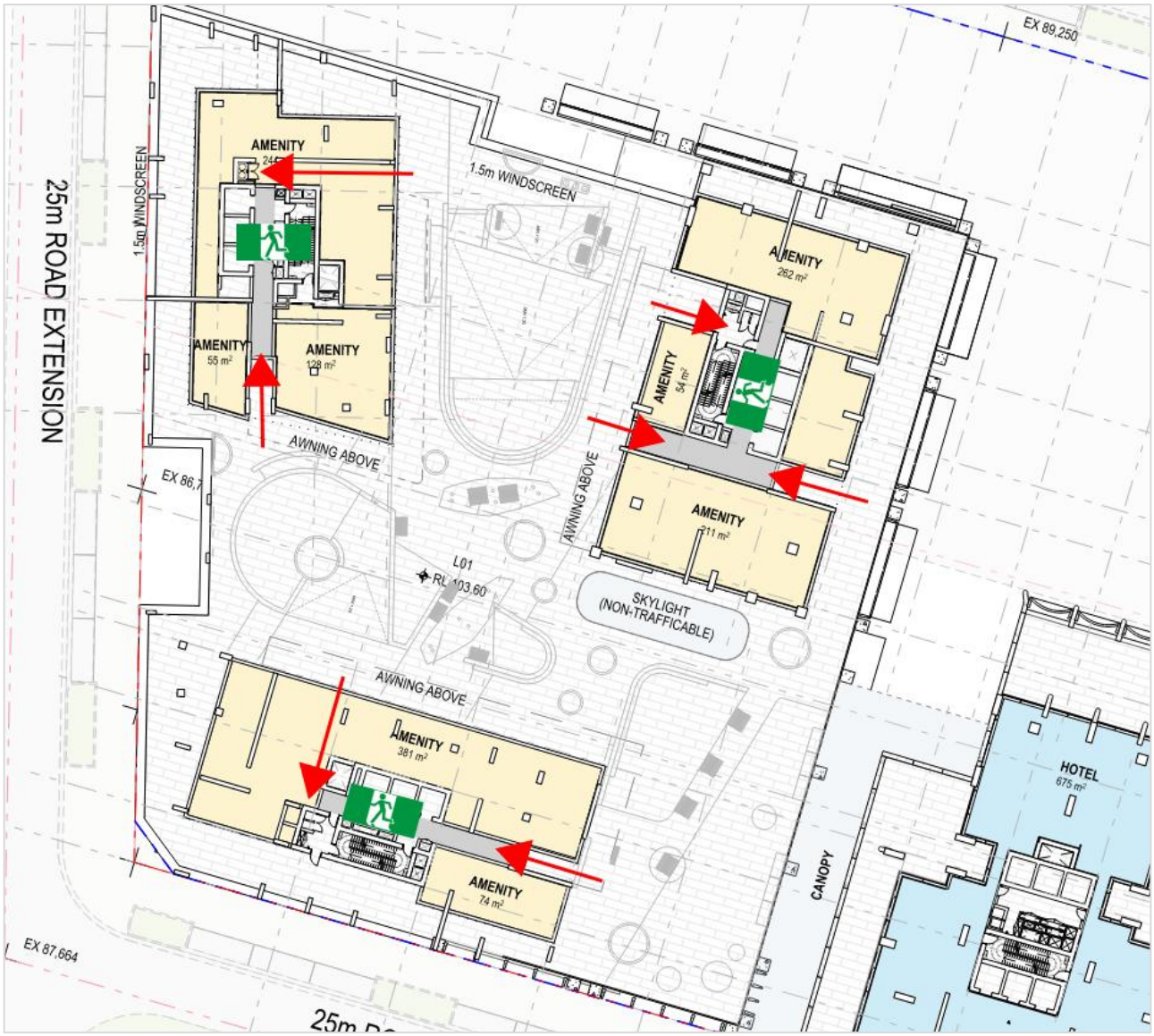

Figure 9: Podium Level 01 Building 01/02/03 Communal facilities for residents – arrows show proposed egress paths and additional egress paths recommended to reduce travel distances within the acceptable limits for performance-based assessment.

Fire-isolated exits

Each residential building is served by two fire-isolated stairs in a scissor stair formation within the central core. Each core then passes through the retail levels where the fire-isolated stairs serve the retail areas as required exits. These scissor stairs extend down to the corresponding residential lobby which has direct access to the adjacent street level. Each building core also extends down to provide two fire-isolated stairs in a scissor stair formation to serve the basement levels.

For the requirements of BCA Clause D3D5, the design requires one rising basement stair and one of the descending residential stairs to discharge together at a storey which has egress to open space. Where a smoke door is provided at the top of the basement rising stair, it is considered compliant smoke separation

between the rising and descending stairs. The current plans do not show the level of detail to provide a detailed assessment. As such, further design will be required during detailed design phase to clarify the design of the rising and descending stairs can address the requirements under BCA Clause D3D5. Where compliance may not be achieved with the DTS provisions of D3D5, the design of the rising and descending stairs can be reviewed by the Fire Safety Engineer to satisfy the requirements for a performance solution. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the BCA Consultant and the Fire Safety Engineer.

Design of fire-isolated stairs shall be in accordance with BCA Clause D2D12. Whilst it is acknowledged the design plans are developed to a standard suitable for submission as a development application and do not contain all details, the following assessment is provided to show that the design is capable of complying with the DTS requirements or show where a Performance Solution is required.

- Building 01: The fire-isolated stairs discharge at street level (Lower Ground) with direct egress to a road or open space and compliance with D2D12 can be readily achieved at detailed design phase.
- Building 02: The fire-isolated stairs discharge at plaza podium level (Ground Level) with direct egress to the plaza being roof as open space with direct egress to the northern road. Discharge into a covered area appears compliant and egress paths can maintain 6m separation to the external walls therefore can readily achieve compliance with D2D12 at detailed design phase.
- Building 03: The fire-isolated stairs discharge at street level (Ground Level) with direct egress to a road and compliance with D2D12 can be readily achieved at detailed design phase.
- Building 04: One pair of fire-isolated stairs discharge into the porte cochere serving the Hotel lobby (Ground Level) which has direct egress less than 20m to a road. However, it will be necessary to undertake a Fire Engineered Performance Solution to permit the discharge into a part of the storey which is not open for 2/3 of its perimeter.
- Building 04: One pair of fire-isolated stairs discharge into the plaza podium level (Ground Level) which is compliant roof as open space. As the separation distance between the external walls either side of the plaza being 16m, the egress path can go down the middle and be 6m away from external walls on either side to comply with D2D12 at detailed design phase.
- Building 05: One pair of fire-isolated stairs discharge into the plaza podium level (Ground Level) with direct egress to the plaza being roof as open space with direct egress to the northern road. The other pair of fire-isolated stairs is intended to discharge to the northern façade which will allow discharge direct to open space and compliance with D2D12 can be readily achieved at detailed design phase.
- Building 06: The fire-isolated stairs are intended to discharge at Ground Level with discharge to the northern façade to open space. Details are to be provided at detailed design phase to outline how compliance will be achieved in accordance with D2D12 for two pairs of rising and descending stairs.
- Building 07: The fire-isolated stairs discharge at street level (Ground Level) with direct egress to a road and compliance with D2D12 can be readily achieved at detailed design phase.
- Building 08: The fire-isolated stairs discharge at street level (Lower Ground) with direct egress to a road and compliance with D2D12 can be readily achieved at detailed design phase.
- Where the fire stairs within each building core are serving the retail levels, access to the exit doors of each fire stair should be provided by a public corridor. Where this is not provided, and a retail tenancy has direct egress into a fire stair it will require a Performance Solution.
- Building 02/03/06/08: Permit the alternative exits serving the residential levels and the basement levels within each core to discharge adjacent to each other in lieu of being as far apart as practical.

Where compliance may not be achieved with the DTS provisions of D2D12, the design of the fire stairs and their respective discharge can be reviewed by the Fire Safety Engineer to satisfy the requirements for a performance solution. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the BCA Consultant and the Fire Safety Engineer

Population & Aggregate exit width

Population numbers are to be calculated in accordance with BCA Clause D2D18 and Table D2D18, where applicable. In general, Table D2D18 provides the most appropriate method for determining population at the Development Application (DA) stage. However, Clause D2D18(c) also permits population to be determined by "any other suitable means of assessing its capacity."

In certain circumstances, it is more appropriate to defer the assessment of population for specific areas or tenancies within the building to a future DA stage, particularly where the intended use is not yet known. Once a future DA approval is obtained, the population can be determined with greater accuracy based on the approved use, proposed fitout, seating layout, and other relevant design information.

The following assessment is provided for reference and understanding for DA stage:

- Basement Levels car parking: The floor area of the basement storeys is approximately 19,360m^2 and Table D2D18 states 30m^2 per person for car parks. Population per storey is 645 people. Under BCA Clause D2D8 the required aggregate exit width for 645 people is 6m aggregate exit width. Basement levels have sufficient number of fire stairs to cater for this population.
- Lower Ground Retail: The population based on retail floor area is as follows:
  - Supermarket and Discount Department Store will have a 30% reduction in floor area applied as a common assessment method due to floor space taken up by racking/storage and the like.
  - Retail population is 3m^2 per person under BCA Table D2D18.
  - Supermarket: 3811m^2 x 0.7 = 2667m^2; therefore 2667/3 = 890 people
  - Discount Department Store: 5703m^2 x 0.7 = 3992m^2; therefore 3992/3 = 1330 people.
  - Retail Tenancies: Total area 1761m^2; therefore 1761/3 = 587 people.
  - Total Population: 2807 people
  - Total Aggregate Exit width: 14m including an assumed 5m egress width at the northern mall entry leading to open space. As the majority of exits are fire stairs the exit width calculation is based on 60 people per 0.5m exit width (120 people per 1m exit width). As such, 14m aggregate exit width caters for 1640 people.
  - A performance solution will be pursued to address the population exceeding the aggregate exit width: Rationalise the population permitted within each storey based on fire engineering modelling as the population will exceed the population supported by aggregate exit width calculated in accordance with D2D8. Subject to future design development and review by Fire Safety Engineer.
- Similar assessment will be undertaken for all retail areas and where the population is found to be exceeding the aggregate exit width, a performance solution will be pursued.
- Level 01 & 02 Communal podium areas for residents: The provision of 4m or 6m aggregate exit width serving the podium areas is satisfactory for the expected population.
- Residential towers: Each storey has 2m exit width which is satisfactory for the expected population.

3.6.2 Access for people with a disability

BCA Part D4 has not been assessed within this report. It is assumed a separate Access Consultant has been engaged.

3.7 Services and equipment- Parts E1, E2, E3 and E4

The building is required to be provided with the services and equipment set out in Appendix B of this report. The appendix also outlines the standard of performance to be achieved by the services and equipment.

3.7.1 Part E1 – Fire Fighting Equipment

The current SSDA plans do not show the level of detail to provide a detailed assessment. Specific comments pertaining to fire fighting services and equipment required for the building as set out in Appendix B of this report are provided as follows. As such, further design will be required during detailed design phase to clarify where DTS compliance is achieved and where performance-based assessment may be required.

Fire hydrant

The overall united building requires fire hydrant protection via one hydrant system for the whole building. Due to the size of the development and the number of building entrances on site, the Fire Hydrant Booster will not be within, affixed or in sight of all the principal pedestrian entrance to each building. Therefore, a Fire Engineered Performance Solution will be required. Further design input is required at the Construction Certificate Stage. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the relevant services consultants and the Fire Safety Engineer.

Fire Hose Reel

The Class 7a car park, Class 6 retail, Class 7b loading docks and Class 9b portions of the building are required to have fire hose reels (FHR's). Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the relevant services consultants.

Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D4, E1D5 & Specification 17. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the relevant services consultants and the Fire Safety Engineer.

Portable Fire Extinguishers

The development is required to have portable fire extinguishers installed throughout in accordance with AS2444-2001. Compliance is readily achievable at detailed design phase.

Fire Control Room

As the development is over twenty-five (25) metres effective height, it is required to have a Fire Control Room (FCR) in accordance with Clause E1D15 and Specification 19. Plans show the intent is to have the FCR in the south-east corner adjacent to Building 08 residential lobby. Location of fire control room shall be subject to performance assessment and formal submission to FRNSW for consideration to ensure it meets the operational requirements for FRNSW.

Special Hazards

Additional provisions will be made in accordance with Clause E1D17 and E2D21 of BCA2022, due to the special hazards associated with the parking and charging of electric vehicles in the basement levels. Details

are to be provided at detailed design phase to outline how compliance will be achieved and documented within the Fire Engineering Report.

3.7.2 Part E2 – Smoke Hazard Management

Specific comments pertaining to smoke hazard management system services and equipment required for the building as set out in Appendix B of this report are provided as follows:

Class 2 SOUs - Smoke Alarms

All Class 2 Buildings: Smoke alarms will be required within residential sole occupancy units in accordance with Clause E2D5, Specification 20 & AS3786-2014. Compliance is readily achievable and further information will be required at the Construction Certificate Stage from the Fire Services Consultant to demonstrate compliance.

Smoke Detection & Alarm System

All Class 2 Buildings: The development must be provided with a smoke detection and alarm system complying with Specification S20C6 & S20C7 to activate the stair pressurisation systems throughout the building. The Development Application plans do not provide any details regarding the layout of smoke detection and alarm system. In addition, the building is required to be served by an Emergency Waring and Intercom System (EWIS) in accordance with Clause E4D9. Compliance is readily achievable and further information will be required at the Construction Certificate Stage from the Fire Services Consultant to demonstrate compliance.

Building 04 Class 3 Hotel levels: In addition to the smoke detection system to activate the stair pressurisation systems, the Class 3 SOUs require smoke detection system inside the SOUs in accordance with S20C4 and AS 1670.1.

Basement Levels: The development must be provided with a smoke detection and alarm system complying with Specification S20C6 & S20C7 to activate the stair pressurisation systems throughout the basement levels.

Retail Levels: The development must be provided with a smoke detection and alarm system complying with Specification S20C6 & S20C7 to activate the stair pressurisation systems and smoke exhaust systems.

The design of the smoke detection and alarm systems will be required to be updated as the design develops and options for compliance are confirmed during detailed design phase, including any omissions or additions as a result of the fire engineering processes.

Automatic Mechanical Shutdown

The Class 9b building/portion will likely have ducted mechanical ventilation or individual units with a capacity more than 1000 L/s, therefore automatic shutdown will be required to the ventilation system throughout the Class 9b parts in accordance with NSW BCA Clause E2D16. No details have been provided, and further design development is necessary from the Mechanical Consultant.

Stair pressurisation

Where the development comprises stairs which serve a level above twenty-five (25) metres effective height, it will be necessary to have a stair pressurisation system to all residential stairs. In addition, the stairs serving the basement levels which are serving more than two storeys below ground, stairs are required to have stair pressurisation. The drawings indicate that all fire stairs which are required to have stair pressurisation shafts are provided with them. With design development all shafts and lobby relief will need to

be further developed with further design input from the Mechanical Consultant at the Construction Certificate Stage to comply with AS 1668.1:2015.

Smoke exhaust

The main shopping centre building will be subject to the smoke hazard management provisions of E2D15. Fire Engineer has confirmed the provision of smoke exhaust will be assessed on a performance-based occupant safety method to determine the extent of smoke exhaust to specific tenancies or areas within the building. Details are to be provided at detailed design phase to outline how compliance will be achieved in consultation with the relevant services consultants and the Fire Safety Engineer.

Zone Pressurisation

Due to the provision of smoke exhaust to the shopping centre areas, it will require a Performance Solution to rationalise the omission of zone pressurisation system from the retail levels and Class 9b tenancies.

Carpark Mechanical Ventilation

The Class 7a building will likely have ducted mechanical ventilation to AS 1668.2:2012 and is required to comply with Clause 5.5 of AS 1668.1:2015 under BCA Clause E2D12. No details have been provided at DA stage, noting further design development will be required at the Construction Certificate from the Mechanical Consultant.

3.7.3 Part E3 – Lift Installations

Lifts are provided to the building and are located within their own shaft, serviced by a common lobby. The lifts require stretcher facilities as they serve a height above twelve (12) metres in *effective height* and the dimensions of the shaft are sufficient to allow compliance for a 1400 mm width x 2000 mm length lift car.

All eight residential buildings exceed twenty-five (25) metres effective height, therefore the building is required to have emergency lifts installed in accordance with Clause E3D5. For each building, two emergency lifts are required for each core, and these emergency lifts are required to be within fire rated shafts with FRL not less than 120/120/120. The residential lifts do not serve all the retail levels, therefore some of the retail lifts will be required to serve as emergency lifts.

Where a lift is installed in a single enclosed lift shaft having a distance between normal landing entrances greater than 12.2 m, emergency access doors must be provided in accordance with BCA Clause S24C6.

No details have been provided at DA stage, noting further design development will be required at the Construction Certificate stage from the Lift Consultant.

3.7.4 Part E4 – Visibility in emergency, exit signs and warning systems.

Specific comments pertaining to emergency lighting, exit signs and warning systems required for the building as set out in Appendix B of this report are provided as follows:

- Emergency lighting is required as per BCA Clause E4D2 for all non-fire-isolated stairs, corridors, passageways, hallways, or the like that is part of a path of travel to an exit.
- Exit signs are required to be installed throughout the building, including directional exit signs to guide occupants to the designated exits in the building.
- Emergency warning and intercommunication system is required to be installed within buildings with an effective height greater than twenty five (25) metres.

The DA plans do not provide any details for the emergency lighting and exit signs. As such further information will be required at the Construction Certificate Stage, however compliance is readily achievable.

3.8 Facilities in buildings – Part F4

Clause F4D2 of the BCA requires the following facilities within a Class 2 building:

- Kitchen sink and kitchen facilities for cooking & preparation of food;
- Bath or shower;
- Closet pan;
- Washbasin
- Laundry facilities

The plans indicate that each of these facilities are provided within each sole occupancy unit and therefore compliance is achieved with BCA Clause F4D2.

BCA Clause F4D2 requires the following facilities within a Class 3 building (Building 04 Hotel levels):

- Bath or shower;
- A closet pan;
- A washbasin
- Sanitary facilities for staff in accordance with Clause F4D4.

The plans indicate that each of these facilities for occupants are provided within each sole occupancy unit and therefore compliance is achieved with BCA Clause F4D2. Sanitary facilities for staff can readily be provided for staff in the BOH areas in accordance with Clause F4D4 during design development to verify compliance at the Construction Certificate stage.

3.9 Facilities in class 3 to 9 buildings – Part F4

The number of facilities *required* will need to be calculated in accordance with Clause F4D3 and F4D4 based on the population of the shopping centre. Further assessment will be undertaken at detailed design phase to verify compliance.

The supermarket and discount department store will be subject to future DA approvals and they will provide staff sanitary facilities within their own tenancies. The swim school tenancy will be subject to future DA approval and it will provide staff & patron sanitary facilities within their own tenancy. The childcare centre tenancy will be subject to future DA approval and it will provide staff & children sanitary facilities within their own tenancy. Further assessment will be undertaken at detailed design phase to verify compliance.

3.10 Room heights – Part F5

Ceiling heights will be assessed in accordance with BCA Part F5 at the detailed design phase noting that compliance can be readily achieved based on the floor to floor heights.

3.11 Light and ventilation – Part F6

Class 2 buildings

Natural light is required to all habitable rooms within SOUs in a Class 2 building. The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors. The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 10% natural light to all habitable rooms. However, window specification will be needed with design development to verify compliance.

Ventilation is required to all habitable rooms within SOUs in a Class 2 building. Clause F6D6 allows for either natural ventilation as per Clause F6D7 or mechanical ventilation or air-conditioning system complying with AS1668.2. The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors. The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 5% ventilation to all habitable rooms. However, a window specification will be needed with design development to verify compliance if natural ventilation is relied upon.

Class 3 Hotel

Natural light is required to all SOUs within a Class 3 building. The plans have been assessed which reveals all habitable spaces are served by windows or glazed doors The area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) are likely to be sufficient in size to provide the required 10% natural light to all habitable rooms. Where windows are fixed, a mechanical ventilation or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1 is required which can be readily provided. However, window specification will be needed with design development to verify compliance.

Ventilation is required to all SOUs within a Class 3 building. Clause F6D6 allows for either natural ventilation as per Clause F6D7 or mechanical ventilation or air-conditioning system complying with AS1668.2. Further assessment will be required at detailed design phase to clarify if natural ventilation or mechanical ventilation is provided to all SOUs.

Class 9b childcare

Natural light is required to all playrooms in an Early Childhood Centre. The concept design for the childcare shows the playrooms on the outer parts of the tenancy facing the external play areas which would be capable of providing windows or glazed doors to provide the required 10% natural light to all playrooms. The sills of 50% of windows in children's rooms must be located no more than 500 mm above the floor area. However, a window specification will be needed with design development to verify compliance.

Ventilation is required to all rooms within the childcare tenancy. Clause F6D6 allows for either natural ventilation as per Clause F6D7 or mechanical ventilation or air-conditioning system complying with AS1668.2. Further assessment will be required at detailed design phase to clarify if natural ventilation or mechanical ventilation is provided to which rooms.

Commercial / retail areas

For a Class 6 & 7b parts, artificial lighting and mechanical ventilation are required, and these systems can be readily installed in the building. Further design development and input will be required from the Electrical and Mechanical Consultants at the design development Stage.

Car park levels

The carpark levels are required to have a mechanical ventilation system complying with BCA Clause F6D11 and AS1668.2. Further design input will be required within design development from the Mechanical Consultant to demonstrate compliance.

3.12 Cleaning windows – NSW G1D5

A building must provide for a safe manner of cleaning any *windows* located three (3) or more storeys above ground level as per NSW Clause G1D5. Two (2) options are available for cleaning the windows:

1. The windows can be cleaned wholly from within the building; or
2. Provisions are made for cleaning windows by a method complying with the *Work Health and Safety Act 2011* and regulations made under the Act.

No information has been provided to determine if the development can comply with this requirement, and further information will be required during the design development stage.

3.13 Energy Efficiency - Section J

To be separately assessed by Energy Consultant.

3.14 Atrium – Part G3

The travelators which serve the basement retail parking levels and the Lower Ground retail area connect four storeys which is a non-compliance with BCA Clause G3D2 and D2D17. In addition, the Lower Ground mall area is connected with the levels above by other travelators. A performance solution will be pursued to rationalise the atrium which will be addressed holistically as a performance-based fire engineered solution in lieu of DTS compliance with Part G3 & Specification 31.

4.0 Statement of compliance

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary information to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code, subject to all matters for further consideration identified in this report being addressed in the design, and subject to compliance with all appendices and Specifications included with this report.

Appendix A Design documentation

This report has been based on the following design documentation.

Table 2 Design documentation

Architectural Plans Prepared by DKO Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA000	P3	22.05.2026	Cover Page
DA001	P3	22.05.2026	Title Sheet
DA100	P3	22.05.2026	Site & Location Plan
DA101	P2	22.05.2026	Site Analysis Plan
DA103	P1	22.05.2026	Site Plan
DA104	P3	22.05.2026	Public Space Allocation
DA105	P3	22.05.2026	Subdivision Plan
DA106	P1	22.05.2026	Stratum Plan (SP2 Zone
DA200	P3	22.05.2026	Basement 07
DA201	P3	22.05.2026	Basement 06
DA202	P3	22.05.2026	Basement 05
DA203	P3	22.05.2026	Basement 04
DA204	P3	22.05.2026	Basement 03
DA205	P3	22.05.2026	Basement 02
DA206	P3	22.05.2026	Basement 01
DA207	P3	22.05.2026	Lower Ground
DA208	P3	22.05.2026	Ground Floor
DA209	P3	22.05.2026	Upper Ground
DA210	P3	22.05.2026	Level 1
DA211	P3	22.05.2026	Level 2
DA212	P3	22.05.2026	Level 3
DA213	P3	22.05.2026	Level 4
DA214	P3	22.05.2026	Level 5
DA215	P3	22.05.2026	Level 6
DA216	P3	22.05.2026	Level 7
DA217	P3	22.05.2026	Level 8

Architectural Plans Prepared by DKO Architects			
DA218	P3	22.05.2026	Level 9
DA219	P3	22.05.2026	Level 10
DA220	P3	22.05.2026	Level 11
DA221	P3	22.05.2026	Level 12
DA222	P3	22.05.2026	Level 13
DA223	P3	22.05.2026	Level 14
DA224	P3	22.05.2026	Level 15
DA225	P3	22.05.2026	Level 16
DA226	P3	22.05.2026	Level 17
DA227	P3	22.05.2026	Level 18
DA228	P3	22.05.2026	Level 19
DA229	P3	22.05.2026	Level 20
DA230	P3	22.05.2026	Level 21
DA231	P3	22.05.2026	Level 22
DA232	P3	22.05.2026	Level 23
DA233	P3	22.05.2026	Level 24
DA234	P3	22.05.2026	Level 25
DA235	P3	22.05.2026	Level 26
DA236	P3	22.05.2026	Level 27
DA237	P3	22.05.2026	Level 28
DA238	P3	22.05.2026	Level 29
DA239	P3	22.05.2026	Level 30
DA240	P3	22.05.2026	Level 31
DA241	P3	22.05.2026	Level 32
DA242	P3	22.05.2026	Level 33
DA243	P3	22.05.2026	Level 34
DA244	P3	22.05.2026	Level 35
DA245	P3	22.05.2026	Level 36
DA246	P3	22.05.2026	Roof
DA300	P3	22.05.2026	Overall North Elevations

Architectural Plans Prepared by DKO Architects			
DA301	P2	22.05.2026	Overall South Elevations
DA302	P3	22.05.2026	Overall West Elevations
DA303	P3	22.05.2026	Overall East Elevations
DA304	P3	22.05.2026	Building 1 Elevations
DA305	P3	22.05.2026	Building 2 Elevations
DA306	P3	22.05.2026	Building 3 Elevations
DA307	P3	22.05.2026	Building 4 Elevations
DA308	P3	22.05.2026	Building 5 Elevations
DA309	P3	22.05.2026	Building 6 Elevations
DA310	P3	22.05.2026	Building 7 Elevations
DA311	P3	22.05.2026	Building 8 Elevations
DA312	P3	22.05.2026	Section 01
DA313	P3	22.05.2026	Section 02
DA314	P3	22.05.2026	Materials & Finishes Schedule

Appendix B Essential Services

The following fire safety measures are required to be installed in the building. The following table will be required to be updated as the design develops and options for compliance are confirmed during detailed design phase, including any omissions or additions as a result of the fire engineering processes.

Table 3 Essential fire safety measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2022 C4D14** (Openings in Shafts) **BCA2022 Specification 12** AS 1905.1:2015
2.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
3.	Fire doors	**BCA2022 C3D13** (Separation of Equipment) **BCA2022 C3D14** (Electricity Supply Systems) **BCA2022 C4D5** (Acceptable methods of Protection) **BCA2022 C4D6** (Doors in Fire Walls) **BCA2022 C4D7** (Sliding Fire Doors) **BCA2022 C4D8** and **D2D16** (Horizontal Exits) **BCA2022 C4D9** (Openings in Fire Isolated Exits) **BCA2022 C4D12** (Bounding Construction) **Specification 19** (Fire Control Rooms) **Specification 12** & AS1905.1: 2015 **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) & AS1735.11- 1986
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005
5.	Fire shutters	**BCA2022 C4D5** (Acceptable methods of protection) **BCA2022 Specification 12** AS1905.2-2005
6.	Lightweight construction: Class 2 & 3 bounding construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C4D12** (Bounding Construction) AS1530.4:2014
7.	Smoke Walls	**BCA2022 C3D15** (Public Corridors Class 2/3) **BCA2022 D3D5 (**Rising and Descending Stair Flights) **Specification 11** Clause S11C2
8.	Smoke Doors	**BCA2022 C3D15** (Public Corridors Class 2/3) **BCA2022 D3D5** (Rising and Descending Stair Flights) **BCA2022 Specification 12** AS1670.1:2018 (Amdt 1)

Item	Essential Fire and Other Safety Measures	Standard of Performance
General		
9.	Fire control centres & rooms	**BCA2022 E1D15** **Specification 19**
10.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
11.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) **BCA2022 E3D4** (Lift Signs) **BCA2022 Specification 19** (Fire Control Room)
Lifts		
12.	Emergency lifts	**BCA2022 E3D5**
13.	Stretcher Lifts including: Fire Service Controls Recall Operation Drive control switch	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls) **BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch) **BCA2022 Specification 24**
Electrical Services		
14.	Automatic fail-safe devices: Unlock egress & exit doors Fire stairs over 25m	**BCA2022 D3D26** (Operation of Latches) **BCA2022 D3D27** (Re-entry from fire-isolated stairs) AS1670.1:2018 (Amdt 1)
15.	Automatic fail-safe devices Auto open Sliding Exit doors	**BCA2022 D3D24** (Doorways & doors) AS1670.1:2018 (Amdt 1)
16.	Automatic fire detection & alarm:	**BCA2022 E2D3, E2D4, E2D5, E2D15, NSW E2D16, NSW E2D19,** **BCA2022 S20C3** (Smoke alarm system) **BCA2022 S20C4** (Smoke detection system) **BCA2022 S20C6** (Smoke detection for smoke control systems) **BCA2022 S20C7** (BOWS) **BCA2022 S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-2), AS 1670.1:2018 (Amdt 1) AS 1670.3:2018 (Amdt 1), AS 1670.4:2018 (Amdt 1)
17.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
18.	Exit signs	**BCA2022 E4D5** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
19.	Emergency warning and intercom systems	**BCA2022 E4D9** AS 1670.4:2018 (Amdt 1)
20.	System Monitoring	**BCA2022 E2D15, S20C8** AS 1670.3:2018 (Amdt 1)
Hydraulic Services		
21.	Automatic fire suppression systems	**BCA2022 E1D4, E1D5** **BCA2022 Specification 17** AS 2118.1:2017 (Amdt 1&2) AS 2118.6:2012 (Combined Sprinklers/Hydrant)
22.	Fire hydrant systems NSW Storz Couplings	**BCA2022 E1D2** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
23.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
24.	Wall-wetting sprinkler / drenchers	**BCA2022 C4D5** AS 2118.1:2017 Wall-wetting sprinkler / drenchers
Mechanical Services		
25.	Fire dampers	**BCA2022 E2D3, Specification 21** **BCA2022 C4D16** AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015
26.	Mechanical air handling systems: - Fire Isolated Exit Pressurisation Systems	**BCA2022 E2D4** AS 1668.1:2015 (Amdt 1)
27.	Mechanical air handling systems: - Automatic smoke exhaust - Performance based design	**BCA2022 E2D15, Specification 21** AS 1668.1:2015 (Amdt 1) Fire Engineering Report
28.	Auto-shutdown of Air-handling Systems: Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1:2015; (NSW Part E2) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: non-ducted individual room units with a capacity of not more than 1000 L/s; or miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	**BCA2022 E2D3, NSW E2D16** AS 1668.1:2015 (Amdt 1)
29.	Mechanical air handling systems: - Car park mechanical ventilation	**BCA2022 E2D12** AS 1668.1:2015 (Amdt 1)

Item	Essential Fire and Other Safety Measures	Standard of Performance
30.	Smoke dampers	**BCA2022 E2D15, Specification 21** AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015

Appendix C Fire resistance levels

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

Type A construction

Table 4 Type A construction

Table S5C11a: Type A construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/90/90	180/180/180	240/240/180
3m, or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3 m	-/60/60	-/90/90	-/180/120	-/240/180
3m, or more	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11c: Type A construction: FRL of external columns not incorporated in an external wall.

Column Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-bearing	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	90/90/90	120/120/120	180/120/120	240/120/120
Bounding public corridors, public lobbies and the like	90/90/90	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy unit	90/90/90	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	-/90/90	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy unit	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120

Table S5C11g: Table A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building Element	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other loadbearing internal walls, internal beams, trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

N.B. There are FRL concessions applicable for fully sprinkler-protected buildings under Clause S5C15 of BCA Specification 5, permitting the roof of a building to have nil FRL.

Appendix D Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

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

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

1. the exterior of the building; or
2. a non-conditioned space including—
    a. the floor of a rooftop plant room, lift-machine room or the like; and
    b. the floor above a carpark or warehouse; and
    c. the common wall with a carpark, warehouse or the like.

Exit

Exit means –

1. Any, or any combination of the following if they provide egress to a road or open space—
    a. An internal or external stairway.
    b. A ramp.
    c. A fire-isolated passageway.
    d. A doorway opening to a road or open space.
    e. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

1. the total space of a building; or

2. when referred to in—

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

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

Fire-resistance level (FRL)

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

1. structural adequacy; and
2. integrity; and
3. insulation,

and expressed in that order.

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

Fire-source feature

1. the far boundary of a road, river, lake or the like adjoining the allotment; or
2. a side or rear boundary of the allotment; or
3. an external wall of another building on the allotment which is not a Class 10 building.

Fire wall

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

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Horizontal exit

Horizontal exit means a required doorway between 2 parts of a building separated from each other by a fire wall.

Loadbearing

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

Non-combustible

Non-combustible means—

1. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
2. applied to construction or part of a building — constructed wholly of materials that are not deemed combustible.

Occupiable outdoor area

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

1. that is open to the sky; and
2. to which access is provided, other than access only for maintenance; and
3. that is not open space or directly connected with open space.

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index.

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

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

1. a dwelling; or
2. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

Appendix E BCA compliance specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with S5C11 of Specification 5 of BCA2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
3. Building elements, including external walls and their components in buildings of Type A and B Construction, must be non-combustible in accordance with C2D10 of BCA2022.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C2D11 and Specification 7 of BCA2022.
5. Any ancillary elements fixed, installed, or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C2D14 of BCA2022.
6. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C3D9 and Specification 5 of BCA2022.
7. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
8. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
9. Any electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C3D14 of BCA2022.
10. The public corridors will be divided into intervals of not more than 40m in length with smoke proof walls in accordance with Clause C3D15, and S11C2 of Specification 11 of BCA2022. The smoke doors shall swing in both directions, or otherwise be installed to swing in the direction of egress.
11. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
12. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
13. Sliding fire doors in a fire wall which is open when the building is use will be installed in accordance with Clause C4D7 of BCA2022.
14. Doorways in horizontal exits will be protected in accordance with Clause C4D8 of BCA2022.
15. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C4D9 of BCA2022.
16. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.

17. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C4D13, C4D14 and C4D15 and Specification 13 of BCA2022.
18. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C4D16.
19. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
20. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
21. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C4D17 of BCA2022.
22. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification 5 Clause S5C4 BCA2022.
23. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause S5C8 of Specification 5 of BCA2022.
24. Smoke-proof walls and doorways required in the building will be in accordance with Specification 11 of BCA2022.
25. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
26. Smoke doors will be installed in accordance with Specification 12 of BCA2022.
27. Fire shutters will be in accordance with Specification 12 of BCA2022.
28. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
29. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
30. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
31. The alternative exits will be distributed uniformly around the storey and will be not be less than 9m apart, and not more that 45m apart in any residential portions of the building, or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.
32. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
33. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
34. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
35. Horizontal exits will be in accordance with Clause D2D16 of BCA2022.
36. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
37. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D2D21 of BCA2022.
38. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.

39. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of BCA2022.
40. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
41. The construction separating rising and descending stairs in the fire-isolated exit stairway will be non-combustible and smoke proof, in accordance with Clause D3D5 of BCA2022.
42. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D3D8 of BCA2022 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
43. The enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60 and have a self-closing -/60/30 fire door, in accordance with Clause D3D9 of BCA2022.
44. New pedestrian ramps will comply with AS 1428.1:2009, Clause D3D11 and Part D4 of BCA2022. The floor surface of a ramp must have a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
45. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
46. The roof of the building where the exit discharges will have an FRL of 120/120/120 and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D3D13 of BCA2022.
47. Stair geometry to the new stairways will be in accordance with Clause D3D14 of BCA2022. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
48. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D16 of BCA2022. Landings to have either a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
49. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
50. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plantroom, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2018 or Part D3 of BCA2022.
51. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
52. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
53. Re-entry doors from the fire-isolated exits will be in accordance with Clause D3D27 of BCA2022.
54. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
55. The openable portion of a window in a bedroom of a Class 2 or 3 building will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D3D29 of BCA2022. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.

56. The fire control room will be in accordance with Clause E1D15 and Specification 19 of BCA2022.
57. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.
58. Non-illuminated exit signage will be installed in accordance with Clause E4D7, and of BCA2022.
59. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
60. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
61. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
62. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS 3740:2010.
63. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
64. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
65. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS 1288:2006 / AS 2047:2014.
66. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Clause F4D3, Clause F4D4 and Tables under F4D4 of BCA2022.
67. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
68. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
69. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
70. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
71. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
72. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
73. Pliable building membranes installed in external walls will comply with Clause F8D3 of BCA2022 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
74. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1D5 of BCA2022.
75. The refrigerated or cooling chamber, strongroom or vault will be in accordance with Clause G1D3.
76. Outdoor play spaces associated with the early childhood centre will be in accordance with Clause G1D4 of BCA2022.
77. The stoves, heaters or similar appliances installed in the building will be in accordance with AS/NZS 2918:2018 and Clause G2D2 of BCA2022.
78. Boilers and pressure vessels shall be installed in accordance with Specification G2D2 of BCA2022.

79. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.

Electrical Services Design Certification:

80. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
81. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
82. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
83. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
84. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
85. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of BCA2022.

Hydraulic Services Design Certification:

86. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
87. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2021.
88. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
89. A sprinkler system will be installed in accordance with Clause E1D4 & E1D5 of BCA2022, Specification 17 and appropriate part(s) of AS 2118.
90. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
91. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.

Mechanical Services Design Certification:

92. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of BCA2022 and AS 1668.1:2015.
93. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
94. A smoke exhaust system will be installed in the building in accordance with E2D15, and Specification 21 of BCA2022 and the proposed fire engineering performance solution.
95. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
96. Every storey of the car park will be mechanically ventilated in accordance with Clause F6D11 of BCA2022 and AS 1668.2:2012 as applicable. In addition, car park will be mechanically ventilated in accordance with Clause E2D12 of BCA2022 and AS 1668.1:2015 (Amdt 1).

97. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F6D12 of BCA2022, and AS 1668.1:2015 and AS 1668.2:2012.

98. Exhaust systems installed in a kitchen, bathroom, sanitary compartment, or laundry of a Class 2 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F8D4 of BCA2022.

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

Structural Engineers Design Certification:

100. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 including but not limited to the following:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    c. Earthquake actions – AS 1170.4:2007
    d. Masonry – AS 3700:2018
    e. Concrete Construction – AS 3600:2018
    f. Steel Construction AS 4100:1998
    g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
    h. ABCB Standard for Construction of Buildings in Flood Hazard Areas.

101. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification 5 of BCA2022, including S5C11 for a building of Type A Construction.

102. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.

103. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.

104. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D3D3 of BCA2022 for the fire isolated stairs.

Lift Services Design Certification:

105. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of BCA2022 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.

106. Warning signage in accordance with Clause E3D4 of BCA2022 will be provided to the lifts to advise not to use the lifts in a fire.

107. The development will be served with emergency lifts in accordance with Clause E3D5 of BCA2022.

108. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3D11.

109. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.

110. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D4 of the BCA2022 and will be suitable to accommodate disabled persons.

111. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 and E3D8 and will also have accessible features in accordance with E3D7 and E3D8 of BCA2022.

112. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.

113. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

114. The sound transmission and insulation of the residential portions of the development will comply with Part F7 of BCA2022.

NSW Specification Design Certificate:

115. The swimming pool associated with the new building will comply with Clause G1D2 and NSW G1D2 of the BCA, Swimming Pools Act 1992, Swimming Pools Regulation 2018 and AS 1926.1:2012. AS 1926.2:2007 and AS 1926.3:2010.