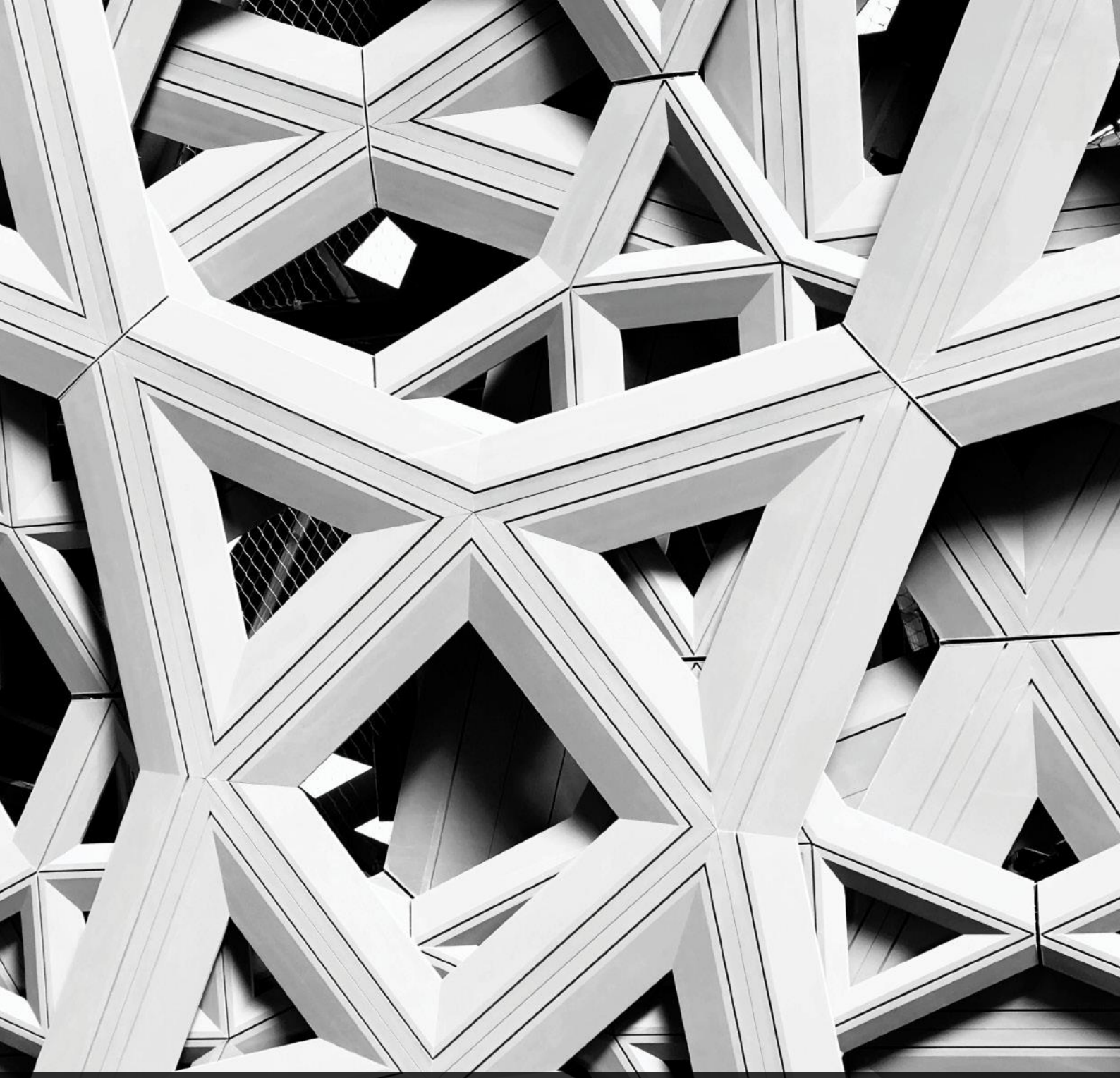

BCA & DDA Capability Statement

Landcom Bomaderry BTR
53 & 57 Bolong Rd & 4 Beinda Street,
Bomaderry 2541

Prepared for:
Landcom

Revision 1
19 April 2024
Reference: S240032

bmplusg.com.au

+ Contents

BCA & DDA Capability Statement

+ To	Landcom
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+ Subject	Bomaderry BTR Development
+ Project No.	S240032
+ Revision No.	1
+ Date	19 April 2024
+ Pages	55

This statement has been prepared to verify that Blackett Maguire + Goldsmith Pty Ltd have undertaken a review of the architectural documentation that will accompany the Development Application (DA) against the Building Code of Australia 2022 (BCA).

This DA Stage BCA Capability Statement will be provided to Shoalhaven City Council for the proposed construction of a Build-to-Rent (BTR) development, as a pilot project for a future BTR development scheme, on the NSW South Coast.

1.0 Proposed Development

The proposed development comprises the demolition of existing structures at 53 & 57 Bolong Rd and 4 Beinda St, Bomaderry NSW 2541 and the construction of a Build-to-Rent (BTR) 60 apartment residential flat complex development known as Building 1 and 2 (both buildings contain ground floor carparking).

This is a pilot project for a future BTR development scheme on the NSW South Coast. Landcom will manage the development process and will handover a completed project to another government agency to manage and operate the facility.

The development site is accessible from Beinda Street and Bolong Road however principal pedestrian and vehicle access is off Beinda Street. The development site is identified in Figure 1 below:

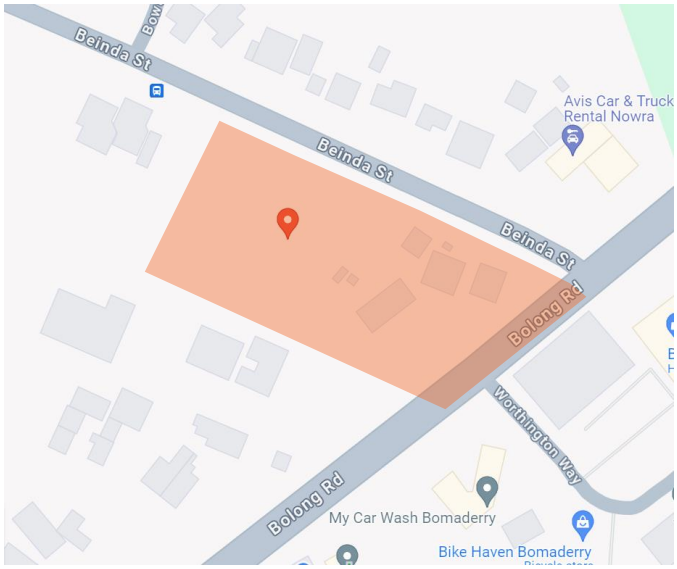


Figure 1: Site Location Mapping (Source: Google)

1.1 Capability Statement Objectives

The objectives of this statement are to:

- Confirm that the DA architectural documentation has been reviewed by an appropriately qualified Building Surveyor and Accredited Certifier.
- Confirm that the proposed new building works can readily achieve compliance with the BCA pursuant to section 19 of the *Environmental Planning & Assessment (Development Certification & Fire Safety) Regulation 2021*.
- Accompany the Development Application submission to enable the Consent Authority to be satisfied that subsequent compliance with the fire & life safety and health & amenity requirements of the BCA, will not necessarily give rise to design changes to the building which may necessitate the submission of an application under Section 4.55 of the *Environmental Planning and Assessment Act 1979*.

It should be noted that it is not the intent of this statement to identify all BCA provisions that apply to the subject development. The development will be subject further assessment following receipt of more detailed documentation at Crown Certificate stage.

This statement has been prepared pursuant to clause 18 of the *Building Professionals Regulation 2007*.

1.2 Relevant Version of the BCA

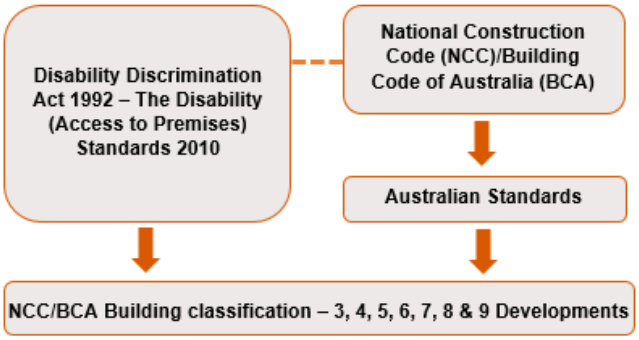
Pursuant to Section 19 of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021* the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the day on which the application for the Crown Certificate is made. The current version of the BCA is BCA 2022, with the next revision of the BCA coming into effect 1 May 2025. As it is understood the Crown Certificate application will be lodged after 1 May 2023 and before 1 May 2025, this report assesses the design against compliance with the requirements of BCA 2022.

Where the building is a multi-storey building and multiple Construction Certificates will be issued under the same development consent, the relevant version of the BCA may be 'locked in' based on the day in which the application is made for the Crown Certificate which involves the ***entrance floor***.

1.3 Regulatory Framework

New building works are to achieve compliance with the BCA pursuant to section 19 of the *Environmental Planning & Assessment (Development Certification & Fire Safety) Regulation 2021*.

The below figure represents the statutory framework addressing accessibility as noted in the below Act, Code and Standards.



The Disability Discrimination Act 1992 (DDA) is Commonwealth legislation enacted in 1993 that seeks to ensure that all new building infrastructure, refurbishments, services and transport projects provide independent and equitable access. The DDA is a complaints based legislation administered by the Australian Human Rights Commission (AHRC).

Subordinate to the DDA are the Disability Standards, which include; Disability (Access to Premises – Buildings) Standards 2010, Disability Standards for Education 2005, and the Disability Standards for Accessible Public Transport 2002. These Disability standards refer back to the AS 1428 suite of standards and Building Code of Australia.

Since 2011, the Building Code of Australia has adopted the key accessibility provisions of the Disability (Access to Premises – Buildings) Standards 2010, with compliance with AS 1428.1 – 2009, AS 1428.4.1 – 2009, and AS 2890.6 – 2009 becoming mandatory. As such, compliance with the relevant sections of the BCA

ensures compliance with the Disability (Access to Premises – Buildings) Standards 2010 and vicariously the DDA.

With respect to existing works, there are statutory upgrade requirements within the Disability (Access to Premises – Buildings) Standards 2010 that apply to all building works which require consent (including Crown building work). This relates to the upgrade of any 'affected part' of the building, which includes;

+ The principal pedestrian entry (i.e. entry door and ramp), and
+ The pathway / corridor / lift / ramp which form an accessible path of travel to any area of new work (note: only one accessible path of travel is required to any new part under this requirement).

Section 23 of the Disability Discrimination Act DDA 1992 states;

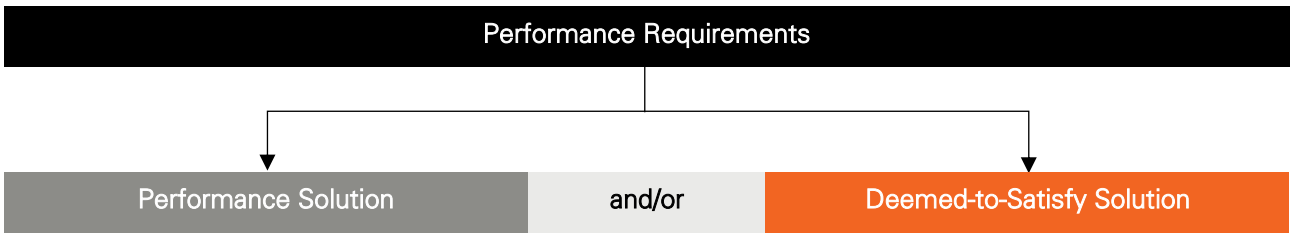
It is unlawful for a person to discriminate against another person on the ground of the other person's disability:

- *By refusing to allow the other person access to, or the use of, any premises that the public or a section of the public is entitled or allowed to enter or use (whether for payment or not); or*
- *In the terms or conditions on which the first-mentioned person is prepared to allow the other person access to, or the use of, any such premises; or*
- *In relation to the provision of means of access to such premises.*

The DDA Act 1992 is a complaints-based legislation whilst compliance with The Disability (Access to Premises) Standards 2010 affords some certainty regarding the minimum compliance requirements it does not prevent a claim being made under the DDA Act 1992. Whilst implementing the minimum compliance requirements under the Disability (Access to Premises) Standards 2010 and BCA will satisfy the minimum compliance requirements there is nothing preventing a greater degree of access than those minimum requirements specified.

Note: The below report also includes recommendations for best practice/non mandatory items for consideration by the project team stakeholders and as applicable have been identified in the below report in *italics.*

1.4 Compliance with the National Construction Code



Compliance with the NCC is achieved by complying with:

+ the Governing Requirements of the NCC; and
+ the Performance Requirements.

Performance Requirements are satisfied by one of the following, as shown in the Figure below:

+ A Performance Solution.
+ A Deemed-to-Satisfy Solution.

+ A combination of the above two options.

Where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*, the following steps must be undertaken:

+ Prepare a performance-based design brief in consultation with relevant stakeholders.
+ Carry out analysis, using one or more of the Assessment Methods listed in A2G2(2), as proposed by the performance-based design brief.
+ Evaluation the results against the acceptance criteria in the performance-based design brief.
+ Prepare a final report that includes:
  - All Performance Requirements and/or Deemed-to-Satisfy provisions identified through A2G2(3) or A2G4(3) as applicable; and
  - Identification of all Assessment Methods used; and
  - Details of steps (a) to (c); and
  - Confirmation that the Performance Requirement has been met; and
  - Details of conditions or limitations, if any exist, regarding the Performance Solution.

1.5 Referenced Documentation

This report has been prepared based on a review of the preliminary DA architectural plans prepared by St. Clair Architecture:

+ Drawing No.	+ Revision	+ Date
DA-00	A	12 April 2024
DA-01	A	12 April 2024
DA-02	A	12 April 2024
DA-11	A	12 April 2024
DA-12	A	12 April 2024
DA-13	A	12 April 2024
DA-14	A	12 April 2024
DA-21	A	12 April 2024
DA-22	A	12 April 2024
DA-31	A	12 April 2024
DA-41	A	12 April 2024
DA-51	A	12 April 2024
DA-52	A	12 April 2024
DA-71	A	12 April 2024
DA-72	A	12 April 2024
DA-73	A	12 April 2024
DA-74	A	12 April 2024
DA-81	A	12 April 2024

1.6 Building Classification

The new building works (Buildings 1 and 2) have been classified as follows:

BCA Classification **Refer to Note 1**	Class 2 (Residential Apartments) Class 7a (Enclosed Car park)
Rise in Storeys	The building has a rise in storeys of four (4)
Storeys Contained	Four (4)
Type of Construction	Type A Construction
Importance Level (Structural) **Refer to Note 2**	# – *To be confirmed by NER Structural Engineer*
Sprinkler Protected Throughout	Yes
Effective Height	The building has an effective height of 12.10 (based on RL19.00 – RL6.90)
Total Floor Area	9,650m^2
Largest Fire Compartment Size	Ground Floor Car park Fire Compartment 1,200 m^2
Max. Fire Compartment Size	Class 7a: 5,000m^2 & 30,000m^3 ***Note:*** *Maximum fire compartment sizes do not apply to levels containing only Class 2 SOUs or sprinkler protected enclosed Class 7a carpark compartments in accordance with spec. 17 & 18.*
Climate Zone	Zone 6

Note 1: Class 2 is based on based on this building containing Sole-occupancy unit/apartment which are occupied by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and can include a dwelling.

Note 2: Importance levels to be validated by the Project NER Structural Engineer with their Crown Certificate Stage Certification.

1.7 Distance to Fire Source Features

The distances from the nearest Fire Source Features (boundaries and/or buildings situated on the same allotments which are not a Class 10 Structure) are noted as follows:

Elevation	Fire Source Feature	Distance
North	**Opposing boundary Public Road**	>6m
East	**Opposing boundary Public Road**	>6m
West	**Side boundary**	>3m
South	**Side boundary**	>3m

Note 1: Fire Source Feature (FSF) – The far boundary of a road adjoining the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

2.0 BCA Assessment – Key Issues

We note the following BCA compliance matters with relation to proposed building works are capable of complying with the BCA. Please note that this is not a full list of BCA clauses, they are the key requirements that relate to the proposed work and the below should be read in conjunction with the BCA.

2.1 Section B – Structure

Part B1	+ New building works are to comply with the structural provisions of the BCA 2022 and referenced standards including AS 1170. + The Importance Level provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary. + Any new glazing in association with walls/doors, which are acting as the barrier, are to satisfy AS1288-2021 Part 5.6 i.e. the glazing is to be certifiable as Grade A safety glass. Glazing used in the external walls are to satisfy AS 2047-2014 (Inc. Amdt.'s 1 and 2). + Consideration may be given to compliance with AS 3826-1998.

2.2 Section C – Fire Resistance

C2D2	**Type of Construction Required:** The minimum type of fire-resisting construction of a building must be that specified in Table C2D2 and Specification C2D2 except as allowed for in this clause. Table C2D2 does not apply to Class 2, 3 or 9c buildings classified in Part C2D6 or open spectator stands/indoor sports stadiums. **Comment:** Type A Construction applies to the building. Refer to Spec 5 of the BCA & APPENDIX 1 of this Report for the applicable FRL's to the project to satisfy DtS requirements in the absence of a Fire Engineered Performance Solution rationalising FRL's.
C2D3	**General Floor Area and Volume Limitations:** The building is to achieve fire compartment sizes not in excess of the DtS requirements of this clause.
C2D10	**Non-Combustible Building Elements:** In a building of Type A or B construction, the following building elements and their components must be non-combustible. + External walls and common walls, including all components incorporated in them, including the façade covering, framing and insulation. + The flooring and floor framing of lift pits. + Non-loadbearing internal walls where they are required to be fire-resisting. This clause contains provisions for combustible materials that may be used wherever a non-combustible material is required under the BCA, including: + Combustible elements permitted within the external wall under C2D10(4). + Materials, where comprised entirely of itself, which are deemed non-combustible under C2D10(5). + Materials which are permitted for use where non-combustible materials are required under C2D10(6).

Note: Sarking type materials that do not exceed 1mm in thickness and have a Flammability Index not greater than 5 are permitted to be installed with an external wall.

Comment: All materials and or components incorporated in an external wall must be non-combustible in the absence of a Fire Engineered Performance Solution. This includes but not limited to:

- Any external wall claddings.
- Any framing or integral formwork systems. I.e. timber framing, sacrificial formwork, etc.
- Any external linings or trims. I.e. external UPVC window linings, timber window blades, etc.
- Any sarking or insulation contained within the wall assembly.

This is not an exhaustive list, and any element incorporated within any external wall assembly must be identified and approved prior to the issue of a Crown Certificate.

Fire Engineered Solution: We understand a Fire Engineered Performance Solution has been proposed to justify:

- To permit timber/plastic packers, timber noggings/blocking/supports within internal non-loadbearing fire-rated walls and external walls which exceed the non-combustibility requirements under BCA Clause C2D10(6). The installation of timber noggings/blocking/supports varies from the tested wall system in accordance with AS 1530.4-2014.

C2D11 & Spec. 7

Fire Hazard Properties: A schedule of all wall, floor, and ceiling linings along with associated test reports are to be provided for review to ensure compliance with the fire hazard property requirements of the BCA noting:

- Minimum Group Numbers apply to wall and ceiling linings. AS 5637 test reports must be provided to determine compliance.
- Minimum Critical Radiant Flux values apply to floor linings. AS ISO 9239.1 test reports must be provided to determine compliance

TABLE S7C3 OF SPECIFICATION 7– CRITICAL RADIANT FLUX OF FLOOR LININGS AND FLOOR COVERINGS

Class of building	Building not fitted with a sprinkler system	Building fitted with a sprinkler system (other than a FPAA101D or FPAA101H system)	Fire-isolated exits and fire control rooms
Class 2, 3, 5, 6, 7, 8 or 9b	2.2 kW/m2	1.2 kW/m2	2.2 kW/m2

TABLE S7C4 OF SPECIFICATION 7 – WALL AND CEILING LINING MATERIALS (MATERIALS GROUPS PERMITTED)

Class of building	Fire-isolated exits and fire control rooms	Public corridors	Specific areas	Other areas
Class 2 or 3, Sprinklered Excluding accommodation for the aged, people with disabilities, and children	Walls: 1 Ceilings: 1	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3
Class 5, 6, 7, 8 or 9b schools, Sprinklered	Walls: 1 Ceilings: 1	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1 ,2, 3

C2D14

Ancillary Elements: An ancillary element 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 in accordance with this clause.

C3D3

General Floor Area and Volume Limitations: Maximum fire compartment sizes do not apply to levels containing only Class 2 SOUs or sprinkler protected enclosed Class 7a carpark compartments in accordance with spec. 17 & 18.

C3D7	**Vertical Separation of Openings in External Walls:** In a building of Type A construction, any part of a window or other opening in an external wall 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), the openings must be separated by a fire-rated spandrel, or a horizontal fire-rated extension. **Comment:** The building is to be sprinkler protected in accordance with BCA Spec. 17 and 18 (as per AS2118.1 OR AS2118.4) hence there is concession such that vertical separation of openings in the external wall is not required.
C3D8	**Separation by Fire Walls:** Separation of buildings- A part of a building may be considered separate from the remainder of the building if separated by a fire wall in accordance with the following: + The fire wall extends through all storeys and is carried through to the underside of the roof covering. - Where roofs of separate buildings are at different heights, the fire wall must extend to the underside of: - The higher roof, or >6m above the lower roof. - The lower roof if it has an FRL not less than that of the fire wall and no openings closer than 3m to any wall above the lower roof. - The lower roof if its covering is non-combustible and the lower part is sprinkler protected. Separation of fire compartments- A part of a building, separated from the remainder by a fire wall, may be treated as a separate fire compartment if the fire wall extends to the underside of: + A floor having an FRL required for a fire wall; or + The roof covering. **Comment:** The fire wall separating the Class 7a carpark from the Class 2 Residential areas must satisfy BCA Clause C3D8 and achieve a minimum 120/120/120 FRL.
C3D9/ C3D10	**Separation of Classifications:** Separate classifications will either need to be separated by a fire wall achieving the higher FRL requirement between the two classes, or alternatively the higher FRL must apply to both areas subject to Spec 5. **Comment:** With the Crown Certificate application design details will be required validating compliance with the following: + The fire wall separating the Class 7a carpark from the Class 2 Residential areas must achieve a minimum 120/120/120 FRL. + The slab separating the Class 7a carpark from the residential levels above must achieve a minimum 120/120/120 FRL. All remaining slabs (including recessed areas such as wet areas and balcony areas) are to achieve a minimum 90/90/90 FRL unless rationalise under a Fire Engineered Performance Solution.
C3D13	**Separation of Equipment:** Equipment as listed below must be separated from the remainder of the building with construction that achieves an FRL of 120/120/120 (or that required by Spec 5, whichever is greater) and doorways being self-closing -/120/30 fire doors: + Lift motors and lift control panels; or + A battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. **Comment:** With the Crown Certificate application design details will be required validating compliance.
C3D15	**Public Corridors in Class 2 Buildings:** Public corridors must not exceed 40m in length, or otherwise be divided at 40m intervals with smoke-proof construction satisfying BCA S11C2.

	Comment: The longest enclosed corridor (Buildings B) is <40m long. Whilst L1 and L2 are >40m they are substantially open except for portions of the corridor which are substantially enclosed. **Fire Engineered Solution:** We understand a Fire Engineered Performance Solution has been proposed to justify: + Any technical departure to BCA Clause C3D15 with longer corridors (>40m) with portions that are substantially enclosed in the absence of smoke-proof construction satisfying BCA S11C2 can be addressed under a Fire Engineered Performance Solution with the relevant Crown Certificate application.
C4D3 & C4D5	**Protection of Openings in External Walls:** Openings are exposed where they are located within an external wall requiring an FRL and the external wall is exposed to a fire-source feature within 3 m from a side or rear boundary of the allotment; or within 6 m from the far boundary of a road, river, lake or the like adjoining the allotment; or within 6 m from another building on the allotment that is not Class 10. Openings in an external wall that is required to have an FRL must be protected in accordance with C4D5, and if wall-wetting sprinklers are used, they must be located externally. **Comment:** It is noted that there are currently no openings within 3m from the allotment boundaries or within 6m from the opposing road boundary.
C4D6 & C4D8	**Doorways in Fire Walls & Protection of Doorways in Horizontal Exits:** Openings in fire walls, that are not part of a horizontal exit, must be protected in accordance with one of the methods set out in this clause. Doorways in fire walls, that are not part of a horizontal exit, must: + In aggregate door width, not exceed ½ of the length of the fire wall. + Be protected by fire doors achieving the FRL required for the wall in accordance with Spec 5 for Type A Construction. + Be self-closing or automatically close on the activation of a smoke detector and applicable sprinkler system. **Comment:** With the Crown Certificate application design details will be required validating compliance. **Fire Engineered Solution:** We understand a Fire Engineered Performance Solution is to be prepared to justify departures to BCA Clause C4D6 & C4D8: + Rationalisation of fire resisting elements within a fire wall requiring a 120/120/120 FRL i.e. doorset openings protected by glazing in lieu of -/120/30 FRL fire resistant construction.
C4D12	**Bounding Construction: Class 2 buildings:** A doorway in a Class 2 building must be protected if it provides access from a SOU to: + A public corridor, lobby, or the like; or + A room not within a SOU; or + The landing of an internal non-fire-isolated required stairway; or + Another SOU. If it provides access from a room not within a SOU to, the following doorways must be protected: + A public corridor, lobby, or the like; or + The landing of an internal non-fire-isolated required stairway. *Protection* under this part refers to: + Type A Construction: a self-closing –/60/30 fire door satisfying AS1905.1-2015 and AS1530.4-2014. + In a Class 2 building where a path of travel does not offer a choice of travel in different directions to different exits and is located along an open balcony, landing, or the like and passes an external wall of another SOU or a room not within a SOU, then that external wall must- + Be constructed of concrete or masonry, or lined internally with a fire-protective covering.

	+ Have any door fitted with a self-closing solid core door >35mm thick. + Having any windows or other openings protected in accordance with C4D5 or located >1.5m above finished floor level. **Comment:** Ensure compliance with BCA Clause C4D12(9) or Fire Engineered input may be required where strict DtS requirements cannot be satisfied including if the courtyard is designed as being enclosed in lieu of open. **Fire Engineered Solution:** We understand a Fire Engineered Performance Solution has been proposed to justify: + Contrary to BCA Clause C4D12(9) various apartment discharges will likely be exposed to apartment windows as the occupant will not have any opportunity but to pass the opening or they will immediately exit their SOU/apartment and be directly exposed; e.g.: U103 exposed to U102 and U115 exposed to U114.
C4D14	**Openings in Shafts:** In a building of Type A Construction, service shafts must be protected by: + A fire door, hopper or access panel achieving FRL -60/30. + If in a sanitary compartment - a non-combustible door and frame achieving an FRL of -/30/30. + If the shaft is a garbage shaft – a non-combustible door or hopper. **Comment:** With the Crown Certificate application design details will be required validating compliance.
C4D15	**Openings for services installations:** When a service penetrates a building element that is required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, that penetration must: + Be identical to a tested prototype assembly, tested in accordance with AS4072.1 and AS1530.4. + In the case of ventilating or air-conditioning ducts/equipment, the installation must comply with AS1668.1. **Comment:** Details to be included in the design documentation prior to issue of the Crown Certificate application. Where service installations penetrate the walls, floors or fire-resistant ceiling system required to have an FRL with respect to integrity and insulation they are to be protected by fire seals (fire stopping system) having an FRL of the building element concerned. Note: Where a fire resistant or incipient spread ceiling is provided and a sacrificial non-fire-rated ceiling next below this arrangement could minimise the number of fire seals to services. In the absence of a sacrificial non-fire-rated ceiling, which could be utilised to run services, all services which pass through the fire resisting ceiling element are to be treated in accordance with C4D15. Fire Seals are to comply with the requirements of BCA Clause C4D15 and Specification 13 noting the following: + Fire seals needs to have been tested on the substrate it has been used on i.e. concrete, masonry, fire rated plasterboard, Hebel, shaftliner etc. – E.g. some tested fire stopping systems tested in masonry cannot be relied upon for use in Hebel. + The maximum size of the services and the penetrations cannot exceed those tested for the fire stopping system + The fire stopping system needs to be used in the same orientation that it has been tested on i.e. floor or wall. A fire stopping system tested through a wall only cannot be relied upon when used for a service penetrating a floor. + The fire stopping system needs to have been tested on the service it is used to seal i.e., metal pipes, UPVC/PVC pipes, conduits, electrical cables etc. A fire stopping system tested on a PVC pipe cannot be relied upon for cables. + The test fire stopping system needs to include all elements specified to achieve the required FRL i.e. intumescent wraps are commonly required/used to achieve the insulation value (when required) for metal pipes, cable trays and large bundles of cables.

	Fire Engineered Solution: We understand a Fire Engineered Performance Solution has been proposed to justify: + Rationalisation of fire stopping to internal fire resisting elements contrary to BCA Clause C4D15: - To permit water filled metal pipes (i.e. sprinkler and hydrant pipe penetrations) to be fire stopped in accordance with BCA Clause C4D15(1), with the exception of the insulation criteria of the required FRL where there is likely to be combustible materials (i.e. PVC pipes, PEX pipes, cables etc) located within 100 mm radius for a distance of 2 m of the fire rated penetration. - The wet area/bathroom tap fittings/hydraulic services that will penetrate through one side of the fire rated linings to the fire rated bounding walls to approximately opposite sides of the bounding wall separating SOU's, these tap fittings/hydraulic services will not be protected in accordance with a tested system. - To permit services (such as NBN cables) to located within conduits to not be fire stopped in accordance with a tested system, noting that they run horizontally through the slab and AS 1530.4-2014 does not include specific requirements for the testing of services are embedded and travel horizontally through a concrete floor. As a result, there is no compliant testing methodology for fire tests for cast-in conduits and hence no compliant tested systems for this application
C4D16	**Construction Joints:** Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner- + identical with a prototype tested in accordance with AS 1530.4 and AS 4072.1 to achieve the required FRL, or + that differs from a prototype in accordance with Section 4 of AS 4072.1 and achieves the required FRL. **Comment:** With the Crown Certificate application design details will be required validating compliance.
C4D17	**Columns Protected with Lightweight Construction to Achieve an FRL:** A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire. The determination of the required FRL must be confirmed in a report from an Accredited Testing Laboratory in accordance with Specifications 1 and 2. The requirements of (1) do not apply where joints, spaces and the like between fire-protected timber elements are provided with cavity barriers in accordance with Specification 9. **Comment:** With the Crown Certificate application design details will be required validating compliance.
Spec. 5	**Fire-Resisting Construction:** The building is required to comply with BCA Spec. 5 as relevant to FRLs required for buildings of Type A Construction. Refer to Appendix 1 for the relevant fire-resistance levels associated with the proposed development. With the Crown Certificate application details the following detailed documentation is required for review: + Details identifying the required FRL's achieved for each specific building elements (either loadbearing or non-loadbearing) are to be shown on the plans and commentary/ specification provided on how continuity of fire-resisting construction will be achieved where cavities/voids/roof space are concerned. + Further detail is to be provided of the fire resisting bounding walls and how they interface with the non-combustible roof, insulation to the underside of the roof slab will need to be discontinued to ensure continuity of the fire-resisting wall.

Careful consideration required between National Engineering Register (NER) Structural Engineer and Internal fire resisting wall design; Fire Engineered input may be required where roof elements penetrate internal fire resisting walls.

+ Details identifying the required FRL's achieved for each specific building elements (either loadbearing or non-loadbearing) are to be shown on the plans and commentary/ specification provided on how continuity of fire-resisting construction will be achieved where cavities/voids/roof space are concerned.
+ Internal fire resisting construction bounding Class 2 apartments (or SOU's) or rooms not within an SOU's are required to achieve 90/90/90 FRL (loadbearing) or -/60/60 FRL (non-loadbearing) unless rationalised under the Fire Engineered Report.
+ Ventilating, pipe, garbage, and like shafts (not used for the discharge of hot products of combustion) are required to achieve 90/90/90 FRL (loadbearing) or -/60/60 FRL (non-loadbearing) however BCA Spec. 5 Clause S5C8 is predicated on:
  - Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building.
  - The above shaft FRL provisions need not apply to—
    - the top of a shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway or ramp;
    - or the bottom of a shaft if it is non-combustible and laid directly on the ground.

  Where the strict requirements under BCA Spec. 5 Clause S5C8 is not possible then a Fire Engineered Performance Solution will be required.
+ All loadbearing columns (including external columns) are to be fire rated to achieve 90/-/- within residential areas and 120/-/- within carpark.
+ The fire wall separating SOU's/apartments from carpark is required to achieve a minimum 120/120/120 FRL.
+ Where loadbearing walls are not concrete or masonry walls construction a Fire Engineered Solution will be required to permit impact resistant fire-resisting lightweight construction as a departure to BCA Spec. 5 Clause S5C11.
+ Ensure all internal fire-resisting walls / bounding construction walls extend to:
  - the underside of the floor next above or
  - a fire-protective(covering on the underside of the floor; or
  - to the underside of a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or
  - to the underside of the roof covering if it is non-combustible, and except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or
  - 450 mm above the roof covering if it is combustible.

  Incomplete bounding construction OR roof elements (other than battens or exceeding 75mm x 50mm) will need to be rationalised/assessed under the Fire Engineered Report as a departure to BCA Spec. 5 Clause S5C11.

  Steel roof penetrations through a lightweight internal fire-resisting wall will generally need to be assessed under a Fire Engineered Performance Solution as these types of penetrations are not strictly in line with the test literature for the lightweight wall system and depart with AS1530.4-2014.
+ Ensure that internal fire resisting walls continue to the internal face of the external wall and are not affected by sky lights or window openings. Incomplete bounding construction will need to be rationalised/addressed as a Fire Engineered Solution as a departure to BCA Spec. 5 Clause S5C11.
+ Loadbearing columns which are not treated with a tested system for a column however are contained within a lightweight construction wall will need to be addressed as a Fire Engineered Solution as a departure to BCA Spec. 5 Clause S5C11.

	Fire Engineered Solution: We understand a Fire Engineered Performance Solution has been proposed to justify departures to BCA Clause C2D2 and Spec. 5: + Rationalise cavity barriers and gaps between slab and internal face of external walls where they are not in accordance with a tested system to achieve the required fire-resistance level in accordance with BCA Spec. 5 i.e. Fire Engineered Report to permit: - To provide smoke-proof cavity barrier / separation at the perimeter slab edge between storeys. - It is proposed to allow the lightweight fire-resisting bounding construction walls between the SOU's/apartments to be extended to smoke-proof cavity barrier / separation rather than through to the external wall or inside of the outer face of the external wall. + Non-continuity of fire-resistant vertical shafts not strictly satisfy BCA Spec. 5 Clause S5C8 and Clause C4D14 as the base to the shaft will not be fire rated, instead it will interface with a fire rated enclosure or separate fire compartment: - Mechanical and hydraulic services risers/shafts.
Spec. 12	**Fire Doors, Smoke Doors, Fire Windows and Shutters**: Fire doors and smoke doors must comply with the requirements of this specification.

2.3 Section D – Provision for Escape and Construction of Exits

D2D3	**Number of exits required:** The building comprises an effective height of <25m. Therefore, a single exit from the Class 2 storeys is acceptable. Noting that the below ground basement car park.
D2D4	**When Fire-Isolated Stairways and Ramps are Required:** This clause sets out the requirements for stairways and ramps to be fire-isolated in buildings. For Class 2 residential uses, a required egress stairway system can to connect up to 3 storeys in a sprinkler protected building, provided that the sprinkler system is not a FPAA101D system. **Comment:** None of the exit stairway systems within this building are required fire-isolated stairway systems as they connect no more than four storeys within a building which is sprinkler protected throughout in accordance with BCA Spec. 17 and 18.
D2D5	**Exit Travel Distances:** Exit travel distances within the building are required to be not more than 20m to a point of choice between alternative exits and 40m to the nearest one from Class 5 / 6 / 7 / 8 / 9 areas. **Comment:** The following occupant exit travel: are noted: + Distance to a POC or single exit 7.5m (>6m) Notwithstanding, in accordance with BCA S18C4 for Class 2 parts the following concessions apply: + Exit travel distances must be no more than 12m (in lieu of 6m) from a point of choice between two exits by virtue of a sprinkler system being implemented in accordance with Spec. 17 & 18. + On a storey at the level of egress, this may be increased to 30m (in lieu of 20m) to a single exit by virtue of a sprinkler system being implemented in accordance with BCA Spec. 17 & 18.
D2D6	**Distance between Alternative Exits:** Exits that are required as alternative means of egress must be: + distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and

	+ not less than 9 m apart; and + not more than - in a Class 2 or 3 building — 45 m apart; or - in a Class 9a health-care building, if such required exit serves a patient care area — 45 m apart; or - in all other cases — 60 m apart; and + located so that alternative paths of travel do not converge such that they become less than 6 m apart. **Comment:** The following occupant exit travel distances: are noted: + Distance between alternative exits 59m (>45m) when measured via the POC Notwithstanding, in accordance with BCA S18C4 for Class 2 parts: + Exit travel distances between alternative exits must be no more than 60m (in lieu of 45m) by virtue of a sprinkler system being implemented in accordance with BCA Spec. 17 & 18.
D2D7/ D2D8/ D2D9/ D2D10/ D2D11	**Dimensions of Paths of Travel to an Exit:** + In a required exit or path of travel to an exit the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1,980 mm (this width dimension is measured clear of any obstructions such as handrails and joinery). + The unobstructed width of each required exit or path of travel to an exit, except for ladders provided in accordance with D2D21, D3D23 or I3D5, and doorways, must be not less than— - 1m + In a required exit or path of travel to an exit, the unobstructed width of a doorway must be not less than— - the unobstructed width of each exit provided to comply with D2D8(1), (2), (3) or (4), minus 250 mm; or - in any other case except where it opens to a sanitary compartment or bathroom — 750 mm wide. + The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space, except where the width is increased in accordance with D2D8(1)(b) or D2D9(a)(i). **Comment:** To satisfy BCA Clause D2D8, 1m clear widths are to be documented throughout all common areas including within storage areas, waste room areas and within egress passageways/stairways. 1m is a minimum egress requirement under BCA Clause D2D8 however BCA Part D4 makes provision for 1,540mm wide x 2,070mm long circulation to facilitate turning/circulation zone to the ends of corridors (in the absence of a DDA Performance Solution). Concession applies that 1m egress is not required within Class 2 SOU's/apartments however AS4299-1995 makes provision for 1m clear width throughout SOU's/apartments and other enhancements to improve equitable access for persons with a disability; refer to Appendix 2. To satisfy Clause D2D9 it is recommended that all doors (including within SOU's) are specified as AS1428.1-2009 compliant doorsets i.e. 920mm door leaves which will achieve 850mm clear width.
D2D14	**Travel by non-fire-isolated stairways or ramps:** + A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. + In a Class 2, 3 or 4 building, the distance between the doorway of a room or sole-occupancy unit and the point of egress to a road or open space by way of a stairway or ramp that is not fire-isolated and is required to serve that room or sole-occupancy unit must not exceed—

	- 60 m of Type A construction. + In a Class 5, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80 m. + In a Class 2, 3 or 9a building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than— - 15 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or - 30 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions. **Comment:** Compliance generally achieved with the exception of Apartment 201 when occupant egress is considered from the nearest non-fire-isolated stairway system. **Fire Engineered Solution:** Distance to open space from Apartment 201 via a required non-fire-isolated stair is circa 64m (>60m) which departs from BCA Clause D2D14; with the Crown Certificate application we require confirmation/mark-ups verify <60m is achieved or a Fire Engineered Performance Solution to address this minor extended travel distance.
D2D15	**Discharge from Exits:** The path of travel to the road from a required exit leading to open space must have an unobstructed exit width of that of the required exit, or if larger, 1m. If the discharge point of the exit is at a different level from the road, a stairway or ramp achieving no more than 1:14 must be provided, except for a Class 9a where a ramp must be provided. The discharge point of alternative exits must be located as far apart as practical and be suitably protected from vehicles potentially blocking the exit. **Comment:** An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit or access to it. In this regard, bollards will be required particularly outside of exit stairs on ground level. Ensure 1m clear width hardstand connects the egress stairway with the road; this also applies to the circulation stairways from the carpark.
D3D4	**Non-fire-isolated stairways and ramps:** In a building having a rise in storeys of more than 2, required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to D3D3, or only of— + reinforced or prestressed concrete; or + steel in no part less than 6 mm thick; or + timber that— - has a finished thickness of not less than 44 mm; and - has an average density of not less than 800 kg/m3 at a moisture content of 12%; - has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde (iii)or resorcinol phenol formaldehyde glue **Comment:** Crown Certification documentation to verify compliance with this requirement.
D3D14/ D3D15/ D3D16/ D3D22	**Stairways, Balustrades, and Handrails:** Stairways, balustrades and handrails are to implemented to achieve compliance with the current provisions of the BCA and AS 1428.1-2009. Floor finishes will be required to satisfy minimum slip resistance requirements in accordance with AS 4586-2013 and associated handbook HB198-2014. **Comment:** Compliance with D3D14/ D3D15/ D3D16/ D3D22 to be documented with the relevant Crown Certificate application and certified with the relevant BCA Completion Certificate.
D3D25	**Swinging Doors:** A swinging door in a required exit or forming part of a required exit must not encroach (a) at any part of its swing by more than 500 mm on the required width (including any

landings) of a required stairway, ramp or passageway if it is likely to impede the path of travel of the people already using the exit; and when fully open, by more than 100 mm on the required width of the required exit.

A swinging door in a required exit or forming part of a required exit must not swing against the direction of egress unless:

+ it serves a building or part with a *floor area* not more than 200m^2, it is the only *required exit* from the building or part and it is fitted with a device for holding it in the open position; or
+ it serves a *sanitary compartment* or airlock (in which case it may swing in either direction);

A swinging door in a required exit or forming part of a required exit must not otherwise impede the path or direction of egress.

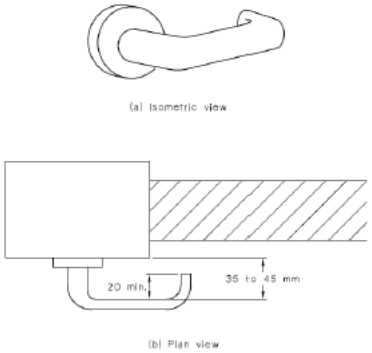
The measurement of encroachment referred to above in each case is to include door handles or other furniture or attachments to the door.

Comment: All discharge doorsets swing outward hence the referenced plans suggest compliance with Clause D3D25.

D3D26

Doors and Latching: All egress doorways must swing in the direction of egress and must be readily openable without a key from the side that faces a person seeking egress, by a single handed downward or pushing action on a single device which is located between 900mm and 1,100mm from the floor.

AS1428.1-2009 Clause 13.5 also makes provision for D lever type door controls which can be utalised occupant egress and access:



Comment: Crown Certification documentation to verify compliance with this requirement.

D4D2

General building access requirements: Buildings and parts of buildings must be accessible as required by this clause, unless exempted by D4D5.

+ For a Class 2 building, common areas are to be accessible as follows:
  - 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— (i)to the entrance doorway of each sole-occupancy unit; and
    - to and within rooms or spaces for use in common by the residents.
  - The requirements of (c) only apply where the space referred to in (c)(i) or (ii) is located on the levels served by the lift or ramp.
+ For a Class 7a building, access must be provided to and within any level containing accessible carparking spaces.

Comment: Access is provided to all required areas (including common areas and ancillary areas such as waste enclosure within the carpark). Each level within the site is accessed via a passenger lift or ramp.

We understand that the development will also satisfy SEPP Housing 2021, Livable Housing Guidelines (Silver Level) and Council DCP requirements relating to AS4299-1995. Reference is made to Appendix 2 of this report which contains a review of AS4299-1995.

Documentation verifying compliance with SEPP Housing 2021, Livable Housing Guidelines (Silver Level) and Council DCP / AS4299-1995 requirements to be provided with the relevant Crown Certificate application demonstrating compliance.

D4D3

Access to buildings: Accessways must be provided to accessible buildings from the main points of pedestrian entry at the allotment boundary and any accessible car parking space or accessible associated buildings connected by a pedestrian link.

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 car parking space on the allotment.

In a building required to be accessible, an accessway must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances including the principal pedestrian entry.

Comment: An accessway is provided to buildings (Buildings 1 and 2) from the main points of a pedestrian entry at the allotment boundary; and from any required accessible car parking space on the allotment.

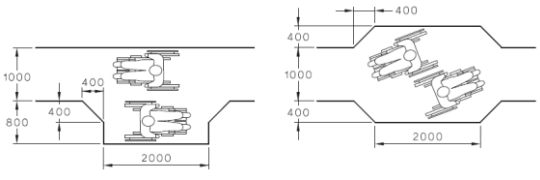
Each building (Buildings 1 and 2) only contains one point of pedestrian entry for each building via the main entry lobby.

There is no linkway within the site connecting the two buildings; hence access between the buildings will not be required. We do recommend that the footpath be delivered to facilitate access (to the degree necessary) for all occupants.

D4D4

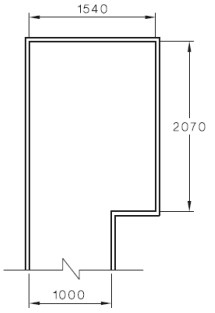
Parts of Buildings to be accessible: The works are required to comply with the requirements of AS 1428.1-2009:

+ **AS1428.1 Cl. 6.1 General** - A continuous accessible path of travel shall not include a step, stairway, turnstile, revolving door, escalator, moving walk or other impediment.
+ **AS1428.1 Cl. 6.2 Height of paths** - The minimum unobstructed height of a continuous accessible path of travel shall be 2,000 mm or 1,980 mm at doorways
+ **AS1428.1 Cl. 6.3 Widths of paths** – Unless otherwise specified (such as at doors, curved ramps and similar), the minimum unobstructed width of a continuous accessible path of travel shall be 1000 mm and the following shall not intrude into the minimum unobstructed width of a continuous accessible path of travel:
  - Fixtures and fittings such as lights, awnings, windows that, when open, intrude into the circulation space, telephones, skirtings and similar objects.
  - Essential fixtures and fittings such as fire hose reels, fire extinguishers and switchboards.
  - Door handles less than 900 mm above the finished floor level.
+ **AS1428.1 Cl. 6.4 Passing Space** - Accessways must have passing spaces complying with AS 1428.1 at maximum 20m intervals on those parts of an accessway where a direct line of sign is not available.

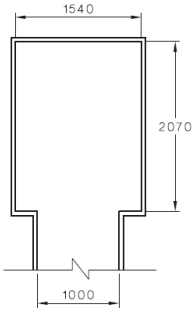


DIMENSIONS IN MILLIMETRES

+ **AS1428.1 Cl. 6.5** Turning Space - Turning spaces must comply with AS1428.1 and located within 2m of the end of accessways where it is not possible to continue travelling along the accessway, and at maximum 20m intervals along the accessway.



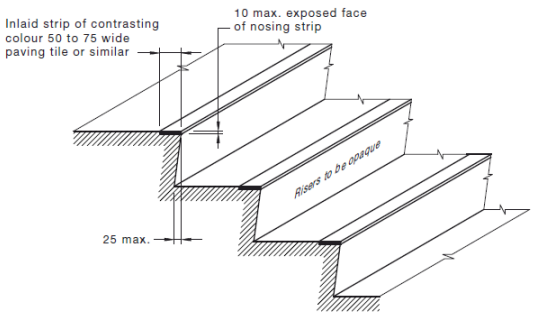
(a) Space required in corridor



(b) Space required in corridor

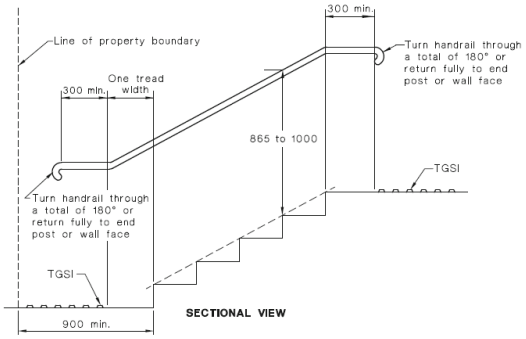
+ **AS1428.1 Cl. 11.1** Stairway Construction:
  - Where the intersection is at the property boundary, the stair shall be set back by a minimum of 900 mm so that the handrail (complying with Clause 12) and TGSIs do not protrude into the transverse path of travel.
  - Where the intersection is at an internal corridor, the stair shall be set back so that handrails or TGSIs do not protrude in to the path of travel.
  - Stairs shall have opaque risers.
  - Stair nosings shall not project beyond the face of the riser and the riser maybe vertical or have a splay backwards up to a maximum 25 mm.
  - Stair nosing profiles shall—
    - have a sharp intersection;
    - be rounded up to 5 mm radius; or
    - be chamfered up to 5 mm × 5 mm.
  - At the nosing, each tread shall have a strip not less than 50 mm and not more than 75 mm deep across the full width of the path of travel. The strip may be set back a maximum of 15 mm from the front of the nosing.
  - The strip shall have a minimum luminance contrast of 30% to the background. Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall comply with Clause 7.2 and Clause 7.3.
  - Where the luminance contrasting strip is not set back from the front of the nosing then any area of luminance contrast shall not extend down the riser more than 10 mm.

    TGSIs shall be installed in accordance with AS 1428.4.1:



DIMENSIONS IN MILLIMETRES

Example of Compliant Nosing Strip Detail

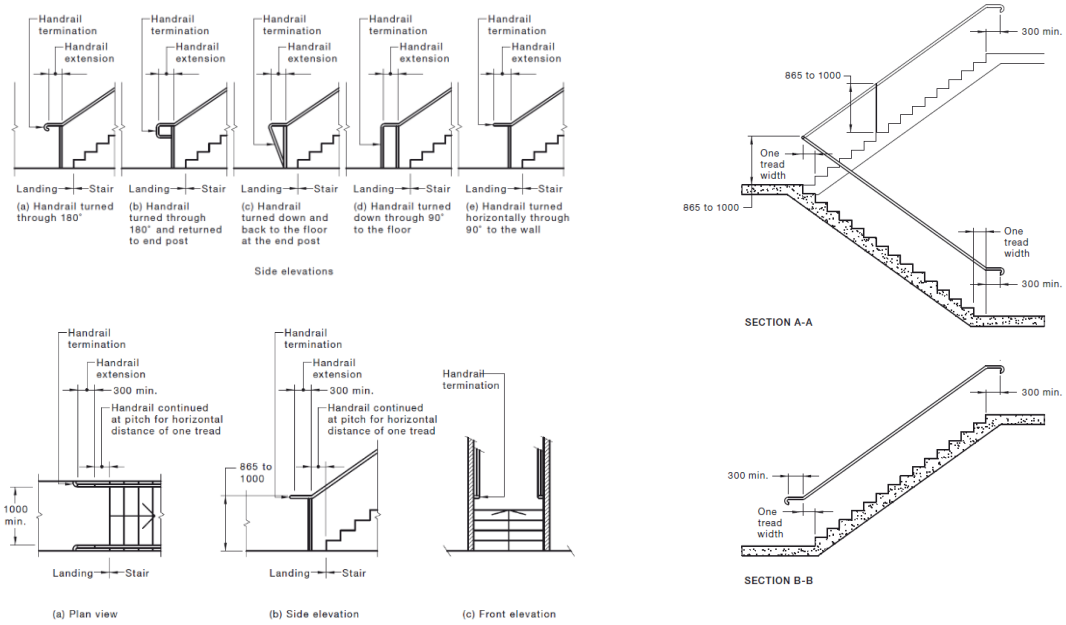


DIMENSIONS IN MILLIMETRES

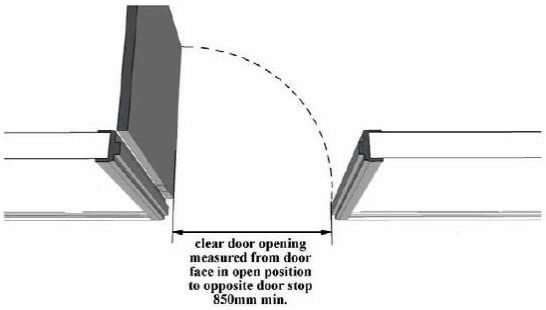
Example of Compliant Stairway Design

+ **AS1428.1 Cl. 11.2** Stairway Handrails - Handrails shall be continuous throughout the stair flight and, where practicable, around landings and have no obstruction on or above up to a height of 600 mm and as follows:
  - The design and construction of handrails shall comply with Clause 12 of AS 1428.1 – 2009.

- Handrails shall be installed on both sides of the stairs.
- Handrails shall have no vertical sections and shall follow the angle of the stairway nosing's.
- Where a handrail terminates at the bottom of a flight of stairs, the handrail shall extend at least one tread depth parallel to the line of nosing's plus minimum of 300 mm horizontally from the last riser.
- The handrail shall extend a minimum of 300 mm horizontally past the nosing on the top riser.
- Where the handrail is continuous, the 300 mm extension is not required in the inner handrail at intermediate landings.
- The dimensions indicating the heights of handrails shall be taken vertically from the nosing of the tread to the top of the handrail or from the landing to the top of the handrail.

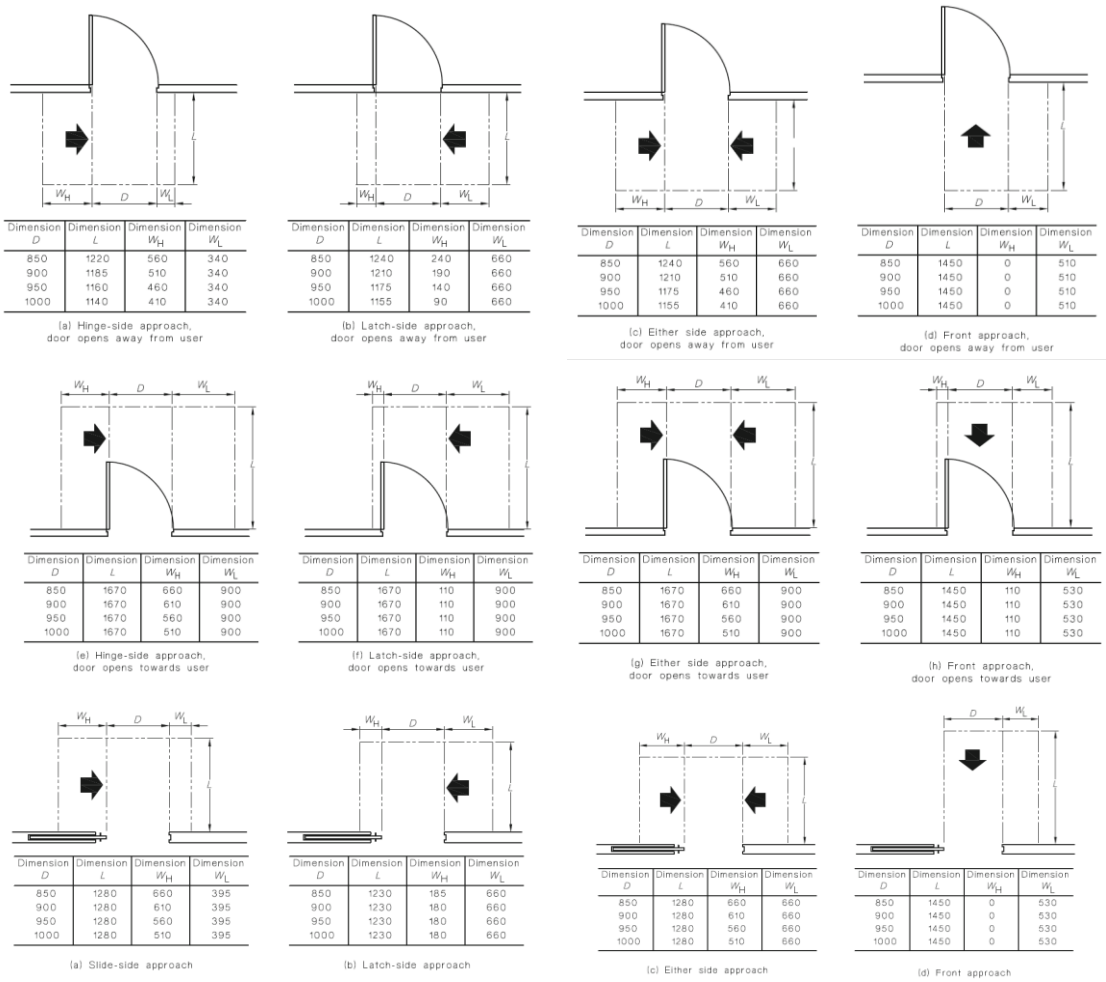


+ **AS1428.1 Cl. 13.2 / 13.3** Doorways - The minimum width of an accessible doorway must have a *clear opening* width of not less than 850mm in accordance with AS1428.1. Where double doors are provided, at least one leaf must have a clear unobstructed width of 850mm.



Clear Unobstructed Width of Doorway

Circulation space is required to all doorways throughout the building that are required to be accessible in accordance with Section 13 of AS 1428.1 – 2009 (see diagrams below). See below required doorway circulation space for swinging and sliding doors.



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1220	560	340
900	1185	510	340
950	1160	460	340
1000	1140	410	340

(a) Hinge-side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	240	660
900	1210	190	660
950	1175	140	660
1000	1155	90	660

(b) Latch-side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

(d) Front approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(e) Hinge-side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

(f) Latch-side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(g) Either side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

(h) Front approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1280	660	395
900	1280	610	395
950	1280	560	395
1000	1280	510	395

(a) Slide-side approach

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1230	185	660
900	1230	180	660
950	1230	180	660
1000	1230	180	660

(b) Latch-side approach

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1280	660	660
900	1280	610	660
950	1280	560	660
1000	1280	510	660

(c) Either side approach

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	530
900	1450	0	530
950	1450	0	530
1000	1450	0	530

(d) Front approach

Comment: Crown Certification documentation to verify compliance with this requirement. Also note the following requirements which exceed minimum BCA requirements:

- All walkways shall have a barrier or continue for a further 600mm in a different material on each side of the walkway.
- Ensure 1,000mm clear width for occupant access/circulation; this includes the carpark external egress/circulation stairways.
- Ensure 1,540mm wide x 2,070mm long turning/circulation zone to the ends of all corridors within Buildings 1 and 2.
- Circulation stairways requirements:
  - Handrails/extensions/turn-downs, colour contrasting nosing's and TGSI's to be documented with Crown Certification documentation.
  - Handrails are required on both sides on circulation stairway systems; this includes the carpark external egress/circulation stairways.

    Note: all stairways appear to be open stairways and therefore circulation stairways. Only fire-isolated exits have concession to omit DDA features unless a Performance Solution is documented at Crown Certificate stage.
- Door circulation and colour contrast transoms/mullions to be documented with Crown Certification documentation.

  Note: AS1428.1-2009 requires 30% colour contrast between door vs wall, door vs frame, or frame vs wall to accessible doorsets hence frameless glazing will not satisfy AS 1428.1-2009 unless colour contrasting strips are provided to 30% colour contrast the door frame which are minimum 50mm wide.

D4D5	**Exemptions:** The following areas, and any path of travel providing access only to these areas, are not required to be accessible: + An area deemed inappropriate to access due to the areas particular use; and/or + An area that would pose a health or safety risk for people with a disability. **Comment**: Access/circulation space is not required to be provided to rooms/areas where access for a person with a disability is not required i.e. dirty utility / clean utility rooms, plant rooms, comms rooms etc.
D4D6	**Accessible Parking:** Accessible carparking spaces – + Must be provided in accordance with the ratios set out in this clause. + Must comply with AS 2890.6-2009 **Comment**: There are no carparking requirements for a Class 2 under the BCA. Where adaptable housing has been mandated by the Council, carparking spaces will be required under the requirements of AS4299-1995 Adaptable housing. Parking requirements for AS4299-1995 have been reviewed under Appendix 2 of this report. Also note the following requirements to supplement SEPP Housing 2021 / AS4299-1995 requirements: + Carpark area clear head heights: 2.3m generally with the exception of 2.5m above an accessible carparking space/shared spaces from the FFL to any obstruction next above + The pavement marking shall have the appropriate slip resistance of P3/R10 within undercover accessible carparking spaces and shared zones. This requirement is to be added to the project specifications to ensure compliance. Crown Certification documentation to verify compliance with this requirement.
D4D7	**Signage:** In a building required to be accessible, braille and tactile signage must be provided to all: + Required accessible sanitary facilities; + Spaces with hearing augmentation; + Ambulant sanitary facilities; + Non-accessible pedestrian entrances; and + Each door required to be provided with an exit sign. Braille and tactile signage is to comply with sub-clause (a) and Specification 15. **Comment**: Crown Certification documentation to verify compliance with this requirement. Also note the following requirements which exceed minimum BCA requirements.
D4D9	**Tactile Indicators:** Tactile ground surface indicators must be provided to: + A stairway, other than a fire-isolated stairway; and + An escalator or passenger conveyor; and + A ramp other than a fire-isolated ramp; and + In the absence of a suitable barrier- - An overhead obstruction <2m above floor level; and - An accessway meeting a vehicular way adjacent to any pedestrian entrance to a building including a pedestrian entrance serving an area referred to in D4D5, if there is no kerb or kerb ramp at that point. Tactile indicators are required to be designed in accordance with AS 1428.4.1-2009. **Comment**: Crown Certification documentation to verify compliance with this requirement. Note: all stairways appear to be open stairways and therefore circulation stairways. Only fire-isolated exits have concession to omit DDA features unless a Performance Solution is documented at Crown Certificate stage.

D4D12

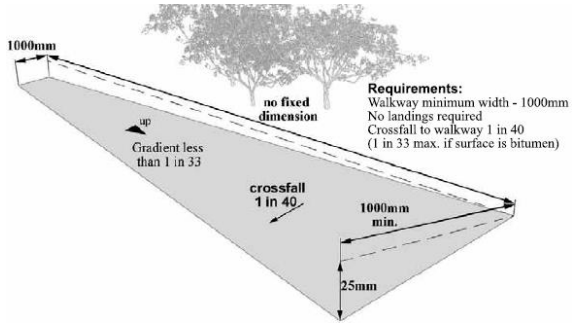
Ramps: Clause D4D12 requires makes provisions for accessway to consist of ramps based on limitations such as:

+ A series of connected ramps must not have a combined vertical rise of more than 3.6 m; and
+ A landing for a step ramp must not overlap a landing for another step ramp or ramp.

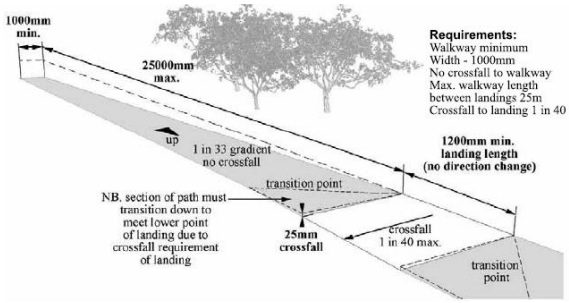
Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS1428.1-2009 including:

+ **AS1428.1 Cl 10.1** Walkways, Ramps, and Landings – Generally - Walkways, ramps and landings that are provided on a continuous accessible path of travel shall be as follows:
  - Sharp transitions shall be provided between the planes of landings and ramps.
  - Landings shall be provided at all changes in direction in accordance with Clause 10.8.
  - Landing or circulation space shall be provided at every doorway, gate, or similar opening.
  - For walkways and landings having gradients in the direction of travel shallower than 1 in 33, a camber or crossfall shall be provided for shedding of water and shall be no steeper than 1 in 40, except that bitumen surfaces shall have a camber or crossfall no steeper than 1 in 33.

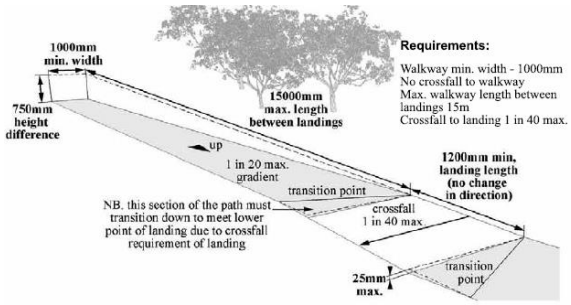
  NOTE: For requirements for ground surfaces, see Clause 7.



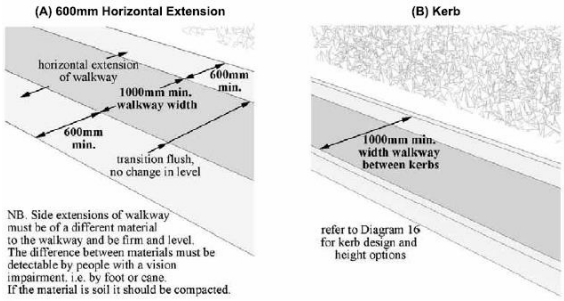
Requirements for a Walkway with a Gradient Less Than 1 in 33



Requirements for a Walkway with a 1 in 33 Gradient



Requirements for a Walkway with a 1 in 20 Gradient

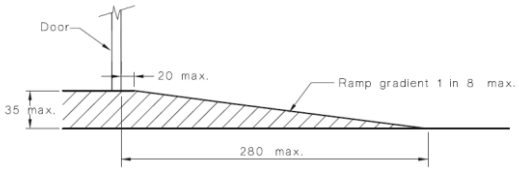


Requirements for Edges of Walkways

+ **AS1428.1 Cl. 10.3 Ramps** - Ramps to comply with the following:
  - Maximum gradient of a ramp exceeding 1900mm shall be 1 in 14.
  - The gradient of a ramp shall be constant throughout its length.
  - Ramps shall be provided with landings:
    - For ramp gradients of 1 in 14, at intervals not greater than 9m.
    - For ramp gradients steeper than 1 in 20, at intervals not greater than 15m.
    - For ramp gradients between 1 in 14 and steeper than 1 in 20, at interpolated intervals.
  - Handrails must be provided on either side complying with Clause 12.
  - TGSIs shall be installed in accordance with AS 1428.4.1.
  - Ramps shall be set-back at internal corridors so that handrail extensions do not protrude in to paths of travel.
  - Ramps and intermediate landings shall have kerbs or kerb rails on either side.

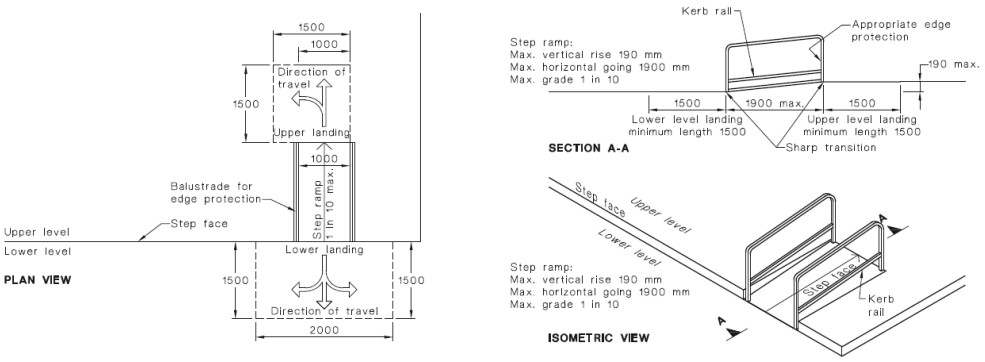
+ **AS1428.1 Cl. 10.4 Curved Walkways, Ramps, and Landings** - Curved ramps, walkways, and landings shall comply with the following:
  - Curved walkways shall have a width not less than 1500mm.
  - Any cross-fall shall be towards the centre of curvature.
  - The gradient of curved ramps and walkways shall comply with the graph in Figure 20 within AS 1428.1 – 2009.

+ **AS1428.1 Cl. 10.5 Threshold Ramps** - Threshold ramps at doorways on a continuous path of travel shall have—
  - a maximum rise of 35 mm;
  - a maximum length of 280 mm;
  - a maximum gradient of 1:8; and
  - be located within 20 mm of the door leaf which it serves.



+ **AS1428.1 Cl. 10.6 Step Ramps** - Step ramps shall have—
  - a maximum rise of 190 mm;
  - a length not greater than 1900 mm; and
  - a gradient not steeper than 1 in 10.

The edges of step ramp shall have a 45° splay where there is pedestrian cross traffic.
Otherwise, it shall be protected by a suitable barrier, such as—
  - a wall or suitable barrier with a minimum height of 450 mm; or
  - where an open balustrade is provided a kerb or kerb rail shall be provided.



+ **AS1428.1 Cl. 10.8 Landings**

- Walkways and ramps
  - The length of landings at walkways (up to a gradient of 1 in 33) and ramps shall comply with one of the following:
  - Where there is no change in direction, the length shall be not less than 1200 mm, as shown in **Figure 25(A).**
  - Where there is a change of direction not exceeding 90°, the landing shall be not less than 1500 mm. The internal corner shall be truncated for a minimum of 500 mm in both directions, as shown in **Figure 25(B).**
  - For a 180° turn, the landing shall be as shown in **Figure 25(C).**
- Step ramps
  - The length of landings at step ramps shall be not less than 1200 mm in the direction of travel, as shown in **Figures 22(A)** and **22(B).**
  - Where a change in direction is required, the length of step ramp landings shall be a minimum of 1500 mm, as shown in **Figure 22(A).**
  - Where doorways are at landings, the dimensions of the landings shall be in accordance with the requirements of Clause 13.3 for circulation spaces at doorways shown in **Figure 25(D).**
- Kerb ramps
  - The length of landings at kerb ramps shall be not less than 1200 mm in the direction of travel.
  - Where a 'T' junction occurs, the kerb ramp landing shall be a minimum of 1500 × 2000 mm, as shown in Figure 24(B).
  - Where a single change in direction is required, the ramp landings shall be a minimum of 1500 mm × 1500 mm.
  - See Below for Figures 25A, 25B & 25C:

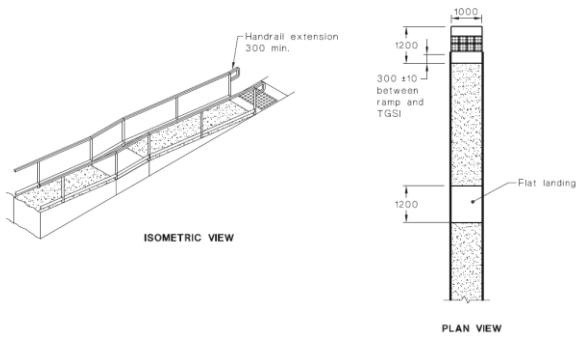


Figure 25A

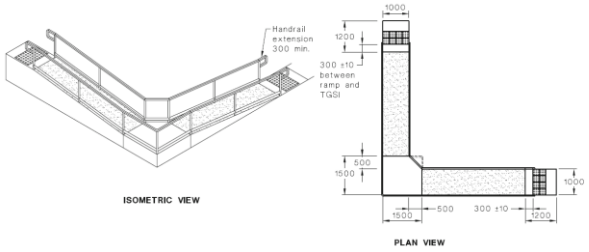


Figure 25B

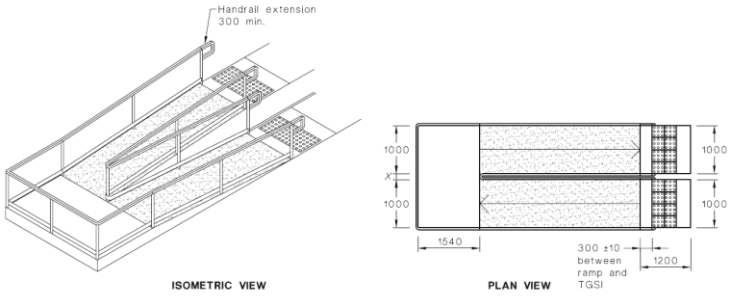


Figure 25C

Comment: The series of connecting ramps do not exceed a vertical height of 3.6m. Crown Certification documentation to verify compliance with this requirement to satisfy AS1428.1-2009. Also note the following requirements which exceed minimum BCA requirements:

- Ensure 1.2m landing length before 1:20 grade walkway within the Buildings A entry lobby area. Should the ramp become steeper than 1:20 (but not steeper than 1:14) accessible features will be required such as handrails/extensions/turndowns.
- Confirmation required as to whether a step is provided within the threshold of SOU/apartment entry doorsets contiguous to courtyard areas (which are required to be open to the atmosphere). For DDA compliance there should be a flush transition with no step in the threshold.

  We understand that there will be a step in the slab to meet waterproofing freeboard requirements, but the FFL will be pavers on poly pads so the step will not be visible and will be a continuous FFL to facilitate access.

  Note where the door entrance needs to be flush between non-permeable external and internal areas, and the sub-sill is recessed, then AS4654 requires that a grated drain is to be provided before the sub-sill to mitigate water ingress into the building. All grated drains in external areas are to achieve a P4/R11 slip resistance.

D4D13	**Glazing along an Accessway:** Where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights, including any glazing capable of being mistaken for a doorway or opening, shall be clearly marked for their full width with a solid and non-transparent contrasting line. **Comment**: Crown Certification documentation to verify compliance with this requirement. Note the strip must achieve 30% luminance contrast with the floor surface on each side and must be a solid, not translucent, strip with no other graphical representation or cut- outs.

2.4 Section E – Services and Equipment

E1D2	**Fire Hydrants:** Fire hydrant coverage is required to be provided to the building in accordance with satisfy NCC E1D2 and AS2419.1 – 2021. Note: external hydrants within 10m of sprinkler protected buildings is permissible under AS2419.1-2021

	Comment: For any new fire hydrants, FPAS Practitioner / Fire Services Design consultant to certify compliance at the Crown Certificate stage. The following comments are also made with regards to onsite hydrant system design matters: + We understand the APFS has provided written direction verifying that NCC E1D2 and AS2419.1 – 2021 compliance is achieved with regards to residual pressures and flows in the absence of fire services pumpsets and/or fire water storage / break-tank. + Internal hydrants within 4m from the nearest required exit e.g. the top riser to each required non-fire-isolated egress stairway or the discharge doorset / exit on ground floor. + Any external hydrants on ground level courtyard/podium areas are to be shown as FRNSW prefer external hydrants for low-rise parts of facilities so they can enter the facility under the protection of a charged hose. + FPAS Practitioner to review the effects of external hydrants when considering pumpsets/break-tanks. Note 1: Shoalhaven Water require a break-tank where an essential fire service pumpset is required as they will not permit a pumpset to interface directly with their reticulating domestic water supply. Note 2: Any wet fire assessment undertaken now which determines that pumpsets/break-tanks are not required must be based on any future-proofing to de-risk Shoalhaven Water dropping pressure within the towns main. We understand a Fire Engineered Performance Solution has been proposed to justify departures to hydrant design requirements under BCA Clause E1D2 and AS2419.1-2021: + Booster not located at vehicular entry or visible from both main entries to Building 1 and 2 to be addressed.
E1D3	**Fire Hose Reels:** A required fire hose reel system must satisfy NCC E1D3 and AS2441 – 2005; **Comment:** The following comments are also made with regards fire hose reel system design matters: + Concession applies to Class 2 residential areas due to these areas being provided with Portable Fire Extinguishers in favour of Fire Hose Reels. + In this regard only the Class 7a carpark fire compartment is required to be provided with fire hose reel coverage in accordance with NCC E1D3 and AS2441 – 2005.
E1D4	**Sprinklers:** An automatic fire sprinkler system is required to be provided to the building. Depending on the rise in storeys, there are a number of options available. **Comment:** A building with a Rise in Storeys of 4 is to be provided with sprinkler protection throughout to satisfy NCC Spec. 18 S18C3. In this regard, FPAS Practitioner / Fire Services Design consultant to certify compliance at the Crown Certificate stage in accordance with NCC E1D4, Spec. 17, Spec. 18 and AS2118.1 – 2017 (Amdts 1 and 2). The following comments are also made with regards to sprinkler system design matters: + Sprinkler booster to be identified on the design plans; ensuring they are 10m or more from electrical kiosks, EV charging stations etc. + We understand the APFS has provided written direction verifying that NCC E1D4, Spec. 17, Spec. 18 and AS2118.1 – 2017 (Amdts 1 and 2) compliance is achieved with regards to residual pressures and flows in the absence of fire services pumpsets and/or fire water storage / break-tank. + APFS Practitioner to review any roof structure/overhangs to courtyards and identify any sprinkler protection requirements and effects of additional hydraulic demand on the pumpsets/break-tanks analysis. + The referenced design details verify that the sprinkler control valves are located within an enclosure with direct egress to a road or open space.

	Note 1: Shoalhaven Water require a break-tank where an essential fire service pumpset is required as they will not permit a pumpset to interface directly with their reticulating domestic water supply. Note 2: Any wet fire assessment undertaken now which determines that pumpsets/break-tanks are not required must be based on any future-proofing to de-risk Shoalhaven Water dropping pressure within the towns main. We understand a Fire Engineered Performance Solution has been proposed to justify departures to sprinkler design requirements under BCA Clause E1D4 and AS2118.4-2012: + Booster not located at vehicular entry or visible from both main entries to Building 1 and 2 to be addressed. + Omission of sprinklers from smaller laundry areas under Fire Engineered Performance Solution noting that stacking of dryers/washers will affect sprinkler head locations. + Omission of sprinklers from all low voltage electrical cupboards (e.g. communications cupboards) and MSB enclosures.
E2D4/ E2D9/ E2D11/ E2D12/ E2D13	**Smoke Hazard Management:** Required smoke hazard management measures must satisfy NCC Clause E2D2/E2D3; including: + Class 2 areas: - A smoke alarm system complying with S20C3; or - A smoke detection system complying with S20C4; or - A combination of a smoke alarm system and a smoke detection system complying with S20C5; or - Any Fire Engineered or operator requirements. + Class 7a areas: - A smoke detection system complying with S20C4; and - Smoke extraction/exhaust where mechanical ventilation is provided to satisfy AS1668.2-2012; and - Automatic shut-down of mechanical air handling systems upon fire trip in accordance with Section 5 and 6 of AS 1668.1. **Comment:** The following comments are also made with regards to smoke detection and alarm system design matters: + Identify the location of the FDCIE / Main FIP in the building closest to the booster and FRNSW entry to the site; FPAS Practitioner to verify whether a Sub-FIP is required within second building. + Ensure that smoke alarms are provided within each Class 2 SOU/apartment on each level between the bedroom entry doorset and the remainder of the apartment. Where more than one smoke alarm is required they must be interconnected. + Fire Engineer may require enhancements to the smoke alarm system in response to any Fire Engineered Performance Solutions.
E1D14	**Fire Extinguishers:** Required Portable Fire Extinguishers must satisfy NCC Clause E1D14 & AS 2444-2001. In a Class 2 or 3 building, 2.5 kg ABE type fire extinguishers must be located within 10m of each SOU/apartment entry doorway. **Comment:** For any new installations/alterations, FPAS Practitioner / Fire Services Design consultant to certify compliance at the Crown Certificate stage in accordance with NCC E1D14 and AS2441-2001.
E2D17 & E2D21	**Provisions for Special Hazards:** FRNSW deem EV charging stations as a special hazard for the purposes of fire and life safety and brigade intervention. Where EV charging stations are proposed they are to be assessed in the trial design or separate fire safety assessment by the Fire Safety Engineer's Report with the Crown Certificate application.

E3D3	**Stretcher Facilities in Lifts:** Stretcher facilities, complying with this clause, must be provided in lifts in at least one emergency lift as required by E3D5 or in building where lifts serve any storey above an effective height of 12m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2,000mmm long x 1,400mm high above the floor level. **Comment:** Details to be included in the design statement at Crown Certificate stage.
E3D7	**Passenger Lifts:** All passenger lifts provided exceed the minimum dimensions required to comply as accessible lifts. In this regard, access to every floor in the development is achieved in the design. Note: Lift call button to be located 500mm or more from an internal corner to satisfy NCC/BCA Cl. E3D7 & AS 1735.12-1999 Clause 7.3.3 in the absence of a DDA Performance Solution.
E4D2 - E4D8	**Emergency Lighting and Exits Signs:** Emergency lighting and exit signage to be provided in accordance with E4D2-E4D5 complying with AS 2293.1 – 2018.

2.5 Section F – Health and Amenity

Part F1	**Damp and Weatherproofing:** Damp and weatherproofing to comply with the prescriptive requirements as follows (as applicable): + Stormwater drainage must comply with F1D3. + Exposed joints must comply with F1D4. + External waterproofing membranes must comply with F1D5. + Damp-proofing must comply with F1D6. + Damp-proofing of floors on the ground must comply with F1D7. + Subfloor ventilation must comply with F1D8. **Comment:** Compliance readily achievable; architectural design documents with the Crown Certificate application to verify compliance with this requirement. Where the door entrance needs to be flush between non-permeable external and internal areas, and the sub-sill is recessed, then AS4654 requires that a grate is to be provided before the sub-sill to mitigate water ingress into the building. Compliance in design and completion to be certified by the registered Façade Consultant and/or Architect and Hydraulic Consultant. **Performance Solution:** A Performance Solution is required to be obtained in relation to the departures from Part F1 with damp and waterproofing with respect to wall cladding systems. A Façade Engineer is required to prepare the Performance Based Design Brief (PBDB) and Performance Solution Report.
Part F2	**Wet Areas and Overflow Protection:** Wet areas and overflow protection is to comply with the prescriptive requirements as follows (as applicable): + Wet area construction must comply with F2D2. + Rooms containing urinals must comply with F2D3. + Floor wastes must comply with F2D4. **Comment:** Compliance readily achievable; architectural design documents with the Crown Certificate application to verify compliance with this requirement. Where a floor waste is required, F2D4 requires that the floor must be graded at a minimum continuous fall of 1:80 to a floor waste and the floor must be graded at a maximum continuous fall of 1:50 to a floor waste.

	This solution will likely lead to a Performance Solution for DDA compliant sanitary facilities where a minimum continuous fall of 1:100 is adopted in favour of 1:80 permitted under F2D4. Compliance in design and completion to be certified by the registered Façade Consultant and/or Architect and Hydraulic Consultant.
Part F3	**Roof and Wall Cladding:** This section contains DtS provisions for the weatherproofing of certain external wall and roof designs as follows (as applicable): + Roof coverings must comply with F3D2. + Sarking must comply with F3D3. + Glazed assemblies must comply with F3D4. + Wall cladding must comply with F3D5. **Performance Solution:** A Performance Solution is required to be obtained in relation to the departures from F3D5 with respect to wall cladding systems. A Façade Engineer is required to prepare the Performance Based Design Brief (PBDB) and Performance Solution Report.
Part F4	**Sanitary Facilities:** Sanitary facilities must be provided to comply with the requirements of F4D4 for the subject part.
F5D2	**Ceiling Heights:** The floor to ceiling heights must be as follows: *The ceiling minimum heights for a Class 2 building are as follows:* + Kitchen, laundry or the like – 2.1m + Corridor or passageway – 2.1m + A habitable room, excluding kitchen – 2.4m *The minimum ceiling heights in a Class 7 building are as follows:* + Generally - 2.4m. + Corridor, passageways, or the like - 2.1m. *In any building:* + Bathrooms, sanitary compartments, tea preparations rooms, pantries, store rooms or the like – 2.1m, + A commercial kitchen – 2.4m, Above a stairway, ramp, landing or the like – 2m. **Comment**: Crown Certification documentation to verify compliance with this requirement. Also note the following requirements which exceed minimum BCA requirements: + A habitable rooms: to satisfy SEPP Housing 2021 / ADG requirements 2.7m may be required by the Designer; in this regard 2.7m clear ceiling heights are to be provided between FFL and the underside of ceilings, this must be achieved to all habitable rooms/areas regardless of structure and services above the ceiling. + Carpark areas: 2.3m generally with the exception of 2.5m above an accessible carparking space/shared spaces from the FFL to any obstruction next above.
Part F6	**Light and Ventilation:** In accordance with BCA Clause F6D2/F6D3 natural lighting must be provided within: + Class 2 buildings or parts — to all habitable rooms. A required window that faces a wall of the same building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill. Artificial lighting systems are required to comply with BCA Clause F6D4 and AS 1680-2009. All mechanical or air-conditioning installations must be undertaken in accordance with Clauses F6D6 and AS 1668.2-2012. **Comment:** Crown Certificate design details to demonstrate that all bedrooms (including study areas) are provided with natural light in accordance with BCA Clause F6D2/F6D3 and natural ventilation in accordance with Clause F6D7.

	Artificial lighting is to be provided to in accordance with AS 1680.0 and air conditioning/ventilation to be proposed in accordance with 1668.2.-2012.
Part F7	**Sound Transmission and Insulation**: Floors and walls bounding Class 2 parts are required to comply with the prescriptive provisions of Part F7 as related to sound transmission and insulation. **Comment:** Provide a copy of the Acoustic Assessment Report and Design Statement in accordance with Part F7 at Crown Certificate application. NCC Clause F7D4 requires discontinuous construction for internal wall systems; Construction Certification documentation to verify compliance with this requirement.
Part F8	**Condensation Management**: Condensation management to comply with the prescriptive requirements as follows (as applicable): + External wall construction must comply with F8D3. + Exhaust systems must comply with F8D4. + Ventilation of roof spaces must comply with F8D5. **Comment:** Details and certification by the Architect to be provided verifying compliance with the condensation management requirements under F8. It is understood that the mechanical exhaust has been detailed by the Mechanical Consultant to meet these requirements with regards to bathrooms and kitchen areas. Exhaust from a kitchen, kitchen range hood, bathroom, sanitary compartment or laundry must discharge directly or via a shaft or duct to outdoor air in accordance with BCA Cl. F8D4.

2.6 Section G – Ancillary Provisions

G1D5 NSW Amdt	**Safe Cleaning of Windows:** A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level. **Comment:** New glazing proposed as part of the development. In this regard, measures must be implemented (where they do not already) enabling the windows to be cleaned wholly from within the building; or provision is to be made (where not already) for the cleaning of the windows by a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.
Part G3	**Atrium Construction:** The BCA defines an atrium as a space within a building that connects 2 or more storeys and— a. Is enclosed at the top by a floor or roof (including glazed roof structure); and b. Includes any adjacent part of the building not separated by an appropriate barrier to fire; but c. Does not include a stairwell, rampwell or the space within a shaft; and d. For the purposes of a. a space is considered enclosed if the area of the enclosing floor or roof is greater than 50% of the area of the space, measured in plan, of any of the storeys connected by the space. Atrium construction needs to satisfy BCA Part G3 however BCA Clause G3D1 permits the following concessions where the atrium provisions under Part G3 do not need to be complied with: + Where the atrium only connects 2-stories; OR + Where the atrium only connects 3-stories; and each storey is provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 throughout; and one of those storeys is situated at a level at which there is direct egress to a road or open space. **Comment**: We understand the design for this development includes the following: + The space connecting L1 and L2 is actually a lightwell; using the atrium provisions as a guide the roof above the lightwell is greater than 50% (circa 56-58%) of the area of the space,

	measured in plan, of any of the storeys connected by the space. In this regard the space is not enclosed at the top. + Although the project Fire Safety Engineer may need to review the openness of the roof structure as part of their fire safety analysis with the Crown Certificate application. + Notwithstanding, any lightwell must be considered carefully by the design team to ensure that the space is delivered as an external space (not an internal space) hence the bounding walls need to be assessed under the BCA including (but not limited to) weatherproofing/ESD/acoustics as an external space. In this regard threshold with steps or grated drains for weatherproofing would need to be implemented at SOU/apartment entry doorsets contiguous to the balcony areas.
Part G5	**Construction in Bushfire Prone Areas:** The Deemed-to-Satisfy Provisions of this Part apply in a designated bushfire prone area for a Class 3 building must comply with AS 3959 – 2018 (Amdt 1 & 2).
Part G6	**Occupiable Outdoor Areas:** Occupiable Outdoor Areas (such as the communal rooftop space) are required to comply with the fire hazard property, provision for escape, construction of exits, firefighting equipment, lift installations, visibility in an emergency, exit signs and warning systems, and light and ventilation provisions of the BCA (as specifically prescribed under this part) as if it were an internal building part.

2.7 Section J – Energy Efficiency

Part J	**Energy Efficiency:** The new building works subject to compliance with the Energy Efficiency Provisions of BCA 2022 Section J relating to: + J1: Energy Efficiency Performance Requirements + J2: Energy Efficiency + J3: Elemental Provisions for a Class 2 Building and a Class 4 Part + J4: Building Fabric + J5: Building Sealing + J6: Air-Conditioning and Ventilation + J7: Artificial Lighting and Power + J8: Heated Water Supply and Swimming Pool and Spa Pool Plant + J9: Energy Monitoring and On-Site Distributed Energy Resources The Crown Certificate documentation from the architect, mechanical, electrical, and hydraulic engineers are to incorporate details demonstrating compliance with the above provisions (as applicable to their respective disciplines).

3.0 Premises Standard 2010 & AS4299-1995 Assessment – Key Issues

3.1 Access & Disability (Access to Premises Building) Standards 2010

DDA	The Disability (Access to Premises-Buildings) Standards 2010 (the Access to Premises Standards) requires the building to comply with the Access Code (BCA Part D4 & AS 1428.1-2009). With respect to the proposed new building, compliance with the Access Code is achieved if the building complies with: + BCA clauses D4D1 to D4D13; + BCA clauses E3D7 & E3D8; + BCA clauses F4D3, F4D5 to F4D7 and F4D12. Detailed documentation demonstrating compliance with the above BCA provisions and AS 1428.1-2009 will be required for assessment at Crown Certificate stage. In the event that DtS compliance is not achieved, a redesign will be required or a Performance Solution will need to be documented by an appropriately qualified Access Consultant.

3.2 AS 4299-1995 Assessment Summary

AS 4299-1995	Refer to Appendix 2 of this report for an assessment table which summarises the compliance status of the architectural design in terms of the prescriptive provisions of Class C 'all essential features' within AS4299 – 1995 (Adaptable Housing).

4.0 Preliminary Summary of Fire Engineered Solutions

The following summary contains a list of preliminary Fire Engineered Solutions proposed based on our understanding of the DA stage design. This list may be subject to further change pending the outcomes of the final Fire Safety Engineering Review and further design development:

- A Fire Engineered Performance Solution is to be prepared to justify departures to BCA Clause C2D2 and Spec. 5 Clause S5C11:
  - Rationalise cavity barriers and gaps between slab and internal face of external walls where they are not in accordance with a tested system to achieve the required fire-resistance level in accordance with BCA Spec. 5 i.e. Fire Engineered Report to permit:
  - To provide smoke-proof cavity barrier / separation at the perimeter slab edge between storeys.

  It is proposed to allow the lightweight fire-resisting bounding construction walls between the SOU's/apartments to be extended to smoke-proof cavity barrier / separation rather than through to the external wall or inside of the outer face of the external wall.

- Incomplete bounding construction OR roof elements (other than battens or exceeding 75mm x 50mm) will need to be rationalised/assessed under the Fire Engineered Report as a departure to BCA Spec. 5 Clause S5C11.

  Steel roof penetrations through a lightweight internal fire-resisting wall will generally need to be assessed under a Fire Engineered Performance Solution as these types of penetrations are not strictly in line with the test literature for the lightweight wall system and depart with AS1530.4-2014.

- Incomplete bounding construction (e.g. internal fire resisting wall continuity affected by sky lights or window openings) will need to be rationalised/addressed as a Fire Engineered Solution as a departure to BCA Spec. 5 Clause S5C11.

- Where loadbearing walls are not concrete or masonry walls construction a Fire Engineered Solution will be required to permit impact resistant fire-resisting lightweight construction as a departure to BCA Spec. 5 Clause S5C11.

- Loadbearing columns which are not treated with a tested system for a column however are contained within a lightweight construction wall will need to be addressed as a Fire Engineered Solution as a departure to BCA Spec. 5 Clause S5C11.

- Non-continuity of fire-resistant vertical shafts not strictly satisfy BCA Spec. 5 Clause S5C8 and Clause C4D14 as the base to the shaft will not be fire rated, instead it will interface with a fire rated enclosure or separate fire compartment:
  - Mechanical and hydraulic services risers/shafts

- To permit timber/plastic packers, timber noggings/blocking/supports within internal non-loadbearing fire-rated walls and external walls which exceed the non-combustibility requirements under BCA Clause C2D10(6). The installation of timber noggings/blocking/supports varies from the tested wall system in accordance with AS 1530.4-2014.

- Technical departure to BCA Clause C3D15 with longer corridors (>40m) with portions that are substantially enclosed in the absence of smoke-proof construction satisfying BCA S11C2.

- We understand a Fire Engineered Performance Solution is to be prepared to justify departures to BCA Clause C4D6 & C4D8:

- Rationalisation of fire resisting elements within a fire wall requiring a 120/120/120 FRL i.e. doorset openings protected by glazing in lieu of -/120/30 FRL fire resistant construction.

+ Contrary to BCA Clause C4D12(9) various apartment discharges will likely be exposed to apartment windows as the occupant will not have any opportunity but to pass the opening or they will immediately exit their SOU/apartment and be directly exposed; e.g.: U103 exposed to U102 and U115 exposed to U114.

+ A Fire Engineered Performance Solution is to be prepared to justify fire stopping to internal fire resisting elements contrary to BCA Clause C4D15:

  - To permit water filled metal pipes (i.e. sprinkler and hydrant pipe penetrations) to be fire stopped in accordance with BCA Clause C4D15(1), with the exception of the insulation criteria of the required FRL where there is likely to be combustible materials (i.e. PVC pipes, PEX pipes, cables etc) located within 100 mm radius for a distance of 2 m of the fire rated penetration.
  - The wet area/bathroom tap fittings/hydraulic services that will penetrate through one side of the fire rated linings to the fire rated bounding walls to approximately opposite sides of the bounding wall separating SOU's, these tap fittings/hydraulic services will not be protected in accordance with a tested system.
  - To permit services (such as NBN cables) to located within conduits to not be fire stopped in accordance with a tested system, noting that they run horizontally through the slab and AS 1530.4-2014 does not include specific requirements for the testing of services are embedded and travel horizontally through a concrete floor. As a result, there is no compliant testing methodology for fire tests for cast-in conduits and hence no compliant tested systems for this application.

+ Distance to open space from Apartment 201 via a required non-fire-isolated stair is circa 64m (>60m) which departs from BCA Clause D2D14.

+ A fire engineered performance solution has been proposed to justify departures to hydrant design requirements under BCA Clause E1D2 and AS2419.1-2021:

  - Booster not located at vehicular entry or visible from both main entries to Building 1 and 2 to be addressed.
  - Hydrant locations being more than 4m to required exits; note many hydrants on ground floor area within 4m of fire separated egress stairways (which are not fire-isolated exits)

+ A fire engineered performance solution has been proposed to justify departures to fire hose reel design requirements under BCA Clause E1D3 and AS2441-2005:

  - Fire hose reel locations being more than 4m to required exits; note many fire hose reels on ground floor area within 4m of fire separated egress stairways (which are not fire-isolated exits)

+ A fire engineered performance solution has been proposed to justify departures to sprinkler design requirements under BCA Clause E1D4 and AS2118.4-2012:

  - Booster not located at vehicular entry or visible from both main entries to Building 1 and 2 to be addressed.
  - Omission of sprinklers from all low voltage electrical cupboards (e.g. communications cupboards), MSB enclosures, and smaller laundry areas.

+ A Fire Engineered Solution will be required for the proposed Electric Vehicle (EV) stations with Lithium-Ion battery chargers noting:

  - BCA Clause E1D17 requires that additional provision must be made if special fire hazards or where difficulties in fighting fire could arise because of the nature or quantity of materials stored, displayed or used in a building.
  - BCA Clause E2D21 notes that additional smoke hazard management measures may be necessary due to the special characteristics, function or materials stored within a building or fire compartment.

5.0 Preliminary Fire Safety Schedule

The following table is a list of the required fire safety measures within the building. These measures may be subject to further change pending the outcomes of the final Fire Safety Engineering Review and further design development.

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Existing	+ Proposed
Access Panels, Doors & Hoppers	BCA 2022 Clause C4D14 & AS 1530.4 – 2014 and Manufacturer's specifications		✓
Alarm Signalling Equipment	NSW BCA 2022 Clause E2D3, Spec. 20 Clause S20C8 & AS 1670.3 – 2018		✓
Automatic Fail-Safe Devices	BCA 2022 Clause D3D26		✓
Automatic Fire Detection & Alarm System	BCA 2022 Clause E2D3, E2D5, Spec. 20, AS 1670.1 – 2018 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Automatic Fire Suppression Systems	BCA 2022 Clause E1D4, Spec. 17, Spec. 18, AS 2118.4 – 2012, & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Building Occupant Warning System activated by the Automatic Fire Detection & Alarm System and Sprinkler System	BCA 2022 Clause E2D3 and BCA Spec. 17, Spec. 20 & Clause 8 and Clause 3.22 of AS 1670.1 – 2018 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Emergency Lighting	BCA 2022 Clause E4D2 & E4D4 & AS 2293.1 – 2018		✓
Emergency Evacuation Plan	AS 3745-2010 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Exit Signs	BCA 2022 Clauses E4D5, NSW E4D6, E4D8 & AS 2293.1 – 2018		✓
Fire Blankets	BCA 2022 Clause E1D14, AS 2444 – 2001 & AS 3504 – 2006		✓
Fire-resisting Building Elements (Walls, Floors & Shafts)	BCA 2022 Section C, Spec. 5 Clause S5C11 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Fire Dampers	BCA 2022 Clause C4D15 & Spec. 11, AS 1668.1 – 2015 & AS 1682.1 & 2 – 2015 and manufacturer's specification		✓
Fire Doors (self-closing) (including lift landing doors)	BCA 2022 C3D13, C3D14, C4D3, C4D5, C4D6, C4D8, C4D9 & C4D12, AS 1905.1 – 2015, AS1530.4-2014, AS1735.11-1986 and manufacturer's specifications &		✓

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Existing	+ Proposed
	Fire Engineering Report prepared by … Report No. … Revision … dated …		
Fire Hose Reels (Class 7a areas only)	BCA 2022 Clause E1D3, AS 2441 – 2005		✓
Fire Hydrant Systems	BCA 2022 Clause E1D2, AS 2419.1 – 2021 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Fire Seals	BCA 2022 Clause C4D15, AS 1530.4 – 2014 & AS 4072.1 – 2005 and manufacturer's specification & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Loadbearing internal walls (masonry or concrete)	BCA 2022 Section C, Spec. 5 Clause S5C11(1)		✓
Lightweight Construction	BCA 2022 Clause C2D9, AS 1530.4 – 2014 and manufacturer's specification & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Mechanical Air Handling Systems + Exhaust/extraction within enclosed Class 7a areas/compartments;	BCA 2022 E2D3, E2D12, Spec. 20, AS/NZS 1668.1 – 2015, AS 1668.2 – 2012		✓
Paths of Travel	EP&A (DC&FS) Reg. 2021 Clause 109, BCA 2022 Part D & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Portable Fire Extinguishers	BCA 2022 Clause E1D14 & AS 2444 – 2001		✓
Required Exit Doors (power operated)	BCA 2022 Clause D3D24(2)		✓
Warning & Operational Signs	EP&A (DC&FS) Reg. 2021 Clause 108 BCA 2022 C4D7, D3D28, D4D7, E3D4 AS 1905.1 – 2015 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓
Fire Engineered Performance Solutions relating to: 1. Rationalise Façade cavity barrier detail 2. Combustible elements permitted within otherwise required non-combustible construction 3. Extended distance to a road or open space via a required non-fire-isolated stairway 4. Rationalisation of fire-resisting construction / bounding construction: a. Permit roof elements (other than battens or	BCA 2022 Performance Requirements: C1P1, C1P2, C1P4, C1P8, D1P4, D1P5, E1P3, E1P4, E2P2 & Fire Engineering Report prepared by … Report No. … Revision … dated …		✓

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Existing	+ Proposed
exceeding 75mm x 50mm) penetrating through a lightweight internal fire-resisting walls. These types of penetrations are not strictly in line with the test literature for the lightweight wall system and depart with AS1530.4-2014. b. Permit incomplete bounding construction (e.g. internal fire resisting wall continuity affected by sky lights or window openings). c. Permit loadbearing walls which are impact resistant fire-resisting lightweight construction in lieu of concrete or masonry walls construction. d. Permit loadbearing columns which are not treated with a tested system for a column however are contained within a lightweight construction wall. e. Permit non-continuity of fire-resistant vertical shafts not strictly satisfy BCA Spec. 5 Clause S5C8 and Clause C4D14 as the base to the shaft will not be fire rated, instead it will interface with a fire rated enclosure or separate fire compartment. 5. Corridor lengths in the absence of smoke-proof construction 6. Rationalisation of fire resisting elements i.e. doorset openings protected by glazing in lieu of fire resistant construction 7. Occupant egress exposure to external wall (and openings therein) along open balconies 8. Occupant egress to open space via required non-cire-isolated stairway systems 9. Rationalisation of fire stop/seal systems penetrating fire-resistant elements 10. Hydrant & Sprinkler Booster location 11. Fire hydrant and fire hose reel locations on ground floor 12. Rationalisation of sprinkler protected areas:			

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Existing	+ Proposed
a. Omission of sprinkler heads to shower pods and laundry enclosures b. Omission of sprinkler protection to comms and MSB 13. Assessment of Electric Vehicle (EV) stations with Lithium-Ion battery chargers			

NOTE:

+ *The measures included and the standards of performances nominated above may vary as a result of any proposed Fire Engineered Performance Solutions.*
+ *The above list is a schedule of fire safety measures required under Section E of the NCC/BCA only and does not take into consideration any other measures that may be required in the building as a result of other requirements of the NCC/BCA or other statutory standards.*

6.0 Conclusion

This report contains an assessment of the referenced architectural documentation for the proposed residential flat complex development located at 53 & 57 Bolong Rd and 4 Beinda St, Bomaderry NSW 2541, against the Deemed-to-Satisfy provisions and Performance Requirements of the National Construction Code Series (Volume 1) Building Code of Australia 2022 and the Disability (Access to Premises – Buildings) Standards 2010.

Arising from our review and comments above, it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA subject to the above measures being appropriately addressed by the project design team. Compliance with the BCA is to be demonstrated by a combination of DtS solutions and/or Performance Solutions prepared by appropriately qualified Registered/Accredited Consultants.

It is our experience that such compliance matters raised are not uncommon for a development of this nature and that they can be readily addressed with the Crown Certificate application. We are of the opinion that any amendments thereafter required to the design documentation in order to comply with the BCA can be addressed in the preparation of the detailed documentation with Crown Certificate application without giving rise to significant changes to the proposal as submitted for DA.

Should you require further assistance or clarification please do not hesitate to contact the undersigned on 02 9211 7777.

Prepared by:

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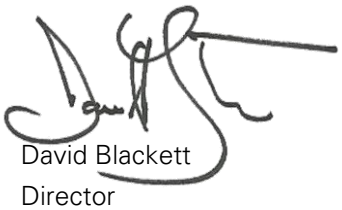

David Blackett
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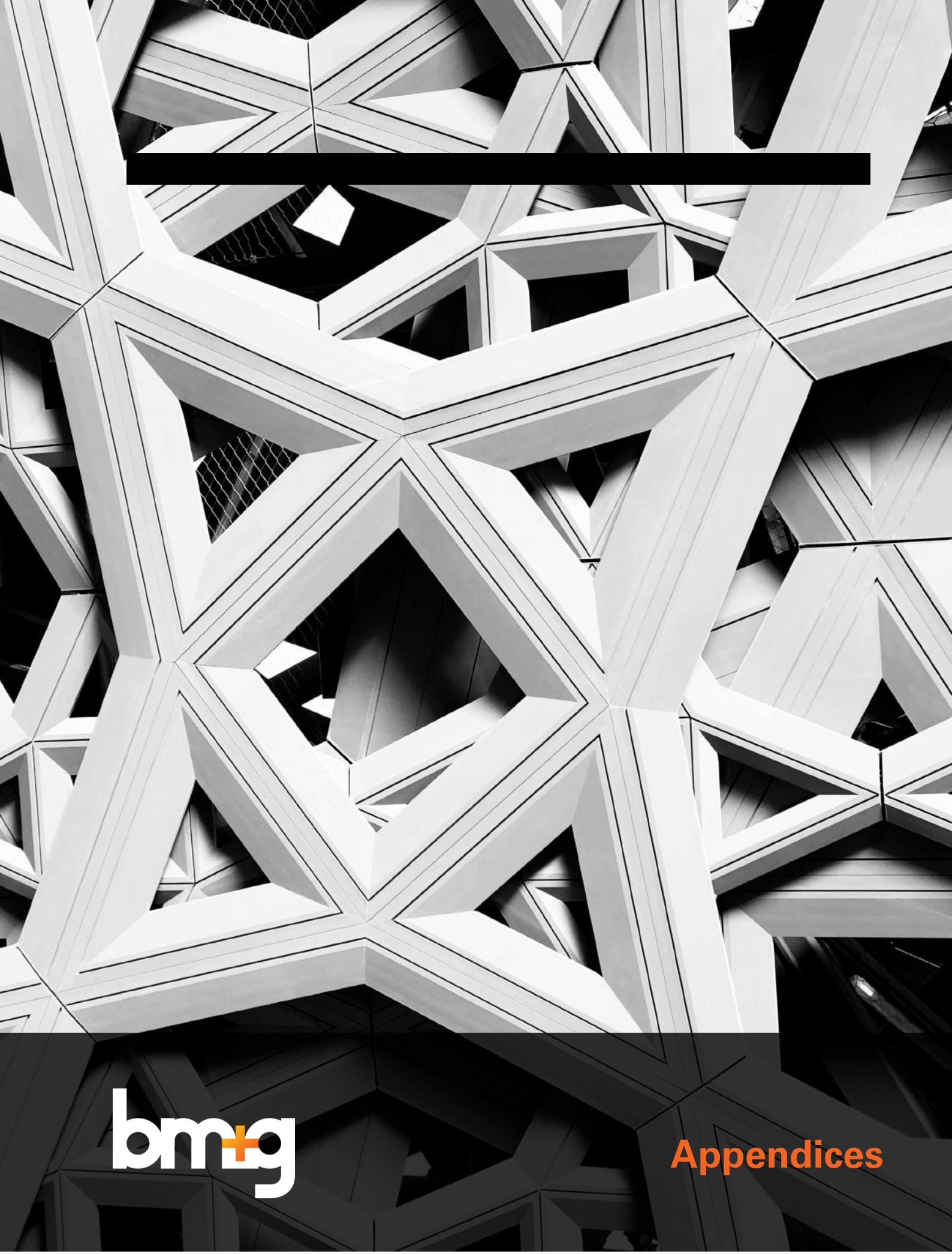

Appendices

+ Appendix 1 – Fire Resisting Construction Requirements

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**
EXTERNAL WALL – (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	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN - Not incorporated in an external wall				
For loadbearing columns	90/–/–	120/–/–	180/–/–	240/–/–
For non-loadbearing columns	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS				
Fire-resisting lift and stair shafts				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120s
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 the 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
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES, AND:				
COLUMNS	90/–/–	120/–/–	180/–/–	240/–/–

FLOORS	90/90/90	120/120/120	180/180/180	240/240/240
ROOFS	90/60/30	120/60/30	180/60/30	240/90/60

Notes:

1. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification 11.
2. 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 typically achieve the same FRL. Where that part is also required to be non-combustible, the supporting part must also be non-combustible.
3. A loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be constructed from; concrete or masonry.
4. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
5. Fire rated shafts are required to be enclosed at the top and bottom by construction having an FRL of not less than what the shaft requires (in both directions)
6. The concession granted under S5C15 results in the roof of the building not being required to be fire rated (the building is provided throughout with sprinklers). Notwithstanding, the Atrium provisions override this general concession in BCA Specification 5.
7. Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 120/120/120.
8. Fire isolated exits are to be provided with a fire rated "lid" that achieves an FRL of 120/120/120.
9. Where roof lights are proposed they are required to be located not less than 3 metres from a roof light in an adjoining fire separated part; and must not be more than 20% of the area of the roof.
10. External walls must be non-combustible construction. Non-loadbearing parts of an external wall that are more than 3m from a fire source feature need not be fire rated.

+ Appendix 2 – DCP / AS 4299-1995 (Adaptable Housing) Requirements

+ Clause	+ Reference	+ Comment	
Shoalhaven Council	**Development Control Plan**		
DCP Chapter 6	We have been advised by the Town Planner that the current DCP does not have any requirement for adaptable housing for residential apartment buildings. For smaller scale town house developments there is a requirement to include 10% adaptable housing, notwithstanding planning advice suggests that the minimum requirement for 10% does not apply to this development and that 5% is reasonable for a larger scale development such as the BTR development.	**Compliance Achieved:** Based on 60 apartments/SOU's proposed, 5% adaptable/SOU's apartments will be satisfied by U2-104, U1-108, & U1-208 to meet the Town Planners requirements.	
Section 2	**Objectives and performance requirements**		
Part 2.3	**Potential for adaptation**		
2.3 Drawings	Provision of drawings showing the housing unit in its pre-adaptation and post- adaptation stages.	**Note** Refer to Bomaderry BTR Dwelling Plans DA01 which identify pre-adaptation and post-adaptation for Type 2B06.	
Section 3	**Siting**		
3.2	**Siting**		
3.2.1 Site location	When selecting a site for lifetime accommodation, the following factors should be considered: a. Community facilities; b. Transport; c. Road and footpaths; and d. Location in relation to busy road.	**Note** Refer to Part D4 of this report for an assessment of AS1428.1-2009. Site location planning matters for lifetime accommodation to be validated by others.	
3.3	**Access within the site**		
3.3.2 Accessible pathway	A continuous accessible path of travel from street frontage and vehicle parking to entry of each adaptable SOU/apartment which satisfies AS 1428.1.	**Compliance Readily Achievable:** Access is provided from street by means of an AS1428.1 compliant ramp / walkway and from accessible parking space by means of a lift. The proposed passenger lifts are to satisfy BCA Clause E3D7 and AS1428.1-2009.	
3.6	**Security**		

+ Clause	+ Reference	+ Comment
3.6.1 External lighting	Pathway lighting— a. Must be designed and located so as to avoid glare for pedestrians and adjacent dwellings, and b. Light fittings should light up the surface for 1,000mm on each side of the path; and c. The minimum lighting level of at least 50 lux to be provided at ground level.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance
3.7	**Car parking**	
3.7.2 Garages and carports	The car spaces or garage area associated with the adaptable units are required to achieve a minimum area of: a. 6,000mm x 3,800mm or; b. 5,400mm x 3,800mm where a hard surfaced level outside space is provided as a sheltered car park or where the carpark can be provided with a roof in the future. c. A level surface includes surfaces with a gradient of up to 1:40 d. The car spaces associated with the adaptable units are to have a 2.2m minimum height clearance from the carpark entry leading to each carparking space with a minimum 2.5m height clearance at the carparking space and at the shared zone, compliant with AS/NZS2890.6-2009.	**Compliance Readily Achievable:** Whilst the number of accessible carparking spaces have been provided to satisfy the Town Planners requirements we note that the allocation of x2 carparking spaces are located within Building 2 which only contains x1 adaptable SOU/apartment. Likewise, the allocation of x1 carparking space is located within Building 1 which contains x2 adaptable SOU/apartment; this logic may need to be revisited with the Crown Certificate application. Ideally the number of carparking spaces should be commensurate with the number of adaptable SOU's/apartment's i.e. the building with x2 carparking spaces should contain x2 adaptable SOU/apartment. Carparking spaces to be certified as compliant to AS2890.6-2009 by the Traffic Consultant with the Crown and BCA Completion Certificate applications. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
3.8	**Letterboxes**	
3.8 Letterboxes	In accordance with AS4299-1995 the letterboxes are to be: a. Centrally located; b. Adjacent to the principal pedestrian entrance to the building; c. Located on a hard-standing; d. Level surface; and	**Compliance Readily Achievable:** Capable of compliance noting: a. Letterboxes to be located in accordance with this requirement and b. Letterboxes for all Adaptable units to be between 900mm to 1,100mm above FFL and

+ Clause	+ Reference	+ Comment	
	e. Connected via an accessible pathway to adaptable SOU's/apartments.	minimum 500mm from any internal corner. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.	
Section 4	**Design of housing unit**		
4.2	**Floor level**		
4.2 Floor level	Floor within units is to be level throughout adaptable SOU's/apartments including essential areas such as entry, living area, sanitary facility.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance. The following recommended is made: a. Where balconies / outdoor areas have been provided to Adaptable units, provide the sliding doors such that the tracks are recessed, so level access can be provided to the balcony / outdoor areas from inside the unit. Also sliding doors in the living areas leading to outdoor areas are to be such that opening of the door is able to provide a clear opening space of 850mm with a latch side space of 530mm. b. Grates to the threshold should be no more than 13mm where they run the length of the slider. c. Consideration to be given to set down the slab in the wet areas so that there is no level difference once the floor finishes are applied (i.e. flush transition from carpeted area to tiles area).	
4.3	**Entrances, doorways and circulation spaces**		
4.3.1 Accessible entrance	At least one accessible entry door complying with AS1428.2 shall be provided.	**Compliance Readily Achievable:** Capable of compliance.	
4.3.2 Landing	a. Accessible entry to be level (i.e. maximum of 1:40 slope);	**Compliance Readily Achievable:** Capable of compliance. Documentation verifying	

+ Clause	+ Reference	+ Comment
	b. Landing to enable wheelchair manoeuvrability 1,550mm diameter	compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.3.3 Doors	a. Accessible entry door and main bedroom and main bathroom to have 850mm min. clear opening width b. Accessible entry door to be adequately weatherproofed. c. Internal doors to have 820mm minimum clearance	**Compliance Readily Achievable:** Capable of compliance; generally a 920mm door will be able to provide a clear opening of 850mm. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.3.4 Door handles and hardware	a. Door lever handles and hardware to AS1428.1; including: i. D-pull or D-lever type handles with a return; ii. Have a minimum 35-45mm clearance between the handle and the backplate of the door face; iii. Be located between 900-1,100mm FFL. b. The operational force of entry doors to be lightweight in design to satisfy the operational requirements of AS1428.1-2009 (where provided, door closers to be adjusted to satisfy this requirement);	**Compliance Readily Achievable:** Capable of compliance. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.3.6 Circulation spaces	Circulation spaces shall be capable of modification to satisfy AS1428.1 for door approaches associated with accessible entry door and main bedroom and main bathroom.	**Compliance Readily Achievable:** Capable of compliance. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.3.7 Internal corridors	Internal corridors min. width of 1,000mm (between obstructions such as fixed lights, awnings, windows that, when open, intrude into the circulation space, telephones, skirtings and similar objects).	**Compliance Readily Achievable:** Capable of compliance. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.4	**Sanitary facilities**	
4.4.1 General - 4.4.4 Bathroom	All sanitary facilities/bathrooms/toilets and components shall be adaptable, at minimum cost, to potentially comply with AS1428.1-2009. The plan and specification shall detail the following:	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance. Note: Refer to the comments above relating to BCA Clause

+ Clause	+ Reference	+ Comment
	a. Have circulation spaces and location of fixtures and fittings to accord with AS1428.1-2009; b. Provision for grabrail zone; where grabrails are not provided from the outset and framed walls are used, reinforced areas for secure fixing shall be provided to support future grabrails as per requirements of AS4299 unless brick walls have been provided. AS1428.1 makes provision for the loading requirements for grabrails. c. Provide a double GPO beside the mirror (in the post-adapted location); d. Tap sets throughout shall have capstan or lever handles; e. Hot water systems to be installed to deliver hot water at a maximum of 50°C at the hot water outlet; f. Shower recess; minimum shower compartment size is to be 1,160mm x 1,100mm to comply with AS1428.1. g. Shower area waterproofed to AS3740 with floor to fall to waste; the shower waste should be a minimum 80mm diameter. h. Any waterproofing system used in the shower compartment shall be such that it can be extended to suit the larger, hobless configuration as required by AS1428.1. A system which is integral with a hob should be avoided due to the hob needing to be removed post-adaptation. As such a to achieve a finished hobless shower floor a set-down in the substrate may be required as per AS3740. i. Recessed soap holder; if recessed is not provided a heavy duty load bearing soap holder will be required. j. Shower taps positioned for easy reach to access side of shower sliding track. k. Provision for grabrail in shower to comply with AS1428.1. Where a bath is provided, it should be able to be adapted to satisfy AS1428.2 for grabrail fixings; avoid locating a shower over a bath. l. Provision for adjustable, detachable hand held shower rose mounted on a slider grabrail or fixed hook plumbing and wall-strengthening provision. m. Tap sets to be capstan or lever handles with single outlet	C2D10(6). Generally timber noggings/blocking/supports are not localised and cover the wall substantially. Where timber noggings/blocking/supports required for grab rail supports align within internal non-loadbearing fire-rated walls a Fire Engineered Performance Solution is required. The following recommended is made: a. Where the location of fixtures such as WC pans, wash basins, sinks, laundry fixtures and any other fixtures are to be relocated post-adaptation to comply with AS1428.1, then the service pipes (waste and water supply pipes) have to be laid in the correct AS1428.1 specified position at pre-adaptation itself and the services to be capped off for future use. b. Consideration to be given to set down the slab in the wet areas so that there is no level difference once the floor finishes are applied (i.e. flush transition from carpeted area to tiles area). c. Where a floor waste is required, F2D4 requires that the floor must be graded at a minimum continuous fall of 1:80 to a floor waste and the floor must be graded at a maximum continuous fall of 1:50 to a floor waste. This solution will likely lead to a Performance Solution for DDA compliant sanitary facilities where a minimum continuous fall of 1:100 is adopted in favour of 1:80 permitted under F2D4. Note 1: all required circulation spaces at doors and around WC pans, washbasins and showers shall be able to be provided without major changes (including plumbing changes). Note 2: Due to difficulty moving or adapting some items after they have initially been installed (e.g. WC pan, hobless shower base,

+ Clause	+ Reference	+ Comment
	n. Provision for washbasin with clearances to comply with AS1428.1; 425mm is required from the side wall to the centre line of the basin. Basin is required to be at least 300mm away from door swing. o. Provision of either 'visitable toilet' or accessible toilet; where a visitable is provided ensure that an accessible can be provided post-adaptation. p. Toilet to be capable of compliance with AS 1428.1. q. Location of WC pan at correct distance from fixed walls; 450mm – 460mm is required from the side wall to the centre line of the WC pan. Add to Specifications. r. The floor surface shall be slip-resistant.	shower 'T' rails, WC flushing controls, paper dispensers etc) it is required that they be compliant with AS1428.1-2009 from the outset. Note 3: AS4299 makes provision for structural 12mm plywood or similar to support loadings imposed by grabrails within framed walls. Refer to commentary under BCA Clause C2D10 which suggests Fire Engineering input being required to permit timber noggings/blocking/supports within internal non-loadbearing fire-rated walls and external walls which exceed the non-combustibility requirements under BCA Clause C2D10(6).
4.5	**Kitchen areas**	
4.5.1 General - 4.5.12 Floor coverings	The kitchen plan and specification shall detail the following: a. A minimum clearance of 1,550mm between all opposing base cabinets and walls to be provided at the outset, to allow for a 180-degree turn, in accordance with AS1428.1 b. Benches to include 800mm work surface adjacent to the sink and cooktop; c. Provide a workspace (minimum 300mm) adjacent to the refrigerator; d. Kitchen sink to be adjustable from 750mm-850mm in height, or replaceable; e. Kitchen sink bowl shall be max 150mm deep or be replaceable; f. The tap set shall have levers or sensor plate controls located no greater than 300mm from the front of the bench g. The cooktop shall be provided with an isolation switch and controls which do not require reaching over hotplates and controls shall have raised cross-bars for ease of grip; h. Elevation drawings to indicate location of oven to be located adjacent to a work surface (oven to be located underneath cooktop); i. At least one double power point outlet within 300mm of the front of a work surface, and one provided for a refrigerator in such a position as to be	**Compliance Readily Achievable:** Capable of compliance; generally 1,550mm circulation provided within the kitchen area. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.

+ Clause	+ Reference	+ Comment
	easily accessible after the refrigerator is installed; j. Hot water systems to be installed to deliver hot water at a maximum of 50°C at the hot water outlet; and k. The floor surface shall be slip-resistant l. A circulation space at door approaches that complies with AS 1428.1, and m. "D" pull cupboard handles that are located towards the top of below-bench cupboards and towards the bottom of overhead cupboards, n. Depth of shelving up to 800mm above FFL should not exceed 600mm; shelving from 800mm up to 1,500mm should not exceed 450mm depth; shelving above 1,500mm from FFL should not exceed 300mm depth; shelving should be adjustable. o. At least one shelf of all cabinets and storage shelves mounted above a work surface should have a maximum depth of 400mm and be located no higher than 1,200mm above FFL.	
4.6	**Bedrooms**	
4.6.1 Bedroom areas	The accessible bedroom plan and specification shall detail the following: a. The main bedroom shall be capable of accommodating a queen size bed (1,530mm x 2,030mm), a wardrobe and the circulation space requirements of AS1428.2, clear of wardrobe fixtures; and b. A minimum of two double socket general purpose outlets shall be provided on the wall of the bedroom where the bedhead is likely to be located.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.7	**Living areas**	
4.7.1 Circulation space	The Living Room plan and specification shall detail the following: a. Indicate provision for a telephone adjacent a power point; and b. Full height glazed panels or door units where provided shall have a transom at 600-730mm above floor level. Glazing shall be of a safety glazing material; c. Accommodate a 2,250mm diameter circulation space after furniture has been place.	**Compliance Readily Achievable:** Capable of compliance; generally 2,250mm circulation provided within the living room area. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.8	**Laundry areas**	

+ Clause	+ Reference	+ Comment
4.8 Laundry areas	The Laundry plan and specification shall detail the following: a. Circulation at doors to comply with AS1428.1. b. Provision for adequate circulation space in front of or besides appliances (minimum 1,550mm depth). c. For a work surface of 870mm a tub of maximum depth 210mm is necessary to allow knee space underneath. Where a full depth laundry tub is provided knee space shall be provided beside it. d. A shelf should be provided at maximum 1,200mm above FFL. e. Provision to be made for an automatic washing machine. f. Provision should be made for a clothes drier mounted at a suitable height. g. Where clothes-line is provided, an accessible path of travel to this clothes line. h. Provide a continuous accessible path of travel to a clothesline, where provided. i. A double general power outlet needs be provided. j. Hot water systems to be installed to deliver hot water at a maximum of 50°C at the hot water outlet. k. The floor surface shall be slip-resistant.	**Compliance Readily Achievable:** Capable of compliance; generally 1,550mm circulation provided in association with key appliance locations. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.
4.9	**Floors**	
4.9 Floors	All floor should be slip resistant including within bathrooms, laundries, toilets and all external paved surfaces.	**Compliance Readily Achievable:** Floor finishes will be required to satisfy minimum slip resistance requirements in accordance with AS 4586-2013 and associated handbook HB198-2014. Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance. Note: consideration should be given to fire hazard properties of floor linings such as carpets and vinyls etc. Refer to BCA Clause C2D11 and Spec. 7 of this report for design requirements for floor lining fire indices.
4.10	**Lighting**	
4.10 Lighting	A lighting plan and specification shall detail the following:	**Compliance Readily Achievable:**

+ Clause	+ Reference	+ Comment	
	a. An even degree of lighting, particularly along paths of travel, shall be available throughout the building. b. All lighting and luminance to be maintained and satisfy AS1680.1. c. Potential illumination level minimum 300 lux generally within adaptable SOU/apartments. Notwithstanding, higher lux may be required depending on the occupant and if they are undertaking tasks/activities requiring lighting. d. Higher lux are also required for safety reasons in association with steps, stairs and ramps. e. Lighting should be designed for non-glare, be easy-to-change and/or be long-life light source.	Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance. Note: Refer to BCA Part F6 of this report for design requirements associated with lighting.	
4.11	**Ancillary items**		
4.11.1 Switches and power points	Switches and power points must be provided in accordance with AS 4299. Note: rocker actions, toggle or push pad switches with a recommended width of 35mm are recommended.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.	
4.11.2 Electrical distribution board	The EDB should be located inside the adaptable SOU/apartment and be accessible.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.	
4.11.5 Linen Storage	A linen storage cupboard of minimum 600mm width, with adjustable shelving should be provided.	**Compliance Readily Achievable:** Documentation verifying compliance to be provided with the relevant Crown Certificate application demonstrating compliance.	