CODECONDUIT
BUILDING CODE CONSULTANTS

BCA
ASSESSMENT REPORT

EAST ALBURY
AFFORDABLE RENTAL HOUSING DEVELOPMENT

680 – 688 EAST STREET & 165 ALEXANDRA STREET, EAST ALBURY

13 April 2022

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TABLE OF CONTENTS

REVISION HISTORY

REVISION	REVISION DATE	DETAILS	PREPARED BY
A	25/11/2021	Preliminary Review for Planning Submission	KC
B	30/11/2021	Amended to reflect drawing updates	KC
C	13/4/2022	Amended to reflect drawing updates	KC

1.0 INTRODUCTION

This report has been prepared in accordance with Clause 18 of the Building Professionals Board Regulation 2007 for NSW Land and Housing Corporation to determine the compliance status of the preliminary architectural design documentation with the deemed-to-satisfy provisions of the NCC's Building Code of Australia 2019 amdt 1 (BCA).

As the design documentation is in its initial stages, this report is a high level review and is not to be construed as a comprehensive list of all non-compliances with the BCA.

The following preliminary documents were reviewed as part of this assessment:

Documents	Title	Ref Numbers	Date
Architectural Drawings, prepared by Brewster Murray P/L	Cover Sheet	DA00 (rev 8)	7/3/2022
	Block Analysis	DA01 (rev 5)	7/3/2022
	Site Analysis	DA02 (rev 6)	7/3/2022
	Demolition Plan	DA03 (rev 5)	7/3/2022
	Site Plan	DA04 (rev 10)	7/3/2022
	Ground Floor Plan	DA05 (rev 8)	7/3/2022
	First Floor Plan	DA06 (rev 8)	7/3/2022
	Roof Plan	DA07 (rev 8)	7/3/2022
	Elevations 1	DA08 (rev 9)	7/3/2022
	Elevations 2	DA09 (rev 8)	7/3/2022
	Elevations 3	DA10 (rev 8)	7/3/2022
	Sections	DA11 (rev 6)	7/3/2022
	Cut & Fill Plan	DA12 (rev 6)	7/3/2022
	Shadow Diagrams	DA13 (rev 6)	7/3/2022
	View from Sun Diagrams	DA14 (rev 5)	7/3/2022
	Schedule of Exterior Finishes	DA15 (rev 4)	7/3/2022

2.0 PROPOSED DEVELOPMENT

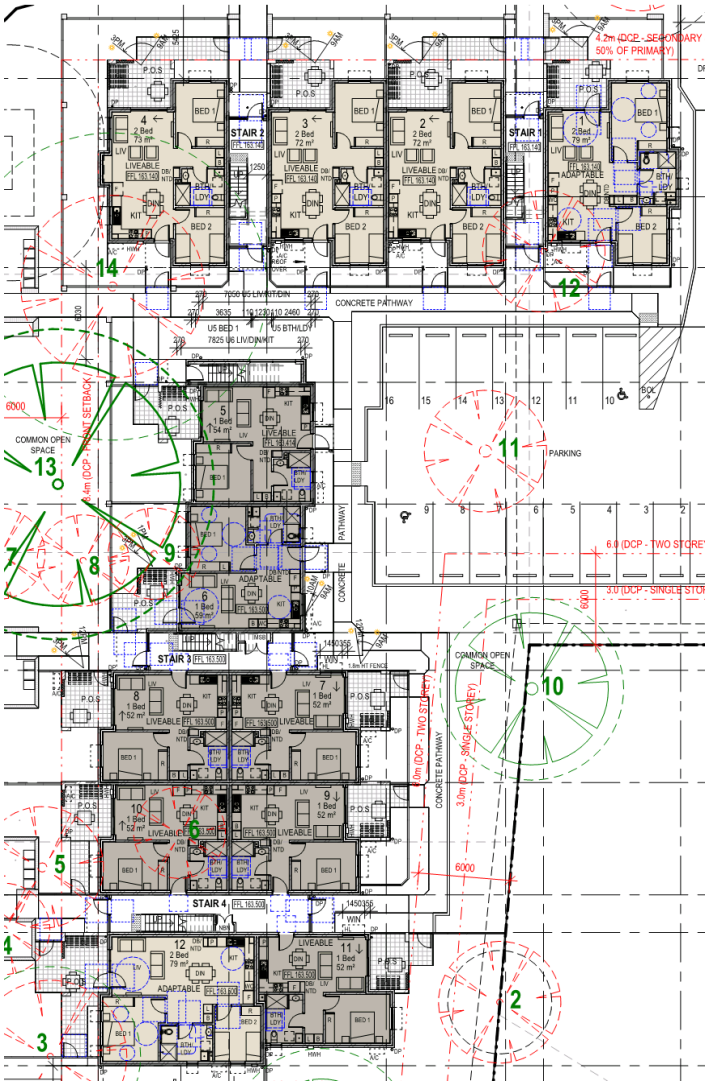
The development consists of two buildings on the site, containing a combined total of twenty four (24) units. Both buildings are two storey, with the East Street block containing 16 units and the Alexandra Street block containing 8 units, with even numbers of units on the ground floor and level 1. There are four common entry/stairway lobbies, however several units have their own independent access. Fourteen of the units are single bedroom units, and ten are two bedroom units. The building is proposed to be constructed of typical residential type construction, with cavity brickwork for the external walls and common unit bounding walls, single skin brickwork for the internal unit walls, concrete floors, and a trussed roof system. The site is a corner allotment with public streets bounding two sides, and with existing residential properties bounding the remaining sides. The site also contains sixteen on site carparking spaces for the development.

3.0 BUILDING DESCRIPTION

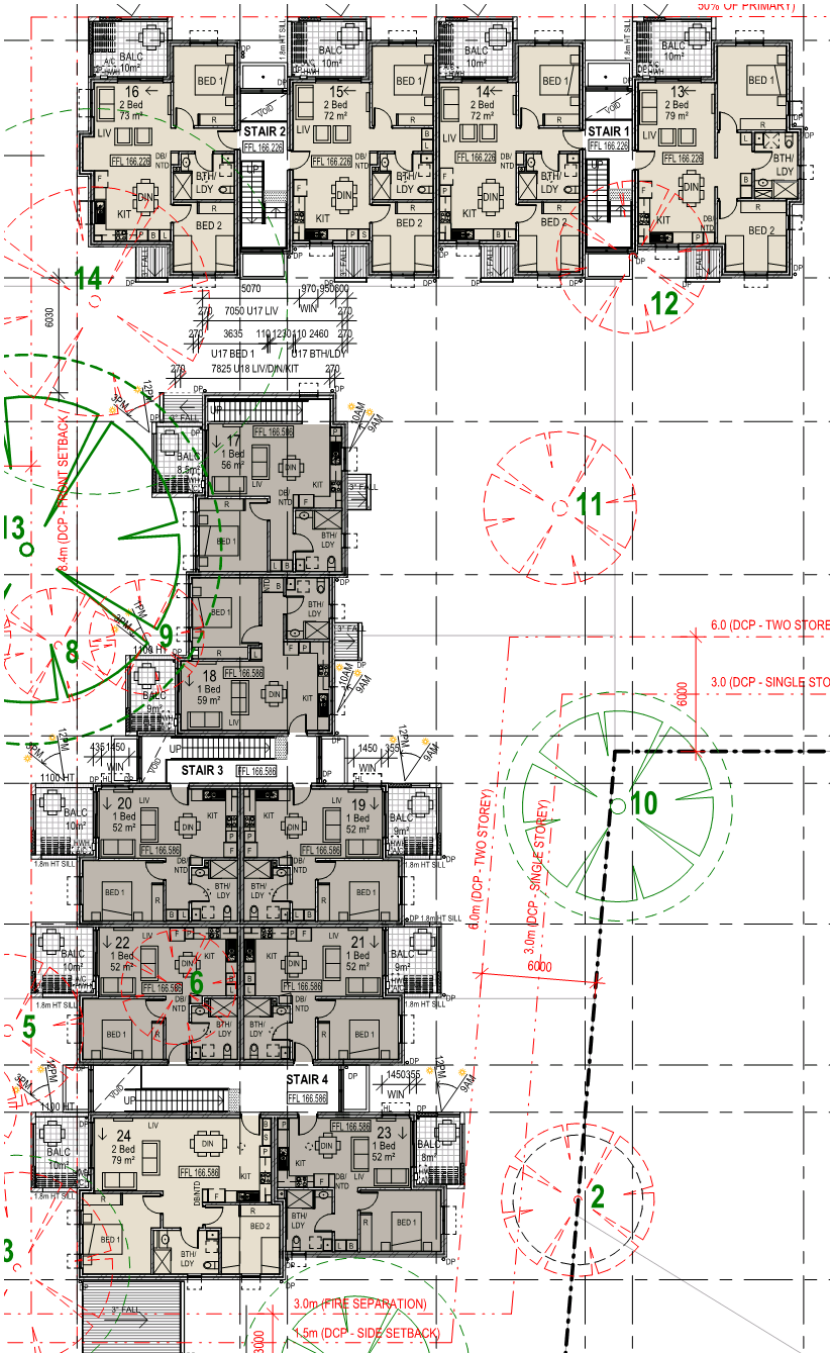
The following table represents the characteristics of the building in regards to the Building Code of Australia 2019.

BCA Characteristics			
BCA Classification	Class 2	Multi Units (apartments)	
Floor Area – East Street Block	Ground floor	Level 1	Total
	616 m²	672 m²	1,288 m²
Floor Area – Alexandra Street Block	Ground floor	Level 1	Total
	388 m²	431 m²	819 m²
Development Total Floor Area	2,107 m²		
No of Storeys	2		
Rise in Storeys	2		
Effective Height	3.1m		
Type of Construction	Type B		
Climate Zone	4		

Ground Floor Plan



Level 1 Floor Plan



Alexandra Street Front Elevation

4.0 SUMMARY OF MAIN BCA ITEMS

As the project is in its initial design phase, the design must be further developed and detailed to demonstrate full compliance with the BCA. To achieve compliance with the BCA either, (i) the design is to comply with the deemed-to-satisfy provisions, or (ii) the relevant items must be addressed as part of a 'performance solution' in accordance with Clause A2.2 of the BCA 2019 (amdt 1).

The following is a list of the main Building Code of Australia (BCA) items relevant to the current design.

4.1 Fire resistance Properties of Façade (BCA Clause C1.9 & C1.14)

All proposed external claddings and external wall cavity insulation are to be non combustible as tested in accordance with AS1530.1, and ensure any ancillary elements installed to the external face of the external walls are permitted under BCA Clause C1.14.

4.2 Fire Resistance Construction (BCA Specification C1.1)

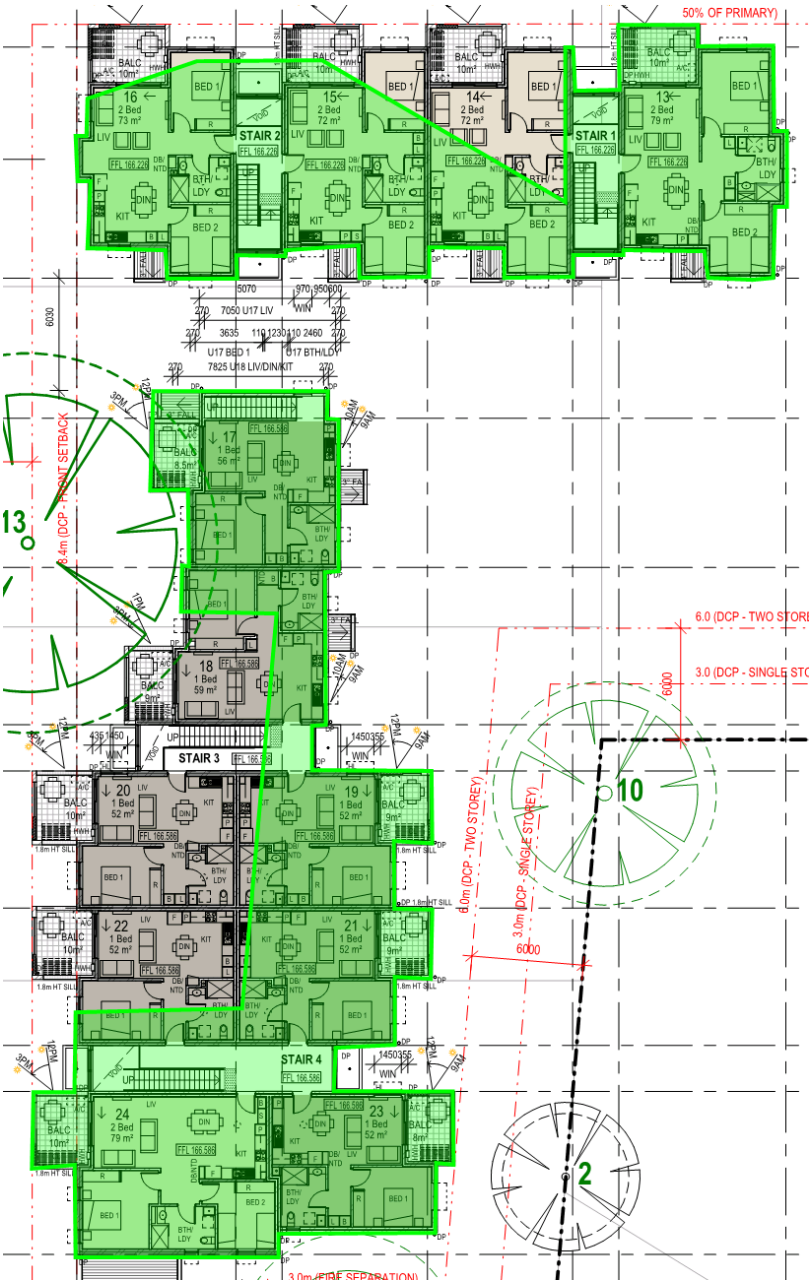
The fire resistance construction is to be further detailed for review, but in general the design must demonstrate compliance with the following:

Element	Ground Level	Level 1
Floor (& any beams)	No FRL	▪ FRL 30/30/30, or ▪ Floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above of not less than 60 minutes, or ▪ Have a fire protective covering on the underside of the floor, including any beams incorporated in it (if the floor is combustible or of metal)
External wall loadbearing • less than 1.5m to fire source feature (FSF) • 1.5m to less than 3m from FSF • 3m to less than 9m from FSF • 9m to less than 18m from FSF • 18m or more from FSF	FRL 90/90/90 FRL 90/60/30 FRL 90/30/30 FRL 90/30/- No FRL	FRL 90/90/90 FRL 90/60/30 FRL 90/30/30 FRL 90/30/- No FRL
External wall non-loadbearing • less than 1.5m to fire source feature (FSF) • 1.5m to less than 3m from FSF • 3.0m or more from side boundary	FRL -/90/90 FRL -/60/30 No FRL	FRL -/90/90 FRL -/60/30 No FRL
External column • less than 18m to fire source feature (FSF) • 18m or more from FSF	FRL 90/-/- No FRL	FRL 90/-/-
Internal wall bounding public lobby / corridor • loadbearing • non-loadbearing	FRL 60/60/60 FRL -/60/60	FRL 60/60/60 FRL -/60/60
Internal wall between or bounding SOU's • loadbearing • non-loadbearing	FRL 60/60/60 FRL -/60/60	FRL 60/60/60 FRL -/60/60
Other internal loadbearing walls	FRL 60/-/-	FRL 60/-/-
Internal columns	FRL 60/-/-	FRL 60/-/-
Roof	N/A	Non-combustible

It is important to detail in the design the following fire related construction items:

- The fire rating for the external walls is taken from both inside and outside.
- Insulation in the cavity of external walls must be non combustible, as tested in accordance with AS1530.1.

- Internal walls required to have an FRL with respect to integrity & insulation, must extend to the underside of the floor next above, or the underside of a 60 minute incipient fire spread ceiling, or to the underside of the roof cladding (crossed only by roof battens with dimensions of 75x50mm or less).
- Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL in respect of structural adequacy of not less than the part it supports.
- Where an electrical, electronic, plumbing, mechanical ventilation, air conditioning or other service penetrates a building element (other than an external wall or roof) that is required to have an FRL with respect to integrity and insulation or a resistance to the incipient spread of fire, that installation must comply with Clause C3.15.



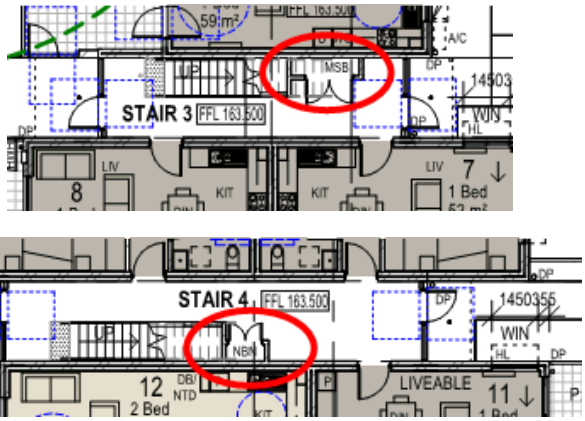
The above highlighted areas in green indicates the approximate extent of the buildings located within 18m of a fire source feature (FSF ie. side allotment boundary or adjacent building). Noting that not all the external walls in the highlighted area are directly exposed to the fire source feature.

4.3 Bounding Construction (BCA Clause C3.11)

Entrance doorways to the units are to be minimum 35mm thick self closing solid core doors. To be detailed.

4.4 Installation in Exits and Paths of Travel (BCA Clause D2.7)

Services or equipment comprising electricity meters, distribution boards, central telecommunications distribution boards or equipment and the like installed in a corridor or lobby leading to a required exit must be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure. The MSB and NBN cupboards in the stair lobbies are to be detailed to demonstrate compliance.



4.5 Fire Related Services (BCA Clause E1.3, E1.6, E2.2 & Part E4)

The following fire & safety related services are to be detailed:

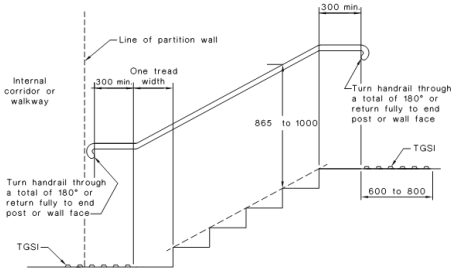
- A fire hydrant system to cover the building, complying with BCA Clause E1.3 and AS2419.1-2005. Details will also be required demonstrating the required flows and pressures can be achieved of AS2419.1.
- Portable fire extinguishers are to be installed outside the sole-occupancy units, to serve only the storey at which they are located, and so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10m (ie. min. 2.5kg ABE type extinguishers). Ensure fire extinguishers are located so as not to obstruct the required wheelchair access circulation spaces to the ground floor doorways.
- Smoke alarm or detection system to the building, complying with BCA Clause E2.2.
- Emergency lighting and exit signs to the entry/stairway lobbies, complying with BCA Part E4 and AS2293.1.

4.6 Egress Width (BCA Clause D1.6 & D1.10)

Further details will need to be provided to demonstrate that all exit pathways, within the building and from the building to the street, will achieve a minimum 1000mm clear unobstructed width. Please ensure 1000mm clear dimensions are provided to all stairs measured between handrails. It is strongly recommended that allowance be made for construction tolerance.

4.7 Stair Handrails (BCA Clause D2.16 & D2.17)

All the stairways are to be provided with handrails both sides complying with AS1428.1-2009, including a minimum 50mm clearance between the handrail and the wall or other obstruction. Allowance will need to be made for the handrail extensions particularly at the base of the stairways, whilst ensuring wheelchair door circulation spaces are maintained.



4.8 Balustrading (BCA Clause D2.16)

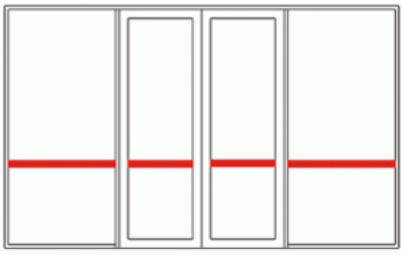
A continuous barrier (ie. balustrade) is to be provided along stairways, Level 1 lobby voids & Level 1 balconies in accordance with BCA Clause D2.16. Details of all barriers and balustrade systems are required to ensure compliance is achieved, including that the minimum height of 1000mm is provided above finished floor level/balcony level/stair landings. Any gaps within the required barriers/balustrades are to be less than 125mm.

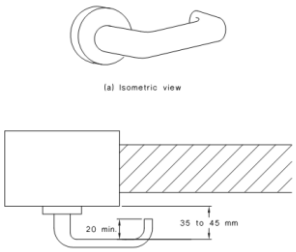
It is strongly recommended that the proximity of horizontal or other elements adjacent balustrades that may facilitate climbing by children be considered to prevent them compromising the safety of the balustrades, including screens, A/C condenser units and the like.

4.9 Access for People with a Disability (BCA Clause D3.2 & D3.3)

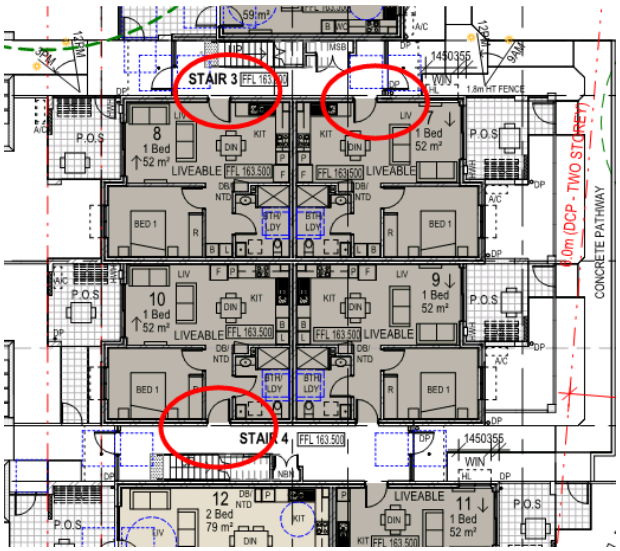
Access for people with a disability must be provided:
- from the main points of pedestrian entry at the allotment boundary,
- through the principal building entrances,
- to the entrance doorway of each sole occupancy unit on the ground floor.

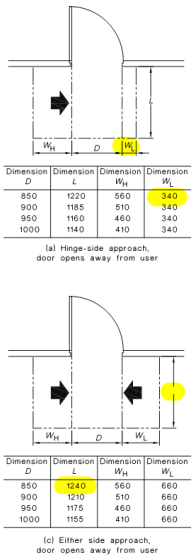
Other accessible features to be shown on further detailed plans include:
- accessway gradients and surfaces to AS1428.1,
- solid risers to steps/stairways,
- nosing strips and handrails to AS1428.1,
- tactile indicators to AS1428.4,
- glazing vision bands to BCA Clause D3.12 to public glazed elements,
- D-type lever handles to entry/stairway lobby doors to BCA clause D2.21 & AS1428.1,
- braille signage to exit doors to BCA Clause D3.6.



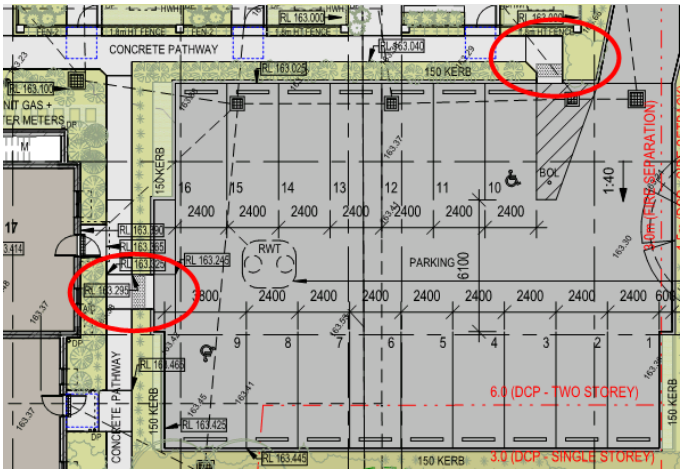


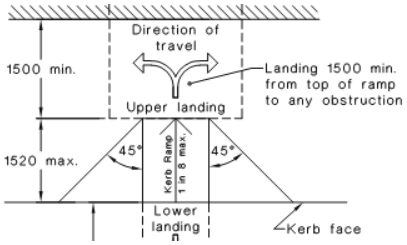
Doorway circulation clearances are to be further detailed for several ground floor unit entrances, including units 7, 8 & 10. For Units 8 & 10 the clearance width from the wall with the door to the stairway should be at least 1240mm and for Unit 7 the latch side wall clearance should be at least 340mm.

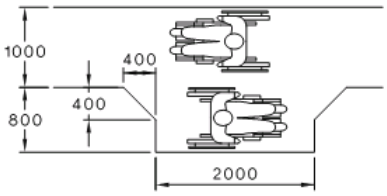




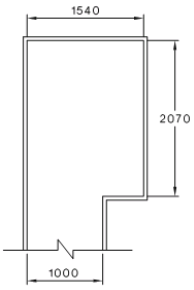
The external pathways need to be further detailed to demonstrate turning spaces off the carpark, passing spaces (1.8m x 2.0m) and turning spaces (1.54m x 2.07m) are provided in accordance with BCA Clause D3.3(c) and AS1428.1-2009.





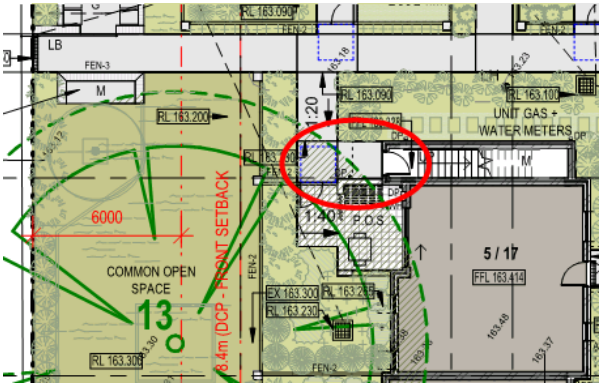


Passing Space

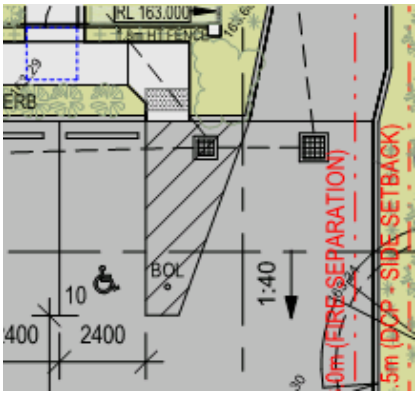


Turning Space

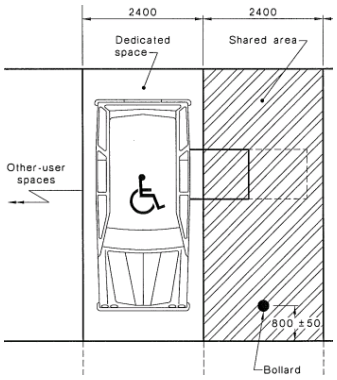
A turning space (1.54 x 2.07m) also needs to be further detailed at the entrance doorway of Unit 17 to demonstrate compliance (clear of obstructions such as the downpipe).



Whilst not a BCA requirement to provide an accessible carparking space, it is noted that the accessible carparking space shown in the carpark does not have a shared zone that is compliant with AS2890.6-2009, in that the shared zone is not at 2400mm in width for the full length of the space.



Proposed accessible space with shared zone.



AS2890.6-2009 compliant

4.10 Acoustic Provisions (BCA Part F5)

Further details are to be provided with the design development to demonstrate compliance with the acoustic requirements of BCA Part F5, including that:

- floors between residential units will achieve an Rw + Ctr sound rating not less than 50 and a Ln,w (impact) of not more than 62.
- walls between the sole occupancy units will achieve an Rw + Ctr (airborne) sound rating not less than 50.
- walls will be of discontinuous construction to BCA Clause F5.3(c) where a bathroom, laundry or kitchen adjoins a bedroom or living area of the adjacent unit.
- walls separating units from stairs and corridors and lobbies will achieve an Rw (airborne) rating not less than 50.
- doors to sole occupancy units will achieve an Rw not less than 30.
- soil and waste pipes when passing through SOU's will have an RW + Ctr 40 if adjoining a habitable room (other than a kitchen), or RW + Ctr 25 if adjoining a kitchen or other room.

4.11 Ventilation (BCA Clause F4.5 & F6.3)

Mechanical service details are also to be provided to demonstrate that all kitchens, bathrooms and laundries are provided with an exhaust system that discharge directly to outside (or into a ventilated roof space for bathroom & laundries complying with BCA Clause F6.4), with minimum exhaust flows of 25 L/s for bathrooms and 40 L/s for kitchen & laundries.

4.12 Ceiling Heights (BCA Clause F3.1)

The ceiling heights for habitable rooms are to be a minimum 2.4m, and 2.1m for non-habitable rooms & kitchens. Further details will be required during the design to confirm the minimum ceiling height is achieved.

4.13 Protection from Bedroom Windows (BCA Clause D2.24)

Protection from openable windows is required in every bedroom where the fall exceeds 2m and the windows are less than 1.7m above the finished floor level. Applicable windows will require restrictors such that windows cannot be opened more than 125mm, or provided with screens suitable to withstand a force of 250N.

Final details of proposed window heights and confirmation of restrictions will need to be shown with the further design documentation.

4.14 Facilities in Units (BCA Clause F2.1)

Within each unit a kitchen sink, facilities for the preparation of food, shower (or bath), closet pan, washbasin, laundry tub and a space for a washing machine must be provided. Additionally a clothes drying facility comprising a clothes line or hoist with not less than 7.5m of line, or a space for one heat-operated drying cabinet or appliance in the same room as the clothes washing facility is to be provided. Details are to be provided to show that each facility is provided to each unit.

4.15 Floor Wastes (BCA Clause F1.11)

Further details are to be provided to show that each bathroom and laundry on Level 1 has a floor waste and the floor graded to the floor waste to permit drainage of water.

4.16 Balcony Waterproofing (BCA Clause F1.4)

Waterproofing membranes for external above ground use must comply with AS4654 parts 1 & 2. Further details are to be provided to show the waterproofing membrane to the balconies particularly the junction with the external wall & external doors to ensure compliance with AS4654.

4.17 Energy Efficiency (BASIX & BCA Section J)

Further details are to be provided to show that the building will comply with the required energy efficiency requirements of BASIX and applicable provisions of Section J.

Note:

It is important to clarify that the above items are based on the deemed-to-satisfy provisions of the Building Code of Australia, and are a summary of the main high level items associated with the preliminary architectural documentation and not a comprehensive list of all non-compliant items or BCA items still to be detailed. As mentioned the Building Code of Australia also allows compliance to be achieved through Performance Solutions to meet the BCA's performance requirements, such as those prepared by qualified Fire Engineers or Access Consultants (refer Clause A2.2 of the NCC-BCA 2019).

5.0 BUILDING CODE OF AUSTRALIA DTS ASSESSMENT

The following is a clause by clause assessment of the BCA related items that are generally applicable to the building.

BCA Deemed to Satisfy Provision		Complies	Does not Comply	To be Detailed	Note/Info	Comments
Section B - Structure						
B1.2	Determination of individual actions			✖		
B1.4	Structural resistance of materials & construction			✖		
Section C – Fire Resistance						
C1.1	Type of construction required			✖		Refer Section 4 comments
C1.9	Non-combustible building elements			✖		
C1.8	Lightweight construction				✖	
C1.10	Fire hazard properties			✖		
C1.12	Non-combustible materials				✖	Refer Section 4 comments
C1.14	Ancillary elements			✖		
C2.12	Separation of equipment				✖	
C2.13	Electricity supply system				✖	
C2.14	Public corridors in Class 2 buildings	✓				
C3.2	Protection of openings in external walls				✖	
C3.4	Acceptable methods of protection				✖	
C3.11	Bounding construction			✖		Refer Section 4 comments
C3.12	Openings in floors & ceilings for services			✖		
C3.13	Openings in shafts				✖	
C3.15	Openings for service installations			✖		
C3.16	Construction joints			✖		
C3.17	Columns protected with lightweight construction to achieve an FRL				✖	
Section D – Access & Egress						
D1.2	Number of exits required	✓				
D1.4	Exit travel distances	✓				
D1.5	Distance between alternative exits	✓				
D1.6	Dimensions of exits & path of travel to exits			✖		
D1.9	Travel by non-fire-isolated stairways	✓				
D1.10	Discharge from exits			✖		
D2.3	Non-fire-isolated stairways			✖		
D2.7	Installation in exits & paths of travel			✖		Refer Section 4 comments
D2.8	Enclosure of space under stairs				✖	
D2.10	Pedestrian ramps				✖	
D2.13	Goings & risers			✖		
D2.14	Landings	✓				
D2.15	Thresholds	✓				
D2.16	Balustrades or other barriers			✖		
D2.17	Handrails			✖		
D2.18	Fixed platforms, walkways, stairways & ladders				✖	
D2.19	Doorways & doors	✓				
D2.20	Swinging doors	✓				
D2.21	Operation of latch			✖		
D2.24	Protection of openable windows			✖		Refer Section 4 comments
D3.1	General building access requirements			✖		Refer Section 4 comments
D3.2	Access to buildings			✖		Refer Section 4 comments
D3.3	Parts of buildings to be accessible			✖		
D3.6	Signage			✖		
D3.8	Tactile indicators			✖		
D3.11	Ramps				✖	
D3.12	Glazing on accessways			✖		
Section E – Services & Equipment						
E1.3	Fire hydrants			✖		
E1.6	Portable fire extinguishers			✖		
E2.2	General requirements (smoke hazard management)			✖		

BCA Deemed to Satisfy Provision		Complies	Does not Comply	To be Detailed	Note/Info	Comments
E4.2	Emergency lighting requirements			✘		
E4.4	Design & operation of emergency lighting			✘		
E4.5	Exit signs			✘		
E4.6	Directional exit signs			✘		
E4.8	Design & operation of exit signs			✘		
Section F – Health & Amenity						
F1.1	Stormwater drainage			✘		
F1.4	External above ground membranes			✘		Refer Section 4 comments
F1.5	Roof coverings			✘		
F1.6	Sarking			✘		
F1.7	Waterproofing of wet areas in buildings			✘		
F1.9	Damp-proofing			✘		
F1.10	Damp-proofing of floors on the ground			✘		
F1.11	Provision of floor wastes			✘		Refer Section 4 comments
F1.13	Glazed assemblies			✘		
F2.1	Facilities in residential buildings			✘		
F2.5	Construction of sanitary compartments				✘	
F3.1	Height of rooms & other spaces			✘		
F4.1	Provision of natural light	✓				
F4.2	Methods and extent of natural lighting	✓				
F4.3	Natural light borrowed from adjoining room				✘	
F4.4	Artificial lighting			✘		
F4.5	Ventilation of rooms			✘		
F4.6	Natural ventilation				✘	
F4.7	Ventilation borrowed from adjoining room				✘	
F4.8	Restriction on position of water closets & urinals				✘	
F4.9	Airlocks				✘	
F5.3	Determination of impact sound insulation ratings			✘		
F5.4	Sound insulation rating of floors			✘		Refer Section 4 comments
F5.5	Sound insulation rating of walls			✘		Refer Section 4 comments
F5.6	Sound insulation rating of internal services			✘		
F5.7	Sound insulation of pumps			✘		
F6.2	Pliable building membrane			✘		
F6.3	Flow rate & discharge of exhaust systems			✘		Refer Section 4 comments
F6.4	Ventilation of roof spaces				✘	
Section J – Energy Efficiency						
NSW J(A)	Basix	✓				
J0.4	Roof thermal breaks			✘		
J0.5	Wall thermal breaks			✘		
J1.2	Thermal construction – general			✘		
J1.6	Floor edge insulation				✘	
J3.3	Roof lights			✘		
J3.4	Windows & doors			✘		
J3.5	Exhaust fans			✘		
J3.6	Construction of roofs, walls & floors			✘		
J3.7	Evaporative coolers				✘	
J5	Air-conditioning & ventilation systems			✘		
J7.2	Heated water supply			✘		
J8.3	Facilities for energy monitoring			✘		

6.0 CONCLUSION

The above report has been formulated from a review of the preliminary plans, and based on that review it is considered that compliance with the Building Code of Australia 2019 (amdt 1) is achievable.

Further documentation and detailing is required to demonstrate full compliance for the issue of any Construction Certificate or Crown Certificate.

Kel Crisp
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Vic Building Practitioner's No: BS-U18485
National Accreditation No: 7085