TIME & PLACE

BCA ASSESSMENT REPORT (DA)

101 North Steyne, Manly NSW 2095

Project Number: 119949
Report Type: BCA
Revision: 2
Date: 10 January 2025

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Document Control

Revision	Issue Date	Issue Description	Prepared By:	Verified by:
r1	20 December 2024	BCA Assessment Report (DA)	Cynthia Lawes	Reza Karani
r2	10 January 2025	BCA Assessment Report (DA) (minor updates in the architectural drawings)	Cynthia Lawes	Reza Karani
	10 January 2025	Reza Karani Senior building regulations Consultant	Signed:	DocuSigned by: Reza Karani 7FB686B272EB48A...

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 unit development at 101 North Steyne, Manly NSW 2095, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Volume One.

Part 3 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.

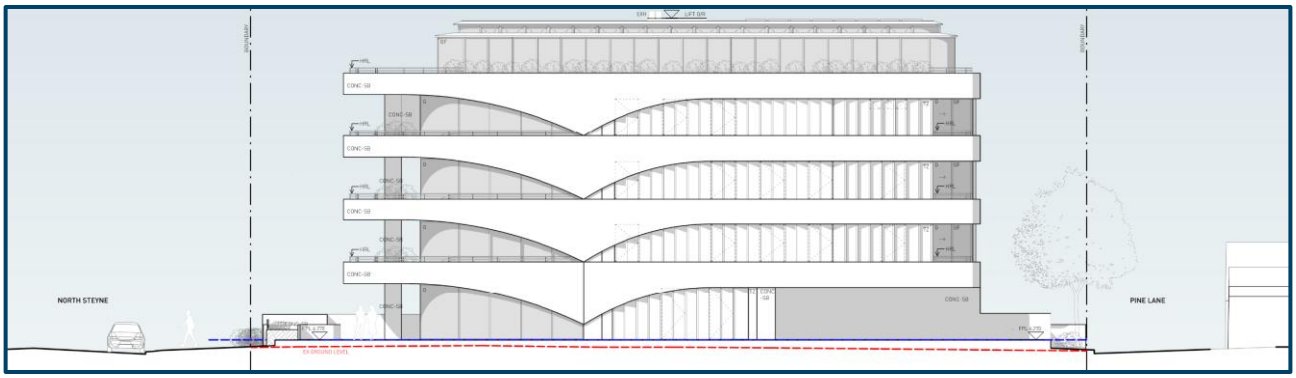
Item	Description	BCA Provision
Performance Solutions required		
1.	A fire-engineered Performance Solution is required to permit the openings required to be protected on the southern and northern sides of the building occupying more than 1/3 of the area of the external wall. **Note:** The openings on the North & South elevations (including the curved corners) are within three (3) metres of the boundary and will be provided by self-closing fire windows and external wall-wetting sprinklers as per the fire strategy and in accordance with BCA C4D5. If the above is not provided, an additional fire-engineered Performance Solution is required to address the requirements of opening protection in external walls.	C4D3
2.	Extended exit travel distance to a point of choice in the Basement (27.5m in lieu of 20m)	D2D5
3.	The Basement exits are combined, so the width of the path of travel is diminished. As two exits are required, a total of 2m exit width is also required, where combining the stairs reduces the total width to 1m.	D2D8 and D2D10
4.	A Performance Solution is required to permit providing handrails on one side in lieu of both sides in the communal use stairs.	D3D22
5.	The lift door opening inside of the SOU on Level 4 requires an FRL of -/60/30 and an airborne acoustic rating of Rw=30.	C4D12 and F7D6(2)
6.	A fire-engineered Performance Solution will be required to address where the fire hydrant booster is not within sight of the principal pedestrian entrance of the building.	E1D2
7.	Address the car stacker in the Basement as a Special Hazard.	E1D17
8.	A Performance Solution will be required to demonstrate that the construction of the new external walls (other than glazing, masonry, autoclaved aerated concrete, and metal wall cladding for which Deemed-to-Satisfy Provisions are provided) 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.	F3D4 & F3D5

Further information required		
9.	The Utility room on the Ground floor unit does not include a window to provide the required natural light. If the use of the Utility room is changed during the design development and the new use is for normal domestic activities and the room will be occupied frequently or for an extended period, natural light must be provided.	F6D3
10.	Suitable barriers are required around the spa in accordance with AS 1926.1 and AS 1926.2 during the Construction Certificate Stage.	G1D2

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 101 North Steyne, Manly NSW 2095, which incorporates a single basement level including car stackers with a total of four residential levels comprising seven Sole-Occupancy Units above.



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**), 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 in this report and has been covered in a separate accessibility report provided by Jensen Hughes;
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 five (5).

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 7a	Basement	Carpark
Class 2	Ground to Level 04	Sole-occupancy residential units

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an *effective height* of less than twenty-five (25) metres and more than twelve (12) metres at 12.4m (RL 6.270 to RL 18.670).

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	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.

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. The Basement forms one fire compartment separated from the remainder of the building.
2. Each residential storey forms its own fire compartment separated from the remainder of the building.

2.7 EXITS

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

1. The first riser of the required non-fire isolated stairs in the Basement
2. The first riser of the communal required non-fire isolated stairs in the Residential Levels

2.8 CLIMATE ZONE

The building is located within Climate Zone 5

2.9 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 building is importance level 2.

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

2.10 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The side boundary of the adjacent property at 102-104 North Steyne (0.7m to 1.8m).

South: The side boundary of the adjacent property at 98-100 North Steyne (0m to 2m).

East: The far boundary of North Steyne (7.3m)

West: The far boundary of Pine Lane (11m)

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 (except Part D4), 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 a DCD at the Construction Certificate Stage as it is based on development application drawings only.

3.3 FIRE RESISTANCE AND STABILITY – PART C2 & SPECIFICATION 5

The building is proposed to be constructed of the following elements:

Element	Method of Construction
External Walls	Concrete and glass
Floors	Concrete
Roof	Sheet Roofing (not specified on the drawings)
Internal Walls (between SOU's)	Not specified on the drawings
Basement walls	Concrete (not specified on the drawings)
Lift shafts	Concrete

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

Combustibility of External Walls

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 walls and any attachments or treatments, and further details will be required to be submitted at the 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.

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

3.4 COMPARTMENTATION AND SEPARATION – PART C3

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

Carpark

The carpark is required to have a sprinkler system, as it is part of a building *required* to have sprinklers. Therefore, the carpark is not subject to the floor area and volume limitations under BCA Clause C3D3 (considering the sprinkler system will be in accordance with BCA Specification 17 (other than a FPAA101D or FPAA101H system).

Spandrel Separation

The development is Type A Construction and is required to have spandrel separation between openings in an external wall. However, if the building is protected with an AS2118.1 system, fire-rated spandrel panels are not required under the provisions of BCA Clause C3D7. Should an alternative sprinkler system be provided to the building, spandrel separation will be required.

The main switchboard is located externally adjacent to the entrance of the building. If the switchboard is required to sustain emergency equipment in an emergency, the switch room is to have an FRL of 120/120/120. The design of the switch room is such that compliance can be readily achieved.

Compliance with Part C3 of the BCA can be readily achieved by the proposal.

3.5 PROTECTION OF OPENINGS – PART C4

3.5.1 Openings in external walls

The openings on the North & South elevations (including the curved corners) are within three (3) metres of the boundary and will require protection in accordance with BCA C4D3. Windows protection will be provided by self-closing fire windows and external wall-wetting sprinklers as per the fire strategy and in accordance with BCA C4D5. If the above is not provided, an additional fire-engineered Performance Solution is required to address the requirements or opening protection in external walls.

However, as the openings required to be protected will occupy more than 1/3 of the area of the external wall, a fire-engineered Performance Solution is required to address the non-compliance.

3.5.2 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 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.

The lift door opening inside of the SOU on Level 4 requires an FRL of -/60/30 and needs to be addressed as a fire-engineering Performance Solution.

3.5.3 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. As such, the service installation must be fire sealed with a compliant system such as a 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 the Construction Certificate stage.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

General Requirements

As the development is under twenty-five (25) metres effective height, each *storey* is permitted to have a single exit except the Basement carpark which needs two 92) exits as the egress from the Basement involves a vertical rise within the building of more than 1.5m.

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.

All communal stairs are required to have handrails on both sides with 1m clear width. A Performance Solution is required to permit the communal required non-fire isolated stairs connecting the residential levels to have one handrail in lieu of two handrails.

Note: There are other accessibility requirements that need to be addressed as part of the above Performance Solution regarding the required tactile and off-set risers and handrails (refer to the Accessibility Assessment Report provided by Jensen Hughes).

Details of treads and risers, landings, thresholds, balustrades, and handrails are required at the Construction Certificate Stage for further assessment.

Basement Car Park

Egress from the carpark 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.

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

- BCA Clause D2D5 – Basement Level exit travel distance of 27.5m in lieu of 20m (from Rear of bike parking (N/E top corner) to a point of choice)

It will be necessary to undertake a Fire Engineered Performance Solution to permit the combined basement exit width of 1m, diminishing in the path of travel:

- BCA Clause D2D8 – Basement Level exit stairs, two exits required, therefore a total of 2m exit travel width is required. The stairs combine mid-way to a single 1m wide stair and hence diminish width in the path of travel.

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 distance between alternative exits complies with the above requirements.

Residential Floors

The building has a Rise in Storey of four (4) connected by a stairway and can have non-fire isolated stairways as per Clause D2D4 of the BCA subject to providing a sprinkler system complying with Specification 17 (other than a FPAA101D).

On the Ground Floor, the distance to a single exit is permitted up to twenty (20) metres. The drawings indicate that the travel distance is no further than that permitted under Clause D2D5, and therefore, compliance is achieved. To the upper floors, the travel distance to an exit is no more than six (6) metres. The drawings indicate that they can comply with the requirements of BCA Clause D2D5.

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 the report issued by Jensen Hughes (No. 119949-Access-r2, dated 9 January 2025).

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 firefighting 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. A fire-engineered Performance Solution will be required to address where the fire hydrant booster is not within sight of the principal pedestrian entrance of the building.

Fire Hose Reel

The Class 7a portion of the building is greater than 500m^2 and is required to have fire hose reels (FHR's). The plans indicate that the FHR is located within four (4) metres of an *exit*, and that coverage to all points on the basement floor is within thirty-six (36) metres, plus four (4) metres of spray as per AS2441-2005. Further design development is required from the Hydraulic Consultant to achieve compliance.

Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D6. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance.

As part of the fire strategy, it is understood that an AS 1128.1-2017 in accordance with BCA Specification 17 will be designed and installed in the building.

A fire-engineered Performance Solution is required to address the car stacker in the Basement as a Special Hazard (BCA E1D17).

Portable Fire Extinguishers

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

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.

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.

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.

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 EXTERNAL WATERPROOFING MEMBRANE

To achieve compliance with Clause F1D5, AS 4654.1 & 2 the external balconies are required to be provided with a minimum step-down or hob as required by the standard and depending on the wind classification between the internal and external finished floor levels. If the required stepdown or hob cannot be achieved, the external balconies will require a grated drain at the threshold of the doorway in accordance with AS 4654.2.

Sufficient sections and elevations demonstrating compliance with BCA Clause F1.4 & AS4654.1 & 2 will be required at Construction Certificate stage.

Note: BCA 2025 (which might be applicable at the time that the Construction Certificate is issued for this project) currently requires a minimum of 70mm hob between internal and external finished floor levels as a Deemed-to-Satisfy requirement. Furthermore, structural substrates will require the fall provided within the floor.

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 a 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

Class 2

Natural light is required for all habitable rooms within 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) is 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.

The Utility room on the Ground floor unit does not include a window to provide the required natural light. If the use of the Utility room is changed during the design development and the new use is for normal

domestic activities and the room will be occupied frequently or for an extended period, natural light must be provided as required by BCA Clause F6D3.

Where heat attenuation screens are provided as part of a fire-engineered Performance Solution, it will be necessary to increase the window size openings to ensure that the 10% natural light requirement is achieved with the installation of the screen in front of the window.

3.11.1.1 Ventilation of rooms

Ventilation is required in all habitable rooms within a Class 2 building. Clause F6D6 allows for either natural ventilation as per Clause F6D7 or a 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) is 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.

The Utility room on the Ground floor unit does not include an opening to provide the required natural ventilation. Either mechanical ventilation or natural ventilation must be provided to the room, if the use of the Utility room is changed during the design development and the new use is for normal domestic activities and the room will be occupied frequently or for an extended period.

3.11.2 Commercial Buildings

The carpark requires a mechanical ventilation system complying with AS1668.2. No information has been provided; However, the mechanical system can be readily designed.

Further design input will be required from the Mechanical Consultant to demonstrate compliance.

3.12 SOUND TRANSMISSION AND INSULATION – PART F7

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

The lift door opening inside of the SOU on Level 4 requires an airborne acoustic rating of Rw=30 and needs to be addressed as a Performance Solution.

3.13 SWIMMING POOL – PART G1

BCA Clause G1D2 requires suitable barriers to be installed around the swimming pool (SPA on the Ground level) in accordance with AS 1926.1 and AS 1926.2.

3.14 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.

3.15 ENERGY EFFICIENCY - SECTION J

To be separately assessed by the Energy Consultant.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by Smart Design Studio			
Drawing Number	**Revision**	**Date**	**Title**
DA000	A	13.12.24	LEGEND, DRAWING LIST, SITE MAP
DA001	A	19.12.24	SITE & ROOF PLAN
DA002	A	19.12.24	SITE DEMOLITION PLAN
DA099	A	19.12.24	B1 PLAN
DA100	A	19.12.24	L00 PLAN
DA101	A	19.12.24	L01-L02 PLAN
DA102	A	19.12.24	L03 PLAN
DA103	A	19.12.24	L04 PLAN
DA104	A	19.12.24	ROOF PLAN
DA400	A	19.12.24	ELEV – N S
DA401	A	19.12.24	ELEV – E W
DA450	A	19.12.24	SECT – A B
DA800	A	19.12.24	SUN EYE VIEWS
DA801	A	19.12.24	SHADOW PLAN
DA802	A	19.12.24	SHADOW ELEVATIONS 98-100
DA806	A	19.12.24	DEEP SOIL ZONES
DA807	A	19.12.24	ADG COMPLIANCE DIAGRAMS
DA810	A	19.12.24	GFA PLAN
DA820	A	19.12.24	LIVABLE AND ADAPTABLE UNITS

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.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
2.	Fire doors	**BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) **BCA2022 C4D12** (Bounding Construction) **BCA2022 C4D14** (Opening in Shafts) Specification 12 AS1905.1: 2015 Proposed fire-engineered Performance Solution (lift door opening into SOU on Level 4)
3.	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
4.	Fire windows (Where needed)	**BCA2022 C4D5** (Acceptable Methods of Protection) **BCA2022 Specification 12** identical to tested porotype.
5.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C4D12** (Bounding Construction) AS1530.4:2014
General		
6.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
7.	Special hazards (Car stacker)	**BCA2022 E1D17**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		Proposed fire-engineered Performance Solution
General Egress		
8.	Operation of Door latches	**BCA2022 D3D26** (Operation of Latch) AS 1670.1 (Amdt 1)
9.	Swing of Exit Doors	**BCA2022 D3D24** (Swinging Doors)
10.	Warning & operational signs	**BCA2022 E3D4** (Lift Signs)
11.	Exit travel distance	**BCA2022 D2D5** Proposed fire-engineered Performance Solution
12.	Width of the path of travel	**BCA2022 D2D8 and D2D10** Proposed fire-engineered Performance Solution
Lifts		
13.	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'
14.	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** AS 1735.11:1986 (Fire rated landing doors) Proposed fire-engineered Performance Solution (lift door opening into SOU on Level 4)
Electrical Services		
15.	Automatic fire detection & alarm:	**BCA2022 E2D8, Spec 20** **BCA2022 S20C5** (Combined smoke alarm and smoke detection system) **BCA2022 S20C7** (BOWS) **BCA2022 S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS 1670.1 (Amdt 1) (Fire) – Section 4 and 5 (Detectors)
16.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
17.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D7** (Residential Concession) **BCA2022 E4D8** (Design and Operation - Exits) AS/NZS 2293.1:2018
18.	System Monitoring	**BCA2022 S20C8** AS 1670.3 (Amdt 1) Monitoring Required for any Sprinkler System
Hydraulic Services		
19.	Automatic fire suppression systems • General Sprinklers	**BCA2022 E1D6** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers)
20.	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' Proposed fire-engineered Performance Solution
21.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
22.	Wall-wetting sprinkler / drenchers	**BCA2022 C4D5,** AS 2118.2: Wall-wetting sprinkler / drenchers
Mechanical Services		
23.	Mechanical ventilation to carpark.	**BCA2022 E2D12,** 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

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/m^2) as determined by AS ISO 9239.1:2003.

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.

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.

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. 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. Openings in the external walls that are required to have an FRL will be located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
11. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
12. 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.
13. 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.
14. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
15. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
16. 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.

17. 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.
18. 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.
19. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
20. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
21. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
22. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
23. The alternative exits will be distributed uniformly around the storey and will be not less than 9m apart, and not more that 45m apart in any residential portions or patient care areas in the health-care building, or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.
24. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
25. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
26. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
27. 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.
28. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
29. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
30. 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.
31. 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.
32. 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.
33. 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.
34. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022. A Performance Solution is required to allow handrails on one side only in the communal use stairs.
35. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.

36. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
37. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
38. The openable portion of a window in a Class 2, building will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause 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.
39. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.
40. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
41. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
42. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
43. 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.
44. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
45. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
46. 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.
47. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
48. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
49. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
50. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
51. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
52. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
53. 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.
54. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F6D11 of BCA2022.
55. 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.
56. 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:

57. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
58. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
59. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
60. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
61. 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:

62. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
63. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
64. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
65. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.1
66. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.

Mechanical Services Design Certification:

67. 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.
68. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
69. 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.
70. Exhaust systems installed in a kitchen, bathroom, sanitary compartment, or laundry of a Class 2 or 4 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F8D4 of BCA2022.
71. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022
72. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

73. 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. 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.

74. 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.
75. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
76. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
77. 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:

78. 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.
79. 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.
80. 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.
81. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
82. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
83. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

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