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**24 CORONATION ROAD, CONGARNNI
NORTH**

BUILDING CODE OF AUSTRALIA 2019

CAPABILITY STATEMENT FOR DA SUBMISSION

Prepared for

CONGARINNI PTY LTD

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0.0 Author and Reviewer

Revision history

Revision No.	Reviewed by	Description	Date
R01	Dean Morton	Draft	03/11/2020
R02	Dean Morton	Final	16/12/2020

1.0 Executive Summary

This report has been prepared to assess the architectural documentation as detailed in Part 6 in accordance with the Building Code of Australia Volume 1 (BCA) 2019 including amendment 1 and adopted standards.

The proposed development is the construction retirement village including self contained dwellings, an aged care facility, community building and an external inground swimming pool.

The assessment has revealed that the proposed development will be capable of achieving compliance with BCA 2019. The following matters will require further consideration during detailed design development at the construction stage of the project:

1. The aged care building is to adopt type C construction throughout.
2. There are no openings exposed to fire source features that will require protection in accordance with Part C3 of the BCA.
3. The use of non required and non fire isolated stairs as part of the aged care facility is to be subject to a performance solution at the construction certificate stage
4. The aged care building is incorporating compliant fire and smoke compartmentation
5. The provision of fire services including smoke detection and alarm system, fire hose reels and hydrants are to be coordinated with a competent fire safety practitioner at the construction certificate stage.
6. Disabled access is generally compliant and subject to detailed review at the construction certificate stage.
7. The building is to be comply with Section J for energy efficiency for climate zone 2.

2.0 Property Description

2.1 Building Description

<i>Use / Classification</i>	Class 1a: dwelling houses (including class 10a garages) Class 9c: aged care facility Class 9b: community use building Class 10b: swimming pool
<i>Rise in Storeys</i>	The class 9c development will have a rise of 2 storeys (2 storeys contained) and the class 9b having a rise in storeys of 1 (1 storey contained).
<i>Fire compartment floor areas</i>	The class 9c building is to adopt type C construction (under clause C1.5) and therefore is limited to maximum fire compartment size of 2000m ² as is the community building
<i>Fire compartment volumes</i>	The class 9c building is to adopt type C construction (under clause C1.5) and therefore is limited to maximum fire compartment size of 12000m ³ as is the community building
<i>Effective Height</i>	The class 9c aged care building will have an effective height of 3.5m (RL26.50m – RL23.00m). The class 9b community building will have an effective height of 0m
<i>Type of Construction</i>	The building requires Type C Construction for both the aged care facility (subject to clause C1.5) and community building
<i>Climate Zone</i>	For the purposes of Section J the climate zone is 2
<i>Population</i>	The population as determined from table D1.13 is: Community building – 150 persons It is noted that table D1.13 does not impose a ratio for population of an aged care facility and based on a total of 75 single resident rooms (37 to ground floor and 38 to first floor) and staffing is likely to be approximately 50 persons for floor

3.0 Building Code of Australia Assessment

3.1 Fire Resistance and Stability (Section C, BCA)

Fire Resistance

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 of the BCA for the specific Fire Resistance Levels [FRL's].

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

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

Insulation: The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4. FRL's are generally as follows for the building:

Table 5 Type C construction: FRL of building elements

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	—/—/—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	—/—/—	—/—/—	—/—/—	—/—/—
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/—/—	90/—/—	90/—/—	90/—/—
1.5 to less than 3 m	—/—/—	60/—/—	60/—/—	60/—/—
3 m or more	—/—/—	—/—/—	—/—/—	—/—/—
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS—				
Bounding <i>public corridors</i> , public lobbies and the like—	60/ 60/ 60	—/—/—	—/—/—	—/—/—
Between or bounding <i>sole-occupancy units</i> —	60/ 60/ 60	—/—/—	—/—/—	—/—/—
Bounding a stair if <i>required</i> to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	—/—/—	—/—/—	—/—/—	—/—/—

It is noted that the floor is required to separate fire compartments where the arrangement of fire walls does not account for total floor area and volume and where the floor is separating fire compartments is to achieve a FRL of 60/60/60 (subject to clause C2.5). The arrangement of fire and smoke compartmentation is to be reviewed at the construction certificate stage.

Lightweight construction & fire hazard properties

Where lightweight fire rated construction is proposed for walls, the system must comply with Specification C1.8 of the BCA and the manufactures tested specification.

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 the BCA.

The fire hazard properties of floor, wall and ceiling linings are to comply with Part C1.10 and Specification C1.10 of the BCA. All materials selected for use in the construction should be accompanied by a valid test report demonstrating compliance with defined fire hazard properties.

Compartmentation & separation

In general the age care facility is to be compartmented into maximum floor area of 2000m² or volume of 12,000m³ in order to adopt type C construction under clause C1.5. In this regard compartments can readily be formed to the ground and first floors and are to be fully detailed at the construction certificate stage.

As both the aged care and community buildings are to adopt type C construction there is in general limited requirements for structure to achieve a nominated FRL.

Clause C2.5 requires that the aged facility is to be compartmented into maximum 500m² smoke compartments and have the resident SOU's separated between each other and common corridors being either to the underside of the floor above or ceiling with minimum 13mm standard grade plasterboard and the walls lined either side with the same 123mm plasterboard.

Kitchen areas of the aged care building that exceed 30m², rooms used for the storage of administration records exceeding 10m² and laundries if containing gas fire dryers are to be smoke separated from the remainder of the building.

Protection of Openings

There are no openings to external walls exposed within 3m of a fire source feature that requires protection for this building.

Vertical Separation of openings

Vertical separation is not required as the aged care building is to adopt type C construction and with a sprinkler system that is compliant with AS 2118.4-2010.

Fire sealing of penetrations

All service penetrations must be sealed to the requirements of Clause C3.12 and C3.15 of the BCA.

Electrical Supply

Electrical equipment is to be separated from the building in accordance with Clause C2.13 of the BCA. The main switchboard is to be constructed to achieve a fire resistance level of 120/120/120 with the door being –/120/30 fire rated (internal doors only), unless higher FRL's required by electricity supplier (may vary based on type of substation required to be provided).

Protection of Equipment

The following equipment is to be fire separated with construction complying with Clause C2.12 (d) of the BCA.

- (i) lift motors and lift control panels; or
- (ii) central smoke control plant; or
- (iii) a battery or batteries installed in the building that have a voltage exceeding 12 volts and a storage capacity exceeding 200kWh.
- (iv) Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.

3.2 Access and Egress (Section D, BCA)

Number of exits required

There is a requirement for a minimum of 2 exit to each storey, the design is considered compliant in this regard.

Exit travel distances

Exit travel distances to a required exit or a point of choice between exits generally comply with Clause D1.4 of the BCA.

Distance between alternative exits

The distance between alternative exits generally complies with Clause D1.5 of the BCA.

Travel via non fire isolated exits

Every stair serving as a required exit as part of the age care facility is to be fire isolated. From the point of discharge from the exit and along the path of travel to the road any external wall within 6m at right angles to the path of travel is to have a FRL of 60/60/60 and any opening in the wall is to be protected in accordance with the options permitted under clause C3.4.

Non required stairways

The non-required open stair indicated at the entry foyer of the aged care facility is not permitted as is in a resident use area and is to be subject to a performance solution and the construction certificate stage.

Dimensions of exits

Exits and paths of travel to exits are to comply with D1.6 of the BCA. Generally exits widths are 1m in width clear of any obstruction including hand rails or other fixtures. Reductions in width are available at doorways to not less than 750mm clear.

The required aggregate width based on the population determined in Section 2.2 of the report is generally compliant.

Construction of Stairways

Goids and risers are to be designed to comply with the provisions of Clause D2.13 of the BCA and to generally achieve a minimum going of 250mm and maximum rise of 190mm.

There is to be no step or ramp within the width of the door leaf to a door threshold unless it is an external door in which the maximum step is not to exceed 190mm. The plans generally detail compliance in this regard.

Handrails

Handrails will be provided to stairways and ramps as required by Clause D2.17 of the BCA, including internal stairs within a residential SOU. For non fire isolated stairs they are to be provided both sides of the flight, for fire isolated stairs this can be limited to one side only. The plans generally note compliance.

Barriers

Barriers will be provided for all areas where it is possible to fall more than 1m from the floor level to a lower surface. In general balustrades are to have no gap that will permit a 125mm diameter sphere to pass through.

Barriers within fire isolated stairways and used only for egress may be constructed with three horizontal rails with gaps up to 460mm (bottom rail max 150mm above the nosing line or floor). Compliance can be readily achieved and is to be further detailed at the construction certificate stage.

Egress Doors

All exit doors will swing in the direction of egress and are required to be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA, the latches will be downward or pushing action on a single device located between 900-1100mm above floor level. External doors are permitted to have a maximum step at the threshold of 25mm and incorporate a 1:8 threshold ramp.

Protection of openable windows

Openable windows in bedrooms where the floor is more than 2m above the surface beneath and with a sill height below 1.7m require restricted openings or protection in accordance with D2.24 of the BCA, measures to restrict the window opening may include security mesh or to restrict the opening to not permit a 125mm diameter sphere to pass through.

Where the window opening is restricted calculations are to be provided at Construction Certificate stage that sufficient natural ventilation is provided by Part F4.5.

For all windows not in bedrooms where the fall exceeds 4m from floor level to the surface below the sill height is to be minimum 865mm above floor level or a balustrade or similar provided in front of the opening.

Access for people with a disability

The proposed building is required to comply with the following:

- The Disability (Access to Premises — Buildings) Standards 2010;
- Part D3 of BCA;
- Australian Standard AS 1428.1-2009, AS/NZS 1428.4.1-2009, AS/NZS 2890.6-2009

Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4, which requires access as follows:

Class 9c – From a pedestrian entrance required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level.

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

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

- (a) to the entrance doorway of each sole-occupancy unit; and
- (b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp
- (c) to and within 4 sole occupancy units (total of 75 SOU's provided)

Class 9b – To and within all parts normally used by the occupants.

Class 10b – swimming pools associated with a class 9 building and with a perimeter exceeding 40m

The following areas are identified with respect to further review for accessibility:

1. Lifts are to comply with AS 1735.12 and have an internal lift car dimension of 1100 x 1400mm and a clear doorway opening width of 900mm (note that the car of at least one lift must incorporate a stretcher facility)
2. The non fire isolated exit stairs to comply with clause 11 of AS 1428.1-2009 including handrails both sides with extensions past the first and last riser and tactile indicators to AS/NZS 1428.4.1-2009
3. There is to be a performance solution to omit the required 4 accessible SOU's at the construction certificate stage.
4. The swimming pool is to incorporate access via a fixed or removable ramp, zero depth entry or platform lift with each option requiring there to be an aquatic wheelchair provided.

3.3 Services and Equipment (Section E, BCA)

Hydrant Systems

The building is required to be provided with a system of hydrant coverage in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1-2005. The design of the hydrant service is subject to input from an accredited practitioner (fire safety) at the construction certificate stage.

Hose Reel Systems

The building will be provided with a fire hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441 - 2005. The design of the hydrant service is subject to input from an accredited practitioner (fire safety) at the construction certificate stage.

Portable Fire Extinguishers

Fire extinguishers are to be provided in accordance the provisions of Clause E1.6 of the BCA and AS2444 - 2001.

Exit and Emergency Lighting

Emergency lighting will be provided throughout the building in accordance with Part E4 of the BCA and AS/NZS 2293.1.2018.

Lifts

A sign must be provided in accordance with Clause E3.3 of the BCA warning against the use of lifts in a fire.

Compliance with Specification E3.1 is required for an electric or electrohydraulic lift installation.

Every passenger lift is to be provided with handrails, minimum internal floor dimensions, clear door opening dimensions and car control buttons in accordance with AS1735.12 and be fitted with a series of sensory devices per clause E3.6 of the BCA.

At least one of the lifts serving the aged care facility is to incorporate stretcher facility to clause E3.2.

Sprinklers

A sprinkler system in accordance with the provisions of Clause E1.5 of the BCA is required for this building. The design of the sprinkler service is subject to input from an accredited practitioner (fire safety) at the construction certificate stage.

Smoke Hazard Management

The building is to be provided with an automatic smoke detection and alarm system including automatic system monitoring in accordance with clauses 4, 7 and 8 of Specification E2.2a and AS 1670.1-2018 and AS 1670.3-2018. The design of the hydrant service is subject to input from an accredited practitioner (fire safety) at the construction certificate stage.

3.4 Health and Amenity (Section F, BCA)

Damp and Weatherproofing

Adequate measures will be employed to ensure compliance Part F1 of the BCA is achieved in terms of weatherproofing, this is to include compliance with AS 4654.2-2012 in respect of waterproofing of external balconies. It is advised that the building façade must be designed as a performance solution against the performance solution FP1.4.

Sanitary and Other facilities

It is proposed to provide within each SOU a shower, closet pan and basin and is considered compliant for the requirement minimum sanitary facilities for residents.

There is to be a fixed or mobile bath as part of the aged care facility and clinical hand wash basins are to be provided at a rate of 1 per 16 residents (5 in total). There is to be a slop hopper to each storey for the washing and disinfecting of pans.

Ceiling Heights

The following minimum building ceiling heights must be maintained.

- Common kitchen, laundry or the like – 2.1m
- Corridor, passageway or the like – 2.4m
- Bathroom, shower, sanitary compartment or the like – 2.1m
- Habitable rooms including common areas and office spaces – 2.4m
- Stairways – 2.0m

Natural and Artificial Lighting

Natural lighting is to be provided class 3 bedrooms and is to be not less than 10% of the floor area of the room concerned based on the light transmitting area of the glazing element (eg exclusive of framing elements), artificial lighting may be provided throughout other parts in accordance with the provisions of Clause F4.4 of the BCA and AS 1680.0. the height of the sill to each SOU of the aged care facility is not to exceed 1m above floor level. Compliance can be readily achieved and is subject to detailed design development at the construction certificate stage.

Ventilation

The building is required to be provided with ventilation in accordance with the provisions of Clause F4.5 of the BCA. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2-2012.

Sound Transmission and Insulation

Class 9c:

The floor separating the residential units and separating the sole occupancy units from public areas must achieve a sound insulation rating of R_w of not less than 45.

Walls separating units must achieve a sound insulation rating of R_w of not less than 45.

3.5 Ancillary Provisions (Section G, BCA)

Cleaning of Windows

Not applicable to this building.

3.6 Energy Efficient Construction (Section J, BCA)

The following BCA Section J provisions are applicable where applying the controls of the BCA 2019:

Building Fabric

The envelope of the building has not been assessed and is to be reviewed by a suitably qualified energy consultant to verify compliance with Part J1 of the BCA.

Building Sealing

Openings in the building such as doors, windows, exhaust fans and ventilation systems forming part of an envelope to a conditioned space must be sealed to the requirements of Part J3 of the BCA to prevent loss of conditioned air.

In that regard, all external doorways and windows must be fitted with a draft seal, exhaust fans to have dampers, there are to be tight fitting skirting boards, cornices and architraves. The requirement for seals does not apply to fire doors fitted between the fire-isolated stairways in the conditioned areas of the building.

Air-conditioning and Ventilation System

The design of all mechanical air-conditioning and ventilation systems must achieve compliance with Part J5 of the BCA with regard to input power and efficiency features.

Artificial Lighting and Power

The building is to maintain maximum lighting power levels and control systems as applicable. The design of lighting systems must comply with BCA Part J6. The boarding house resident rooms are to be provided with occupant activated devices that can cut the power to lights, air conditioning and local exhausts if the room is unoccupied

Maximum illumination power densities for the areas below as follows:

- Plant rooms 4 W/m²
- Corridors 5 W/m²
- Toilet (staff area) 3 W/m²
- Entry lobby 9 W/m²

Hot Water Supply

Hot water supply systems will be installed in accordance with Part J7 of the BCA and AS/NZS 3500.4 and incorporate insulation to inlet and outlet lines of hot water storage units.

Access for Maintenance and Facilities for Monitoring of Energy Use

The building is to have facilities for maintenance and energy monitoring in compliance with BCA Part J8 and the NSW variations.

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	BCA 2019 Clause C3.13
Automatic fail-safe devices	NCC 2019, Clause C3.11, AS 1670.1- 2018
Automatic fire detection and alarm system	BCA 2019 Clause E2.2, Spec. E2.2a, AS 1670.1-2018
Automatic sprinkler system	BCA Clause E1.5, Specification E1.5, AS 2118.4-2012
Emergency lighting	BCA 2019 Clause E4.2 & E4.4, AS/NZS 2293.1-2018
Exit and directional signage	BCA 2019 Clause E4.5, E4.6 & E4.8, AS/NZS 2293.1-2018
Fire dampers	BCA 2019 Clause E2.2, AS/NZS 1668.1-1998, AS 1682.2-1990
Fire doorsets	BCA 2019 Clause C3.4, C3.8, C3.11, AS 1905.1-2015
Fire hydrant systems	BCA 2019 Clause C2.12, E1.3, AS 2419.1-2005
Fire hose reel systems	BCA 2019 Clause E1.4, AS 2441-2005
Fire seals (protecting openings and service penetrations in fire resisting components of the building)	BCA 2019 Clause C3.15, Spec C3.15, Manufacturer's specifications
Lightweight construction	BCA 2019 Clause C1.8, Spec A2.3, Spec C1.8, Manufacturer's specifications
Mechanical air handling systems	BCA 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	BCA 2019 Clause C3.10, AS 1735.11-1986
Portable fire extinguishers	BCA 2019 Clause E1.6, AS 2444-2001
Automatic monitoring of smoke detection	BCA 2019 Clause E2.2, Table E2.2a, Spec E2.2a, AS 1670.3-2018
Warning and operational signs	BCA 2019 Clause C3.6, D2.23, D3.6, E3.3, Spec E1.8, Clause 183 of the Environmental Planning and Assessment Regulation 2000

5.0 Conclusion

Following an assessment of the proposed building it is considered that the proposed building, can achieve compliance with the provisions of BCA 2019, without alteration that would necessitate an amendment to the development consent.

6.0 Referenced plans

Architectural plans prepared by Tony Owen Partners