

NATIONAL CONSTRUCTION CODE REPORT

MIXED-USE DEVELOPMENT

25 MOSS VALE ROAD BOMADERRY – SITE K

PREPARED FOR SOUTHERN CROSS COMMUNITY HOUSING

15 OCTOBER 2024



DESIGN RIGHT
CONSULTING

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EXECUTIVE SUMMARY

This report has been prepared to identify the extent of compliance achieved by the assessment of the architectural documentation for the proposed development against the relevant provisions of the National Construction Code, Building Code of Australia (BCA) 2022 and its adopted standards.

The proposed development consists of the construction of a new four (5) storey mixed use building containing two levels of residential apartments, retail/commercial tenancy, early childhood centre, roof top communal area and a single levels of car parking with storage located at Site K - 25 Moss Vale Road Bomaderry.

This report will provide a BCA analysis to assist in the process of design development and to assist the consent authority in the determination of the Development Application relating to the works.

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

REPORT DETAILS

PROPOSED DEVELOPMENT

The proposed development consists of the construction of a new four (5) storey mixed use building containing two levels of residential apartments, retail/commercial tenancy, early childhood centre, roof top communal area and a single levels of car parking with storage located at Site K - 25 Moss Vale Road Bomaderry.

LOCATION

The subject development is located at Lot 110/-/DP131219 known as 82-84 Tennyson Road, Mortlake.

The site is within the jurisdiction of Shoalhaven City Council for the purposes of development approvals.

REFERENCED DOCUMENTS

The following documents have been reviewed, referenced and/or relied upon in the preparation of this report.

- National Construction Code, Building Code of Australia (BCA) 2022
- Architectural Plans as prepared SPARC Development (Appendix 1)
- Environmental Planning and Assessment Act 1979
- Environmental Planning & Assessment Regulation 2021

CURRENT LEGISLATION

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA. However the existing features of an existing building need not to comply with the BCA unless an upgrade is required by other clauses of the legislation

The version of the BCA applicable to the development, is the version that in place at the time of the application of the Construction Certificate.

REPORT PURPOSE

This report has been prepared to identify aspects of the proposed design that require further consideration and to identify aspects of the design that may be altered subsequent to the issue of a Development Consent

This report has been prepared on the basis of an assessment of compliance only and should not be construed as being design advice. Further detailed assessment and design documentation will need to be provided prior to the issue of a Construction Certificate

EXCLUSIONS AND LIMITATIONS

Except as mentioned in the report, the limitations and exclusions of this report are as follows -

The report does not address the following matters unless directly addressed by way of commentary:

- Fire resistance of primary structural elements;
- Compliance with the *Disability Discrimination Act 1992*;
- Local Government Act and Regulations
- Performance Solution Reports
- Any certification works pursuant to the:
 - a. Environmental Planning and Assessment Act 1979; and,
 - b. Environmental Planning and Assessment Regulation 2021; and,
 - c. Building and Development Certifiers Act 2018; and,
 - d. Building and Development Certifiers Regulation 2020.
- The report excludes any review of following parts of the BCA as they do not specifically relate to aspects of the BCA or are not applicable to this building:
 - PART B – Structure.
 - PART D4 – Access
 - PART G – Atriums. [The building does not contain an atrium].
 - PART H – Special Use Buildings.
 - PART J – Energy Efficiency.
- Preparation of any plans, specifications and certificates undertaken by a: architectural; structural; hydraulic; mechanical; electrical; fire engineer; fire services engineer and their respective fees;
- Engineering analysis of structural; hydraulic; mechanical; electrical; fire engineering; fire services;
- Any services undertaken by an: access consultant; town planner; architect; registered surveyor; energy consultant; acoustic consultant;
- Demolition or building works;
- Any project management services;
- Appraisals are limited to the provisions of the BCA and the Premises Standards. Other legislative requirements have not been considered. It does not address additional or specific requirements stipulated under other areas such as Safety in Design, Construction Safety, Disability Discrimination, Planning and Environment, Occupational Health and Safety, Health, Dangerous Goods, etc, which may impact on the design and use of the building. It is recommended that appropriate advice from suitably qualified consultants should be obtained for further information on these areas

This report is based on the National Construction Code 2022 and focuses on the design review and advice of the architectural plans only. This is a summary of the limitations of the service provided and the responsibilities of the client. The service does not include any evaluation or verification of the compliance of any documents that are required for a Design Compliance Declaration and Regulation under the Design and Building Practitioners Act 2020 and its Regulation.

The report is based on the sources and data available at the time of writing and may not reflect the latest developments or updates. The report is not intended to replace the professional judgment or expertise of a Design Practitioner or Qualified Specialist in the relevant field. Users of this report should exercise their own due diligence and caution before making any decisions or actions based on the report.

NATIONAL CONSTRUCTION CODE ASSESSMENT

BUILDING DESCRIPTION

Use/Classification	<p>Class 2 – Residential Apartments Class 6 - Retail Class 7a – Carpark Class 9b – Early Childcare Centre</p>
Rise in Storeys	Five (5)
Storeys Contained	Five (5)
Floor Area	<p>The maximum floor areas for fire compartments are not applicable to the Class 2 parts and 7a Sprinkler protected.</p> <p>Class 6, 9b portions do not exceed the maximum size of fire compartments in part C2.2 of the BCA.</p>
Volume	<p>The maximum volume provisions for fire compartments are not applicable to the Class 2 and Class 7a Sprinkler protected.</p> <p>Class 6, 9b portions do not exceed the maximum size of fire compartments in part C2D2 of the BCA.</p>
Effective Height	The building will have an effective height greater than 12m. (Approx. 13m. TBC at Construction Certificate Stage)
Populations	<p>Table D2D18 imposes a ratio for a population as follows:</p> <p>Carpark – 40 persons total (1 person per 30m²) Retail Ground – 39 persons total (1 person per 3m²)</p> <p>By way of application of D2D18 of the BCA, the maximum following populations for the Early Childcare tenancy have been provided by the client: Students – 55 Children Teachers – 10</p> <p>Note that the BCA does not provide a ratio under table D2D18 relating to a population of the class 2 apartments. In this regard it is reasonable to assume a population of 2 persons per bedroom.</p>
Type of Construction (BCA)	The building requires Type A construction throughout
Climate zone	For the purpose of Section J the climate zone is 6

STRUCTURE (SECTION B, BCA)

STRUCTURAL PROVISIONS

The development is to be designed so the structure will resist loads determined:

- AS 1170.0 – 2002 General Principles
- AS 1170.1 – 2002, including certification for balustrades (dead and live loads)
- AS 1170.2 – 2021, Wind loads
- AS 1170.4 – 2007, Earthquake loads
- AS 1288 – 2021, Glass in buildings + B1.4(h)(iii) – To protect against nickel sulphide inclusions.
- AS1530.4–2014, Fire-Resistance Tests on Elements of Construction
- AS/NZS 1664.1 and 2 – 1997, Aluminium construction
- AS/NZS 1684.1, 2 and 3 – 2021, Residential Timber Framing Construction
- AS 1720.1 – 2010, Design of Timber Structure
- AS 1720.4 – 2019, Fire resistance for structural adequacy of timber members
- AS 1720.5 – 2015, Nail plated timber roof structures
- AS 2159 – 2009, Piling
- AS 2047 – 2014, Windows in buildings
- AS 3600 – 2018, Concrete code – Including but not limited to Section 5 Fire Resistance of Concrete
- AS 3700 – 2018, Masonry code – Including but not limited to Section 6 Fire Resistance of Masonry
- AS3666.0-2014 Termite Management
- AS 4100 – 2020, Steel Structures and/or AS 4600 – 2018, Cold formed steel
- AS/NZS4600 - 2018 Cold Steel Formed Structures
- AS5146.1-2015 – Reinforced Autoclave Aerated Concrete Structures
- All other relevant Australian Standards, guidelines and referenced/cross referenced applicable standards.
- AS 2327 - 2017 – Composite Steel Construction in Buildings
- Structural engineer to consider Importance Levels in their design declarations.
- BCA Specification 5 – Fire Resistance of Building Elements

Structural Engineering Drawings and Design Certification is required for the new works. Certification and details are to also address FRL's as specified under BCA Spec 5 (for Type A Construction) and nominate all applicable Australian Standards and Importance Levels.

FIRE RESISTANCE AND STABILITY (SECTION C, BCA)

FIRE RESISTANCE

The building is to comply with Clause C2D21 and S5C1 & S5C11 of Specification 5, for a building required to have Type A construction. Refer to Table S5C11 of Specification 5 for the specific Fire Resistance Levels [FRL's].

Structural: the ability to maintain stability and adequate load-bearing capacity as determined by AS 1530.4.

Integrity: the ability to resist the passage of flames and hot gases specified in AS 1530.4.

Insulation: The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.

Class	FRL
Class 2:	90/90/90
Class 6:	180/180/180
Class 7a:	120/120/120
Class 9b:	120/120/120

Where it is proposed to not achieve a minimum 200mm thick reinforced concrete slab throughout the residential levels (when required by AS3600), this will need to be disclosed by the project structural engineer and addressed under a Performance Based Solution by a Registered Fire Safety Engineer.

Where it is proposed to incorporate permanent Polymer Formwork wall type systems such as Dincel/AFS/Ritek etc, the use of these wall/load bearing systems are to be disclosed by the project structural engineer and addressed under a Performance Based Solution by a qualified Fire Safety Engineer.

LIGHTWEIGHT CONSTRUCTION

Where lightweight fire rated construction is proposed for walls, the system must comply with Specification C2D9 of BCA and the manufactures tested specification. Furthermore, the system proposed must be consistent with sound and energy efficiency requirements with Part F6 and Part J of BCA.

Columns protected with lightweight fire rated construction that are subject to mechanical damage must be protected and/or internally filled in accordance with Clause C2D9 (b) of BCA.

NON COMBUSTIBLE BUILDING ELEMENTS

Any proposed Aluminium Composite Panels or any external wall cladding must comply with AS1530.1-1994 the C2D10 BCA with a complying CodeMark Certificate and its required Standards and is to be reviewed and certified by the registered Certifier at Construction Certificate stage.

Any sarking type materials within the external wall construction is to have a flammability index not greater than 5 and have an overall thickness not exceeding 1mm.

The use of any type of render to external wall faces of either masonry is to be non combustible by test under AS 1530.1. NOTE many acrylic renders may not satisfy the requirement for non combustibility and wall type schedules are to identify the material and demonstrate compliance.

The timber pergola and timber pergola shades are non compliant with Type A Construction. Either a review and replacement of the proposed finishing with compliant and non combustible materials as per C2D10 or addressed via a performance solution by a fire engineer at CC stage.

FIRE HAZARD PROPERTIES

The wall and floor linings must achieve the fire hazard properties stipulated in BCA Specifications C2D11.

Compliance assumed and will require verification test data for all timber and other combustible linings and materials, including:

- Carpets
- Vinyls (walling and flooring)
- Timber flooring and wall lining
- Veneered wall panelling
- Spray-on insulation material
- Other combustible finishes
- Carpark soffit insulation fire test reports based on 'room fire testing' will be required to meet fire brigade consent conditions if applicable.

COMPARTMENTATIONS AND SEPERATIONS

The key areas for consideration with regards to compartmentation and separation are as follows:

- Each sole occupancy unit within the building, being each individual room or suite of rooms, must be separated by construction achieving an FRL of not less than 90/90/90 for load bearing or -/60/60 for non-load bearing.
- The parking areas must be separated from the remainder of the building by construction having an FRL not less than 120/120/120.
- The office areas must be separated from the remainder of the building by construction having an FRL not less than 120/120/120.
- The retail areas must be separated from the remainder of the building by construction having an FRL not less than 180/180/180.
- The early childhood centre must be separated from the remainder of the building by construction having an FRL not less than 120/120/120.
- The lift shaft must be constructed with an FRL not less than 120/120/120 to the carpark levels, 120/120/120 to early childhood centre levels and 120/120/120 to the office level.

Construction of firewalls and openings must comply with Part C3D8, C3D9 and Specification 5 of BCA.

Please note that intervening floors or levels between different classes are required to have a potential increase in FRL, the greater FRL of the two is required in compliance with Clause C3D8, C3D9 of BCA or reduced to FRL's to achieve 120 mins in lieu 180 respectively, subject to an performance solution to address the relevant Performance Requirements of the BCA.

The retail tenancy within ground is to reduce to FRL's to achieve 120 mins in lieu of 180 mins respectively, subject to a performance solution to address the relevant Performance Requirements of the BCA.

CLASS 9 BUILDINGS

In a building containing a Class 9b early childhood centre, unless the Class 9b early childhood centre is the only use in the building, it must be separated from the remainder of the building by walls and/or floors with an FRL not less than that required for a fire wall. Each storey within the Class 9b early childhood centre must contain not less than 2 fire compartments.

Details of the 2 fire compartments within each level is required to be provided at CC stage. It is highly likely that the fire walls between the 2 compartments will have openings that will be non compliant with C3D6.

This non-compliance with the Deemed To Satisfy provisions will be subject to an performance solution to address the relevant Performance Requirements of the BCA.

VERTICAL SEPARATION OF OPENINGS

Spandrel separation and horizontal slab construction of external openings are not required in accordance with Clause C3D7 of BCA as a AS 2118.1 2017 - Sprinkler System proposed throughout the building.

BOUNDING CONSTRUCTION

Bounding construction between residential sole occupant units (SOU), doorway, openings and external walls along the path of travel to an exit, from all levels is to comply with the provisions of Specification 5, and Clause C4D12 of BCA.

All entry doors to residential units must be protected by self-closing -/60/30 fire doors.

Separation of the communal rooms on each level is required via a fire rated wall and door systems. Ground floor to levels 2 and 3 to be reviewed.

FIRE SEALING OF PENETRATIONS

All service penetrations must be sealed to the requirements of Clause C4D13 and C4D15 of BCA

Garbage room and garbage service shafts, (including walls, floors, ceilings. doors and shutters) must be protected in accordance with C4D13 and C4D14 as per BCA.

PROTECTION OF EQUIPMENT

The following equipment is to be fire separated with construction complying with Clause C3D13 of BCA.

- (i) lift motors and lift control panels; or
- (ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or
- (iii) central smoke control plant; or
- (iv) boilers; or
- (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.

Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.

ELECTRICAL SUPPLY SYSTEM

Electrical equipment is to be separated from the building in accordance with Clause C3D14 of BCA

Any substation and/or main switchboard is to be constructed to achieve a fire resistance level of 120/120/120 with the door being -/120/30 fire rated, unless higher FRL's required by electrical providers.

CLASS 2 CORRIDOR LENGTHS

The public corridors exceed 40m in length between levels 2 and 3 as it is connected via a non fire isolated and is not provided with a smoke door/wall separation as per C3D15 of the BCA.

This non-compliance with the Deemed To Satisfy provisions will be subject to an performance solution to address the relevant Performance Requirements of the BCA.

ACCESS & EGRESS (SECTION D, BCA)

NUMBER OF EXITS REQUIRED

The minimum number of exits are able to comply on all levels as per D2D3 of the BCA.

Access to two exits are required to early childcare centre level in accordance with D2D3 of BCA.

Confirmation of exits required to base on further design at CC stage.

WHEN FIRE ISOLATED STAIRWAYS REQUIRED

The all exit and stairs are to be designed as fire isolated exit.

There is one non required stairs that have been designed within the early childcare centre part on the ground floor.

However, if these stairs are required to be used as exits that are non fire isolated, the concession within D2D4 for early childcare centres cannot apply to this project as the Class 9b is technically not the only use in the building, which does not comply with this clause.

The non-compliance with the Deemed To Satisfy provisions will be subject to an performance solution to address the relevant Performance Requirements of the BCA.

The fire isolated stairs will require a single handrail as per D3D22 of the BCA with non-slip nosing's.

All non fire isolated stairs are designed with 2 handrails, TGSI and non slip nosing's as per D3D22 of the BCA and clause 11 & 12 of AS 1428.1.

EXIT TRAVEL DISTANCE

Exit travel distances to a required exit or a point of choice between exits generally comply with D2D5 of the BCA except for the following.

- Travel distance to a exit on the carpark level exceed to 20m permitted (Up to 56m)
- The travel distance to the point of choice on residential levels 2 and 3 exceeds 20m permitted (up to m).

Note: Ground floor travel distance to a exit and point of choice for the Medical/retail tenancy and early childcare centre to be reviewed as exits are not indicated on the plans.

These non-compliance with the Deemed to Satisfy provisions will be subject to an performance solution to address the relevant Performance Requirements of the BCA.

Travel distance to an exit or point of choice concessions may apply to this Class 2 building parts as a sprinkler system is to be provided as per Specification 17 and 18. Confirmation of sprinkler system required to determine concessions.

DISTANCE BETWEEN ALTERNATIVE EXITS

The distance between alternative exits generally comply with clause D2D6 of BCA.

Note: Ground floor travel distance alternative exits for the Medical/retail tenancy and early childcare centre to be reviewed as exits are not indicated on the plans.

Travel distance to an exit or point of choice concessions may apply to this Class 2 building parts as a sprinkler system is to be provided as per Specification 17 and 18. Confirmation of sprinkler system required to determine concessions.

TRAVEL VIA FIRE/NON FIRE ISOLATED EXITS

The fire-isolated stairway as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided.

The discharge and path of travel from the fire isolated stair on the ground floor does not comply with D2D12 as it discharges inside the building that is enclosed, the travel distance to the exit exceeds 6m in length, the ceiling height is less than 3m and it pass openings with 6m to the road.

These non-compliance with the Deemed To Satisfy provisions will be subject to an performance solution to address the relevant Performance Requirements of the BCA.

DIMENSIONS OF EXITS

Exits and paths of travel to exits are to comply with D2D7, D2D8, D2D9, D2D10, D2D11 of BCA. Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc. may comply with AS1657 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements are to comply with D2D7 of BCA.

Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e minimum 870 mm doors).

HORIZONTAL EXITS

Horizontal exits must not be counted as required exits in a Class 9b building used as an early childhood centre.

Further details of compliance with the locations of the horizontal exits as per the Class 9b early childhood centre as per D2D16, including clear areas in front of each exit and locations between each exit must be 9m apart.

ENCLOSURE OF SPACE UNDER STAIRS AND RAMPS.

The space below a required non fire-isolated stairways must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door.

ELECTRICAL DISTRIBUTION BOARDS

Electrical distribution boards located in the path of travel to an exit must be enclosed in a non-combustible enclosure and sealed to prevent the escape of smoke as per D3D8 of the BCA.

INSTALLATIONS IN EXITS AND PATHS OF TRAVEL

Location of the services within the fire isolated stair are to comply with C4D10 and D3D8.

CONSTRUCTION OF STAIRWAYS

Goings and Risers

Goings and risers are to be designed to comply with the provisions of Clause D4D13 of BCA.

Landings

Landings are to be designed to comply with the provisions of Clause D4D15 of BCA.

Thresholds

Thresholds are to be designed to comply with the provisions of Clause D4D16 of BCA. Please note D4D16 (c), which requires a threshold ramp complying with AS 1428.1-2009.

EGRESS DOORS

All required exit doorways are either swinging or automatic doors complying with the provisions of BCA Clause D3D24.

All doors acting, as exits are required to swing in the direction of egress are also required to be provided with the appropriate hardware in accordance with Clauses D3D25 & D3D26 of the BCA.

BARRIERS TO PREVENT FALLS

Barriers must be provided for all areas where it is possible to fall more than 1m. Barriers are to be designed in accordance with Clauses D3D17, D3D18, D3D19, D3D20 of the BCA.

Balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm of the floor that facilitate climbing.

HANDRAILS

Handrails are to be provided to stairways as required by Clause D3D22 of the BCA.

In a Class 9b building used as a early childhood centre it must have one handrail fixed at a height of not less than 865 mm and with a cross-sectional dimension not less than 16 mm and not greater than 45 mm as measured in any direction across its centre, fixed at a height between 450 mm and 700 mm in a Class 9b early childhood centre.

EGRESS DOORS

All required exit doorways are either swinging or automatic doors complying with the provisions of BCA Clause D3D24.

All doors acting, as exits are required to swing in the direction of egress are also required to be provided with the appropriate hardware in accordance with Clauses D3D25 & D3D26 of the BCA.

OPERATION OF LATCH

The door hardware to the final discharge doors including the main entrance and the all entry/exit doors from each units, are to be installed with D-handles that activate on a single hand, located between 900-1100mm in height from the finished floor level, which complies with D3D26.

SIGNAGE

Signage must be provided to all fire safety doors (except those doorways providing access to sole occupancy units) and to doors leading from enclosed stairways as required Clause D3D28 and D4D7 of the BCA.

PROTECTION OF OPENABLE WINDOWS

Windows in bedrooms where the floor is more than 2 m above the surface beneath require restricted openings or protection in accordance with D3D29 of BCA.

All other parts of the buildings that are not part of the Class 2 portion of the building must also be protected with D3D29 of BCA.

ACCESS FOR PEOPLE WITH DISABILITIES.

The building will be capable of providing disabled access compliant with Part D4 of the BCA and Access to Premises Standards.

The proposed building is required to comply with the following:

- The Disability Discrimination Act 1992 (Commonwealth);
- The Disability (Access to Premises — Buildings), Standards 2010;
- Part D4 of BCA;
- Australian Standard AS 1428.1-2009.

Buildings and parts of buildings must be accessible as required by D4D2, unless exempted by D4D5, which requires access as follows:

Class 2 – Common areas.

From a pedestrian entrance required to be accessible to at least 1 floor containing sole occupancy units and to the entrance doorway of each sole-occupancy unit located on that level.

To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, individual shop, eating area, or the like.

Where a ramp complying with AS 1428.1 or a passenger lift is installed—

- a) to the entrance doorway of each sole-occupancy unit; and
- b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp

Class 6 - To and within all areas normally used by the occupants.

Class 7a – To and within any level containing accessible carparking spaces

Class 9b - To and within all areas normally used by the occupants.

A separate Access report by has been provided on this project by a Access Consultant.

SERVICES AND EQUIPMENT (SECTION E, BCA)

HYDRANT SYSTEMS

The building will be provided with a hydrant system in accordance with the provisions of Clause E1D2 of the BCA and AS 2419.1.

The design of the service will be subject to review by a hydraulic fire service consultant and confirmed compliance prior to the issue of the Construction Certificate stage.

HOSE REEL SYSTEMS

The basement carparking level, retail tenancies will be provided with a fire hose reel system in accordance with the provisions of Clause E1D3 of the BCA and AS 2441.

Locations of fire hose reels are required to be located 4m from an exit.

The design of the service will be subject to review by a hydraulic fire service consultant and confirmed compliance prior to the issue of the Construction Certificate stage.

SPRINKLER PROTECTION

The entire building will be protected by a sprinkler system throughout complying with Clause E1D4, E1D5 E1D9 and Spec 17 and 18 of the BCA and AS2118.1.

No details of proposed sprinkler system provided.

The design of the service will be subject to review by a hydraulic fire service consultant and confirmed compliance prior to the issue of the Construction Certificate stage.

PORTABLE FIRE EXTINGUISHERS

Fire extinguishers will be provided in accordance the provisions of Clause E1D14 of the BCA and AS2444.

Portable fire extinguishers provided for the apartments must be an ABE type fire extinguisher, a minimum size of 2.5 kg, distributed outside a sole-occupancy unit to serve only the storey at which they are located and positioned so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10m.

SMOKE HAZARD MANAGEMENT

The building will be provided with a smoke management system in accordance with the provisions of Clause E2D5, E2D6 and Specification 20 of the BCA.

The building will require:

- Class 2: An automatic smoke detection and alarm system in accordance with E2D5 and Specification 20 and AS 3786.
- Class 6: An automatic smoke detection and alarm system complying with E2D6 and Specification 20
- Class 7a: Carpark requires natural ventilation or mechanical ventilation system in accordance with AS 1668.2 and Clause D2D13 of AS/NZS 1668.1.
- Class 9b_i: An automatic smoke detection and alarm system in accordance with E2D5 and Specification 20 or a sprinkler system throughout complying with Clause E1D4, E1D5 E1D9 and Spec 17 and 18 of the BCA.
- Class 9b: Please note, that if a ducted air handling system is proposed, that system is to be provided with auto shutdown as per NSW E2D16. Confirmation of the auto shutdown system for the dusted air system required. This could require a smoke detectors installed as per E2D5 and Specification 20.
- Occupancy warning system compliant with clause S20C7 of Specification 20 and AS 1670.1-2015 to be provide throughout the entire building.

The design of the service will be subject to review by a fire services consultant. Evidence with compliance with E2 of BCA is required prior to the issue of the Construction Certificate.

EMERGENCY LIGHTING.

Emergency lighting will be provided throughout the building in accordance with Clauses E4D1 & E4D4 of the BCA and AS2293.1.

The design of the service will be subject to review by the electrical fire services practitioner.

EXIT SIGNS.

Exit signs will be provided throughout the building in accordance with Clauses E4D5, E4D6 & E4D8 of the BCA and AS2293.1.

The design of the service will be subject to review by the electrical fire services practitioner.

LIFTS

The lifts will be required in accordance with Clause E3 of the BCA.

A stretcher facility in the lift will be required in accordance with Clause E3D3 of the BCA, as the building has an effective height of greater than 12m.

A sign must be provided in accordance with Clause E3D4 of the BCA warning against the use of lifts in a fire. The proposed lifts shall also comply with all requirements nominated by AS1735.12 and Clause E3.6 of the BCA, with regards to facilities for people with disabilities.

The proposed lifts shall also comply with all requirements nominated by AS1735.12 and Clause E3D8 of the BCA, with regards to facilities for people with disabilities.

Architectural details, Lift design details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Architects & Vertical transport Registered Design Practitioners)

PROVISIONS FOR SPECIAL HAZARDS

The batteries contained within electric cars and/or on-site battery storage are likely to be considered a special hazard. This equipment may need to be fire separated from the building.

Where electric car charging points are proposed compliance The Fire Engineer and Fire practitioner will do a Fire Risk Assessment under the Special Hazard Clauses E1D17 and E2D21 with the guidance under the AFAC "Electric Vehicles and EV charging equipment in the building environment" position version 1.0 should be incorporated to the design

Further information required – plans do not currently indicate the proposed provision of electric charging points at this design stage.

HEALTH AND AMENITY (SECTION F, BCA)

DAMP & WEATHERPROOFING.

Adequate measures will be employed to ensure compliance Part F1 and F3D2 of the BCA is achieved. In terms of weatherproofing, this is to include compliance with F1D5, F2D2 and AS 4654.1 and 2 in respect of waterproofing of external balconies.

The metal roof system is to comply with AS 1562.1

The concrete roof proposed is to be protected with an external waterproofing membrane complying with F3D2 (e) and F1D5 or addressed via a performance solution for the building façade prepared by a suitably qualified façade engineer.

External wall cladding must comply with one or a combination of the following based on clause F3D5:

- (a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700.
- (b) Autoclaved aerated concrete: AS 5146.3.
- (c) Metal wall cladding: AS 1562.1.

It is advised that the building façade must be designed and prepared by a suitably qualified façade engineer confirming compliance.

Where compliance can not be achieved under F3D5, a performance solution is required.

The stormwater drainage must comply with AS/NZS 3500.3-2021.

Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must be protected in accordance with F1D4 Section 2.9 of AS 4654.2; and not be located beneath or run through a planter box, water feature or similar part of the building.

SANITARY & OTHER FACILITIES.

Facilities for the retail and office tenancies will be provided in accordance with the provisions of Clause F4D4 of the BCA.

Number of sanitary facilities is required to be reviewed at CC stage once population numbers have been provided based on finalising fit out and use of each space.

In an early childhood centre, facilities for use by children must have each sanitary compartment screened by a partition which, except for the doorway, is opaque for a height of at least 900 mm but not more than 1200 mm above the floor level.

All sanitary compartments that have proposed in-swinging doors are required to be 1.2m from the WC pan or lift off hinges are provided as per F4D8 of BCA.

Proposed sanitary facilities (accessible and adaptable) for persons with a disability serving the are to be designed accordance with the provisions of F4D6 and AS1428.1 – 2009.

CEILING HEIGHT

The following minimum building ceiling heights must be maintained as per F5D2:

- Common kitchen, laundry or the like – 2.1m
- Corridor, passageway or the like – 2.1m
- Bathroom, shower, sanitary compartment or the like – 2.1m
- Habitable rooms including common areas – 2.4m
- Stairways – 2.0m
- Car parking areas – 2.2m
- Disabled car parks – 2.5m including a 2.3m path of travel height

Confirmation of height compliance to be provided on the construction Architectural Details and Specifications at CC stage.

LIGHTING

Artificial lighting may be provided throughout the remained of the building in accordance with the provisions of Clause F6D5 of the BCA and AS1680.1.

In the early childhood centre, the sills of 50% of windows in children's rooms must be located not more than 500 mm above the floor level.

VENTILATION

The building is required to be provided with ventilation in accordance with the provisions of Clause F6D6, F2D7 of the BCA.

Ventilation may be provided by a natural means or a mechanical system complying with AS 1668.2.

Location of the sanitary facilities that opens directly must comply with F6D9. The access must be by an airlock, hallway or the sanitary compartment must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.

KITCHEN LOCAL EXHAUST VENTILATION

If provided, any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1 and AS 1668.2.

EARLY CHILDHOOD FACILITIES

The early childhood centre is required to be provided with the following—

1. A kitchen or food preparation area with a kitchen sink, separate hand washing facilities, space for a refrigerator and space for cooking facilities, with:
 - a. The facilities protected by a door or gate with child proof latches to prevent unsupervised access to the facilities by children younger than 5 years old, and:
 - b. The ability to facilitate supervision of children from the facilities if the early childhood centre accommodates children younger than 2 years old
2. one bath, shower or shower-bath
3. If the centre accommodates children younger than 3 years old
 - a. a laundry facility comprising a washtub and space in the same room for a washing machine and
 - b. a bench type baby bath, which is within 1 m of the nappy change bench.
 - c. Also a nappy changing bench which is within
 - i. 1 m of separate adult hand washing facilities and
 - ii. bench type baby bath and must be not less than 0.9 m² in area and at a height of not less than 850 mm, but not more than 900 mm above the finished floor level and
 - iii. must have a space not less than 800 mm high, 500 mm wide and 800 mm deep for the storage of steps and
 - iv. is positioned to permit a staff member changing a nappy to have visibility of the play area at all times.

SOUND INSULATION

The floor separating as per F7D5 the residential units and separating the sole occupancy units from public areas must achieve a sound insulation rating of R_w+C_{tr} (airborne) of not less than 50 and an $L_{n,w}+C_i$ (impact) not more than 62.

Walls separating units as per F7D6 must achieve a sound insulation rating of R_w+C_{tr} (airborne) of not less than 50.

Walls separating units from plant rooms, lift shafts, stairways corridors or other public areas must have an insulation rating of R_w (airborne) not less than 50.

Walls separating a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room in another or separating a unit from a lift shaft must be of discontinuous construction.

The doorway separating to sole occupancy unit from the public area must have an R_w not less than 30

Soil, waste & stormwater services as per F7D7 must be separated by construction having an R_w+C_{tr} (airborne) not less than

- 40 if the room is a habitable room
- 25 if the room is a non-habitable room

ANCILLARY PROVISIONS (SECTION G, BCA)

CLEANING OF WINDOWS

As per NSW Clause G1D5 a building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level.

This is satisfied where—

- i. the windows can be cleaned wholly from within the building; or
- ii. provision is made for the cleaning of the windows by a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.

OCCUPIABLE OUTDOOR AREAS

The occupiable outdoor areas are required to comply with Part G6 of the BCA. Confirmation of compliance is required at the Construction Certificate stage.

OUTDOOR PLAY SPACES

The outdoor play space in the Class 9b early childhood centre must be enclosed on all sides with a 1.8m barrier which complies with G1D4 and AS 1926.1.

ENERGY EFFICIENCY CONSTRUCTION (SECTION J, BCA)

It is recommended at the time of obtaining a Construction Certificate that a separate report is provided by an Energy Efficiency Consultant.

CLAUSE	ITEM	COMMENT
NSW J1D1	Deemed-to-satisfy provisions	Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements NSW J1P1 to NSW J1P7 are satisfied by complying with— (a) NSW J2D2; and (a) NSW J3D2 to J3D10; and (b) NSW J4D2 to J4D7; and (c) NSW J5D2 to J5D8; and (d) NSW J6D2 to J6D13; and (e) NSW J7D2 to J7D9; and (f) J8D2 to NSW J8D4; and (g) J9D2 to J9D5.
NSW J2D2	Application of Section J	For a Class 3 and 5 to 9 building, Performance Requirement NSW J1P1 is satisfied by complying with— (a) Part J4, for the building fabric; and (b) Part J5, for building sealing; and (c) Part J6, for air-conditioning and ventilation; and (d) Part J7, for artificial lighting and power; and (e) Part J8, for heated water supply and swimming pool and spa pool plant; and (f) J9D3, for facilities for energy monitoring. For a Class 2 to 9 building, Performance Requirement NSW J1P4 is satisfied by complying with J9D4 and J9D5.

RECOMMENDATIONS

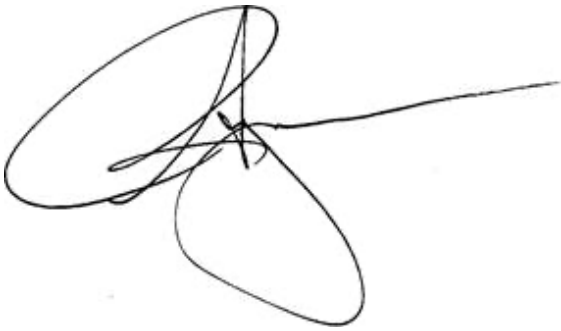
Subsequent to our assessment of the proposed development, it is recommended that the following matters are to be addressed to comply with the BCA utilising either as the 'deemed to satisfy' provisions or via an alternate solution under the performance requirements (as advised by the client):

- Details of the 2 fire compartments within each level is required to be provided at CC stage. It is highly likely that the fire walls between the 2 compartments will have openings that will be non compliant with C3D6.
- The timber pergola and timber pergola shades are non compliant with Type A Construction. Either a review and replacement of the proposed finishing with compliant and non combustible materials as per C2D10 or addressed via a performance solution a by a fire engineer at CC stage.
- However, if these stairs are required to be used as exits that are non fire isolated, the concession within D2D4 for early childcare centres cannot apply to this project as the Class 9b is technically not the only use in the building, which does not comply with this clause.
- The distance to a point of choice or exit do not comply with clause D2D5 of BCA.
- The discharge and path of travel from fire stairs on the ground floor do not comply with D2D12.
- Further details of compliance with the locations of the horizontal exits as per the Class 9b early childhood centre as per D2D16, including clear areas in front of each exit and locations between each exit must be 9m apart.
- The building will be provided with a hydrant system in accordance with the provisions of Clause E1D2 of the BCA and AS 2419.1.
- The entire building will be protected by a sprinkler system throughout complying with Clause E1D4, E1D5 E1D9 and Spec 17 and 18 of the BCA and AS2118.1.
- Stretcher facility compliance is required with E3D4 as the building has a effective height greater than 12m.
- Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must be protected in accordance with F1D4 Section 2.9 of AS 4654.2; and not be located beneath or run through a planter box, water feature or similar part of the building.
- The concrete roof proposed is to be protected with an external waterproofing membrane complying with F3D2 (e) and F1D5 or addressed via a performance solution for the building façade prepared by a suitably qualified façade engineer.
- The batteries contained within electric cars and/or on-site battery storage are likely to be considered a special hazard. This equipment may need to be fire separated from the building.
- The ability to facilitate supervision of children from the kitchen on the ground floor within childcare centre accommodates children younger than 2 years old does not comply with the as per the provisions of F4D4.
- The outdoor play space in the Class 9b early childhood centre must be enclosed on all sides with a 1.8m barrier which complies with G1D4 and AS 1926.1.

CONCLUSION

It is the opinion of this office that, on satisfaction of the above recommendation, the proposed building is capable of achieving compliance with the requirements of the National Construction Code, Building Code of Australia (BCA) 2022, and relevant adopted standards without undue modification to the design or appearance of the building.

Whilst the above recommendation have been made as a means of achieving compliance with the various provisions of BCA Performance Requirements their acceptability has not been verified at this time. It will be necessary for the design to be reviewed by an appropriately qualified person prior to the issue of a Construction Certificate for the works.



ALEKS STOJCEVIC
DIRECTOR

DESIGN RIGHT CONSULTING PTY LTD

15 October 2024.

APPENDIX A – DRAFT PROPOSED FIRE SAFETY SCHEDULE

MEASURE	STANDARD OF PERFORMANCE
Access panels to fire-resisting shafts	BCA Clause C4D14, AS 1905.1-2015.
Automatic fail safe devices	BCA 2022 Clause C4D5, D3D26, AS 1670.1 2018
Automatic fire suppression system Wall wetting sprinkler and drencher systems	BCA Clause E1D4, E1D11(2), Specification 17, AS 2118.1-2017 & AS 2118.6-2012,
Automatic fire detection system	E2D2(2)(b)(v), NSW E2D19(3), clause S20C2(c) of Specification 20, S20C4, AS 1670.1-2018.
Automatic shutdown air handling systems	NSW E2D16, AS1668.1-2015, S20C6, AS 1670.1-2018.
Emergency lighting	BCA Clause E4D2 & E4D4, AS 2293.1-2018.
Emergency warning and intercom system	BCA Clause E4D9, AS 1670.4-2018.
Exit signs	BCA Clause E4D5, NSW E4D6, ED4D8, AS 2293.1-2018.
Fire alarm monitoring system - Sprinkler system only.	BCA Clause E1D4, E1D11(2), Specification 17, AS 2118.6-2012, AS 1670.3-2018.
Fire dampers	BCA Clause C4D15(2)(b), AS 1668.1-2015, AS 1682.1-2015.
Fire doors	BCA Clause C3D14, C4D5, C4D9, D2D12, AS 1905.1-2015.
Fire hose reels	BCA Clause E1D3, AS 2441-2005.
Fire hydrant system	BCA Clause E1D4, AS 2419.1-2021.
Fire seals (protecting openings in fire resisting components of the building)	BCA Clause C4D13, C4D15, Specification 13, and manufacturers specifications.
Fire Engineering	Fire Engineer Guidelines (TBA)
Mechanical air handling system	BCA Clause/ Specification E2D4 (Clause 6), AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012 & AS1670.1- 2018 (Clause 7.4 Smoke Control Systems)
Portable fire extinguishers	BCA Clause E1D14, AS 2444-2001
Standby power systems - battery back-up for emergency lifts;	Fire engineering report by I-Fire.
Smoke and Heat Alarms	BCA 2022 Spec E2D4 and AS3786-2014 and Manufacturer's Specification
Warning and operational signs - Fire isolated stairway signs; - Fire isolated stairway notices; - Disabled egress signage; - Fire hydrant and sprinkler signage; - Fire hose reel signage; - Smoke detection signage; - Portable fire extinguisher signage; - Lift signage.	BCA Clause D3D28 Section 108, <i>Environmental Planning & Assessment (DC&FS) Reg. 2021</i> ; BCA Clause D4D7, Specification 15, AS 1428.1 – 2009; BCA Clause E1D2, FPAA101H; BCA Clause E1D3, AS 2441-2005; BCA Clause E2D8, Specification 20, S20C4, S20C7, AS 1670.1-2018.;; BCA Clause E1D14, AS 2444-2001. BCA Clause E3D4.

APPENDIX B – DOCUMENTATION

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

Date	22 May 2024		
Drawn	DJD	Scale	1:200 @ A3
Job No.	SYB01	Desg No.	KA100 Rev. C

