SUNDALE NORTHLAND DEVELOPMENTS PTY LTD

BCA ASSESSMENT REPORT

12-16 Bent Street, Lindfield

Project Number: 116856
Report Type: BCA
Revision: 1
Date: 10 March 2025

PREPARED FOR

Phil Choy
phil@sundaledevelopments.com.au

PREPARED BY

Sean Jensen
02 8484 4031
sean.jensen@jensenhughes.com

JENSEN HUGHES

Jensen Hughes Pty Limited
Suite 302, Level 3, 151 Castlereagh St, Sydney NSW 2000
Postal Address: PO Box Q1440, Queen Victoria Building NSW 1230

Document Control

Revision	Issue Date	Issue Description	Prepared By:	Verified by:
r1	10 March 2025	BCA Assessment Report	Sean Jensen	Andrew Beames
	10 March 2025	Andrew Beames Manager, Building Code	Signed:	Signed by: Andrew B 0612937BEA204FB...

Jensen Hughes Australia

Providing building regulations, fire engineering, accessibility, and energy consulting services to NSW for over 25 years

Our story begins in 1997 with the founding of BCA Logic to fulfill the demand of a consultancy company whose expertise expanded across the entire life cycle of a building, from consulting on the initial planning through to construction and occupation.

BCA Logic, SGA Fire and BCA Energy joined Jensen Hughes in 2021, a leading global, multi-disciplinary engineering, consulting and technology firm focused on safety, security, and resiliency. We continue to be at the forefront of our industry and work thoroughly to preserve our position by ensuring the successful delivery of projects.

Jensen Hughes was launched in 2014 through the historic merger of Hughes Associates and Rolf Jensen & Associates (RJA), two of the most experienced and respected fire protection engineering companies at the time. Since then, we have gained market leadership in nuclear risk consulting and established commanding positions in areas like forensic engineering, security risk consulting and emergency management. Over the past 22 years, our integration of more than 30 privately held engineering and consulting firms has dramatically expanded our global footprint, giving us a powerful market presence ten times larger than our nearest competitor in some of our markets and extending our historical lineage back to 1939.

With more than 90 offices and 1500 employees worldwide supporting clients globally across all markets, we utilise our geographic reach to help better serve the needs of our local, regional, and multinational clients. In every market, our teams are deeply entrenched in local communities, which is important to establishing trust and delivering on our promises.

Table of Contents

Executive summary

This document provides an assessment of the architectural design drawings for the proposed residential development located at 12-16 Bent Street, Lindfield NSW, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Volume One.

Part 4 of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions. Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	Description	BCA Provision
Performance Solutions required		
1.	**Separation of classifications in the same storey** Rationalise FRL of the basement storeys from 4hrs down to 2hrs.	C3D9
2.	**Bounding construction** Rationalise bounding construction on Level 01 within the Mail room, Gym, Changerooms, Saunas and Indoor bicycle parking requiring an FRL.	C4D12
3.	**Enclosure of the base of shafts** To address Garbage shaft not being sealed on the Ground Floor slab.	S5C8
4.	**Number of exits required** To permit the fire pump room on Level 01 to be served by a single exit. Alternatively, a separate door leading from the pump room to the carpark could be provided.	D2D3
5.	**Exit travel distances** The following travel distances do not comply and if feasible, would require the project Fire Safety Engineer to review: + To permit an exit travel distance of up to 25m in lieu of 20m within the Basement and Ground Floor Carpark storeys. + To permit an exit travel distance of up to 11m in lieu of 6m within Level 01 to Level 09. + To permit an exit travel distance of up to 36m in lieu of 20m within Communal Space Level 09.	D2D5
6.	**Distance between alternative exits** To permit an exit travel distance between alternative exits of up to 5m in lieu of the minimum requirement of 9m for Levels 02 to Levels 10.	D2D6
7.	**Acceptable methods of protection** To address the protection requirements where the discharge of fire isolated exits on the Ground Floor and Level 01 pass within 6m of any part of an external wall of the same building.	D2D12 C4D5

8.	**EWIS** EWIS system coverage need not be measured on SOU balconies. Further discussion will be required between the Electrical Designer and the Fire Safety Engineer to confirm the feasibility of a performance solution.	E4D9
9.	**Atrium construction** To address how the atrium will be separated from the remainder of the building. The following items will need to be reviewed by the project Fire Safety Engineer: + The horizontal diameter is less than 6m. + Bounding wall construction and fire resistance. + Rationalise fire and smoke control systems.	G3D3, Specifications 31
Building Code of Australia compliance matters to be addressed		
10.	**Smoke corridors – Class 2** Address smoke corridors located on Levels 09 and 10 having a length greater than 40m. Design amendments required to achieve compliance, must be divided at intervals of not more than 40m.	C3D15
11.	**Door swing** Address the door swings in the exit doors on Level 01 located in bicycle parking and the southern exit door adjacent unit 108 swinging in the direction of egress. Design amendments showing doors in direction of egress are required to achieve compliance.	D3D25
12.	**Fire hydrants** Address fire pump room located on Basement Level 01 which opens directly into a non-fire-isolated stairway, not having an airlock. This stair is to be fire-isolated and provided with an airlock outside the pump room. Design to illustrate compliance.	E1D2
13.	**Natural Lighting** Address the lack of natural lighting provided within the study nooks for the SOU's. Design amendments required to achieve compliance.	F6D2
Further information required		
14.	**Roof and wall cladding** Further information required to demonstrate that the construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements. The following materials would comply with BCA Clause F3D5 + Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. + Autoclaved aerated concrete: AS 5146.3. + Metal wall cladding: AS 1562.1. Further details are required at the Construction Certificate stage to confirm what materials are proposed to the external façade.	F3P1

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The residential development, the subject of this report, is located at 12-16 Bent Street, Lindfield NSW 2070.

The redevelopment of the site comprises the following:

- Construction of one (1) x eleven (11)-storey building consisting of one-hundred and fifteen (115) residential apartments and ancillary communal facilities for the residents.
- Communal areas to include the following:
  - Provision of a Gymnasium with a changing room and sauna for use by the residents.
  - Provision of a communal garden on Level 01 of the building for use by the residents.
  - Communal space on Level 09 of the building for use by the residents.
- Vehicular access to the basement for off-street parking will be via a ramp located on Bent Street.

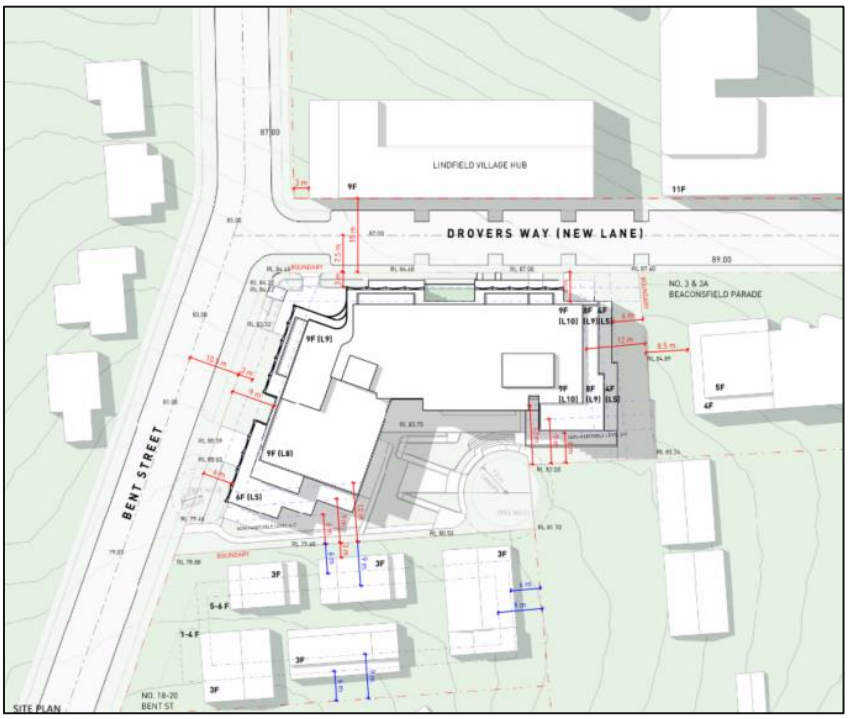


Figure 1: *Site Plan*

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

The National Construction Code (**NCC**) is Australia's primary set of technical design and construction provisions for buildings.

As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility, and sustainability of certain buildings. The Australian Building Codes Board, on behalf of the Australian Government and each State and Territory government, produces and maintains the National Construction Code.

The NCC has three (3) volumes being:

- Volume One - containing technical design and construction requirements for all Class 2 to 9 buildings.
- Volume Two - containing technical design and construction requirements for certain residential (Class 1) and non-habitable buildings and structures (Class 10).
- Volume Three - Containing technical requirements for the design and construction for plumbing and drainage systems in new and existing buildings.

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**), 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**, being volume 1 of the NCC.

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 unless otherwise discussed in this report);
3. Demolition Standards not referred to by the BCA;
4. Work Health and Safety Act 2011;
5. Requirements of Australian Standards unless specifically referred to;

6. 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
7. Conditions of Development Consent issued by the Local Consent Authority.

1.5 DESIGN DOCUMENTATION

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

2.0 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 eleven (11).

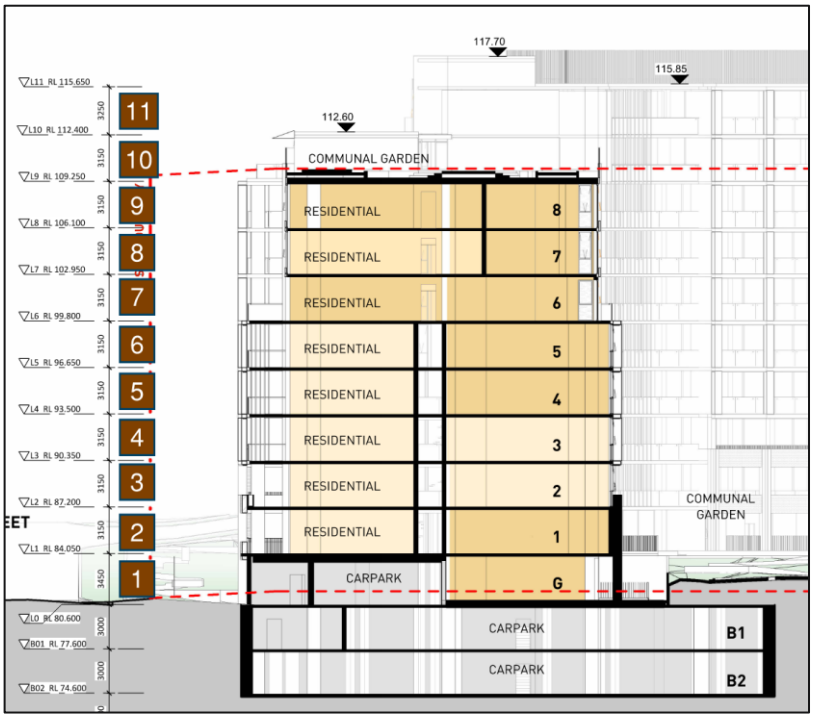


Figure 2: *Section 2*

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 2	Ground Level to Level 10	Residential (Sole-occupancy units, communal corridors and ancillary communal spaces). **Note: Level 01's Gym, Saunas, Changerooms has been included within the Class 2 classification, Certifier to review and confirm use.**
Class 7a /Class 7b	Basement Level 03 to Ground Level	Car Parking and Storage **Note: The bike parking on Level 01 has been considered under carparking (7a) classification. Further discussion will be required to determine if EV battery charging or a workshop will be provided in this room, as this may impact the classification and fire engineering assessment.**
Class 9b	Level 09	Outdoor Communal Space

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an *effective height* of 31.8m (RL112.400 – RL 80.600) more than twenty-five (25) metres.

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 (TABLE C3D3)

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

Class 7a and 7b	Maximum Floor Area	5,000 m^2
	Maximum Volume	30,000 m^3
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 9b	Maximum Floor Area	8,000 m^2
	Maximum Volume	48,000 m^3

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. Basement Levels 03 to Ground Level Carparks form a single fire compartment;
2. The residential portions of part Ground Level and Level 01 is a single fire compartment.
   Note: that the atrium connects each storey from Level 01 to Level 04. Fire Engineering required at the next stage of the design.
3. Pending the fire engineering of the atrium, each storey from Level 02 to Level 10 could form their own fire compartment;
4. Level 01's Gym, Saunas, Changerooms and Indoor bicycle parking form one single fire compartment.
   Note: Further assessment of the compartment plans at the CC stage is required to confirm compartments

2.7 EXITS

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

1. The fire isolated stairways serving Basement Levels 03 to Level 01; discharging to the Southern communal garden, which leads to Bent St;
2. The communal corridor entrance doorways serving Level 01; discharging to Bent St and the communal space;
3. The communal corridor entrance doorway serving Level 02; discharging to the Drovers Way;
4. The fire isolated stairways serving Levels 01 to Level 10; discharging to the Southern communal garden, which leads to Bent St.

2.8 CLIMATE ZONE

The building is located within Climate Zone 5

2.9 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of Bent Street (>6m);

South: The rear property boundary (>6m);

East: The far boundary of Drovers Way (>6m);

West: The side boundary (>6m);

In accordance with Clause S5C2 of Specification 5, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

a. has an FRL of not less than 30/–/–; and

b. is neither transparent nor translucent.

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 Annexure 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 Annexure C of this report.

The external walls and all components of the wall, in a building of Type A, are required to be non-combustible in accordance with BCA Clause C2D10. 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.

Fire Hazard Properties

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

3.4 COMPARTMENTATION AND SEPARATION – PART C3

Under the provisions of BCA Clause C3D3, the residential portion of the building is not the subject to any floor area and volume limitations.

The Class 7b of the building have been assessed and the floor area and volume of these compartments is less than that permitted by BCA Clause C3D3. As such compliance with the provisions of the BCA for compartmentation is readily achieved, however this assessment is to be reaffirmed at Construction Certificate stage once holistic fire compartment drawings are available for assessment

In accordance with BCA Clause C3D9 as the building is Type A construction the common wall between Class 7a and Class 2 is required to have an FRL of not less than 120/120/120 in accordance with BCA Specification 5.

Spandrel Separation

The development is Type A Construction and BCA Clause C3D7 requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The plans indicate suitable spandrels have not been provided by a combination of horizontal balcony slabs which achieve 1100mm length and external walls beneath windows which have a minimum of 900mm high with 600mm above the slab, therefore not complying with this Clause. **Following options apply:**

- Amend design to suit compliance requirement, or
- Fire Safety Engineer to review and confirm if a performance solution is feasible (BCA Clause C3D7).
- **As the proposed development is over 25m, sprinklers are therefore required. If the proposed building is provided with a AS 2118.1:2017 sprinkler system installed throughout; spandrels are therefore not required.**

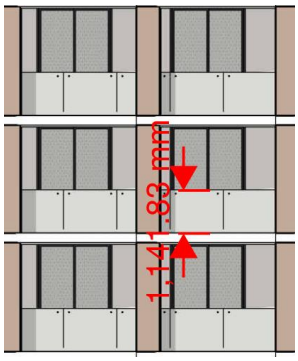


Figure 4: *South elevation*

As the building is type A construction the concrete slab floors require an FRL. The concrete slab above Basement Levels 03,02,01 and Ground Floor carparks is required to have an FRL of not less than 120/120/120, with the concrete slab floors above the Ground Floor SOU's, and between each SOU's located on Level 01 through to Level 10 are required to have an FRL of not less than 90/90/90 in accordance with BCA Specification 5. **It should be noted that as the Basement Levels will be classified as 7b due to the cage storage areas, we suggest Fire Engineering to rationalise reduction in the required FRL's.**

The lift shafts are required to have an FRL in accordance with BCA Specification 5. The fire rated wall separating the lift shaft from the sole-occupancy units is to be detailed with a fire rated lid. Fire-rated walls are also to be documented on plans, with a wall schedule listing FRL's achieved to be provided for further assessment at Construction Certificate Stage. (BCA Clause C3D8 and C3D11).

The location of the main switchboard has been provided on the proposed plans. If the switchboard is required to sustain emergency equipment in an emergency, the switch room is to have an FRL of 120/120/120. Further information of the proposed FRL's are to be provided for further assessment at Construction Certificate Stage.

In accordance with BCA Clause C3D15, in a Class 2 or 3 building, a public corridor if more than 40 m in length, must be divided at intervals of not more than 40 m with smoke-proof walls complying with S11C2. The smoke corridors located on Levels 01, 09 and 10 have a length greater than 40m, therefore not complying with Clause. Design amendments required to achieve compliance, must be divided at intervals of not more than 40m.

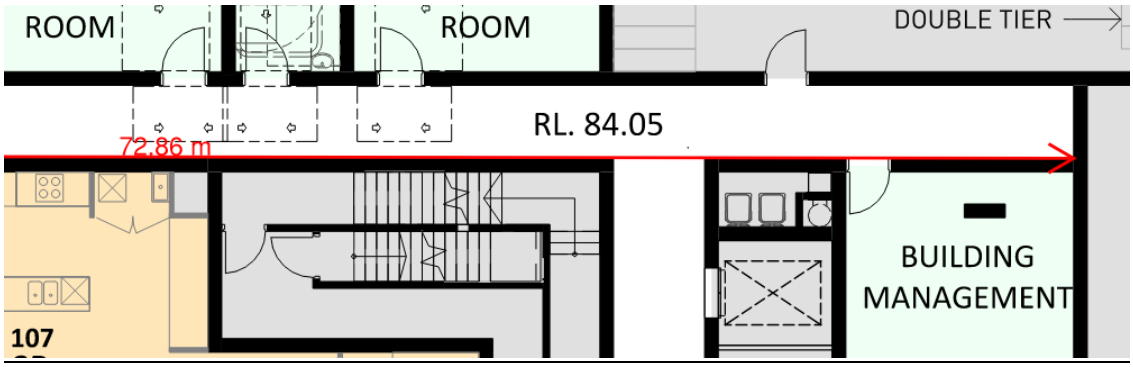


Figure 5: *Level 01*

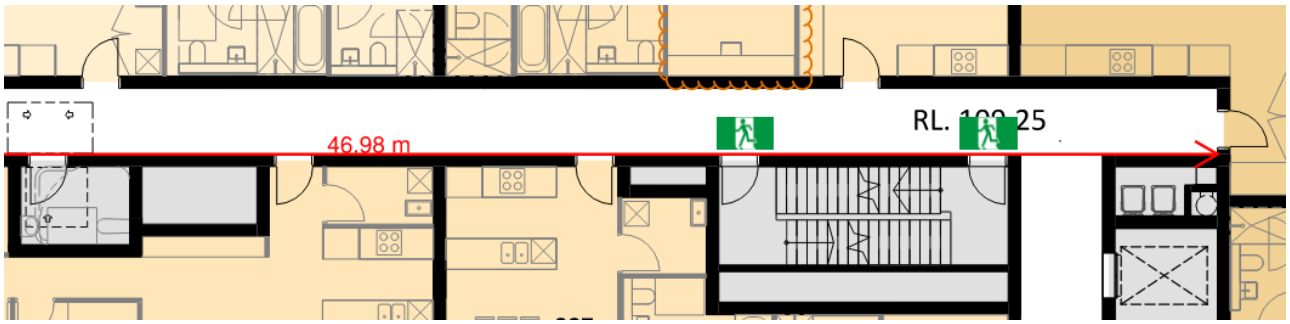


Figure 6: *Level 09*

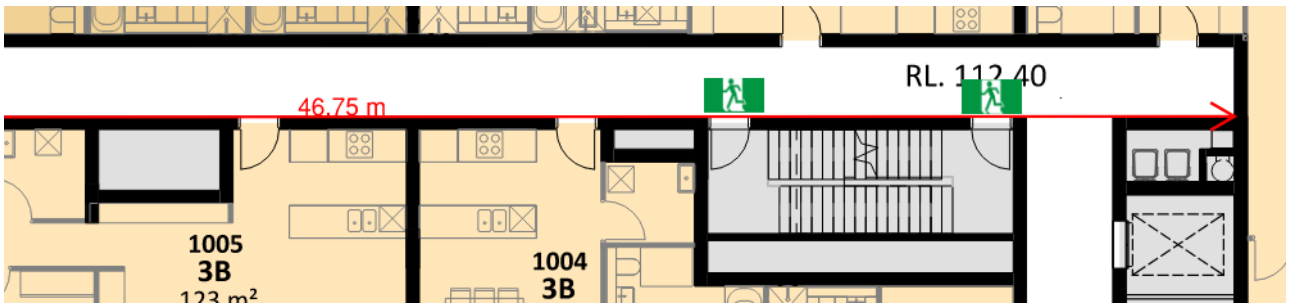


Figure 7: *Level 10*

3.5 PROTECTION OF OPENINGS – PART C4

3.5.1 Openings in external walls

The external walls are located more than three (3) metres from any boundary. As such there is no requirement to protect any openings within the external walls.

As the path of travel from the point of discharge of the fire isolated exits on the Ground Floor and Level 01 pass within 6m of an external wall of any part of an external wall of the same building, it must therefore be protected in accordance with BCA Clause C4D5 by either:

- Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or
- –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or
- –/60/– automatic closing fire shutters or

Alternatively, (if feasible) a fire engineered performance solution would be required (BCA Clause C4D5).

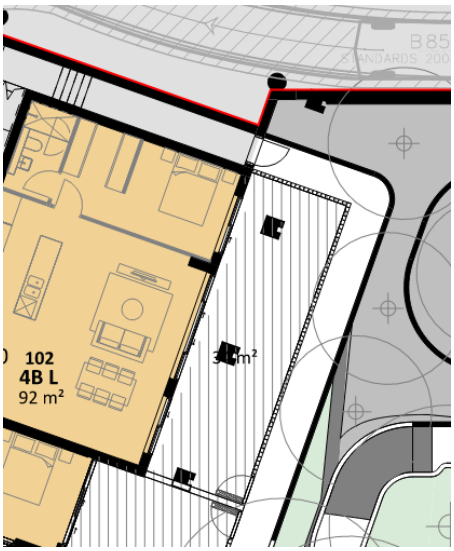


Figure 8: *Ground Level Fire Isolated exit*

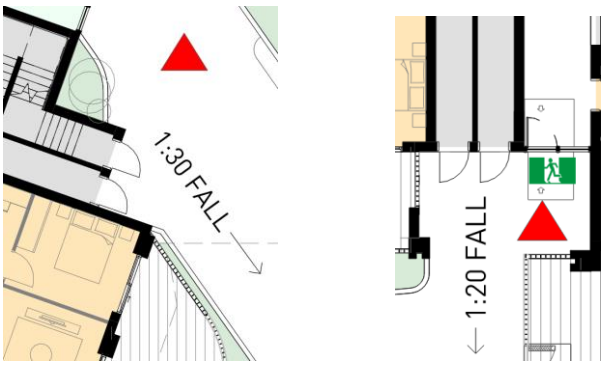


Figure 9: *Level 01 point of discharge from Fire Isolated exits*

3.5.2 Openings in fire-isolated lift shafts

The doors to the lift are required to have an FRL of -/60/- in accordance with BCA Clause C4D11.

3.5.3 Bounding Construction

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, as well as the bounding walls within the Mail room, Gym, Changerooms, Saunas and Indoor bicycle parking also require an FRL. Further discussion will be required once the fire compartment plans are made available. **(if feasible) a fire engineered performance solution may be required (BCA Clause C4D12).**

The doors to the Sole Occupancy Units are required to be self-closing FRL --/60/30 fire doors in accordance with BCA Clause C4D12.

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.

Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building. The garbage shaft terminates on Ground Floor, and due to the nature of the garbage shaft, cannot be sealed at the slab. **Hence the Fire Safety Engineer will need to review the garbage shaft and confirm if a performance solution is feasible to consider the Ground Floor garbage room as the base of the shaft.** This will also have implications with fire hose reel coverage

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* is required to have no less than two (2) exits. The proposed development has provided two (2) available exits from each level, making compliance readily achievable.

Furthermore it should be noted that proposed Fire Pump room located on Level 01 has only provided one (1) exit in lieu of the required two (2) exits in accordance with BCA Clause D2D3. Therefore not complying with this Clause. **Following options apply:**

- Amend design to suit compliance requirement, i.e., add a door from the pump room to the carpark, or
- Fire Safety Engineer to review and confirm if a performance solution is feasible (BCA Clause D2D3).

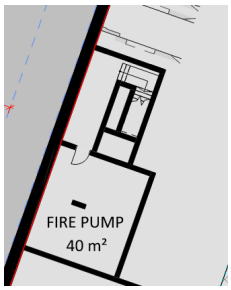
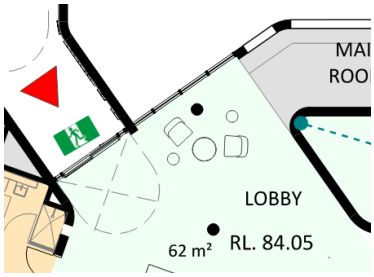


Figure 11: *Level 01 Fire Pump room*

In accordance with BCA Clause D3D24 a doorway serving as a required exit or forming part of a required exit must not be fitted with a sliding door unless it leads directly to a road or open space and the door is able to be opened manually under a force of not more than 110 N and be openable under fire trip. **Further information of door hardware is required for assessment for Communal corridor doorways located on Level 01 and Level 02. Fire Engineering may be required at the CC stage.**



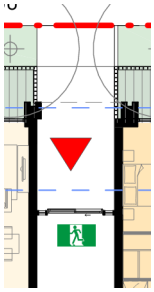


Figure 12: *Entrance doorway Level 01* ***Figure 13:*** *Entrance doorway Level 02*

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 are readily satisfied. Gates to be detailed and assessed at the next stage of design.

In accordance with BCA Clause D3D22 handrails must be located along at least one side of the ramp or flight; and be located along each side if the total width of the stairway or ramp is 2m or more. 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.

BCA Clause D3D16 requires that a threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless a building is required to be accessible. **Further information of the gradient of the threshold ramps is required for assessment for the Communal corridor doorways located on Level 01 and Level 02.**

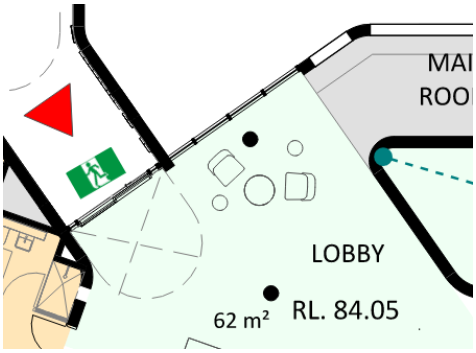


Figure 14: *Threshold ramp Level 01*

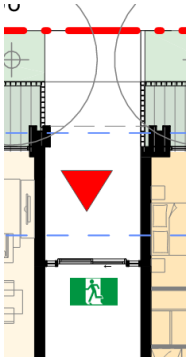


Figure 15: *Threshold ramp Level 02*

In accordance with BCA Clause D3D25 requires swinging door in a required exit or forming part of a required exit must swing in the direction of egress. The door swings in the exit doors located in bicycle parking and the southern exit door adjacent unit 108 do not swing in the direction of egress. Design amendments are required to achieve compliance.

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/Class 7a Part

Egress from the carpark shall ensures 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. On the Ground Floor, a Class 5 or 6 building is permitted to be thirty (30) metres to an exit.

The distance between alternative exits is required by BCA Clauses D2D7-D2D11 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

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

- BCA Clause D2D5 – Exit travel distance
    - **To permit an exit travel distance of up to 25m in lieu of 20m within the Basement and Ground Floor Carpark storeys.**

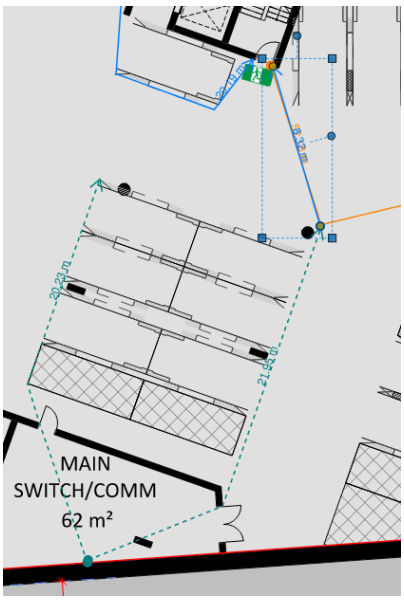


Figure 16: *Basement Level 01 Carpark*

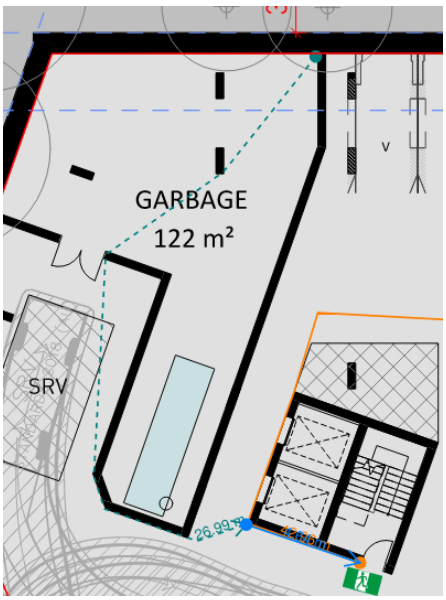


Figure 17: *Ground Level Carpark*

Residential Floors

The building has a rise in storeys of more than three (3) with all levels connected by a common stairway. Therefore, BCA Clause D2D4 requires the residential building to have a fire-isolated stair.

On the Ground Floor, the distance to a single exit is permitted up to twenty (20) metres. To the upper floors, the travel distance to an exit is to be no more than six (6) metres, or, where a point of choice exists, the distance between alternative exits is no greater than forty-five (45) metres in accordance with BCA Clause D2D5.

The distance between alternative exits is required by BCA Clauses D2D7-D2D11 to be no closer than nine (9) metres and no further apart than sixty (45) metres when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

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

+ BCA Clause D2D5 – Exit travel distance
    - **To permit an exit travel distance of up to 11m in lieu of 6m within Level 01 to Level 03.**
    - **To permit an exit travel distance of up to 10m in lieu of 6m within Level 04 to Level 05.**
    - **To permit an exit travel distance of up to 8m in lieu of 6m within Level 02 to Level 09.**
    - **To permit an exit travel distance of up to 36m in lieu of 20m within Communal Space Level 09.**
+ BCA Clause D2D6 – Distance between alternative exits
    - **To permit an exit travel distance between alternative exits of up to 6m in lieu of the minimum requirement of 9m for Levels 02 to Levels 10.**

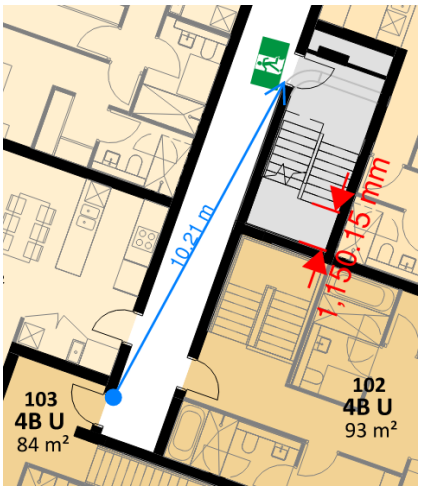


Figure 18: *Level 01*

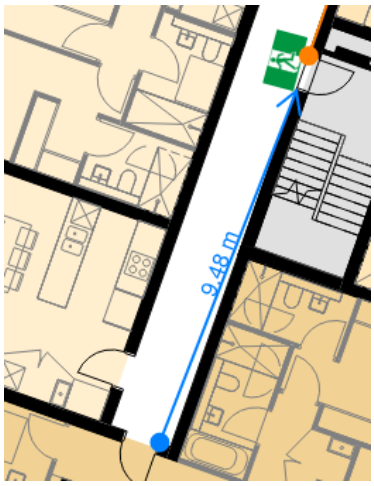


Figure 19: *Level 04*

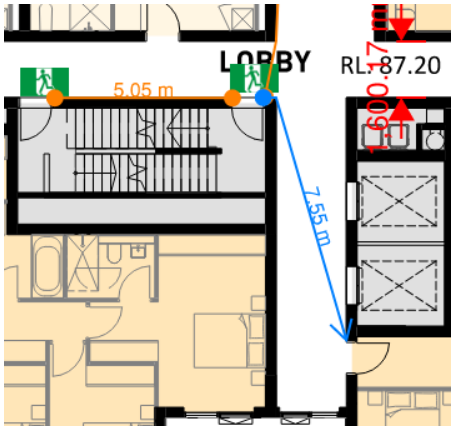


Figure 20: *Level 02*

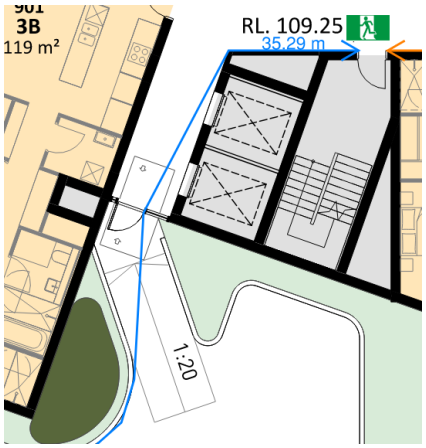


Figure 21: *Level 09* Communal space

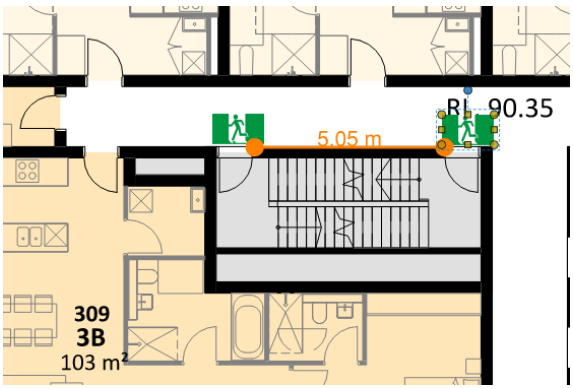


Figure 22: *Level 01*

3.6.2 Access for people with a disability

BCA Part D4 has not been assessed within this report. The accessibility requirements have been assessed in 116856-Access-r1.

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 Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

3.7.1 Part E1 – Fire Fighting Equipment

Specific comments pertaining to fire fighting services and equipment required for the building as set out in Annexure B of this report are provided as follows:

Fire hydrant

As the building has a floor area greater than 500m^2, fire hydrant protection is required.

The plans do not show the location of fire hydrants and further information will be required at the Construction Certificate Stage from the Hydraulic Consultant to demonstrate compliance.

In accordance with BCA Clause E1D2 and AS 2419 an internal pump room shall have door that directly leads to an airlock that leads to a fire isolated passageway or stair. The fire pump room located on Basement Level 01 does not have an airlock and leads directly into a stairway which is not fire-isolated. This stair is to be fire-isolated and provided with an airlock outside the pump room. Design to illustrate compliance.

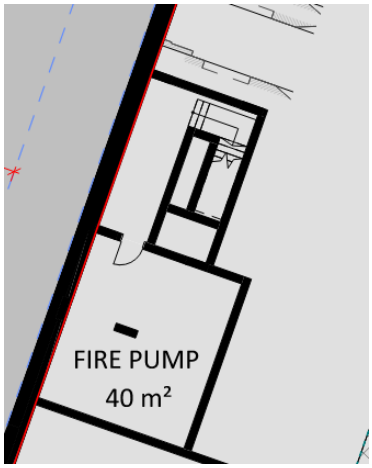


Figure 23: *Level 01 Fire Pump room*

Fire Hose Reel

In in accordance BCA Clause E1D3 as the Class 7a portion of the building is greater than 500m^2 and is required to have fire hose reels (FHR's). FHR's are required to be located within four (4) metres of an *exit*, and that coverage to all points on a floor are within thirty-six (36) metres, plus four (4) metres of spray as per AS2441-2005. The plans do not indicate that the locations of FHRs. **Further information required, updated drawings showing the locations of the fire hose reels with Class 7a portions of the development are required for further assessment. The pump room and garbage rooms may need careful attention to ensure coverage is provided.**

Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D4 & Specification 17. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance. As the building is over twenty-five (25) metres, the following system can be installed:

+ AS 2118.1-2017;

Portable Fire Extinguishers

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

Fire Control Centre

As the development is over twenty-five (25) metres effective height, it is required to have a Fire Control Centre (FCC) in accordance with Clause E1D15 and Specification 19. No information has been provided, and further design input is required at the Construction Certificate Stage.

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 Annexure B of this report are provided as follows:

Smoke Alarms

Smoke alarms will be required within residential sole occupancy units in accordance with Part E2 & AS3786-2014.

Smoke Detection & Alarm System

The development must be provided with a smoke detection and alarm system complying with Specification S20C5. The preliminary Development Application plans do not provide any details regarding the layout of smoke detection and alarm system. Further information is needed from the Electrical Consultant during the Construction Certificate Stage to demonstrate compliance.

Stair Pressurisation

As 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 those stairs. The drawings indicate that the stairs appear to have stair pressurisation shafts as required. 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.

Mechanical Ventilation

In a Class 7a building, a mechanical ventilation system is required in accordance with BCA Clause E2D12 and AS 1668.1. Further information is required to confirm what system is proposed.

3.7.3 Part E3 – Lift Installations

Lifts Serving More than 12 Metres Effective Height

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.

In accordance with BCA Clause E3D5(3) where buildings exceed twenty-five (25) metres effective height, and where two or more passenger lifts are installed and serve the same storeys, at least two emergency lifts must be provided to serve those storeys and if located within different shafts, at least one emergency lift must be provided in each shaft

No details have been provided to undertake an assessment. Therefore, further information is required during the Construction Certificate Stage.

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 Annexure 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 ROOF AND WALL CLADDING – PART F3

In accordance with BCA Clause F3P1, a roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause unhealthy or dangerous conditions, or loss of amenity for occupants; and undue dampness or deterioration of building elements. **Further information required to demonstrate that the construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements (BCA Clause F3P1).**

Alternatively, under the deemed-to-satisfy provisions of the BCA, BCA 2022 has introduced BCA Clause F3D5 where the development could be designed with one or a combination of Masonry AS 3700, AAC AS 5146.3 or Metal wall cladding AS 1562.1.

3.9 FACILITIES IN BUILDINGS – PART F4

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

- Kitchen sink;
- 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.

3.10 ROOM HEIGHTS – PART F5

The section drawings indicate that the ceiling heights for all habitable spaces, corridors, and the like can achieve the minimum height of 2400 mm. In non-habitable rooms such as toilets, garages and storage rooms, the ceiling height is no less than 2100 mm.

The ceiling heights have been assessed in accordance with BCA Part F5 which has indicated that compliance is readily achievable within all habitable spaces, corridors, and the like.

3.11 LIGHT AND VENTILATION – PART F6

3.11.1 Residential Accommodation

3.11.1.1 Method and extent of natural light

Class 2

In accordance with BCA Clause F6D2 and F6D3 natural light is required to all habitable rooms within a Class 2 building, with the area of the doors and windows (exclusive of any framing members, glazing bars or other obstructions) required to be not less than 10% of the floor area. The plans have been assessed which reveals not all habitable spaces are served by windows or glazed doors. The area of concern are the study nooks provided within the SOU's which have not been provided with any natural lighting, therefore not complying with this Clause. Design amendments are required to achieve compliance.

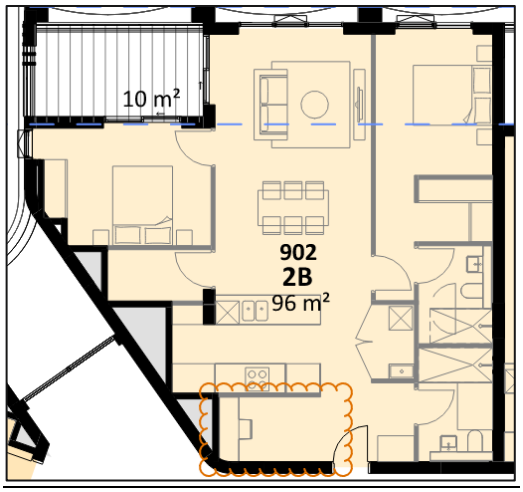


Figure 24: *Level 02*

Figure 25: *Level 09*

3.11.1.2 Ventilation of rooms

Ventilation is required to all habitable rooms within 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 and AS/NZS3666.1.

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.

3.12 SOUND TRANSMISSION AND INSULATION – PART F7

A wall in a Class 2 building that is required to have an impact sound insulation rating must be of discontinuous construction and have an Rw + Ctr (airborne) not less than 50, if it separates sole-occupancy units; and have an Rw (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification. Discontinuous construction is required in certain instances – acoustic engineer to confirm compliance at the next stage of design. In addition, a flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.

3.13 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.

3.14 ATRIUM CONSTRUCTION

As the proposed development consists of an atrium, BCA Part G3 Atrium construction, requires an atrium to be separated from the remainder of the building, have a horizontal diameter less than 6m, bounding wall construction and fire and smoke control systems. Proposed Atrium is to be reviewed by the project Fire Safety Engineer.

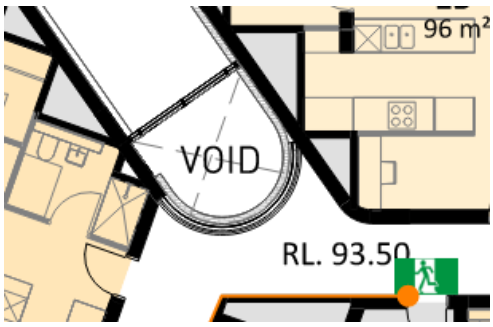


Figure 26: *Level 04*

3.15 ENERGY EFFICIENCY - SECTION J

To be separately assessed by Energy Consultant.

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 Annexures and Specifications included with this report.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by			
Drawing Number	**Revision**	**Date**	**Title**
AR-DA-A10010	2	15/11/24	Site Plan
AR-DA-B10000	2	15/11/24	Basement Level 03 Floor Plan
AR-DA-B10010	2	15/11/24	Basement Level 02 Floor Plan
AR-DA-B10020	2	15/11/24	Basement Level 01 Floor Plan
AR-DA-B10030	2	15/11/24	Ground Level Floor Plan
AR-DA-B10040	2	15/11/24	Level 01 Floor Plan
AR-DA-B10050	2	15/11/24	Level 02 Floor Plan
AR-DA-B10060	2	15/11/24	Level 03 Floor Plan
AR-DA-B10070	2	15/11/24	Level 04 Floor Plan
AR-DA-B10080	2	15/11/24	Level 05 Floor Plan
AR-DA-B10090	2	15/11/24	Level 06 Floor Plan
AR-DA-B10100	2	15/11/24	Level 07 Floor Plan
AR-DA-B10110	2	15/11/24	Level 08 Floor Plan
AR-DA-B10120	2	15/11/24	Level 09 Floor Plan
AR-DA-B10130	2	15/11/24	Level 10 Floor Plan
AR-DA-B10140	2	15/11/24	Roof Plan

Annexure B - Essential Services

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

This section provides information for the design team, including service designers, and may need to be updated upon receipt of final designs and performance solutions at the construction approval stage.

Table 3: Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Atrium Constriction + 2 *exits* to atrium areas. + Must have Fast response Sprinklers to atrium floor. + EWIS + Smoke Control + Stand By Power + (Other TBC)	**BCA2022 G3** (Atrium Construction) **Specification 31** (Atrium Construction)
2.	Access Panels & doors/hoppers (fire rated)	**BCA2022 C4D14** (Openings in Shafts) **BCA2022 Specification 12** AS 1905.1:2015 (Fire Resistant Door sets)
3.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
4.	Fire doors	**BCA2022 C3D13** (Separation of Equipment) **BCA2022 C3D14** (Electricity Supply Systems) **BCA2022 C4D5** (Acceptable methods of Protection) **BCA2022 C4D9 (**Openings in Fire Isolated Exits) **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2022 C4D12** (Bounding Construction) **BCA2022 C4D14** (Opening in Shafts) Specification 19 (Fire Control Centres) Specification 12 AS1905.1: 2015

Item	Essential Fire and Other Safety Measures	Standard of Performance
5.	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
6.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C4D12** (Bounding Construction) AS1530.4:2014
General		
7.	Fire control centres >25m	**BCA2022 E1D15, Specification 19** (Fire Control Centres)
8.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
General Egress		
9.	Evacuation Training	AS 3745:2010
10.	Operation of Door latches Failsafe Manual Push Button Control	**D3D26** (Operation of Latch) AS 1670.1 (Amdt 1)
11.	Required Automatic Doors	**D3D24** (Doorways and Doors)
12.	Swing of Exit Doors	**D3D24** (Swinging Doors)
13.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 E3D4** (Lift Signs) **BCA2022 Specification 19** (Fire Control Room)
Lifts		
14.	Access to Lift Pits Located at lowest level or if >3m provided through an access door	**BCA2022 D2D22** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
15.	Emergency lifts	**BCA2022 E3D5** AS 1735.1:2003 (Appendix A) or AS 1735.2:2001
16.	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)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA2022 E3D12 (Lift Car Fire Service drive control switch) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
17.	Automatic fail-safe devices Auto open Sliding Exit doors Break Glass release	**BCA2022 D3D26** (Operation of Latches) AS1670.1:2018 (Fire)
18.	Automatic fire detection & alarm	**BCA2022 E2D3, E2D4, E2D5 E2D6, E2D12** **Spec 20** **BCA2022 D3D26** (Operation of Latch) **Specification 31** (Atriums) **BCA2022 S20C5** (Combined smoke alarm and smoke detection system) **BCA2022 S20C6** (Smoke detection for smoke control systems) **BCA2022 S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4) AS 1670.1 (Amdt 1) AS 1670.4 (Amdt 1) (EWIS)
19.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
20.	Exit signs	**BCA2022 E4D5** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018
34.	Emergency warning and intercom systems for Emergency Purposes (SSISEP) (EWIS or SSISEP)	**BCA2022 E4D9** AS 1670.4 (Amdt 1) (SSISEP) AS 1670.4 (Amdt 1) (EWIS)
35.	System Monitoring	**BCA2022 S20C8** AS 1670.3 (Amdt 1) Monitoring Required for any: Any Sprinkler System
Hydraulic Services		
36.	Automatic fire suppression systems General Sprinklers Residential only Combined Sprinklers and Hydrant Fast Response Heads	**BCA2022 E1D4, E1D5, E1D9, E1D12** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers) AS 2118.6:2012 (Combined Sprinklers/Hydrant)

Item	Essential Fire and Other Safety Measures	Standard of Performance
37.	Fire hydrant systems	**BCA2022 E1D2** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
38.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
Mechanical Services		
39.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark.	**BCA2022 E2,** **Specification 20, Specification 21** AS 1668.1:2015 (Amdt 1)

Annexure C - Fire Resistance Levels

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

Type A Construction

Table 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	-/90/90	-/90/90	-/120/120	-/120/120

the discharge of hot products of combustion				

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 car park portions under Clause S5C19 of BCA Specification 5, reducing the carpark FRL's down from 120/120/120 to 60/60/60.

Annexure D Definitions

Effective height

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

Exit

Exit means –

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.

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.

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.

Annexure 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 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 external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
7. 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.
8. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
9. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
10. 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.
11. 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.
12. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
13. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C4D9 of BCA2022.
14. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.
15. 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.
16. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C4D16.

17. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
18. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
19. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C4D17 of BCA2022.
20. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification 5 Clause S5C4 BCA2022.
21. 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.
22. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
23. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
24. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
25. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
26. The alternative exits will be distributed uniformly around the storey and will be not be less than 6m apart, and not more that 45m apart in any residential portions or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.
27. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
28. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
29. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
30. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
31. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of BCA2022.
32. 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.
33. 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.
34. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
35. 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.
36. 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.

37. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
38. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
39. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
40. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
41. The fire control centre will be in accordance with Clause E1D15 and Specification 19 of BCA2022.
42. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.
43. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
44. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
45. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
46. 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.
47. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
48. 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.
49. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
50. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
51. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
52. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
53. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
54. 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.
55. Every storey of the carpark will be provided with an adequate system of mechanical ventilation in accordance with Clause F6D11 of BCA2022.
56. The atrium will be in accordance with Part G3, and Specification 31 of BCA2022.
57. 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.
58. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2021.

Electrical Services Design Certification:

59. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
60. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
61. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
62. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
63. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
64. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
65. 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:

66. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
67. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
68. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
69. A sprinkler system will be installed in accordance with BCA2022 Specification 17 and appropriate part(s) of AS 2118.
70. A sprinkler system will be installed in accordance with BCA2022 Specification 17.
71. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
72. 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:

73. 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.
74. Stair pressurisation will be installed in the building in accordance with E2D4 to E2D13 of BCA2022 and AS 1668.1:2015.
75. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
76. Every storey of the car park will be ventilated in accordance with Clause F6D11 of BCA2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.

77. 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.
78. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F8D5 of BCA2022.
79. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022
80. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

81. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    c. Masonry – AS 3700:2018
    d. Concrete Construction – AS 3600:2018
    e. Steel Construction AS 4100:1998
    f. Aluminium Construction – AS/NZS 1664.1 or 2:1997
    g. Timber Construction – AS 1720.1:2010
    h. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
82. 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.
83. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
84. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
85. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

86. 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.
87. 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.
88. An emergency lift will be provided in the building in accordance with Clause E3D5 of BCA2022.
89. 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.
90. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.

91. 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.
92. 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.
93. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
94. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

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