

## BUILDING CODE OF AUSTRALIA 2019 CAPABILITY STATEMENT

### PROPOSED AGED CARE FACILITY 26 DARLEY STREET EAST, MONA VALE NSW 2103

Report prepared for: Thompson Healthcare  
c/- Gartner Trovato Architects  
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#### DOCUMENT ACCEPTANCE

	Name	Signed	Date
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Verified by	Philip Smillie	<i>Philip Smillie</i>	31/7/19

#### REVISION HISTORY

Revision No.	Prepared by	Description	Date
R01	Abraham Mahilraj	BCA Report for review and comment	25/6/19
R02	Abraham Mahilraj	BCA Final Report	31/7/19



## Introduction

At the request of Gartner Trovato Architects we offer comments and recommendations in respect to Building Code of Australia 2019 compliance for the proposed residential aged care facility located at 26 Darley Street East, Mona Vale NSW 2103.

The new facility will have 4 levels and contain 51 rooms for residents with 17 car spaces in the basement level carpark.

Philip Chun has been appointed to report on compliance with respect to Parts C, D, E, F, G, and J of the Building Code of Australia 2019. ***Any non-compliant items requiring attention are in bold italic text throughout the report.***

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The documentation assessed includes the following architectural drawings by Gartner Trovato Architects:

Drawing No./Rev	Title	Dated
1812_DA-03/B	BASEMENT AND CARPARK PLAN	24/7/19
1812_DA-04/B	GROUND FLOOR PLAN	24/7/19
1812_DA-05/B	LEVEL 01 FLOOR PLAN	24/7/19
1812_DA-06/B	LEVEL 02 FLOOR PLAN	24/7/19
1812_DA-07/B	ELEVATIONS NORTH EAST AND NORTH WEST	24/7/19
1812_DA-08/B	ELEVATIONS SOUTH EAST AND SOUTH WEST	24/7/19
1812_DA-09/B	SECTIONS A+B+C	24/7/19

## Building Code of Australia 2019 Comments

### 1. Building Assessment

<b>Building Classification</b>	<b>Basement 01</b>	Class 7a Carpark, Class 9c Aged Care Ancillary Use
	<b>Ground Floor</b>	Class 9c Aged Care
	<b>Level 01</b>	Class 9c Aged Care
	<b>Level 02</b>	Class 9c Aged Care
<b>Rise in Storeys</b>	3 (in accordance with C1.2)	
<b>Type of Construction</b>	Type A Construction	
<b>Effective Height (m)</b>	Approximately 6m (<25m)	
<b>Total floor area</b>	3,262m <sup>2</sup>	



## Section C – Fire Resistance / Compartmentation / Separation

2. **Type of construction (C1.1)** – The building has a rise in storeys of 3 in which case is required to be of not less than Type A construction. *The building needs to comply with BCA Table 3 for Type A Construction (See Appendix A).* Structural engineer will need to confirm at CC stage the Fire Resistance Levels (FRL's) of the columns, slabs and load bearing walls meet Table 3 of Spec C1.1 -

- Class 9c parts – 120 mins
- Class 7a carpark parts – 120 mins

*A concession applies under Clause 3.2 of Spec C1.1 whereby a floor need not comply with Table 3 if it is laid directly on the ground.*

*A concession applies under Clause 3.4 of Spec C1.1 for a roof superimposed on a concrete slab roof need not comply with Clause 3.1 in regards to fire-resisting construction if the superimposed roof and any construction between in it and the concrete slab roof are non-combustible throughout and the concrete slab roof complies with Table 3.*

*A concession applies under Clause 3.5 of Spec C1.1 to exclude the roof from meeting the minimum FRL if the covering is non-combustible and the building is sprinkler protected in accordance with Spec E1.5 throughout. Sprinkler protection is required in accordance with Clause E1.5.*

3. **Lightweight Construction (C1.8)** – Lightweight construction must comply with C1.8 and Spec C1.8 if it is used in a wall system described under this clause, and if it is used for the fire-resisting covering of a steel column or the like. *Compliance readily achievable- details to be provided at CC stage.*
4. **Non-combustible Building Elements (C1.9)** – External walls and common walls, non-loadbearing internal walls where they are required to be fire-resisting must not be constructed of combustible materials, including all components incorporated within them. Flooring and floor framing of lift pits, and non-loadbearing shafts is not for the discharge of hot products of combustion. must also be of non-combustible building elements. *Details required – external wall types, insulation and sarking type not stated. Strongly recommend no use of Aluminium Composite Panels.*
5. **Fire Hazard Properties (C1.10)** – All new surface finishes, assemblies and linings are to comply with BCA Clause C1.10 and Spec C1.10 with regard to Fire Hazard Properties. Paint or fire-retardant coatings must not be used to make a material comply with fire a required fire hazard property unless referred to in NSW Spec C1.10, NSW Table 4 – Notes 4 and 5. *Compliance readily achievable – details to be provided at CC stage.*
6. **Ancillary Elements (C1.14)** – Ancillary elements must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is non-combustible or an item listed under this Clause in the BCA. *Architect to note – details to be provided at CC stage.*
7. **General Floor Area and Volume Limitations (C2.2)** – The size of fire compartment or atrium of the Class 9c part must not exceed a maximum floor area of 8,000m<sup>2</sup> and a maximum volume of 48,000m<sup>3</sup>; and the Class 7 part must not exceed a maximum floor area of 5000 m<sup>2</sup> and maximum volume of 30,000 m<sup>3</sup> for Type A construction. *Complies – compartment sizes not exceeded.*
8. **Class 9a and 9c Buildings (C2.5)** – Class 9c building must be divided into areas not more than 500m<sup>2</sup> by smoke-proof walls complying with Spec C2.5. ***Does not comply – 509m<sup>2</sup> on Ground Floor. Can be rectified at CC stage.***

Ancillary use areas containing equipment or materials that are a high potential fire hazard such as a kitchen and related food preparation areas having a combined floor area of more than 30m<sup>2</sup>, or laundry, or storage rooms greater than 10m<sup>2</sup> mainly used for storage of administration records; must be separated from sole-occupancy units by smoke-proof walls in accordance with Spec C2.5. *Compliance readily achievable – confirm if laundry facilities on Level 01 to 02 contain electrical equipment and kitchens on Level Ground to 02 contain cooking appliances.*



9. **Vertical Separation of Openings in External Walls (C2.6)** – In Type A construction, any part of a window or other opening in an external wall of the building that is above another opening in the storey next below and its vertical projection falls no further than 450 mm outside the lower opening (measured horizontally), requires separation by a spandrel or a slab or other horizontal construction unless sprinkler protected in accordance with Spec E1.5. *Building will be sprinkler protected in accordance with E1.5.*
10. **Separation by Fire Walls (C2.7)** – Fire walls separating fire compartments must be constructed in accordance with C2.7. *Compliance readily achievable – Two-hour fire separation required between Class 7a and 9c ancillary parts in Basement. Details to be provided at CC stage.*
11. **Separation of Classifications in the same Storey (C2.8)** – The building that has parts of different classifications located adjacent one another in the same storey must have building elements with the higher FRL prescribed in Spec C1.1 for that element for the classification concerned; or the parts must be separated in that storey by a fire wall having the higher FRL prescribed in Table 3; or where one part is a carpark complying with Table 3.9 of Spec C1.1, the parts may be separated by a fire wall with the appropriate Table. *Compliance readily achievable – details to be provided at CC stage.*
12. **Separation of Classifications in Different Storeys (C2.9)** – If parts of different classifications are located one above the other in adjoining storeys; the floors separating the different parts must have an FRL of not less than that prescribed in Spec C1.1 for the classification of the lower storey. *Compliance readily achievable - details to be provided at CC stage.*
13. **Separation of Lift Shafts (C2.10)** – A lift connecting more than 2 storeys, or more than 3 storeys in sprinklered building, including emergency lifts required by E3.4, must be separated from the remainder of the building by enclosure in a shaft with an FRL not less than 120/120/120. *Compliance readily achievable- details to be provided at CC stage.*
14. **Stairways and Lifts in One Shaft (C2.11)** – A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft. *Complies.*
15. **Separation of Equipment (C2.12)** – Equipment comprising of lift motors, lift control panels, emergency generators, central smoke control plant, boilers or a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours must be constructed with an FRL in accordance with Spec C1.1 but not less than 120/120/120 and any doorway protected with a self-closing fire door having an FRL of not less than -/20/30 or when separating a lift shaft and lift motor room, an FRL of not less than 120/-/-. *Services engineer to provide further details.*

Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005 *i.e. 2 hours FRL and doorway leading directly to open space or a fire stair. Hydrant pump room in North-west corner of Basement Level to comply.*

Equipment need not be separated if comprises of smoke control exhaust fans constructed in accordance with Spec E2.2b, or stair pressurising equipment installed in accordance with AS/NZS 1668.1, or a lift installation without a machine-room, or equipment otherwise adequately separated from the remainder of the building. *Note.*

**16. Electricity Supply System (C2.13) –**

- i. An electricity substation located within a building must:
  - (a) Be separated from other parts of the building by construction having an FRL of not less than 120/120/120, and
  - (b) Doorways in that construction to be self-closing fire doors with an FRL of not less than -/120/30.
- ii. The main switchboard located within the building that sustains emergency equipment operating in the emergency mode must:
  - (a) Be separated from other parts of the building by construction having an FRL of not less than 120/120/120, and
  - (b) Doorways in that construction to be self-closing fire doors with an FRL of not less than -/120/30.
- iii. Electrical conductors located within a building that supply:



- (a) A substation located within the building which supplies a main switchboard covered by (ii), or
- (b) A main switchboard covered by (ii) must
- (c) Have a classification in accordance with AS/NZS 3013 of not less than WS53W or WS52W, or
- (d) Be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120.

Where emergency equipment is required in a building, all switchboards in the electrical distribution system, which sustain the electricity supply to the emergency equipment, must provide full segregation by way of enclosed metal partitions designed to prevent the spread of any fault from non-emergency equipment switchgear to the emergency equipment switchgear. ***Kiosk substation shown on plans to comply with Energy Network standards – i.e. blast wall fire separation may be needed.***

- 17. **Protection of Openings in External Walls (C3.2)** – Any openings in an external wall required to have an FRL must be protected in accordance with C3.4 and if used, wall-wetting sprinklers are to be externally fitted to fixed shut windows. *Not required – at least 3m setbacks to side boundaries provided.*
- 18. **Doorways in Fire Walls (C3.5)** – Fire doors in fire walls to comply with requirements of C3.5 and must be self-closing or automatic closing. *Compliance readily achievable – details to be provided at CC stage.*
- 19. **Protection of Doorways in Horizontal Exits (C3.7)** – Doorways that form part of a horizontal exit must be protected and either self-closing or automatic closing in accordance with requirements under C3.7. ***Ensure any doors in horizontal exits have a -/120/30 FRL. Compliance readily achievable – details to be provided at CC stage.***
- 20. **Openings in Fire Isolated Exits (C3.8)** – Any doors opening to fire-isolated stairways, and are not doorways opening to a road or open space, must be a fire door with an FRL of not less than -/60/30 that are self-closing or an automatic closing door activated by smoke detector or other detector suitable in accordance with AS 1670.1. *Compliance readily achievable – details to be provided at CC stage.*
- 21. **Service Penetrations in Fire-isolated Exits (C3.9)** – Fire-isolated exits must not be penetrated by any services other than those permitted under C3.9. *Compliance readily achievable – services consultants to provide details at CC stage.*
- 22. **Openings in Fire Isolated Lift Shafts (C3.10)** – Entrance doorways in lift shafts must be constructed to comply with AS 1735.11-1986 with an FRL of not less than -/60/- and remain close when not in use. Lift call, indicator or other panels in the wall of a fire-isolated lift shaft that is greater than 35,000 mm<sup>2</sup> in area, must be backed by construction having an FRL of not less than -/60/60. *Compliance readily achievable – details of lift required.*
- 23. **Openings in Floors and Ceilings for Services (C3.12)** – Services passing through a floor that requires an FRL with respect to integrity and insulation or ceiling required to have a resistance to the incipient spread of fire, must be protected by a shaft complying with Spec C1.1. *Compliance readily achievable – details to be provided at CC stage.*
- 24. **Openings in Shafts C3.13** – An opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be protected by a door or panel which, together with its frame, is non-combustible or has an FRL of not less than -/30/30 if it is located in a sanitary compartment. In other locations it must have a self-closing -/60/30 fire door or hopper, or an access panel having an FRL not less than -/60/30. *Compliance readily achievable – details to be provided at CC stage.*
- 25. **Openings for Service Installations (C3.15)** – Electrical, electronic, plumbing, mechanical ventilation, air-conditioning, or other services that penetrate a building element (excluding the external wall or roof) that is required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire – must be installed in accordance with C3.15 and Spec C3.15. *Compliance readily achievable – details to be provided at CC stage.*





## Section D – Access and Egress

### 26. Access and Egress

- i. All building must have at least one exit from each storey with basements requiring a minimum of 2 exits (D1.2). Class 9 buildings in addition to any horizontal exit must have a minimum of 2 exits from the following:
  - Any storey that contains sleeping areas in a Class 9c aged care building.
  - Any storey or mezzanine that accommodates more than 50 persons, calculated under D1.13.

A Class 9c aged care building must have at least one exit from every part of a storey which has been divided into fire compartments in accordance with C2.2 or C2.5. Access to exits must not pass through another sole-occupancy unit. *Complies.*

- ii. Every stairway or ramp serving as a required exit must be fire-isolated. (D1.3). *Compliance readily achievable – all stairways serving as a required exit to be fire-isolated.*
  - iii. No point on a floor must be more than 20m from an exit, or from which travel in different directions to 2 exits is available in which case the maximum distance to one of those exits must not exceed 40m (D1.4). *Complies.*
  - iv. Exits that are required as alternative means of egress must be located so that alternative paths of travel do not converge such that they become less than 6m apart or more than 60m apart (D1.5). *Complies.*
  - v. Unobstructed height of required exits or paths of travel to exits must be not less than 2m throughout, except the unobstructed height of any doorway may be reduced to not less than 1980mm. The unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m; or in a public corridor in a Class 9c building, 1.5 m and 1.8 m for the full width of the doorway, providing access into a sole-occupancy unit or communal bathroom. The unobstructed width of a doorway must be not less than in a Class 9c building 1070 mm where it opens from a public corridor to a sole-occupancy unit; or 870 mm in other resident use areas; or 800 mm in non-resident use areas. Storeys or mezzanines that accommodate more than 100 persons must comply with minimum aggregate unobstructed widths (D1.6). *Fire stair details required to determine 1m minimum clearance of all obstructions.*
  - vi. A doorway must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from a public corridor, public lobby or the like, a sole occupancy unit occupying the entire storey or a sanitary compartment or air lock. *Complies.*
  - vii. Each fire-isolated stairway must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to a road or open space. Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m 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— 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:
    - An FRL of not less than 60/60/60; and
    - Any openings protected internally in accordance with C3.4 (***Kitchen window opening to the driveway will need protection at CC stage,***for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. *Complies.*
- A ramp must be provided at any change in level less than 600mm in a fire-isolated passageway in a Class 9 building (D1.7). *Architect to note.*
- viii. Exits must not be blocked at the point of discharge and where necessary, suitable barriers provided to prevent vehicles from blocking the exit. If a required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than the minimum width of the required exit; or 1m, whichever is the greater.



If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by:

- a ramp or other incline having a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by the Deemed-to-Satisfy Provisions of Part D3; or
- except if the exit is from a Class 9a building, a stairway complying with the Deemed-to-Satisfy Provisions of the BCA.

The discharge point of alternative exits must be located as far apart as practical (D1.10). *Complies.*

- ix. An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp must not be used between storeys in a resident use area in a Class 9c building (D1.12). ***Does not comply – Vertical Green Wall connects Ground Floor – Level 02. Fire engineered solution needed to allow drenched glass on Levels 1 and 2.***
- x. Access to lift pits to comply with D1.17. *Compliance readily achievable – construction drawings to show detail.*
- xi. A stairway that is required to be within a fire-resisting shaft must be constructed of non-combustible materials and not cause structural damage to or impair the fire-resistance of the shaft if there is local failure (D2.2). *Compliance readily achievable – construction drawings to show detail.*
- xii. Access to service shafts and services other than to fire-fighting or detection equipment as permitted in the Deemed-to-Satisfy Provisions of Section E, must not be provided from a fire-isolated stairway, fire-isolated passageway. Services or equipment in accordance with D2.7(d) may be installed in any corridor, hallway, lobby or the like leading to a required exit if the services or equipment are enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure. *Architect to confirm doors to EDB's and Comms cupboards have non-combustible construction and fitted with smoke seals included in the Specification.*
- xiii. The space below a required fire-isolated stairway must not be enclosed to form a cupboard (D2.8). *Complies.*
- xiv. Goings and risers to comply with D2.13. *Compliance readily achievable – details required at CC stage.*
- xv. Threshold of a doorway must not incorporate a step or ramp closer than the width of the doorway. The discharge thresholds permitted for a Class 9c in doorways opening to open space must be 1 in 8 ramps for a 25mm drop over the threshold (D2.15). *To comply.*
- xvi. A continuous barrier with a minimum height of 865mm required for stairways. Landing and balconies require a minimum 1m high barrier. A 125mm sphere must not be able to pass through any opening (D2.16). *Compliance readily achievable at CC stage – construction drawings to show detail.*
- xvii. Handrails to be located along the full length on at least one side of the flight of stairs with the top surface to be a minimum height of 865mm measured vertically above the nosings of the stair treads (D2.17). *Compliance readily achievable – construction drawings to show detail.*
- xviii. A swinging door in a required exit or forming part of a required exit must swing in the direction of egress and must not otherwise impede the path or direction of egress (D2.20). *Complies.*
- xix. Door latches to comply with requirements under D2.21. *Compliance readily achievable – construction drawings to show detail.*
- xx. Doors of a fire-isolated exit must not be locked from the inside in a Class 9c building (D2.22). *Applies - Client to confirm compliance at CC stage.*



## 27. Access for People with a Disability (Part D3)

i. All areas normally used by the occupants of the building must be accessible, also:

- Class 7a – to a level containing accessible carparking spaces. *Complies.*

- Class 9b – 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, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room, or the like. *Complies.*

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. *Complies.*

Sole-occupancy units:

Where more than 2 accessible sole-occupancy units are required, they must be representative of the range of rooms available.

Where there is between 41 and 60 units there must be a minimum of 3 sole-occupancy units. *Complies. Accessible SOUs door circulation spaces to be rectified prior to CC.*

- ii. An accessway must be provided to a building required to be accessible from the main points of a pedestrian entry at the allotment boundary and from another accessible building connected by a pedestrian link and from any required accessible carparking space on the allotment. *Complies.*
- iii. Ramps must comply with Clause 10 of AS1428.1 and stairways except in fire-isolated stairways must comply with Clause 11 of AS1428.1. Fire-isolated stairways must comply with Clause 11.1(f) and (g) of AS1428.1. *Compliance readily achievable – details required at CC stage.*
- iv. Accessways must have passing spaces and turning spaces complying with AS1428.1-2009 in accordance with D3.3. *Complies. The door circulation spaces must comply with Clause 13.3 of AS1428.1-2009.*
- v. One accessible carparking space complying with AS/NZS 2890.6 to be provided for each 100 car spaces. *One accessible carparking space required and one accessible space is provided on plans provided – satisfactory.*
- vi. Signage complying with Spec D3.6 must be installed in accordance with D3.6. *Compliance readily achievable – details required at CC stage.*
- vii. Tactile indicators must be installed throughout the building in accordance with D3.8. *Compliance readily achievable – details required at CC stage.*
- viii. Vision bands are required on all full height glazing located on an accessway in accordance with AS1428.1. *Compliance readily achievable – details required at CC stage.*





## Section E – Services and Equipment

28. **Fire Hydrants (E1.3)** – The building must be served with fire hydrants complying with the requirements of BCA Clause E1.3 and AS 2419.1-2005. *Compliance readily achievable. Booster needs to be protected with a shield wall achieving an FRL not less than 90/90/90. Compliance achievable at CC stage*
29. **Fire Hose-reels (E1.4)** – Must be provided to serve the Class 7a part. The fire hose reel system must be installed to AS 2441-2005 and serve only the storey at which they are located and not pass through doorways fitted with fire or smoke doors. Hose-reels are to be located within 4m of an exit or an internal fire hydrant. *Compliance readily achievable - fire services contractor to provide details.*
30. **Sprinklers (E1.5)** – Must be provided in accordance with Specification E1.5 throughout the 9c building and any fire compartment containing a Class 9c part. Required in Class 7a part fire compartment where more than 40 vehicles are accommodated. In addition to the provisions of AS 2118.4, a sprinkler system in a Class 9c building, must be provided with a monitored main stop valve in accordance with AS 2118.1; and be permanently connected with a direct data link or other approved monitoring system to a fire station or fire station dispatch centre.

NSW has requirements for fire sprinkler systems in certain residential aged care facilities. See Department of Planning and Environment website [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au). *As such the sprinkler system is required in the Class 7a carpark even if less than 40 spaces provided. Compliance readily achievable – fire services contractor to provide details.*

31. **Portable Fire Extinguishers (E1.6)** – Must be provided to cover Class F fire risks in kitchens; Class B fire risks where 50L or more of flammable liquids are stored; and AE or E fire risks associated with emergency services switchboards. In class 9c buildings specifically extinguishers are required to cover Class A and E fire risks. Class E fire extinguishers need only be located at each nurses', supervisors' station or the like. *Compliance readily achievable – fire consultant to confirm locations.*
32. **Smoke Hazard Management (Part E2)** –
- A building must comply with Table E2.2a as applicable to Class 2-9 buildings such that each separate part complies with the relevant provisions for the classification.
  - Air-handling systems that do not form part of a smoke hazard management system in accordance with Tables E2.2a and recycle air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another must:
    - Be designed and installed to operate as a smoke control system in accordance with AS1668.1-2015, or
    - Incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments and be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1-2018. *Compliance readily achievable – details not shown. Mechanical engineer to provide details at CC stage.*
  - Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1-2015 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. *Compliance readily achievable – details not shown. Mechanical engineer to provide details at CC stage.*
  - Smoke detection system must be installed in accordance with Clause 6 of Specification E2.2a to operate AS 1668.1-2015 systems that are provided for zone pressurisation and automatic air pressurisation for fire-isolated exits. *Compliance readily achievable – details not shown. Mechanical engineer to provide details at CC stage.*
  - Table E2.2a General Provisions – Fire-isolated stairways and associated passageways serving a Class 9c building with a rise in storeys of more than 2 must be provided with an automatic air pressurisation system for fire-isolated exits in accordance with AS 1668.1-2015 and applies to the entire exit. Class 7a and 9c building must be provided throughout with an automatic smoke



detection and alarm system complying with Spec E2.2a Clauses 4, 5, 6 and 7. *Compliance readily achievable – Mechanical / Fire Services consultant to provide details for the building.*

33. **Lift Installation (E3.1)** – An electric passenger lift must comply with Spec E3.1. *Compliance readily achievable – Further information is available in Appendix C.*
34. **Stretcher Facility in Lifts (E3.2) and Emergency lifts (E3.4)** – *Not required however refer to E3.8 below.*
35. **Warning Against Use of Lifts in Fire (E3.3)** – Warning sign must be displayed near every call button and comply with Clause E3.3(b). *Compliance readily achievable – details of lift required.*
36. **Landings (E3.5)** – Access and egress to and from lift well landings must comply with the Deemed-to-satisfy provisions of Section D of the BCA. *Compliance readily achievable – details of lift required.*
37. **Passenger Lifts (E3.6)** – The passenger lift must have accessible features in accordance with Table E3.6b and not rely on constant pressure device for its operation. *Compliance readily achievable – details of lift required.*
38. **Aged Care (E3.8)** – Where residents in a Class 9c aged care building are on levels which do not have direct access to a road or open space, the building must be provided with at least one lift to accommodate a stretcher in accordance with E3.2(b) and the lift or ramp must discharge at a level providing direct access to a road or open space. *Compliance readily achievable – details of lift required.*
39. **Emergency Lights and Exit / Directional Signs (E4.2, E4.5, E4.6)** –
  - i. Emergency lighting complying with AS 2293.1-2018 is required:
    - In every fire-isolated stairways, fire-isolated passageways, and required non-fire-isolated stairway.
    - In every storey that has as a floor area greater than 300m<sup>2</sup>:
      - Every passageway, corridor, hallway that is the path of travel to an exit, and
      - In any room with a floor area greater than 100m<sup>2</sup> that does not open to a corridor or space that has emergency lighting, or to a road, or open space, and
      - Any room with a floor area greater than 300m<sup>2</sup>, and
      - In every Class 9c building excluding within sole-occupancy units.*Compliance readily achievable – details not shown. Electrical engineer to provide details at CC stage.*
  - ii. Exit signs complying with AS 2293.1-2018 are required to be installed above or adjacent to each:
    - Door providing direct egress from a storey to:
      - An enclosed stairway or passageway serving as a required exit, and
      - External stairway or passageway serving as a required exit, and
      - External access balcony leading to a required exit.
    - Door from an enclosed stairway or passageway at every level of discharge to road or open space, and
    - Horizontal exits, and doors serving as, or forming part of, a required exit in a storey required to be provided with emergency lighting in accordance with E4.2. *Compliance readily achievable – details not shown. Electrical engineer to provide details at CC stage.*
  - iii. If an exit is not readily apparent then exit signs must be installed in appropriate positions in areas such as corridors, hallways and lobbies, indicating the direction to a required exit. *Compliance readily achievable – details not shown. Electrical engineer to provide details at CC stage.*



## Section F – Health and Amenity

40. **Damp and Weatherproofing (Part F1)** – Stormwater drainage is to comply with F1.1 and AS/NZS 3500.3. Waterproofing membranes for external above ground use must comply with F1.4, AS 4654.1 and AS 4654.2. Roof coverings must comply with F1.5. Sarking for weatherproofing of roofs and walls must comply with F1.6 and AS/NZS 4200 Parts 1 and 2. Sanitary compartments must be water resistant or waterproof in accordance with Table F1.7 and comply with AS 3740. Damp-proofing of the flooring is to comply with F1.9 and F1.10. Glazed assemblies in an external wall must comply with F1.13 and AS 2047. *Architect to note and provide details at CC stage.*
41. **Facilities in Residential Buildings (F2.1)** – Facilities for residents in a Class 9c building require:
- i. Closet pan and wash basin per 6 residents, and
  - ii. Shower per 7 residents, and
  - iii. Bath – fixed or mobile.
- Each SOU is provided with a private ensuite. Bath location not provided.*
- Other facilities, provide:
- i. One kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin. *Complies – Kitchen provided on Basement level and two kitchenettes provided on each floor above. Details required showing kitchen sinks and washbasins.*
  - ii. Laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing and the like and the receipt and storage of clean linen. *Complies – Laundry provided on Basement Level, Level 01 and Level 02.*
  - iii. One clinical hand washing basin for each 16 residents or part thereof. *Complies – four required based of 51 beds provided.*
42. Sanitary facilities for employees must be provided on the basis of equal numbers of males and females. A unisex facility required for people with a disability may be counted once for each sex and must contain one closet pan, one washbasin and means for the disposal of sanitary towels (F2.2). Separate sanitary facilities for males and females must be provided unless permitted by F2.4(a) and (b), and adequate means of disposal of sanitary towels must be provided in sanitary facilities for use by females (F2.3). Not less than one washbasin must be provided where closet pans or urinals are provided. *Staff number provided is 20, therefore 50:50 male and female is 10. 1 pan and 1 washbasin required per sex – 2 pans and 1 washbasin provided on Basement Level for each sex – complies.*
43. Accessible sanitary facilities in accordance with 1428.1-2009 must be provided in each accessible SOU and a minimum of one accessible unisex sanitary compartment is required at each bank of sanitary compartments containing male and female sanitary compartments. At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 must be provided for use by males and females (F2.4). *Common accessible sanitary facilities are provided on Ground to Level 02 Levels but not at Basement Level. Accessible SOUs are to be identified and details provided of compliance with 1428.1 requirements. Ambulant cubicles to be provided in male and female staff facilities located on Basement Level – complies.*
44. One slop-hopper or other device other than a water closet pan or urinal for the safe handling and disposal of liquid and solid wastes with a flushing apparatus, tap and grating; and an appliance for the disinfection of pans or an adequate means to dispose of receptacles is required for every 60 beds on each storey containing resident use areas (F2.8). *Complies.*
45. **Height of Rooms and Other Spaces (F3.1)** – In a Class 7 part the minimum height is 2.4m, including commercial kitchens. Corridors, passageways, sanitary facilities, pantry, store room, garage, carparking areas must not be less than 2.1m. Stairways and landings must not be less than 2m measured vertically from the nosing line of the stairway tread or surface of the landing.

In a Class 9c building, the minimum ceiling height in a kitchen, laundry, or the like is 2.1 m; and a habitable room, corridor, passageway or the like is to be 2.4 m. *Compliance readily achievable – details to be provided.*



46. **Provision of Natural Light (F4.1)** – Natural light in accordance with F4.2 and F4.3 must be provided to all rooms used for sleeping purposes. ***All window sills in residential rooms cannot exceed 1m high. To comply.***
47. **Artificial Lighting (F4.4)** – Artificial lighting complying with AS/NZS 1680.0-1998 to be provided to:
- i. Required stairways and passageways, and
  - ii. If natural light cannot be achieved in accordance with F4.2 – In Class 7a and 9 parts - All rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress.  
*Compliance readily achievable – Electrical consultant to provide details.*
48. **Ventilation of Rooms (NSW F4.5)** – Mechanical ventilation complying with AS 1668.2 must be provided where natural ventilation cannot be provided. *Compliance readily achievable – Mechanical services consultant to provide details. Each room needs minimum 5% of the floor area of the room to be ventilated.*
49. **Restriction on Location of Sanitary Compartments (F4.8)** – Sanitary compartments must not open directly into a kitchen, pantry, public dining room, or room used for public assembly. *Complies.*
50. **Carparks (4.11)** – The carpark must have a system of mechanical ventilation complying with AS 1668.2 or a system of natural ventilation complying with Section 4 of AS 1668.4. *Compliance readily achievable – Mechanical services consultant to note.*
51. **Kitchen Local Exhaust Ventilation (F4.12)** – Commercial kitchens must be provided with an exhaust hood complying with AS 1668.1-2015 and AS 1668.2-2012 where any cooking apparatus maximum power inputs are exceeded in accordance with F4.12. *Compliance readily achievable – provide details of cooking appliances power input.*
52. **Sound Transmission and Insulation (Part F5)** – Applies to Class 9c parts only. Floors and walls and internal services to be sound insulated in accordance with Part F5. Pumps to be isolated in accordance with F5.7. *Compliance readily achievable – Acoustics consultant to provide details.*
53. **Part F6 Condensation management** – does not apply to Class 9c

#### **Section G – Ancillary Provisions**

54. **Refrigerated chambers, strong-rooms and vaults (G1.2)** – A refrigerated or cooling chamber that is large enough for a person to enter must be constructed in accordance with G1.2. *Cool rooms and walk-in freezer to comply – details to be provided.*
55. **Provision for Cleaning Windows (NSW G1.101)** –
- i. A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level.
  - ii. A building satisfies the above where—
    - the windows can be cleaned wholly from within the building; or
    - 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.
56. **Bushfire Zone (NSW G5)** – special fire protection purpose applies, however the land is not in a bushfire prone area.



## **NSW Section J – Energy Efficiency**

57. **Energy Efficiency (Part J)** – From 1 May 2019 to 30 April 2020 Section J of NCC 2016 Volume One Amendment 1 may apply instead of Section J of NCC 2019. From 1 May 2020 Section J of NCC 2019 applies. NSW Section J consists of two Subsections – J(A) (Class 2 buildings) to account for BASIX requirements, and J(B) (Class 3 and Class 5-9 buildings). *It is likely that NCC 2019 Section J Provisions will apply to the development unless CC application is made prior to 1 May 2020.*

The building is within Climate Zone 5 – Class 9c, and 7a parts must comply with Parts J1, J3, J5, J6, and J8. *Architectural, mechanical services and electrical services consultants' confirmation will be required at CC stage. **Compliance report will be required by Section J consultant at CC stage.***

## **Conclusion**

We have assessed the initial drawings by Gartner Trovato Architects with respect to the Building Code of Australia 2019. We are confident that the design will need modifications to meet a combination of the DtS and performance requirements of the Building Code of Australia.





## Appendix A

**Table 3 - TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS**

Building element	Class of building-FRL: (in minutes)			
	Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
<b>EXTERNAL WALL</b> (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is-				
For loadbearing parts				
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3m or more	90/60/30	120/60/30	180/120/90	240/180/90
For non-loadbearing parts				
Less than 1.5m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3m	-/60/60	-/90/90	-/180/120	-/240/180
3m or more	-/-/-	-/-/-	-/-/-	-/-/-
<b>EXTERNAL COLUMN</b> not incorporated in an external wall -				
Less than 3m	90/-/-	120/-/-	180/-/-	240/-/-
3m or more	-/-/-	-/-/-	-/-/-	-/-/-
<b>COMMON WALLS and FIRE WALLS-</b>	90/90/90	120/120/120	180/180/180	240/240/240
<b>INTERNAL WALLS</b>				
Fire- resisting lift and stair shafts-				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
Non-loadbearing	-/90/90	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like-				
Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units-				
Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion				
Loadbearing	90/90/90	120/90/90	180/120/120	240/120/120
Non-loadbearing	-/90/90	-/90/90	-/120/120	-/120/120
<b>OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS-</b>				
	90/-/-	120/-/-	180/-/-	240/-/-
<b>Floors</b>	90/90/90	120/120/120	180/180/180	240/240/240
<b>Roofs</b>	90/60/30	120/60/30	180/60/30	240/90/60



## Appendix B

**Table 3.9 REQUIREMENTS FOR CARPARKS**

Building element		FRL (not less than) Structural adequacy/Integrity/Insulation
		ESA/M (not greater than)
<b>Wall</b>		
(a)	<i>external wall</i>	
	(i) less than 3 m from a <i>fire-source feature</i> to which it is exposed:	
	<i>Loadbearing</i>	60/60/60
	<i>Non-loadbearing</i>	-/60/60
	(ii) 3 m or more from a <i>fire-source feature</i> to which it is exposed	-/-/-
(b)	<i>internal wall</i>	
	(i) <i>loadbearing</i> , other than one supporting only the roof (not used for carparking)	60/-/-
	(ii) supporting only the roof (not used for carparking)	-/-/-
	(iii) <i>non-loadbearing</i>	-/-/-
(c)	<i>fire wall</i>	
	(i) from the direction used as a <i>carpark</i>	60/60/60
	(ii) from the direction not used as a <i>carpark</i>	as required by <a href="#">Table 3</a>
<b>Column</b>		
(a)	supporting only the roof (not used for carparking) and 3 m or more from a <i>fire-source feature</i> to which it is exposed	-/-/-
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a <i>carpark</i>	60/-/- or 26 m <sup>2</sup> /tonne
(c)	any other column not covered by (a) or (b)	60/-/-
<b>Beam</b>		
(a)	steel floor beam in continuous contact with a concrete floor slab	60/-/- or 30 m <sup>2</sup> /tonne
(b)	any other beam	60/-/-
<b>Fire-resisting lift and stair shaft</b> (within the <i>carpark</i> only)		60/60/60
<b>Floor slab and vehicle ramp</b>		60/60/60
<b>Roof</b> (not used for carparking)		-/-/-
<b>Notes:</b>		
1.	ESA/M means the ratio of exposed surface area to mass per unit length.	
2.	Refer to <a href="#">Specification E1.5</a> for special requirements for a sprinkler system in a <i>carpark</i> complying with Table 3.9 and located within a multi-classified building.	



## Appendix C

**Table E3.6B APPLICATION OF FEATURES TO PASSENGER LIFTS**

Feature	Application
Handrail complying with the provisions for a mandatory handrail in <a href="#">AS 1735.12</a>	All lifts except—
	(a) a stairway platform lift complying with <a href="#">AS 1735.7</a> ; and
	(b) a low-rise platform lift complying with <a href="#">AS 1735.14</a> .
Lift floor dimension of not less than 1400 mm x 1600 mm	All lifts which travel more than 12 m.
Lift floor dimensions of not less than 1100 mm x 1400 mm	All lifts which travel not more than 12 m except a stairway platform lift complying with <a href="#">AS 1735.7</a> .
Lift floor dimensions of not less than 810 mm x 1200 mm	A stairway platform lift complying with <a href="#">AS 1735.7</a> .
Minimum clear door opening complying with <a href="#">AS 1735.12</a>	All lifts except a stairway platform lift complying with <a href="#">AS 1735.7</a> .
Passenger protection system complying with <a href="#">AS 1735.12</a>	All lifts with a power operated door.
Lift landing doors at the upper landing	All lifts except a stairway platform lift complying with <a href="#">AS 1735.7</a> .
Lift car and landing control buttons complying with <a href="#">AS 1735.12</a>	All lifts except—
	(a) a stairway platform lift complying with <a href="#">AS 1735.7</a> ; and
	(b) a low-rise platform lift complying with <a href="#">AS 1735.14</a> .
Lighting in accordance with <a href="#">AS 1735.12</a>	All enclosed lift cars.
(a) Automatic audible information within the lift car to identify the level each time the car stops; and	All lifts serving more than 2 levels.
(b) audible and visual indication at each lift landing to indicate the arrival of the lift car; and	
(c) audible information and audible indication <i>required</i> by (a) and (b) is to be provided in a range of between 20–80 dB(A) at a maximum frequency of 1 500 Hz	
Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received	All lifts except a stairway platform lift complying with <a href="#">AS 1735.7</a> .