

21 September 2021

Scott Walsh  
Walsh Architects  
[scott@walsharchitects.com.au](mailto:scott@walsharchitects.com.au)

Dear Scott,

**Re: 18 Alexander Street, Collaroy – BCA Assessment Report**

Reference is made to BCA Logic's engagement to provide a compliance assessment for the proposed works of the new residential development located at 18 Alexander Street, Collaroy.

## **BASIS OF ASSESSMENT**

### **Purpose**

The purpose of this report is to provide a high level assessment of the proposed works being carried out against the Deemed-to-Satisfy Provisions of the BCA2019, in consideration of the building classifications, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign and/or further works to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of the BCA2019 under a separate Performance Solution, if required.

### **Building Code of Australia**

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Building Code of Australia 2019, Volume One, Amendment 1, herein referred to as the BCA2019. The version of the BCA applicable to the building work is the version applicable at the time of lodging the Construction Certificate application to the Certifying Authority.

### **Limitations**

This report does not include any detailed assessment for design, compliance or upgrading of:

- (a) The structural adequacy of design of the building;
- (b) The inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to);
- (c) The design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services;

This report does not include an assessment against, nor imply compliance with:

- (a) The National Construction Code – Plumbing Code of Australia Volume 3;
- (b) The Disability Discrimination Act 1992 or the Disability (Access to Premises Standards – Buildings) 2010 (the Premises Standards);

---

**Phone**

02 9411 5360

**Web**

[www.bcalogic.com.au](http://www.bcalogic.com.au)  
[info@bcalogic.com.au](mailto:info@bcalogic.com.au)

**Address**

Suite 302, Level 3, 151  
Castlereagh Street  
Sydney NSW 2000

**ABN**

29 077 183 192

- (c) the deemed to satisfy provision of Part D3, Clause F2.4. F2.9 and Section J of BCA2019;
- (d) Demolition Standards not referred to by the BCA;
- (e) The Work Health and Safety Act 2011;
- (f) 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;
- (g) Any Conditions of Consent subsequently issued by the Local Consent Authority.

## Design Documentation

This report has been based on the design plans as listed below:

Architectural Plans Prepared by Walsh Architects			
Drawing Number	Issue	Date	Title
DA101	A	03.09.2021	Proposed Site Plan
DA110	A	03.09.2021	Basement Plan
DA111	A	03.09.2021	Undercroft Floor Plan
DA112	A	03.09.2021	Level 1 Floor Plan
DA113	A	03.09.2021	Level 2 Floor Plan
DA114	A	03.09.2021	Roof Plan
DA200	A	03.09.2021	Sections
DA201	A	03.09.2021	Sections

## BUILDING DESCRIPTION

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

### Building Classification

The residential portion of the building has been classified as Class 2, whereas the basement carpark is a Class 7a.

### Effective Height

The building has an effective height of less than 12 metres. (RL16.82 – RL7.67 = 9.15m)

### Type of Construction

The building is required to be Type A Construction.

### Floor Area and Volume Limitations

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

Class 2

The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.



Class 7a

The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area

### **Fire Compartments**

The basement carpark will form a single fire compartment.

The residential portions are considered to be a single fire compartment.

### **Exits**

The exits within the building are noted as being the first tread of each non-fire isolated stairways on each of the storeys.

### **Climate Zones**

The building is located in Climate Zone 5.

### **BCA ASSESSMENT**

An assessment of the proposed works has been undertaken against the Deemed-to-Satisfy Provisions of the BCA2019 Amendment 1. It is important to note that only those items which are considered to be relevant and critical to the compliance of the proposed works are discussed in the following.

Any Sections/Parts/Clauses of the BCA2019 which have not been identified or discussed in this report are considered to be satisfied to an appropriate level or are not applicable to the specific works in this instance.

On the provision that the items raised in this report are addressed in the proposed works forming part of this report, it would be considered that these works would be capable of complying with the relevant requirements of the BCA2019 as applicable.

The following provides a summary of the assessment against the applicable requirements of the BCA2019, once more reiterating that this discussion focusses only on those parts of the building requiring further attention, rectification or alteration.

#### **BCA Clause C1.1 – Specification C1.1**

The building is required to maintain suitable FRLs in accordance with this Specification, this will be required to consider the roof of the carpark requiring an 120/120/120 as a roof deemed as open space.

#### **BCA Clause C1.9 – Non-combustible building elements**

All works which form part of the external wall shall be strictly non-combustible in accordance with AS1530.1. This will include all elements within the wall including insulation, framing, packers and the like. Concessions are made in accordance with this Clause to elements that may be deemed acceptable for construction, the elevations detail the use of Fibre Cement Sheeting which would be deemed suitable in accordance with this Clause. Further details of the proposed board-formed insitu concrete will need to be provided at CC stage.

#### **BCA Clause C1.10 – Fire hazard properties**

All internal linings forming part of the works shall comply with the fire hazard properties requirements of C1.10 and Specification C1.10. Testing details will need to be provided for each of these materials to ensure they will comply as a lining in accordance with Specification C1.10 where required.



### **BCA Clause C1.14 – Ancillary Elements**

Ancillary elements that are attachments to the external wall are required to be non-combustible in accordance with this Clause. Upon review of the elevations, it is noted that aluminium battens are proposed to be provided along the external walls. Confirmation will be required that these will be solid aluminium and non-combustible as required.

### **BCA Clause C2.6 – Vertical separation of openings in external walls**

Openings within the external wall located above other openings are required to be provided with separation in accordance with this Clause. It is considered that the use of vertical spandrels and horizontal projections have been used to achieve compliance with this Clause. Each of these systems will need to maintain the required FRL in accordance with this Clause.

### **BCA Clause C3.2 – Protection of openings in external walls**

Where openings are located within 3m to a boundary they are required to be protected in accordance with Clause C3.4. It is noted that there are several openings that are located within 3m to the boundary and will need to be protected. This will include the ensuite to Units 3 and 4, along with Bedrooms 2 and 3 within Unit 3. It is noted that these openings will be relied upon for natural ventilation in accordance with Part F4 and therefore consideration will need to be given to the method of protecting these windows.

### **BCA Clause C3.11 – Bounding construction: Class 2 and 3 buildings and Class 4 parts**

The entry door to the sole occupancy units will need to ensure compliance with this Clause. This will be required that a self-closing -/60/30 fire door is provided, this will also require the frame to be provided in accordance with the tested system and AS1905.1.

### **BCA Clause C3.15 – Service Penetrations**

Any services passing through elements required to maintain an FRL it will be required that these are sealed in accordance with this Clause and a suitably tested system.

This will include the services passing through the floor slabs throughout and any services passing through the bounding walls. Details would need to be provided from the contractors as to how compliance will be achieved with this Clause at the CC stage.

### **BCA Clause D1.4 – Exit Travel Distances**

Due to the number of exits being provided with the basement and the sprinkler concession in accordance with Specification E1.5a, it is considered that compliant travel distances will be maintained in accordance with this Clause throughout the building.

### **BCA Clause D2.7 – Installations in exits and paths of travel**

Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in the common areas or along an egress path must be smoke sealed in accordance with this Clause.

### **BCA Clauses D2.13 – Goings and Risers**

Each of the stairways provided throughout are required to maintain suitable risers and goings in accordance with the requirements of this Clause. Details have not been provided on the specific dimensions at this stage and will need to be provided at the Construction Certificate stage to ensure compliance is maintained.

### **BCA Clauses D2.16 – Barriers to prevent falls**

In locations where it is possible to fall more than 1m from the floor level, it is required that a barrier is provided in accordance with this Clause. This will include the balconies throughout the building, the



stairways and any trafficable area around the carpark ramp where a fall is possible. It will be required that the barrier maintain a height of no less than 1000mm and provide compliance in accordance with this Clause regarding climb-ability and openings.

### **BCA Clauses D2.17 – Handrails**

Each of the stairways and the ramps are required to be provided with handrails in accordance with this Clause and Clause 12 of AS1428.1-2009. Based on the plans, it is noted that each of the ramps and stairways have been provided with two handrails that are capable of complying with AS1428.1-2009 due to the extensions detailed and the provision of an offset riser in the central stairway. Details of the handrails will need to be provided at the construction certificate stage.

### **BCA Part E1 – Fire fighting Equipment**

Due to the size of the building, it would be required that the entire building is provided with Fire Hydrant coverage in accordance with Clause E1.3 and AS2419.1-2005. It is noted that the booster is provided at the front of the building and located more than 10m from the building. Fire Hydrant Valves are noted as being provided throughout the building; however, Level 1 and the Undercroft are found to have the hydrants located more than 4m from the exit and therefore would not be suitable in accordance with AS2419.1-2005. It would be required that the hydrants in these locations are relocated to ensure that compliance is maintained with the standard and they are not more than 4m from the first descending stair tread.

The building is provided with internal fire hydrants and therefore the basement carpark will need to be provided with Fire Hose Reel coverage in accordance with Clause E1.4 and AS2441-2005. The plans have detailed a single hose reel located within 4m to the exit and would be considered to maintain suitable coverage.

It is noted that a four (4) storey residential building would require sprinklers to be provided throughout in accordance with Clause E1.5 and Specification E1.5 and E1.5a.

It would be required to ensure that a portable fire extinguisher is provided within 10m to each SOU entry door in accordance with Clause E1.6.

### **BCA Part E2 – Smoke hazard management**

It would be required that an automatic smoke detection and alarm system is maintained throughout the building. This would require smoke alarms to be installed within the units in accordance with Clause 3 of Specification E2.2a and smoke detectors being installed within the common areas in accordance with Clause 4 of Specification E2.2a.

### **BCA Part E3 – Lift Installation**

There is a lift provided and will need to be provided in accordance with the provisions of this Clause and Specification E3.1. Due to the effective height of the building, it is noted that the proposed lift car will be of a suitable size. The lift car will need to be provided with accessible features in accordance with Clause E3.6 and AS1735.12.

### **BCA Part E4 – Visibility in an emergency, exit signs and warning systems**

The provision of emergency lighting and exit signage throughout the common areas will need to be provided in accordance with BCA Clauses E4.2, E4.4, E4.5 and E4.8.

### **BCA Part F1 – Damp and weatherproofing**

*Performance Requirement* FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this *Performance Requirement* in respect of external walls. The assessment contained within this report does not include an assessment against Performance Provision FP1.4. A performance solution would be required to address this provision.



### **BCA Clause F1.6 – External above ground membranes**

All waterproofing membranes for external above ground use must comply with AS4654.4 and AS4654.2. Throughout the residential levels, it is noted that each of the storeys are exposed to the elements due to the louvered openings. From these corridors a level threshold is provided into each of the SOUs which could allow the possibility for wind driven rain passing underneath the SOU doors. Additionally, any balconies to SOUs provided with a level threshold to the internals of the unit, similarly could allow for wind driven rain to pass into the unit.

To achieve a level of compliance and suitable weatherproofing, it may be required to provide a grated strip drain out the front of the doorways in accordance with this Clause and AS4654.

### **BCA Part F4 – Natural Light and ventilation**

Natural light and ventilation are provided throughout the residential levels due to the direct access to glazed openings to each of the habitable rooms.

This is considered that the openings will provide 10% of the floor area for natural light and 5% of the floor area for natural ventilation in accordance with this Part. Confirmation will need to be sought by the Architect to confirm that the windows are suitable in accordance with this clause.

Confirmation will be required as to the method of protection in accordance with Clause C3.4 as the impacted window openings under Clause C3.2 to ensure ventilation is maintained via these openings where required in accordance with this Part.

### **BCA Part F4 – Sound transmission and insulation**

All walls, floor and internal services will need to be provided with sound insulation in accordance with this Clause. The proposed floor and wall build up will need to be confirmed to ensure that compliance is maintained with the required sound insulation levels in accordance with this Part; this will include the proposed insulation, cladding and floor materials being used. Compliance is readily achievable with such requirements and will need to be detailed at the Construction Certificate stage.

### **BCA Clause F6.2 – Condensation management**

It would require that where a pliable building membrane is installed in an external wall it must be provided in accordance with this Clause. Except for a single skin masonry, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from the water sensitive materials by a drained cavity. Confirmation would be required as to whether a pliable building membrane will be installed as part of the external wall build up and will need to be detailed at the Construction Certificate stage.

### **BCA Clause F6.3 – Flow rate and discharge of exhaust systems**

The exhaust systems installed within the kitchens, bathrooms and laundries must have a minimum flow in accordance with this Clause and exhaust from the kitchen must be discharge directly or via a shaft to outdoor air. Similarly, the exhaust from the bathroom and laundry must be discharged directly or via a shaft to outdoor air or into a roof space that is ventilated.

### **BCA Clause F6.4 – Roof space vent**

As per Clause F6.3, if the exhaust systems are to vent into the roof space, the roof space must be ventilation to outdoor air through evenly distributed openings.

### **BCA Part G6 – Occupiable outdoor area**

It is considered that the top floor open area forms part of the Unit 5 floor plans and is not common area and therefore provisions of this Part are not applicable.



## CONCLUSION

On the provision that the items raised in the above sections of this report are addressed as part of the construction stage documentation, it would be considered that the works being carried would be appropriate and capable of complying with the applicable requirements of the BCA2019. This provision is to be read in conjunction with the BCA Specification included within Annexure F of this report.

If you require any further information or explanation of the above, please do not hesitate to contact the undersigned.

Yours faithfully,

Prepared by



**Ben Long**

**Senior Building Regulations Consultant  
Registered A1 Certifier No. BDC 3380**

Verified by



**Christopher Ward**

**Senior Building Regulations Consultant  
Registered A1 Certifier No. BDC 2789**



## Annexure A – 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 Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements must be non-combustible in accordance with C1.9 of BCA2019.
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 C1.10 and Specification C1.10 of BCA2019.
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 C1.14 of BCA2019.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C2.6 of BCA2019. It is noted that no spandrel separation is required in the stairway or to a void.
7. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
8. 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 C2.13 of BCA2019.
9. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
10. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
11. 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 C3.16.
12. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.
13. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.
14. 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 C3.17 of BCA2019.
15. 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 C1.1 Clause 2.3 BCA2019.

16. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause 2.4 of Specification C1.1 of BCA2019.
17. 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 2.7 of Specification C1.1 of BCA2019.
18. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
19. Fire shutters and fire windows will be in accordance with Specification C3.4 of BCA2019.
20. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
21. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
22. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
23. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
24. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 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.
25. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
26. The roof of the building where the exit discharges will have an FRL of 120/120/120, and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D2.12 of BCA2019.
27. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
28. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 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 D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
29. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
30. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
31. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
32. The openable portion of a window in a bedroom 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 D2.24 of BCA2019. 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.
33. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.



34. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of BCA2019.
35. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
36. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
37. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
38. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
39. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
40. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
41. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
42. Sanitary facilities will be provided in the building in accordance with Clause F2.1 and Table F2.1 of BCA2019.
43. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
44. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
45. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
46. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
47. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
48. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
49. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 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.
50. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.
51. 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 G1.101 of BCA2019.
52. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.
53. 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, 2000.
54. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
55. Glazing will be in accordance with Part J1 of BCA2019.
56. Building sealing will be in accordance with Part J3 of BCA2019.
57. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.



### **Electrical Services Design Certification:**

- 58. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
- 59. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
- 60. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
- 61. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
- 62. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
- 63. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

### **Hydraulic Services Design Certification:**

- 64. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
- 65. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
- 66. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
- 67. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and appropriate part(s) of AS 2118.
- 68. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
- 69. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

### **Mechanical Services Design Certification:**

- 70. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
- 71. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
- 72. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
- 73. 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 F6.3 of BCA2019.
- 74. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 *sole-occupancy unit*, ventilation of the roof space will comply with Clause F6.4 of BCA2019.
- 75. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
- 76. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.



**Structural Engineers Design Certification:**

77. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 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. Timber Construction – AS 1720.1:2010
  - i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
78. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 3 for a building of Type A Construction.
79. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.
80. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
81. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

**Lift Services Design Certification:**

82. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.
83. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.
84. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.
85. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.
86. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

**Acoustic Services Design Certification:**

87. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2019.

