



BCA COMPLIANCE CAPABILITY REPORT

PREPARED FOR
A+ Design Group

PREMISES
56-60 Burns Bay Road
Lane Cove

DATE
16 May 2019

PROJECT NO.
J190151

BCA FIRE LEGAL

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Project: Proposed mixed-use residential building – 56-60 Burns Bay Road, Lane Cove

The following report register documents the development and issue of this and each subsequent report(s) undertaken by Vic Lilli & Partners Pty Ltd.

REVISION	DATE	COMMENT	PREPARED BY
A	03.05.2019	Draft Review	RA
B	07.05.2019	Final Review	RA
C	14.05.2019	Final Report	RA
D	16.05.2019	Minor Amendment	RA

1.0 Executive Summary

The following BCA capability report has been prepared at the request of A+ Design Group for the purpose of the proposed development at 56-60 Burns Bay Road, Lane Cove.

This report has been prepared to identify the extent of compliance achieved by the architectural documentation against the relevant provisions of the Building Code of Australia (NCC) 2019.

The building, the subject of this report, is the construction of an eight (8) storey mixed-use residential building including basement carpark, supermarket, community centre, loading dock and retail tenancies.

It is recommended that the following matters comply with the BCA utilising either the deemed to satisfy' provisions or via an alternative solution under the performance requirements:

- The client has advised that a fire engineered performance solution for non-compliances with the NCC Clause C3.2 will be provided at the Construction Certificate Stage.
- The glazed opening, between the Supermarket and Through Site Link as shown in the figure below does not achieve the required FRL as prescribed in Specification C1.1 of the BCA.
- An airlock has not been provided to the:
 - Basement 1 - Fire hydrant pump room into Fire Stair 3
 - Ground Level – Loading Dock and Supermarket open directly into Fire Stair 1
 - Level 1 – Community space, and,contrary to the requirements of BCA Clause D1.7(a).
- Discharge of fire-isolated stairways do not comply with the requirements of BCA Clause D1.7(b).
- Path of travel to the exit from the point of discharge necessitates passing within 6m of unprotected openings measured horizontally contrary to the requirements of BCA Clause D1.7(c).
- Hydrant booster arrangement does not comply with the requirements of Section 7 of AS 2419.1-2005

It is understood that a fire engineered alternative solution is proposed to demonstrate compliance with the NCC performance requirements for these items.

Retail Sanitary shell space has been provided to serve the Class 6 (retail and supermarket) and Class 9b Community Centre. However, further assessment is required at the Construction Certificate stage.

This report will provide the consent authority with the NCC analysis to assist in the determination of the application.

2.0 Report Summary

2.1 – Location

The subject building is to be located at 56-60 Burns Bay Road, Lane Cove situated with Burns Bay Road to the North, Sera Street to the South and existing mixed-use developments to the adjoining east and west boundaries.

2.2 – Building Description

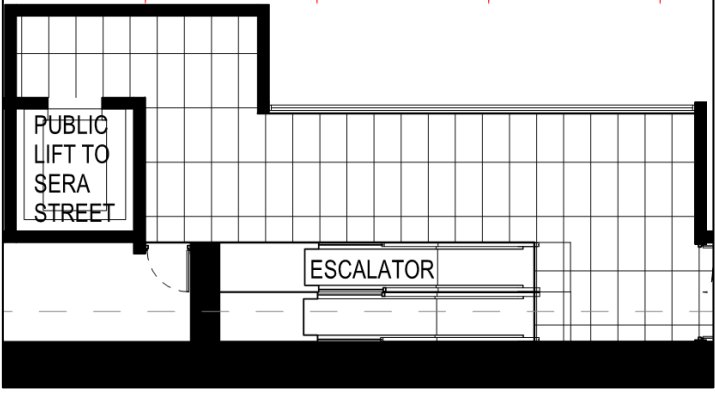
Classification	Class 2 – Residential Class 6 – Retail and Supermarket Class 7a – Carpark Class 7b – Loading Dock Class 9b – Community Centre
Rise in Storeys	The Building has a rise of five (5) storeys.
No. of Storeys	The Building contains eight (8) storeys
Effective Height	The Building will have an effective height less than 25m
Type of Construction	The building is to adopt Type A construction throughout
Floor Area Limitations	<p>Floor area limitations are not applicable to Class 2 and 7a (sprinkler protected) portions.</p> <p>Class 6 – Max floor area – 5,000m² The floor area of the Class 6 supermarket component and retail components do not exceed the relevant maximum floor area permitted in Table C2.2 of the BCA 2019.</p> <p>Class 7b – Max floor area – 5,000m² The floor area of the Class 7b loading dock component does not exceed the relevant maximum floor area permitted in Table C2.2 of the BCA.</p> <p>Class 9b – Max floor area – 8,000m² The floor area of the Class 9b community centre (approximately 750m²) does not exceed the relevant maximum floor area permitted in Table C2.2 of the BCA.</p>

<i>Volume Limitations</i>	<p>Volume limitations are not applicable to the Class 2 and 7a (sprinkler protected) portions.</p> <p>Class 6 – Max volume – 30,000m³ The Class 6 supermarket component and retail components does not exceed the maximum size of fire compartment in table C2.2 of the BCA 2019.</p> <p>Class 7b – Max volume – 30,000m³ Class 7b portion does not exceed the maximum size of fire compartment in table C2.2 of the BCA 2019.</p> <p>Class 9b – Max volume – 48,000m³ Class 9b portion does not exceed the maximum size of fire compartment in table C2.2 of the BCA 2019.</p>
<i>Climate Zone</i>	Zone 5

3.0 – Building Code of Australia Assessment

3.1 – Fire Resistance and Stability (Section C, NCC)

Item	Comment												
Fire Resistance	<p>The proposed building structure, being reinforced concrete floors, columns and the various shafts and cores, are to comply with the required fire resistance levels as specified in Clause C1.1 and Clause 2 & 3 of Specification C1.1 for Type A construction. Refer to Table 3 of Specification C1.1 for the specific FRL's.</p> <p>The building is to comply with Clause C1.1 and Clause 2 & 3 of Specification C1.1, for a building required to have Type A construction. Refer to Table 3 of Specification C1.1 for the specific Fire Resistance Levels [FRL's].</p> <p>Structural: the ability to maintain stability and adequate load-bearing capacity as determined by AS 1530.4.</p> <p>Integrity: the ability to resist the passage of flames and hot gases specified in AS 1530.4.</p> <p>Insulation: The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.</p> <p>FRLs are generally as follows;</p> <table><tr><th>Class</th><th>FRL</th></tr><tr><td>Class 2</td><td>90/90/90</td></tr><tr><td>Class 6</td><td>180/180/180</td></tr><tr><td>Class 7a</td><td>120/120/120</td></tr><tr><td>Class 7b</td><td>240/240/240</td></tr><tr><td>Class 9b</td><td>120/120/120</td></tr></table> <p>Where lightweight fire rated construction is proposed for walls, the system must comply with Specification C1.8 of NCC and the manufactures tested specification. Furthermore, the system proposed must be consistent with sound and energy efficiency requirements with Part F5 and Part J of NCC.</p> <p>Columns protected with lightweight fire rated construction that are subject to mechanical damage must be protected and/or internally filled in accordance with Clause C1.8(b) of NCC.</p> <p>The fire hazard properties of floor, wall and ceiling linings are to comply with Part C1.10, and Specification C1.10 of NCC.</p>	Class	FRL	Class 2	90/90/90	Class 6	180/180/180	Class 7a	120/120/120	Class 7b	240/240/240	Class 9b	120/120/120
Class	FRL												
Class 2	90/90/90												
Class 6	180/180/180												
Class 7a	120/120/120												
Class 7b	240/240/240												
Class 9b	120/120/120												

Item	Comment
<p><i>Compartmentation</i></p>	<p>In accordance with NCC Clause C2.7, C2.8 and Table 3 of Specification C1.1 the following FRL (in minutes) for all internal walls bounding sole occupancy units are as follows;</p> <ul style="list-style-type: none"> ▪ 90/90/90 FRL (Loadbearing walls in Class 2) ▪ --/60/60 FRL (Non-loadbearing walls in Class 2) <p>The fire rated walls separating the fire compartments in the following areas must achieve an FRL of:</p> <ul style="list-style-type: none"> ▪ 180/180/180 FRL between the Supermarket and Through Site Link. The glazed elements as shown in the figure below does not achieve the required FRL as prescribed in Specification C1.1 of the BCA. It has been advised by the Client that a performance solution report will be prepared by the fire safety engineer to address this non-compliance.  <ul style="list-style-type: none"> ▪ 240/240/240 FRL between the Supermarket and loading dock. The roller shutter within the fire wall must achieve compliance with the requirements of BCA Specification C3.4 Clause 4. ▪ 90/90/90 FRL (Load-bearing walls in Class 2) ▪ --/60/60 FRL (Non-loadbearing walls in Class 2) <p>In accordance with BCA Clause C2.9 and Table 3 of Specification C1.1 the floor to the following parts must have an FRL of not less than that as follows;</p> <ul style="list-style-type: none"> ▪ 120/120/120 between the carparking levels ▪ 120/120/120 between the carparking and Ground Level ▪ 240/240/240 between the Loading Dock on Ground and Level 1 ▪ 180/180/180 between the supermarket on Ground and Level 1 ▪ 120/120/120 between the community centre and Retail on Level 3 ▪ 180/180/180 between the retail tenancies on Level 3 and residential levels above ▪ 90/90/90 between residential to residential areas <p>With respect to the above requirements, the proposed development must achieve the required FRLs which will be confirmed at the construction certificate phase by a structural engineer.</p>

Item	Comment
<i>Attachments not to impair fire-resistance</i>	<p>In accordance with NCC Specification C1.1 Clause 2.4, a combustible material may be used as a finish or lining to a wall which has the required FRL if –</p> <ol style="list-style-type: none"> 1. The material is exempted under NCC Clause C1.10 or complies with the fire hazard properties prescribed in Specification C1.10; and 2. It is not located near or directly above a required exit so as to make the exit unusable in a fire; and 3. It does not otherwise constitute an undue risk of fire spread via the façade of the building <p>With respect to the above requirements, the proposed development can achieve the required prescriptive requirements which will be confirmed at the construction certificate phase.</p>
<i>Non-combustible building elements</i>	<p>In accordance with NCC Clause C1.9, the following building elements and their components must be non-combustible:</p> <ol style="list-style-type: none"> 1. External walls and common walls, including all components in them including the façade covering framing insulation 2. The flooring and floor framing of lift pits 3. Non-loadbearing internal walls where they are required to be fire-resisting 4. A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is non-loadbearing, must be of non-combustible construction <p>Clause C1.9(d) provides concessions to building elements which need not comply with the requirements of this Clause.</p> <p>Further details must be provided on the abovementioned systems for review by our office prior to approval.</p>

Item	Comment
<p><i>Protection of Openings</i></p>	<p>In buildings of this type, openings in an external wall (i.e. a wall that is required to have a fire resistance level) must if situated from a fire-source feature to which it is exposed less than 3.0 m from a side or rear boundary of the allotment (both parallel and perpendicular) must be protected in accordance with Clause C3.4 of the NCC, and if wall-wetting sprinklers are used, they are located externally and not occupy more than 1/3 of the area of the external wall of the storey in which it is located.</p> <p>The NCC provides the following options for the protection of windows, doors and other openings:</p> <p>A/ Window Openings:</p> <ul style="list-style-type: none"> ▪ --/60/-- FRL fire shutters; or ▪ External wall wetting sprinklers used with windows that are automatic or permanently fixed in the closed position; or ▪ --/60/-- FRL fire windows (automatic or permanently fixed in the closed position). <p>B/ Door Opening:</p> <ul style="list-style-type: none"> ▪ external wall wetting sprinklers used with doors that are automatic closing or self-closing; or ▪ Self-closing or automatic closing --/60/30 FRL fire doors. <p>C/ Other Openings:</p> <ul style="list-style-type: none"> ▪ External wall wetting sprinklers; or ▪ Construction having an FRL of not less than --/60/-- <p>Assessment of the plans demonstrates non-compliance with NCC Clause C3.2 to openings located in close proximity to the neighbouring boundaries. The client has advised that a performance solution prepared by a fire safety engineer will be adopted at the Construction Certificate Stage to address this non-compliance.</p>

Item	Comment
<i>Fire hazard properties</i>	<p>The fire hazard properties of all materials, assemblies, fixtures and linings are to comply with Specification C1.10 of the NCC, as applicable.</p> <p>Full documentation (including fire test certification) is to be provided for assessment at the Construction Certificate stage.</p>
<i>Vertical separation of openings</i>	<p>Not applicable as the whole building is proposed to be fully sprinkler protected in accordance with AS2118.1-2017.</p>
<i>Protection of equipment.</i>	<p>The following equipment is to be fire separated with construction complying with NCC Clause C2.12 (d):</p> <ul style="list-style-type: none"> (i) lift motors and lift control panels (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 system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. <p>Separation of on-site fire pumps must comply with the Prescriptive requirements of NCC Clause E1.3 and AS 2419.1-2005.</p> <p>Full documentation is to be provided for assessment at the Construction Certificate stage for assessment.</p>
<i>Electricity supply</i>	<p>Electrical equipment located within the building must be separated from the remainder of the building by construction achieving compliance with NCC Clause C2.13.</p>
<i>Class 2 corridor length</i>	<p>In a Class 2 building, a public corridor, if more than 40m in length, must be provided at intervals of not more than 40m with smoke-proof walls complying Clause 2 of Specification C2.5.</p> <p>Based on our assessment of the plans compliance with Clause C2.14 is achieved.</p>

Item	Comment
<i>Fire sealing of penetrations</i>	<p>Penetrations to all floors and walls are required to achieve the FRL required for the respective classification as detailed in Specification C1.1 below. Protection shall be achieved by either by a fire rated shaft or in accordance with C3.15 of the NCC.</p> <p>Further details relating to the proposed service and/or shaft location and type of passive protection shall be provided for compliance assessment in accordance with NCC Clause C3.12 and C3.15 during the Construction Certificate design phase.</p>

3.2 – Access & Egress (Section D, NCC)

Item	Comment
<i>Number of exits required</i>	<p>Every building must have at least one exit from each storey.</p> <p>Not less than 2 exits must be provided from the basement carpark area.</p> <p>Assessment of the plans demonstrates compliance with the number of exits.</p>
<i>Exit travel distances and distance between exits</i>	<p>Exit travel distances to an exit or to a point of choice between exits will need to achieve compliance in accordance with the Prescriptive requirements of NCC Clause D1.4.</p> <p>The entrance door way from any sole occupancy unit must not be more than:</p> <ul style="list-style-type: none"> a) 6m from an exit or from a point from which travel in different directions to 2 exits is available; or b) 20 m from a single exit serving the storey at the level of egress to a road or open space. <p>Based on our assessment of the plans compliance has been achieved.</p>
<i>Dimensions of exits</i>	<p>Exits and paths of travel to exits are to comply with NCC Clause D1.6. Generally, exits widths are 1m in width clear of any obstruction including hand rails or other fixtures.</p> <p>Aggregate egress widths are considered to comply for the expected populations at each level.</p>

Item	Comment
<p><i>Travel via fire isolated exits</i></p>	<p>In accordance with the Prescriptive Requirements of the NCC Clause D1.3, stairways serving the residential portions & basement carpark of building are required to be fire isolated.</p> <p>The doorways from the following rooms open directly into the fire isolated stairways or passageway, contrary to the requirements of BCA Clause D1.7(a):</p> <ol style="list-style-type: none"> 1. Ground Level – Loading Dock and Supermarket open directly into Fire Stair 1 2. Level 1 – Community space <p>Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have—</p> <ol style="list-style-type: none"> (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4, <p>for a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.</p> <p>Assessment of the plans demonstrates compliance with BCA Clause D1.7(b) and (c) is not achieved.</p> <p>The client has advised that a fire engineered performance solution for the abovementioned non-compliances with the NCC will be provided at the Construction Certificate Stage for assessment</p>
<p><i>Installations in exits and paths of travel</i></p>	<p>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.</p> <p>Further confirmation is required relating to the proposed location of Electrical/Communication Distribution Boards, main switch room and the like for compliance assessment during the Construction Certificate design phase.</p>

Item	Comment
<i>Construction of Stairways.</i>	<p>Goings and risers are to be designed to comply with the provisions of Clause D2.13 of the NCC.</p> <p>Stairway design and construction shall strictly comply with the requirements specified within the provisions of Clause D2.13 of the NCC.</p> <p>Riser (R) dimensions shall be between 115mm-190mm and going (G) dimensions between 250mm – 355mm. The quantity (2R+G) shall be between 550mm-700mm.</p> <p>Stairway landing design and construction shall strictly comply with the requirements specified in Clause D2.14 of the NCC. Generally, landings shall be not less than 750mm long and a maximum gradient of 1:50.</p> <p>Threshold design and construction shall strictly comply with the requirements specified in Clause D2.15 of the NCC. Generally, the threshold of a doorway must not incorporate a step or ramp at any point closer than the width of the door leaf.</p> <p>It is important to note that NCC Clause D2.15(c) requires a threshold ramp complying with AS 1428.1-2009.</p>
<i>Egress Doors</i>	<p>All required doorways are to swing in the direction of egress and will be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the NCC.</p> <p>Final discharge doors swing in the direction of egress and all automatic door located in a path of travel will be required to be fitted with fail safe operation.</p> <p>Based on my assessment of the plans, doorways into Fire Stair 1, subject to compliance with NCC Clause D1.4.</p>
<i>Balustrades</i>	<p>Balustrades must be provided for all areas where it is possible to fall more than 1m. Balustrades are to be designed in accordance with Clauses D2.16 of the NCC.</p> <p>Balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm of the floor that facilitate climbing.</p>
<i>Signage</i>	<p>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 D2.23 of the NCC.</p>

Item	Comment
<i>Handrails</i>	<p>Handrail design and construction shall strictly comply with the requirements specified in NCC Clause D2.17.</p> <p>Generally, handrails must be provided to all stairways at a height not less than 865mm measured above the nosings of the stair treads.</p>
<i>Protection of openable windows</i>	<p>Window openings where the floor is more than 2m above the surface beneath must be protected in accordance with NCC Clause D2.24 in the bedrooms for the class 2 part of the building.</p> <p>It is noted that all bedroom windows will have restrictors to have 125mm spacing.</p>

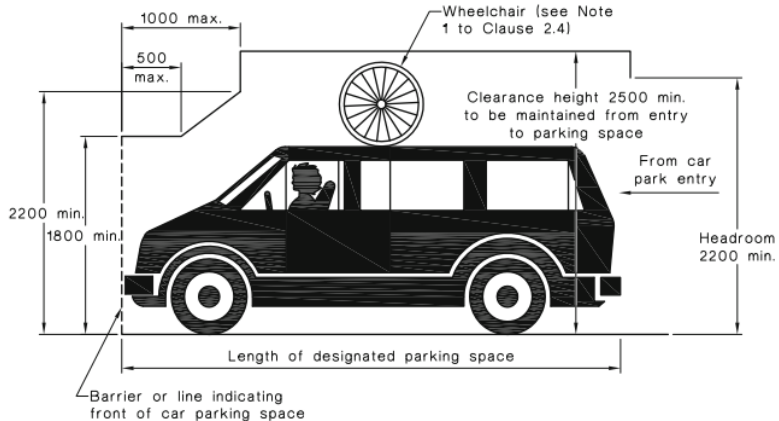
Item	Comment
<p><i>Access for people with disabilities.</i></p>	<p>The building is to comply with:</p> <ul style="list-style-type: none"> ▪ The Disability Discrimination Act 1992); ▪ The Disability (Access to Premises — Buildings) Standards 2010; ▪ Part D3 of the NCC; ▪ Australian Standard AS 1428.1-2009. <p>Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4, which requires access as follows:</p> <p>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.</p> <p>Where a ramp complying with AS 1428.1 or a passenger lift is installed—</p> <p>(a) to the entrance doorway of each sole-occupancy unit; and</p> <p>(b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp.</p> <p>Class 6 – To and within all areas normally used by the occupants.</p> <p>Class 7a – To and within and level containing accessible car parking spaces. It is noted that an accessible carparking spaces shall be provided in accordance with AS 2890.6-2009.</p> <p>Class 7b – To and within all areas normally used by the occupants.</p> <p>Class 9b – To and within all areas normally used by the occupants.</p>

3.3 – Services and Equipment (Section E, NCC)

Item	Comment
<i>Hydrant System</i>	<p>The building will be provided with a hydrant system in accordance with the provisions of NCC Clause E1.3 and AS 2419.1-2005.</p> <p>The fire hydrant system is to be designed and certified by a practising professional Hydraulic Engineer or other competent Hydraulic Designer.</p> <p>The fire hydrant booster facility is required to be protected by a radiant heat shield wall having an FRL of not less than 90/90/90. The wall is to have a height not less than 3.0 metres above the upper hose connections and project not less than 2.0 metres each side of the booster valves in accordance with AS 2419.1-2015.</p> <p>The client has advised that a fire engineered performance solution for non-compliances with the NCC will be provided at the Construction Certificate Stage for assessment.</p> <p>Full documentation is to be provided for assessment at the Construction Certificate stage.</p>
<i>Hose Reel System</i>	<p>The building will need to be provided with a fire hose reel system in accordance with the provisions of NCC Clause E1.4 and AS 2441-2005.</p> <p>Full documentation is to be provided for assessment at the Construction Certificate stage.</p>
<i>Sprinklers</i>	<p>It has been advised by the client that the entire development will be sprinkler protected in accordance with the requirements of AS2118.1-2017.</p> <p>Compliant designs are to be provided from the relevant services consultant. All designs are to be certified as being in accordance with BCA 2019 Clause E1.5, Specification E1.5 and AS 2118.1-2017.</p>
<i>Portable Fire Extinguishers</i>	<p>Fire extinguishers will be provided in accordance the provisions of NCC Clause E1.6 and AS2444 - 2001.</p> <p>Further details shall be provided for compliance assessment during the Construction Certificate design phase.</p>

Item	Comment
<i>Smoke Hazard Management</i>	<p>The building will be provided with an automatic smoke detection and alarm system in accordance with the provisions of NCC Table E2.2a and Specification E2.2a.</p> <ul style="list-style-type: none"> ▪ An automatic smoke detection and alarm system in accordance with NCC Clause 3 and 4 of Specification E2.2a, AS1670.1-2015 and AS 3786-2014. ▪ A zone pressurisation system shall be provided between vertically separated fire compartments in accordance with AS1668.1-2015 ▪ A mechanical ventilation system in accordance with AS 1668.2 must comply with Clause 5.5 of AS/NZS 1668.1-2015. <p>Details relating to the proposed smoke hazard management systems shall be provided for compliance assessment during the Construction Certificate design phase. Compliant designs are to be provided from the relevant services consultant.</p>
<i>Lifts</i>	<p>A stretcher facility is to be provided in accordance with NCC Clause E3.2. A sign must be provided in accordance with NCC Clause E3.3 warning against the use of lifts in a fire.</p> <p>The proposed lifts shall also comply with all requirements nominated by AS1735.12 and NCC Clause E3.6 with regards to facilities for people with disabilities.</p>
<i>Emergency Lighting</i>	<p>Emergency lighting will be provided throughout the building in accordance with NCC Clauses E4.2 & E4.4 and AS2293.1 - 2005.</p> <p>The design of the service will be subject to review by a fire services consultant.</p>
<i>Exit Signs</i>	<p>Emergency exit signs shall be designed and installed on, above or adjacent to the exits including directional exit signs as required in accordance with NCC Clauses E4.5, E4.6, E4.8 and AS2293.1- 2005.</p> <p>The design of the service will be subject to review by a fire services consultant.</p>

3.4 – Health and Amenity (Section F, NCC)

Item	Comment
<i>Damp & Weatherproofing</i>	Adequate measures must be employed to ensure compliance with Part F1 of the NCC is achieved in terms of weatherproofing.
<i>Sanitary & Other Facilities</i>	Retail Sanitary shell space has been provided to serve the Class 6 (retail and supermarket) and Class 9b Community Centre. However, further assessment is required at the Construction Certificate stage.
<i>Ceiling height</i>	<p>The following minimum building ceiling heights must be maintained.</p> <ul style="list-style-type: none"> ▪ 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 excluding a kitchen – 2.4m ▪ Stairways – 2.0m ▪ Car parking areas – 2.2m ▪ Disabled car parks – 2.5m including a 2.2m path of travel height. Refer to figure below from AS2890.6 – Off-street parking for people with disabilities.  <p>The diagram illustrates the minimum building ceiling heights for car parking areas. It shows a car parked in a designated space. A wheelchair is shown above the car, indicating a clearance height of 2500 min. to be maintained from entry to parking space. The diagram also shows a barrier or line indicating the front of the car parking space, with dimensions: 1000 max. for the barrier height, 500 max. for the barrier width, 2200 min. for the car height, and 1800 min. for the car width. The length of the designated parking space is also indicated.</p>

Item	Comment
<i>Ventilation</i>	<p>The building is required to be provided with ventilation in accordance with the provisions of NCC Clause F4.5. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2- 2012.</p> <p>The residential areas of the building must be provided with natural or mechanical ventilation as required by Part F4 of the NCC. In that regard, where natural ventilation cannot be provided to some bedrooms as a result of the protection of window openings ventilation must be provided where necessary by mechanical systems complying with AS 1668.2-2012.</p> <p>Please note that any proposed natural ventilation of apartments may be impacted by acoustic installation requirements.</p>
<i>Lighting</i>	<p>Natural lighting is required to be provided to all habitable rooms by windows that have an aggregate light transmitting area (measured exclusives of framing member, glazing bars or other obstructions) of not less than 10% of the floor area of the room. The glazing is to open to the sky or face a courtyard (or other space) that is open to the sky or an open verandah or the like.</p>
<i>Sound insulation</i>	<p>The floor separating 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 must achieve a sound insulation rating of R_w+C_{tr} (airborne) of not less than 50.</p> <p>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.</p> <p>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.</p> <p>The doorway separating to sole occupancy unit from the public area must have an R_w not less than 30</p> <p>Soil, waste & stormwater services must be separated by construction having an R_w+C_{tr} (airborne) not less than</p> <ul style="list-style-type: none"> • 40 if the room is a habitable room • 25 if the room is a non-habitable room <p>Further details to be provided at Construction Certificate stage to be assessed for compliance.</p>

3.5 – Energy Efficiency (Section J, NCC)

Residential portions of the building are required to comply with BASIX requirements and relevant NCC Part J provisions.

The non-residential portions of the building must comply with all relevant Part J provisions noted below.

Item	Comment
<i>Building Fabric</i>	The external fabric to the car-parking portion of the development will be insulated in accordance with Part J1 of the NCC.
<i>Building Sealing</i>	The external fabric to the car-parking portion of the development will be appropriately sealed in accordance with Part J3 of the NCC.
<i>Air-Conditioning and Ventilation System</i>	The air-conditioning and ventilation system to the development of the development with a conditioned space will be designed to comply with Part J5 of the NCC.
<i>Artificial Lighting and Power</i>	The building is to maintain maximum lighting power levels and control systems as applicable. The design of lighting systems must comply with NCC Part J6.
<i>Hot Water Supply</i>	Hot water supply systems will be installed in accordance with Part J7 of the NCC and AS/NZS 3500.4.
<i>Facilities for energy monitoring</i>	The building is to have facilities for maintenance and energy monitoring in compliance with NCC Part J8 and the NSW variations.
<i>Provision for cleaning windows</i>	The building will provide for a safe manner of cleaning any windows located 3 or more storeys above ground level

4.0 Fire safety and other measures

4.1 – Proposed Fire Safety Measures

In terms of the proposed works the following fire safety measures are proposed to be installed: -

Fire Safety Measure	Standard of performance
Access panels, doors and hoppers to fire-resisting shafts	NCC 2019 Clause C3.13
Automatic fire detection and alarm system	NCC 2019 Spec E2.2a, Clause 6 of Spec. E2.2a, AS 1670.1-2015, AS 3786-2014
Automatic fire suppression system	NCC 2019 Clause E1.5, E2.2, Spec. E1.5, Spec. E2.2, AS 2118.1-1999,
Emergency lighting	NCC 2019 Clause E4.2 & E4.4, AS 2293.1-2005
Exit and directional signage	NCC 2019 Clause E4.4, E4.5, (NSW E4.6) & E4.8, AS 2293.1-2005
Fire alarm monitoring system	NCC 2019 Spec E2.2a, AS 1670.3-2004
Fire seals (protecting openings and service penetrations in fire resisting components of the building)	NCC 2019 Clause C3.15, Spec C3.15, Manufacturer's specifications
Fire Engineering Report	TBC
Fire dampers	NCC 2019 Clause E2.2, AS/NZS 1668.1-2015, AS 1682.2-2015
Fire doors	NCC 2019 Clause C2.12, C2.13, C3.8, C3.11, Spec C3.4, AS 1905.1-2015
Fire engineering report	TBA
Fire hydrant systems	NCC 2019 Clause E1.3, AS 2419.1-2005
Fire hose reel system	NCC Clause E1.4, AS 2441-2005
Fire rated roller shutter	NCC 2019 Clause C3.4, Specification C3.4, and AS1905.2
Lightweight construction	NCC 2019 Clause C1.8, Spec A2.3, Spec C1.8, Manufacturer's specifications
Mechanical air handling systems	NCC 2019 Clause E2.2, Table E2.2a, AS/NZS 1668.1-2015, AS 1668.2-2012 (clause 5.5 car park exhaust operation)
Openings in fire-isolated lift shafts	NCC 2019 Clause C3.10, AS 1735.11-1986
Occupant warning system	NCC 2019 Clause E2.2, Spec E2.2a (clause 6), AS 1670.1-2015
Portable fire extinguishers	NCC 2019 Clause E1.6, AS 2444-2001
Wall wetting sprinkler and drencher systems	NCC 2019 Clause C3.4, AS 2118.2-2010
Zone Pressurisation System	NCC 2019 Clause E2.2, Specification E2.2a, AS1670.1-2015
Warning and operational signs	NCC 2019 Clause D2.23, D3.6, E3.3, Clause 183 of the Environmental Planning and Assessment Regulation 2000

5.0 Conclusion

5.1 – Conclusion

It is the opinion of this office that, the proposed building is capable of achieving compliance with the requirements of the Building Code of Australia (NCC) 2019 Volume 1, and relevant adopted standards without undue modification to the design or appearance of the building.

Whilst the building is capable of achieving compliance with the various provisions of the Performance Requirements of the NCC 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.

This report does not imply, nor make reference to structural design or operating capability or design of any electrical, fire, hydraulic or mechanical services.

Except as mentioned in the report, the following matters were not addressed-

- (1) Structural adequacy;
- (2) Fire resistance of primary structural elements;
- (3) Design basis or operating capability of the installed electrical, fire, hydraulic or mechanical services;
- (4) Compliance with the *Disability Discrimination Act 1992*;

Author,



Roland Allam
For **Vic Lilli & Partners**

6.0 References

6.1 – Basis of Report

This NCC Capability report has been prepared on the basis of the following-

- (i) Architectural Plans as prepared by A Plus Design Group

Drawing No.	Title	Revision	Date
A2.03	Site Analysis/Site Plan	2	08.05.2019
A3.01	Basement 3	2	08.05.2019
A3.02	Basement 2	2	08.05.2019
A3.03	Basement 1	2	08.05.2019
A3.04	Ground Level_Sera Street	2	08.05.2019
A3.05	Level 1	2	08.05.2019
A3.06	Level 2	2	08.05.2019
A3.07	Level 3_Burns Bay Road	2	08.05.2019
A3.08	Level 4	2	08.05.2019
A3.09	Roof Plan	2	08.05.2019
A4.01	North & South Elevation	2	08.05.2019
A4.02	East & West Elevation	2	08.05.2019
A4.03	Internal Elevations	2	08.05.2019
A5.01	Section A-A'	2	08.05.2019
A5.02	Section B-B'	2	08.05.2019

- (ii) Building Code of Australia (NCC) 2019;

- (iii) Environmental Planning and Assessment Act, 1979, and Regulations