BCA Assessment Report

45-49 Warriewood Road Warriewood

Project:	45-49 Warriewood Road Warriewood
Reference No:	115064-BCA-r1
Date:	17 December 2021
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Document Control

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115064-BCA-r1	17.12.2021	BCA Assessment Report – DA submission	
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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed residential development at 45-49 Warriewood Road Warriewood, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 3 'BCA Assessment' of this report outlines the BCA assessment for this project at DA stage and nominates compliance issues that require assessment as Performance Solutions.

As noted below, compliance may be achieved via the Performance Provisions of the BCA and any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Part 5 'Access Assessment' of this report outlines the assessment for this project against the DCP requirements for adaptable and livable dwellings.

Item	Description	BCA Provision
Performance Solutions Required		
1.	In lieu of protecting the openings in Terrace D1 (external wall of different fire compartments), the Performance Solution will provide sufficient fire-resistant construction to the Bin Collection Room only.	C3.3 & C3.4 CP2 & CP8
2.	To permit travel distance up to 45m to an exit (FS02) from the basement central bicycle parking area. To permit distance between exits up to 70m in the basement level.	D1.4 & D1.5 DP4 & EP2.2
3.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at 45-49 Warriewood Road Warriewood. The development consists of the three storey Class 2 building in the centre of the site and separate lots with dwellings fronting Warriewood Road and Lorikeet Grove. This Report will only assess the Class 2 building known as Block C & Block D. The Class 2 building is one united building as both Block C & Block D are situated over a common Basement storey.

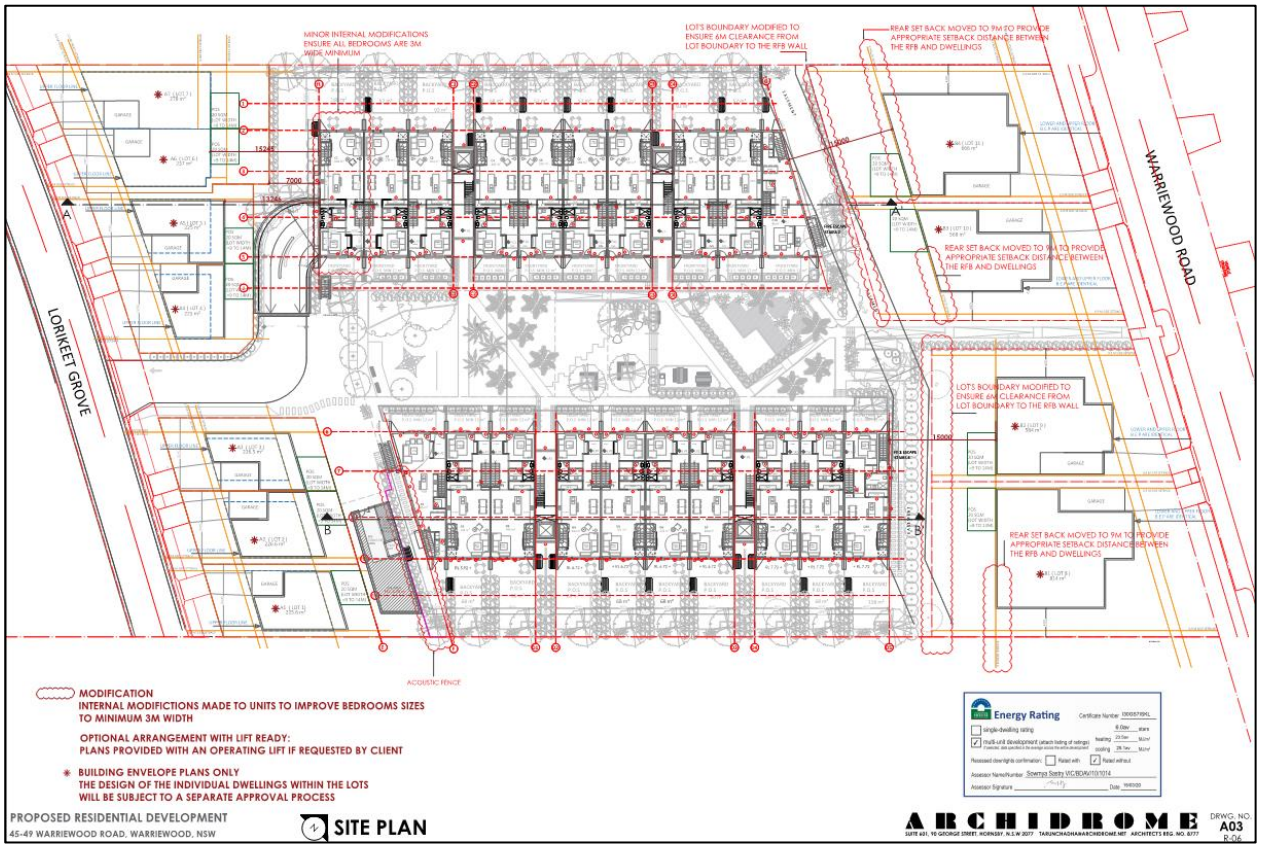


Figure 1: Site Plan - The Report will assess the Class 2 building in the central part of the site and exclude the dwellings fronting Warriewood Road and Lorikeet Grove.

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, Amendment 1, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (BCA2019 herein) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4. Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

(a) the structural adequacy or design of the building;

(b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

(c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the National Construction Code – Plumbing Code of Australia Volume 3

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provisions of Part D3 and F2.4 of BCA2019 only);

(c) Demolition Standards not referred to by the BCA;

(d) Work Health and Safety Act 2011;

(e) Requirements of Australian Standards unless specifically referred to;

(f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and

(g) Conditions of Development Consent issued by the Local Consent Authority.

1.5. Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

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

2.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of four (4). In accordance with BCA Clause C1.2(a) the basement driveway provides finished ground level adjacent the basement external wall at the driveway entry, therefore the basement storey must be counted in the rise in storeys.

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
Class 7a	Basement Level	Car Parking
Class 2	Part Basement Level, Ground Floor to Second Floor	Residential SOUs
Class 10b	Ground Level	Swimming Pool

2.3. Effective Height (Clause A1.0)

The building has an *effective height* of less than 25 metres and less than 12 metres.

Effective Height is measured from Second Floor RL 13.72 to Basement RL 3.00 (13.72 – 3.00 = 10.72m)

2.4. Type of Construction Required (Table C1.1)

The building is required to be of Type A Construction.

2.5. Floor Area and Volume Limitations (Table C2.2)

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

Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area.
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.

2.6. Fire Compartments

The following *fire compartments* have been assessed:

(a) Basement level and the Ground Floor bin room adjacent Building D are a single fire compartment. The bin lift serves the Ground Floor bin room from Basement level without being a fire isolated shaft.

(b) Basement Level: The Class 2 SOU entries will be separated by Fire Walls FRL 120/120/120. Refer to Figure 2 below for an example of Block D which is also applicable to Block C. Each SOU will be fire separated from the Basement car park and from the adjoining SOU.

(c) Ground Floor to Second Floor is a single fire compartment served by non-fire isolated stairs. SOU entries on Basement Level will form part of the fire compartment.

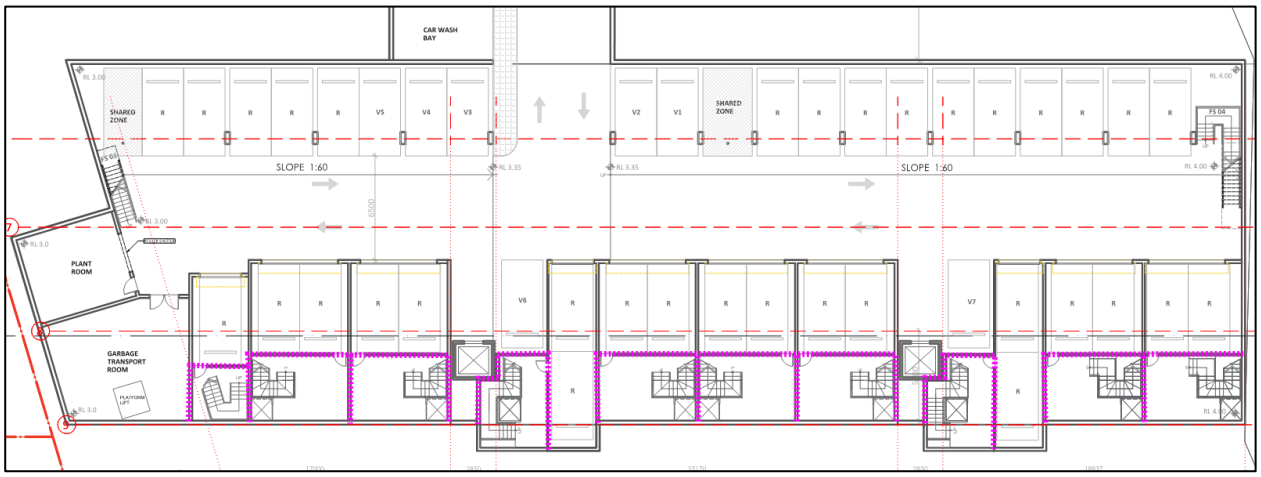


Figure 2: Block D – Fire Walls 120/120/120 to separate the Class 2 SOU entries from the car park (Block C will require similar Fire Wall separation)

2.7. Exits

The following points in the building have been considered as the exits: assumed:

(a) Basement level has four (4) non-fire isolated stairs.

(b) Ground Floor terraces (double storey SOUs) have direct egress from each SOU to open space.

(c) Second Floor: Each SOU has access to a non-fire isolated stair.

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 5.

2.9. Location of Fire-source features

The fire source features for the subject development are:

North-east: The allotment boundary (boundary proposed in subdivision being rear boundary of lots facing Warriewood Road). Building is greater than 3m to the boundary.

South-west: The allotment boundary (boundary proposed in subdivision being rear boundary of lots facing Lorikeet Grove). Bin holding room is within 3m of the allotment boundary.

South-east: The side allotment boundary. Building is greater than 3m to the boundary.

North-west: The side allotment boundary. Building is greater than 3m to the boundary.

In accordance with Clause 2.1 of Specification C1.1, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

(a) has an FRL of not less than 30/–/–; and

(b) is neither transparent nor translucent.

3 BCA ASSESSMENT

3.1. Introduction

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate and as such, this assessment is designed to address a higher level assessment of the building against the provisions of the BCA.

The main purpose of this report is to address any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E).

The summary below is to be read in conjunction with the BCA specification contained in Annexure F of the report.

3.2. Relationship to the Design and Building practitioners Act

The Design and Building practitioners Act requires certain specified design to be certified by a Registered Practitioner and the issuing of a Design Compliance Declaration (DCD). The declared designs include:

- Structure
- Building Enclosure (eg Façade);
- Fire Safety Systems (eg services, egress and FRL's)
- Waterproofing
- Fire Safety performance solutions

This report contains an assessment of the plans and specifications available, which are not sufficient in detail to allow any DCD to be issued by others. This report is not to be construed as, or used to support to a DCD at CC stage as it is based on development application drawings only.

3.3. Fire Resistance and Stability – Part C1 & Specification C1.1

The building is required to be constructed of Type A Construction. The required fire resistance levels for the building elements are outlined in **Annexure C** of this report.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. The plans do not indicate the materials of the external wall and further details will be required to be submitted at CC stage for assessment, however compliance is readily achievable subject to further review by BCA Logic at CC stage.

The Material Schedule Plan (A16 Rev 04) indicates the use of Metal Panelling (cladding), albeit further details will be required to be submitted at CC stage for assessment, however compliance is readily achievable by using a compliant product with correct supporting Test Reports.

Architectural plans indicate the use of concrete walls with the use of Logicwall LW162 for intertenancy walls (Party walls) which is considered a suitable product as it has a current CodeMark Certificate.

Subject to the required FRL's being provided, the proposed building is capable of complying with the requirements of the BCA with respect to fire resistance.

3.4. Compartmentation and Separation – Part C2

Under the provisions of clause C2.2 of the BCA, the residential portion of the building is not the subject to any floor area and volume limitations.

The carpark is required to have a AS 2118.1 sprinkler system, therefore the carpark is not the subject of floor area and volume limitations under the provision of clause C2.2 of the BCA.

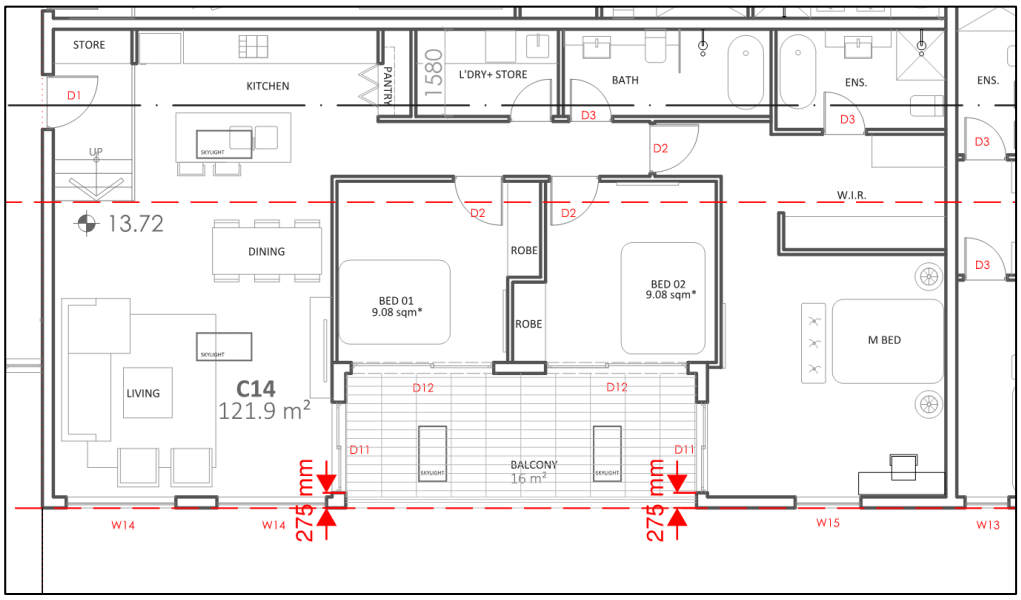
Refer to Part 2.6 of the Report for assessment of the Fire Compartments and Fire Walls required in the basement level to separate the individual SOU entries form the car park. In addition, the non-fire isolated stair FS04 will require Fire Wall 120/120/120 separation to Terrace D10 as it discharges at Ground Level.

The building is 4 storeys or more and therefore is required to have a sprinkler system in accordance with E1.5, Specification E1.5 & E1.5a. However, as it is DA stage the proposed sprinkler system has not been identified yet.

If the building is provided with a AS 2118.1 or AS 2118.4 sprinkler system, spandrel protection is not required under the provisions of clause C2.6 of the BCA to protect openings on different storeys of the building.

If the building is provided with a FPAA101H or FPAA101D sprinkler system, spandrel protection is required. Clause C2.6 of the BCA requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The plans indicate suitable spandrels are provided by a combination of horizontal balcony slabs and vertical walls beneath windows. The walls beneath the windows are required to be a minimum of 900mm high with 600mm above the slab, and an FRL of 60/60/60. No specific details of the spandrel walls have been provided to allow assessment however compliance is readily achievable.

Further design amendments are required at CC stage to ensure when the doorway openings are perpendicular to the facade line, the door openings are setback 450mm from the balcony slab, so the horizontal slab extends past the opening by 450mm – refer below.



Spandrel protection is not required for the openings in the external wall of the non-fire isolated stairways within the public corridors. Spandrel protection is not required for the openings in the external wall of the First Floor as the openings are within the same SOU, being double storey terrace SOUs.

The main switch board is generally located in the basement level of the building. If the switchboard is required to service emergency equipment required to operate in an emergency, the switch room is to have an FRL of 120/120/120. The design of the switch room is such that compliance can be readily achieved.

The Terrace dwellings are shown with a proposal for 'lift ready' to be fitted within the SOUs. A private lift serving the three levels in the SOU is not required to comply with Clause C2.10 of the BCA and is not required to have a fire-resistant shaft.

Compliance with Part C2 of the BCA can be readily achieved by the proposal.

3.5. Protection of Openings – Part C3

3.5.1. Openings in external walls

The external walls of the residential dwellings are located more than 3m from any boundary. As such there is no requirement to protect any openings within the external walls of the residential dwellings.

The door opening on the NW elevation of the Bin Collection Room on Ground Level is within 3m of the boundary and will require protection with a self-closing fire door FRL -/60/30. Details are to be provided with the Construction Certificate to outline how compliance will be achieved.

3.5.2. Openings in external walls in different fire compartments

As the Bin Collection Room adjacent Block D is part of the Basement fire compartment (connected by bin lift), the external wall of the Bin Collection Room and Terrace D1 are in different fire compartments and within 6m of one another. In lieu of protecting the openings in Terrace D1, the proposal is for a Performance Solution to address BCA Clause C3.3 & C3.4 and to provide sufficient fire-resistant construction to the Bin Collection Room only.

3.5.3. Openings in Fire Walls

In the Basement Level, the fire walls separating the SOU entries will be protected with self-closing fire doors with FRL -/120/30.

3.5.4. Bounding Construction

The walls between the SOU's and between the SOU's and corridor are internal walls that require an FRL. Also, the walls to the lift and stairs require an FRL. As such, on Second Floor the doors to the sole occupancy units and fire stairs are required to be self-closing FRL --/60/30 fire doors in accordance with clause C3.11 of the BCA. The doors to the lift are required to have an FRL of -/60/-.

Terrace dwellings have direct access to open space on Ground Floor with no internal entry from a public corridor. These entry doors in the external walls are not subject to compliance with C3.11 of the BCA.

3.5.5. Openings in Floors for Services and Service Installations

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables. Compliance with BCA C3.15 can be readily achieved by the proposal

3.6. Occupant Access and Egress – Section D

3.6.1. Egress from the building

Egress from the carpark is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from and exit, or a point of choice of two exits, in which case the distance to one of those exits is not more than 40m, as required by clause D1.4 of the BCA. The central Bicycle Parking area exceeds 40m to an exit and will be addressed with a Performance Solution to permit up to 45m to an exit.

The distance between alternative exits in the car park is required by clause D1.6 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The distances between exits will be addressed with a Performance Solution to permit up to 70m between alternative exits.

In the residential portion of the building, the distance to an exit on the ground floor is permitted to be 20m. The distance to an exit on Second Floor is to be no more than 12m for a sprinkler protected building from SOU entry door to an exit. The travel distances on Ground Floor and Second Floor comply with the above.

The residential part of the building has no more than 3 storeys connected by a stairway, and therefore under the provisions of clause D1.3 of the BCA, the residential building is permitted to have non fire isolated stairways. The basement level is served by four non fire isolated stairways.

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of Clause D1.10 of the BCA are readily satisfied.

Details of treads and risers, landings, thresholds, balustrades and handrails have not been provided however compliance is readily achievable. The design of these elements can be assessed at the CC stage.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA D2.7. The doors are to be lined internally with fire grade plasterboard or metal backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitable sealed against smoke spread by sealing with fire mastic.

3.6.2. Access for people with disabilities

Clause D1.3 of the BCA requires access to the building as follows:

Class 2 Common Areas	From a pedestrian entrance required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level. To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, individual shop, eating area, or the like. Where a ramp complying with AS 1428.1 or a passenger lift is installed— (a) to the entrance doorway of each sole-occupancy unit; and (b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp.
Class 7a	To and within any level containing accessible carparking spaces.
Class 10b Swimming Pool	To and into swimming pools with a total perimeter greater than 40 m, associated with a Class 1b, 2, 3, 5, 6, 7, 8 or 9 building that is required to be accessible, but not swimming pools for the exclusive use of occupants of a Class 1b building or a sole-occupancy unit in a Class 2 or Class 3 building.

A review of the Landscape Plans indicate that an accessible path of travel is provided from the allotment boundary on Warriewood Road and Lorikeet Grove. Accessway will be provided with a series of 1:14 ramps and / or 1:20 walkways which can readily comply with AS 1428.1:2009. Accessway is provided to the four (4) building entries which include access to the common lifts to serve the Second Floor. Accessway is provided to the entry gate leading to the private open space for each Terrace dwelling, which is satisfactory for SOUs which have their pedestrian entry via their own private open space.

Swimming pool has a total perimeter less than 40m and is not required to be accessible. However, an accessway is required to the communal facilities surrounding the pool. Accessway is also required to communal BBQ area and playground which can be readily achieved.

Accessway will be provided from the lifts to the communal garbage drop-off room in the basement in accordance with AS 1428.1:2009.

Second Floor public corridor has sufficient width for circulation spaces in accordance with AS 1428.1.

Within the Basement level, the floor gradients are 1:60 which is acceptable for providing an accessway to and from the accessible parking spaces and the common lifts to the communal facilities such as the bicycle parking & garbage drop off room.

Note: Class 2 buildings do not require accessible parking under BCA Table D3.5. Accessible parking is provided in conjunction with adaptable dwellings required under the local council DCP. Nonetheless, compliance with AS/NZS 2890.6:2009 will be achieved.

3.7. Services and equipment- Parts E1, E2 and E4

The building is required to be provided with the services and equipment set out in Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

3.8. Lift Installations – Part E3

Lifts are provided to the building and are located in their own shaft and are serviced by a common lobby. The lifts do not require a stretcher facility as the building is under 12m in effective height and the dimensions of the shaft are sufficient to allow compliance.

The Terrace dwellings are shown with a proposal for ‘lift ready’ to be fitted within the SOUs. A private lift serving the three levels in the SOU is not required to comply with Part E3 of the BCA.

3.9. Facilities in Residential Buildings – Part F2

Clause F2.1 of the BCA requires the following facilities within a Class 2 building:

- Kitchen sink;
- Bath or shower;
- Closet pan;
- Washbasin
- Laundry facilities

The plans indicate that each of these facilities are provided within each sole occupancy unit and therefore compliance is achieved with Clause F2.1 of the BCA.

3.10. Room Heights – Part F3

The ceiling heights have been assessed in accordance with Part F3 of the BCA which has indicated that compliance is readily achievable within all habitable spaces, corridors and the like.

3.11. Light and Ventilation – Part F4

Natural light and ventilation are required to all habitable rooms within a Class 2 building. The plans have been assessed which reveals all habitable spaces are services by windows or glazed doors. The area of the doors and windows are assumed to be of sufficient size to provide the required minimum natural light and ventilation to all habitable rooms.

For the two-storey terrace dwellings the central Rumpus rooms are provided with borrowed natural light with fixed glazed windows above the wardrobe/ linen cupboard. The fixed window will have a light

transmitting area of not less than 10% of the floor area of the Rumpus room to allow borrowed natural light to the room. The bedroom glazing has sufficient size to provide light transmitting area of not less than 10% of the combined floor area of both rooms. Bedroom door can be relied upon for borrowed natural ventilation to the Rumpus room.

For the terrace dwellings and the basement entries, the space can only be used for storage as it is not provided with natural light.

The carpark is required to be provided with a system of mechanical ventilation where required by clause F4.11 of the BCA.

5 LEP & DCP - ACCESS ASSESSMENT

5.1. Council's Development Control Plan Requirements (DCP)

Pittwater 21 DCP provides Council's planning controls on the provision of Accessibility / Adaptability / Universal Design under Section C of that Plan.

The Controls for Accessibility under Clause 1.9 of Section C of Pittwater 21 DCP are as follows:

Controls
Adaptable Housing

The design of residential development shall meet the criteria of Australian Standard AS 4299:1995 Adaptable Housing as follows:

Development	Percentage (%) of adaptable units (rounded up)	Minimum class under AS 4299:1995
Multi Dwelling Housing, Boarding Houses, Group Homes and Hostels, excluding those in Warriewood Valley	50	Class B
Residential Flat Buildings, Shop Top housing and Mixed Use developments comprising residential accommodation.	20	Silver level of the *Liveable Housing Guideline.*
Residential development in Warriewood Valley not elsewhere identified in this table.	25	Class B
Seniors Living	100	Per the requirements of the *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*

The development application must be accompanied by certification from an accredited access consultant confirming that the nominated adaptable dwellings are capable of being modified, when required by the occupant, to comply with *AS 4299:1995 Adaptable Housing.*

As noted in the Table above under Clause C1.9, it is confusing what is required for adaptable dwellings for residential flat buildings. As the subject building has a rise in storeys of four it is defined as a residential flat building. The Table notes under 'Percentage of adaptable units' that 20% are required, however under 'Minimum Class under AS 4299' it states Silver Level of the Livable Housing Guidelines.

In consultation with the Planning Consultant, the subject development will adopt 10% adaptable dwellings to AS 4299:1995 Class B and 20% Silver Level dwellings in accordance with Livable Housing Guidelines. This is considered an appropriate level of accessibility for the size of the proposed development and in line with many other local councils.

The development has a total of 34 dwellings, therefore, to achieve 10% adaptable dwellings it will require 4 adaptable dwellings. The four adaptable dwellings are located on Second Floor: Units C11 & C12 and Units D11 & D12.

Refer to Annexure G for the assessment summary of the proposed adaptable dwellings in accordance with AS 4299:1995 Class B requirements.

5.2. Livable Housing Design Guidelines Requirements (LHDG)

The SEPP 65 Apartment Design Code requires that residential developments achieve a benchmark that at least 20% of the total apartments incorporate the Livable Housing Guideline's silver level universal design features. The Tabel below includes an assessment against the relevant requirements of the LHDG.

The development has a total of 34 dwellings, therefore, to achieve 20% Livable dwellings it will require 7 Livable dwellings. The development has 8 Livable dwellings: 4 x Units C4 – C7 on Ground Floor and 4 x Units C11 & C12 and D11 & D12 on Second Floor. The Second Floor units will be Livable units as well as the pre-adaptable units.

The Livable dwellings have been assessed against the Silver Level requirements of Livable Housing Guideline's Ver 4 2017 and it is considered that such documentation complies or is capable of complying with that Guideline.

The following summary is a high-level compliance review which identifies that compliance with Silver Level requirements of Livable Housing Guideline's Ver 4 2017 will be achieved:

- Ground Floor terrace dwellings will have an accessible path of travel to the front entry door of each dwelling in accordance with AS 1428.1:2009. Level threshold or 1:8 threshold ramp will be reviewed at CC stage in accordance with AS 1428.1:2009.
- Second Floor dwellings will have an accessible path of travel to the entry door of each lobby providing lift access to the Second Floor in accordance with AS 1428.1:2009.

- Entry doorways have 1200 x 1200mm clearance both sides of the doors.
- All internal doorways have a minimum 820mm clear opening. For the Ground Floor terrace dwellings this applies to the entry level only. Internal corridors shall have 1000mm clear width.
- For the Ground Floor terrace dwellings, a livable toilet is provided on the entry level with sliding doors and 900x1200mm clearance in front of the pan. Second Floor dwellings have a livable toilet with sliding doors or swing doors and 900x1200mm clearance in front of the pan
- In the livable bathrooms the toilet and shower are in the corner and will be capable of having the required reinforcement provided to the walls for the future installation of grabrails.
- For the Ground Floor terrace dwellings, a handrail will be provided to the internal stairway in accordance with BCA D2.17 which will satisfy silver level requirements.

6 STATEMENT OF COMPLIANCE

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia (BCA), AS 4299:1995 for adaptable dwellings and Livable Housing Guidelines and it is considered that such documentation complies or is capable of complying with those Codes & Guidelines.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation by Archidrome.

Table 3. Architectural Plans

Architectural Plans Prepared by			
Drawing Number	**Revision**	**Date**	**Title**
A02	6	14.12.21	Site Analysis
A03	7	14.12.21	Site Plan
A04	7	14.12.21	Basement Plan
A05	7	14.12.21	Ground Floor Plan
A06	7	14.12.21	First Floor Plan
A07	6	23.08.21	Second Floor Plan
A08	5	21.05.21	Roof Plan
A09a	7	14.12.21	Ground Floor Plan Block C
A09b	7	06.12.21	First Floor Plan Block C
A09c	6	23.08.21	Second Floor Plan Block C
A10a	6	23.08.21	Ground Floor Plan Block D
A10b	7	14.12.21	First Floor Plan Block D
A10c	6	23.08.21	Second Floor Plan Block D
A11a	4	13.03.20	Elevations 01
A11b	4	13.03.20	Elevations 02
A11c	4	15.03.20	Elevations 03
A12a	5	25.05.21	Section AA
A12b	5	25.05.21	Section BB
A20	7	14.12.21	Adaptable Units

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

In accordance with a DA assessment, the following fire safety measures are required and/or assumed to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed at CC stage.

Table 4. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2019 C3.13** (Openings in Shafts) **BCA2019 Spec C3.4** AS 1905.1:2015 (Fire Resistant Doorsets)
2.	Fire doors	**BCA2019 C2.12** (Separation of Equipment) **BCA2019 C2.13** (Electricity Supply Systems) **BCA2019 C3.4** (Acceptable methods of Protection) **BCA2019 C3.5** (Doors in Fire Walls) **BCA2019 C3.11** (Bounding Construction) Spec C3.4 & AS1905.1: 2015 **BCA2019 C3.10** (Opening in Fire Isolated Lift Shafts) & AS1735.11- 1986
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 C3.16** (Construction joints) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
4.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** AS1530.4:2014
General		
5.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
6.	Warning & operational signs	**BCA2019 C3.6** (Sliding Fire Doors) **BCA2019 D2.23 (**Signs on Fire Doors) **BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs)) **BCA2019 E3.3** (Lift Signs) **BCA2019 Spec E1.8** (Fire Control Room)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		NSW H101.8 (Stage Load Notice) **BCA2019 Spec E1.8** (Fire Control Centres)
Electrical Services		
7.	Automatic fire detection & alarm:	**BCA2019 E2.2**, Table E2.2a **Spec E2.2a** - Clause 3 (Smoke alarm system) **Spec E2.2a** - Clause 4 (Smoke detection system) **Spec E2.2a** - Clause 5 (Combined smoke alarm and smoke detection system) **Spec E2.2a** - Clause 7 (BOWS) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018
8.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
9.	Exit signs	**BCA2019 E4.5, E4.6 & E4.8** AS/NZS 2293.1:2018
10.	System Monitoring Monitoring Required for any: > AS2118.1 Sprinkler System	**BCA2019 E1.5, Spec E1.5** AS 1670.3:2018
Hydraulic Services		
11.	Automatic fire suppression systems > Sprinkler system for Class 2 parts to be determined at CC stage.	**BCA2019 E1.5, Spec E1.5 & Spec E1.5a** AS 2118.1:2017 (Car Park) Class 2 Parts: Can be either - AS 2118.4:2012, FPAA101D or FPAA101H
12.	Fire hydrant systems > NSW Storz Couplings	**BCA2019 E1.3** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
13.	Hose reel systems (Car park only)	**BCA2019 E1.4** AS 2441:2005
Mechanical Services		
14.	Fire dampers	**BCA2019 C3.15**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
15.	Mechanical air handling systems 1. Mechanical ventilation to carpark.	**BCA2019 E2.2, Table E2.2a** AS 1668.1:2015 (Amdt 1)
Notes: (An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one *fire compartment* to another *fire compartment* or operates in a manner that may unduly contribute to the spread of smoke from one *fire compartment* to another *fire compartment* must— (i) ((be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1:2018; and for the purposes of this provision, each *sole-occupancy unit* in a Class 2 or 3 building is treated as a separate *fire compartment*. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1:2015 serving more than one *fire compartment* (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard.		
16.	**Performance Solutions** *Fire Engineering Report (FER) to be prepared at CC stage	

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type A Construction

Table 5. Type A Construction

Item	Class 2	Class 7a
Loadbearing External Walls (including columns and other building elements incorporated therein) - Less than 1.5m to a *fire- source feature* - 1.5 – less than 3m from a *fire-source feature* - 3m or more from a *fire source feature*	 90/90/90 90/60/60 90/60/30	 120/120/120 120/90/90 120/60/30
Non-Loadbearing External Walls - Less than 1.5m to a *fire-source feature* - 1.5 – less than 3m from a *fire-source feature* - 3m or more from a *fire-source feature*	 -/90/90 -/60/60 -/-/-	 -/120/120 -/90/90 -/-/-
External Columns - Loadbearing - Non-loadbearing	 90/-/- -/-/-	 120/-/- -/-/-
Common Walls & Fire Walls	90/90/90	120/120/120
Stair and Lift Shafts required to be fire-resisting - Loadbearing - Non-loadbearing	 90/90/90 -/90/90	 120/120/120 -/120/120
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	 90/90/90 -/60/60	 120/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	 90/90/90 -/60/60	 120/-/- -/-/-
Ventilating, pipe, garbage and like shafts: - Loadbearing - Non-loadbearing	 90/90/90 -/90/90	 120/90/90 -/90/90
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-
Floors	90/90/90	120/120/120
Roofs[1]	90/60/30	120/60/30

N.B. [1] The Class 2 roof need not comply with any FRL's in this Table due to the building being Class 2.

ANNEXURE E DEFINITIONS

Annexure E - Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

(a) the exterior of the building; or

(b) a non-conditioned space including—

(i) the floor of a rooftop plant room, lift-machine room or the like; and

(ii) the floor above a carpark or warehouse; and

(iii) the common wall with a carpark, warehouse or the like.

Exit

Exit means –

(a) Any, or any combination of the following if they provide egress to a road or open space—

(i) An internal or external stairway.

(ii) A ramp.

(iii) A fire-isolated passageway.

(iv) A doorway opening to a road or open space.

(v) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

(a) the total space of a building; or

(b) when referred to in—

(i) the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

(ii) the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where

all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

Fire-source feature

(a) the far boundary of a road, river, lake or the like adjoining the allotment; or

(b) a side or rear boundary of the allotment; or

(c) an external wall of another building on the allotment which is not a Class 10 building

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Loadbearing

Intended to resist vertical forces additional to those due to its own weight.

Non-combustible

Non-combustible means—

(a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and

(b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Open space

Open space means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Performance Requirement

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

Sarking-type material

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke developed index

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

(a) a dwelling; or

(b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

(c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or

(d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements, including external walls and their components, must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C2.6 of BCA2019. It is noted that no spandrel separation is required in the stairway or to a void. (Compliance to be reviewed at CC stage when the proposed sprinkler system is determined)
7. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
8. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
9. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
10. The main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
11. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
12. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
13. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
14. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
15. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.
16. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.
17. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.

18. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non-loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.
19. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2019.
20. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
21. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019, except as addressed with a Performance Solution.
22. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more that 45m apart in the residential portion or patient care areas in the health-care building or 60m, in accordance with Clause D1.5 of BCA2019, except as addressed with a Performance Solution.
23. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
24. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
25. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
26. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
27. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
28. The enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60, and have a self-closing -/60/30 fire door, in accordance with Clause D2.8 of BCA2019.
29. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
30. The roof of the building where the exit discharges will have an FRL of 120/120/120, and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D2.12 of BCA2019.
31. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
32. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
33. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
34. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plant-

room, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2013 or Part D2 of BCA2019.

35. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
36. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
37. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
38. The openable portion of a window in a bedroom of a Class 2, 3, 4 building will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
39. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.
40. Braille and tactile signage will in accordance with Clause D3.6, and Specification D3.6 of BCA2019.
41. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2019 and AS/NZS 1428.4.1:2009.
42. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS 1428.1:2009 and Clause D3.12 of BCA2019.
43. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
44. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
45. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
46. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
47. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
48. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
49. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
50. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
51. Sanitary facilities will be provided in the building in accordance with Clause F2.1 & Table F2.1 of BCA2019.
52. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
53. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
54. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
55. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
56. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
57. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.

58. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
59. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.
60. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.
61. The building is within a bushfire prone area therefore will be in accordance with Part NSW G5.2 of BCA2019.
62. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.
63. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
64. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
65. Glazing will be in accordance with Part J1 of BCA2019.
66. Building sealing will be in accordance with Part J3 of BCA2019.
67. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

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

Hydraulic Services Design Certification:

74. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
75. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
76. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
77. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and Specification E1.5a.
78. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
79. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

Mechanical Services Design Certification:

80. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
81. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
82. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
83. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 *sole-occupancy unit* will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.
84. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
85. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

86. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:
    - Dead and Live Loads – AS/NZS 1170.1:2002
    - Wind Loads – AS/NZS 1170.2:2011
    - Earthquake actions – AS 1170.4:2007
    - Masonry – AS 3700:2018
    - Concrete Construction – AS 3600:2018
    - Steel Construction AS 4100:1998
    - Aluminium Construction – AS/NZS 1664.1 or 2:1997
    - Timber Construction – AS 1720.1:2010
    - ABCB Standard for Construction of Buildings in Flood Hazard Areas.
87. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 3 for a building of Type A Construction.
88. The common lifts will have a shaft which will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.
89. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
90. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

91. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.
92. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.

93. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.

94. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.

95. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

Acoustic Services Design Certification:

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

NSW Specification Design Certificate:

97. The swimming pool associated with the new building will comply with Clause G1.1 and NSWG1.1(a) of the BCA2019, Swimming Pools Act 1992, Swimming Pools Regulation 2018 and AS 1926.1:2012. AS 1926.2:2007 and AS 1926.3:2010.

ANNEXURE G AS 4299 ADAPTABLE ASSESSMENT

Table 7. AS 4299 Class B Assessment Summary

Item	Room/Item	Clause	Comment	Compliance
Drawings				
1.	Provision of drawings showing the housing unit in its pre-adaptation and post-adaptation stages	2.3	DA pre & post adaptation plans are sufficient. Require further detailed plans at the construction stage.	CRA
Sitting				
2.	A level or gently sloping site with up to 1:14 gradient	3.2.2	BCA requires accessway from the allotment boundary to the building entrances in accordance with AS 1428.1.	Complies
3.	A continuous accessible path of travel from street frontage and vehicle parking to entry complying with AS1428.1	3.3.2	Accessible parking is provided in the basement with lift access to the Second Floor. A continuous accessway is provided from the main entry area on Warriewood Road through open space to the building entrances in accordance with AS 1428.1.	Complies
5.	Within a residential estate development, common use facilities to be accessible	3.3.3	Access to the letterbox bank, communal outdoor areas and swimming pool on ground floor will be provided in accordance with AS 1428.1:2009. Final detailing on landscape plans to be provided at CC stage.	Complies
7.	Within a residential estate development, internal roadways to be separate from pedestrian walkways	3.3.3	No internal roadways proposed.	N/A
Security				
8.	Pathway lighting shall be positioned at low height to avoid glare and to provide min. 50 lux at ground level	3.6.1	External pathway lighting to comply at construction stage.	CRA
9.	Clear line of sight from a well-lit vehicle drop-off point to safe pedestrian entry point	3.6.2	No proposed street parking or drop off area for the building.	N/A
Letterboxes in Estate Developments				

Item	Room/Item	Clause	Comment	Compliance
10.	Within residential estate developments, letterboxes centrally located adjacent to street entry. Lockable	3.8	Letterbox bank can readily comply	CRA
11.	Letterboxes to be on hard standing area connected to accessible pathway.	3.8	Letterbox bank can readily comply	CRA
12.	Letterbox area roofed and in a well-lit location.	3.8	Letterbox bank can readily comply	CRA
13.	Parcel rack included with letterboxes	3.8	A parcel rack is required with the letterboxes at construction stage.	CRA
Private Car Accommodation				
14.	Carparking space or garage min area 6.0x3.8m	3.7.2	4 x Accessible car spaces are provided within basement car park. Currently, all accessible carparking bays are designed under AS/NZS2890.6 (5400x2400m) with adjacent shared zone.	Complies
15.	Roof to car parking space	3.7.1	Car parking will be within the basement and protected.	Complies
18.	Covered access to dwelling unit	3.7.3	Access to an internal lift is provided from within the basement carpark to Second Floor.	Complies
19.	Illumination level min 50 lux	4.1.0	Basement carpark lighting will be required to achieve a minimum 50 lux illumination.	CRA
Accessible Entry				
20.	Accessible entry	4.3.1	The entry door to an adaptable unit is to have a minimum clear opening of 850mm and comply with door circulation spaces under AS1428.1-2009.	Complies
22.	Accessible entry to be level (i.e. max. 1:40 slope)	4.3.2	Units are accessed from an enclosed corridor.	Complies

Item	Room/Item	Clause	Comment	Compliance
23.	Threshold to be low-level	4.3.2	Entry doors will have a level threshold.	Complies
24.	Landing to enable wheelchair manoeuvrability	4.3.2	The unit entry doors are internal to the building.	Complies
25.	Accessible entry door to have 850mm min. clearance	4.3.1	The entry door to the adaptable units have a minimum clear opening of 850mm and comply with door circulation spaces under AS1428.1-2009.	Complies
27.	Door lever handles and hardware to AS 1428.1	4.3.4	Door handles are to comply with AS1428.1-2009 at the construction stage.	CRA
28.	Provision for combined door/security door	4.3.5	The unit entry doors are internal to the building.	N/A
29.	Potential min. Illumination level 300 lux	4.10	Lighting to comply at construction stage.	CRA
Exterior/Interior: General				
31.	Provision for security screen to exterior opening or sliding windows and doors	4.7.6	Not applicable to Second Floor units	N/A
32.	Internal doors to have 820 mm min clearance	4.3.3	Internal doors are required to have a minimum clear opening of 820mm. Details to be shown on the pre-adaption plan.	Complies
33.	Internal corridors min. width of 1000 mm	4.3.7	Internal corridors within the unit are to have a minimum width of 1000mm.	Complies
34.	Provision for compliance with AS 1428.1 for door approaches	4.3.7	Circulation spaces at doorways within the unit are to comply with AS1428.1-2009. Details to be shown on the post adaption plan.	Complies
36.	Provision for circulation space of min. 2250 mm diameter	4.7.1	A circulation space of min. 2250 mm diameter is to be made available in the living areas after the furniture has been placed. Details to be shown on the post adaption plan.	Complies
37.	Minimum 4 double GPO’s	4.7.3	Minimum 4 double GPO’s are to be provided to the living rooms to be indicated on post adaption plan.	CRA

Item	Room/Item	Clause	Comment	Compliance
38.	Telephone adjacent to GPO	4.7.4	Telephone outlet adjacent to GPO in living/dining area to be indicated on post adaption plan.	CRA
40.	Two TV antenna outlets adjacent to GPO (positioned so viewing from dining and kitchen is achievable)	4.7.5	Two TV antenna outlets adjacent to GPO (positioned so viewing from dining and kitchen is achieved) to be indicated on post adaption plan.	CRA
41.	Potential illumination level min. 300Lux	4.10	Lighting to comply at construction stage.	CRA
Kitchen				
42.	Minimum width 2.7 m (1550mm clear between benches)	4.5.2	1550mm clearance is required in front of appliances, which will require the removal of the island bench. Details to be shown on the post adaption plan for detail required to remove bench and isolated services.	CRA
43.	Provision for circulation at doors to comply with AS 1428.1	4.5.1	No kitchen doors proposed.	N/A
44.	Provision for benches planned to include at least one work surface of 800 mm length, adjustable in height from 750 mm to 850 mm or replaceable. Refer to Figure 4.8	4.5.5	Work surface of 800mm to be indicated on post adaption plan.	CRA
45.	Refrigerator adjacent to work surface	4.5.5	Refrigerator to be adjacent to the work surface and to be indicated on post adaption plan.	CRA
46.	Kitchen sink adjustable to heights from 750 mm to 850 mm or replaceable	4.5.6	The design is to allow for the removal of the cabinets under the sink and adjacent work surface. To be indicated on a post adaption plan.	CRA
47.	Kitchen sink bowl max. 150mm deep	4.5.6	Kitchen sink bowl to be max. 150mm deep, this item is noted as something that can be altered post adaption.	CRA
48.	Tap set capstan or lever handles or lever mixer	4.5.6(e)	Taps may be updated post adaption	CRA

Item	Room/Item	Clause	Comment	Compliance
49.	Tap set located within 300 mm of front of sink	4.5.6(e)	Taps may be updated post adaption	CRA
50.	Installation of thermostatic mixing valve	4.5.6(f)	Taps can be provided with a TMV pre or post adaptation	CRA
51.	Cook tops to include either front or side controls with raised cross bars	4.5.7	Cook top controls may be updated post adaption	CRA
52.	Cook tops to include isolating switch	4.5.7	Cook tops to be provisioned with isolating switches or gas stop valves that can be easily and safely operated with the cook top is in use. Cook top may be updated post adaption, with no works proposed at this stage.	CRA
53.	Work surface min. 800 mm length adjacent to cook top at same height	4.5.7	Work surface adjacent to, and at the same height as the, cook top of 800mm to be indicated on post adaption plan.	CRA
54.	Oven located adjacent to an adjustable height or replaceable work surface	4.5.8	The oven is to be adjacent to an 800mm wide work surface and to be indicated on post adaption plan.	CRA
56.	Central light with second light over sink. Potential illumination level min. 300 lux with 550 lux over work surfaces	4.10	Lighting to comply at construction stage.	CRA
58.	Locate handles towards the top of below bench cupboards and towards the bottom of overhead cupboard. Provide ‘D’ pull handles	4.5.10	“D” pull handles to be located towards the top of below bench cupboards and towards the bottom of overhead cupboard. To be indicated on post adaption plan.	CRA
59.	GPOs to comply with AS 1428.1. At least one double GPO within 300mm of front of work surface	4.5.11	GPOs to comply with AS 1428.1. At least one double GPO within 300mm of front of work surface. To be indicated on post adaption plan.	CRA
60.	GPO for refrigerator to be easily reachable when the refrigerator is in its operating position	4.5.11	GPO for refrigerator to be easily reachable when the refrigerator is in its operating position. To be indicated on post adaption plan.	CRA

Item	Room/Item	Clause	Comment	Compliance
61.	Slip-resistant floor surface	4.5.4	Floors to be slip resistant to comply with AS3661.1. Certificate to be provided at CC stage. Note: AS4586:2013/HB 198:2014 is satisfactory.	CRA
Main Bedroom				
62.	At least one bedroom of area sufficient to accommodate queen size bed and wardrobe and circulation space requirements of AS 1428.2	4.6.1	Turning space minimum 1540x2070mm at bed base and 1000mm side bed spaces provided. Alternatively, a turning space 1540x2070mm can be provided between the side of the bed and the robe closest to the doorway. Adaptable bedroom doors will require 850mm clear width opening with appropriated latch side clearances. To be indicated on post adaption plan. Note: Unit C12 currently shows 1500mm between bed and robe. This can be amended at CC stage to have the 1550mm clearance between the bed and robe. The store on the outside of the robe can be relocated to the living room and robe setback to achieve 1550mm clear.	Complies
63.	Two double GPOs on wall where bedhead is likely to be	4.6.3	Two double GPOs are required on wall adjacent to the bedhead to be indicated on post adaption plan.	CRA
65.	Telephone outlet next to bed on the side closest to door (with GPO adjacent to telephone outlet)	4.6.5	Telephone outlet next to bed on the side closest to door (with GPO adjacent to telephone outlet). To be indicated on post adaption plan.	CRA
66.	TV antenna point and double GPO on opposite wall to bedhead	4.6.6.	TV antenna point and double GPO on opposite wall to bedhead. To be indicated on post adaption plan.	CRA
67.	2-way light switches, one located above bed, 1000mm high above floor	4.6.4	2-way light switches, one located above bed, 1000mm high above floor. To be indicated on post adaption plan.	CRA
68.	Potential illumination level 300 lux	4.10	Lighting to comply at construction stage.	CRA
Bathroom				

Item	Room/Item	Clause	Comment	Compliance
75.	Provision for bathroom area to comply with AS 1428.1	4.4.1	The bathroom area is to comply with Clause 15 of AS1428.1-2009. Bathrooms have 2100mm width which allows toilet pans to be provided with 1900mm clear width from wall to folded shower seat as shown in AS 1428.1:2021. Additionally, provision of extra capped-off plumbing services from out-set will be required if fixtures are to be relocated at post adaptation stage. To be indicated on a post adaption plan at CC stage	Complies
76.	Slip-resistant floor surface	4.4.2	Floors to be slip resistant to comply with AS3661.1. Certificate to be provided at CC stage. Note: AS4586:2013/HB 198:2014 is satisfactory.	CRA
77.	Shower recess- no hob. Minimum size 1160x1100mm to comply with AS 1428.1. (Refer Figures 4.6 and 4.7)	4.4.4(f)	Shower recess has 1160x1100mm in compliance with AS1428.1. Shower to be hob-less. To be shown in post adaption plans.	CRA
78.	Shower area waterproofed to AS 3740 with floor to fall to waste	4.4.4(f)	Entire bathroom to comply with AS3740.	CRA
80.	Shower taps positioned for easy reach to access side of shower sliding track	4.4.4(f)	Shower head and taps to be located at a height and clearance compliant to AS1428.1. To be indicated on a post adaption plan.	CRA
82.	Provision for adjustable, detachable hand held shower rose mounted on a slider grabrail or fixed hook (plumbing and wall – strengthening provision)	4.4.4(h)	Provisioning (extra capped-off plumbing services) to be provided from the out-set if relocation will be required at post adaptation stage. To be indicated on a post adaption plan. Note: Refer AS1428.1 Fig 48 for shower fixtures, including wall outlet plus back-flow prevention devise.	CRA
83.	Provision for grabrail in shower (Refer to Figure 4.7) to comply with AS 1428.1	4.4.4(h)	Provisioning to be provided. To be indicated on a post adaption plan.	CRA

Item	Room/Item	Clause	Comment	Compliance
84.	Provision for additional grabrail	4.4.4(h)	Provisioning to be provided. To be indicated on a post adaption plan.	CRA
86.	Tap sets to be capstan or lever handles with single outlet	4.4.4(c)	Taps may be updated post adaption, with no works required at this stage.	CRA
87.	Installation of thermostatic mixing valve	4.4.4(b)	Taps may be updated post adaption, with no works required at this stage.	CRA
88.	Provision for washbasin with clearances to comply with AS 1428.1	4.4.4(g)	Provisioning (extra capped-off plumbing services) to be provided from the out-set if relocation will be required at post adaptation stage. To be indicated on a post adaption plan. Note: Washbasin to provide knee-toe clearance underneath compliant with AS1428.1 Clause 15.3. Note: Unit D12 basin can be moved slightly to comply with AS 1428.1 on post-adaptation plan at CC stage.	CRA
89.	Wall cabinet with light over or similar	4.4.4(d)	Taps may be updated post adaption, with no works required at this stage.	CRA
90.	Double GPO beside mirror	4.4.4(d)	Double GPO to be provided beside mirror. To be indicated on a post adaption plan.	CRA
91.	Potential illumination level 300 lux generally with 600 lux task lighting	4.10	Lighting to comply at construction stage.	CRA
Toilet				
92.	Provision of either ‘visitable toilet’ or accessible toilet	4.4.3	The adaptable unit is to be provided at pre-adaptation stage with a “visitable” toilet at entry level with 900x1200mm clearance in front of WC pan (door not to encroach). To be indicated on the pre-adaption plan.	Complies

Item	Room/Item	Clause	Comment	Compliance
93.	Provision to comply with AS 1428.1	4.4.1	The bathroom area is to comply with Clause 15 of AS1428.1 (2350x2750mm). Toilet pan to comply with AS1428.1 and to be indicated on post adaption plan.	Complies
94.	Location of WC pan at correct distance from fixed walls	4.4.3	Pan to be located correct distances from the walls in accordance with AS1428.1. It is considered acceptable for the toilet to be moved as part of post-adaptation works subject to provisioning (extra capped-off plumbing services) to be provided from the out-set if relocation will be required at post adaptation stage.	CRA
95.	Provision for grab rail zone. (Refer Figure 4.6)	4.4.4(h)	Provisioning to be provided. To be indicated on a post adaption plan.	CRA
96.	Slip resistant floor surf ace (vitreous tiles or similar)	4.4.2	Floors to be slip resistant to comply with AS3661.1. Certificate to be provided at CC stage. Note: AS4586:2013/HB 198:2014 is satisfactory.	CRA
Laundry				
98.	Circulation at doors to comply with AS 1428.1	4.8	Laundries are in cupboards.	N/A
99.	Provision for adequate circulation space in front of or beside appliances (min. 1550 mm depth).	4.8	Currently, laundries have 1550mm circulation space in front of the appliance. To be indicated on a post adaption plan.	Complies
100.	Provision for automatic washing machine	4.8(e)	Space for an automatic washing machine is to be provided. To be indicated on a post adaption plan.	Complies
101.	Provision for drier	4.8(f)	Space for a dryer is provided above the WM. To be indicated on a post adaption plan.	CRA
102.	Where clothes line is provided, an accessible path of travel to this	4.8(a)	No clothes line proposed.	N/A

Item	Room/Item	Clause	Comment	Compliance
103.	Installation of thermostatic mixing valve	4.8(d)	Taps may be updated post adaption, with no works required at this stage.	CRA
105.	Double GPO	4.8(g)	Double GPO to be provided in the laundry. To be indicated on a post adaption plan.	CRA
107.	Potential illumination level 300 lux generally with 550 lux task lighting	4.10	Lighting to comply at construction stage.	CRA
108.	Slip-resistant floor surface	4.9.1	Floors to be slip resistant to comply with AS3661.1. Certificate to be provided at CC stage. Note: AS4586:2013/HB 198:2014 is satisfactory.	CRA
Storage				
109.	Linen cupboard min. 600mm wide with adjustable shelving	4.11.5	A linen storage cupboard of minimum 600mm width with adjustable shelving is to be indicated on a post adaption plan.	CRA
Door Locks				
110.	Door hardware operable with one hand, located 900–1100mm above floor	4.3.4	Door hardware operable with one hand, located 900–1100mm above floor. To be indicated on post adaption plan.	CRA
Floor Coverings				
111.	Slip resistant surfaces – balconies and external paved areas (vitreous tile or similar)	4.9.1	Floors to be slip resistant to comply with AS3661.1. Certificate to be provided at CC stage. Note: AS4586:2013/HB 198:2014 is satisfactory.	CRA
Ancillary Items				
112.	Switches located 900-1100mm above floor in line with door	4.11.1	Switches to be located between 900-1100 above the finished floor level. To be indicated on post adaption plan.	CRA

Item	Room/Item	Clause	Comment	Compliance
113.	GPOs located not less than 600mm above floor	4.11.1	Provisioning to be provided to allow post adaption relocation of the GPO's, with GPOs at least 500mm from a corner. To be indicated on post adaption plan.	CRA
Garbage				
116.	Provision for bin in an accessible location	4.11.6	A garbage room is proposed adjacent Building D and will have an accessway leading to the room	CRA