Blare Management

BCA ASSESSMENT REPORT

669-683 Old South Head Road Vaucluse

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Executive summary

This document provides an assessment of the architectural design drawings for the proposed mixed-use development at 669-683 Old South Head Road Vaucluse, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2022. The development is described as a mixed-use development for seniors housing (involving independent living units) with a small component of retail floor space.

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 is 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 this report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code.

The below Table outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions. 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 at CC stage.

Item	Description	BCA Provision
Performance Solutions required		
1.	Rationalise the fire-resistance levels of the retail tenancy to be 120 mins in lieu of 180 mins. Rationalise the fire-resistance levels of the Class 7b parts to be 120 mins in lieu of 240 mins	C2D2 & S5C11
2.	Permit the lobby skylight to be within 3m of the external walls of the SOUs on Level 1 whereby the external walls and openings will not be protected	S5C16(b)(ii)
3.	Permit parts of the fire walls to be glazed wall/door construction in lieu of fire-resistant construction	C3D8 & C4D6
4.	Basement Level 2: Permit the southern end to have 23m to a point of choice in lieu of 20m and up to 95m between alternative exits in lieu of 60m. Permit the central parking area to have up to 45m to an exit in lieu of 40m. Basement Level 1: Permit the north-eastern storage room to have 28m to a point of choice in lieu of 20m and up to 80m between alternative exits in lieu of 60m. Lower Ground: Permit the storage area to have 23m to a point of choice in lieu of 20m. Permit the steam room to have 23m to a point of choice in lieu of 20m.	D2D5 & D2D6
5.	Rationalise the discharge path of Core C&D fire-isolated stairs to pass within 6m of the external wall of private dining room and fire stair of Core D	D2D12(3)

6.	Rationalise the location of the fire booster not within sight of the main entrance to the building	E1D2

NCC Clause Numbering

BCA2022 uses a new structure and clause referencing system to create better consistency across all volumes of the NCC. While the new Section-Part-Type-Clause system makes the NCC look different at first, it's intended to improve user experience and make it more web accessible.

The new structure results in a reorganisation of specifications and parts, some of which are contained in the table below.

The NCC uses a uniform clause numbering system across each of its three volumes. This system is called Section-Part-Type-Clause (SPTC). In each clause number-

- The first letter indicates which NCC section or prat it sits within;
- The first number indicates the number of the Part within a section or the number of a Specification.
- The second letter indicates the clause type. It will be either G, O, F, P, V, D, or C. and these are explained below.
- The second number is the clause number within each Part of Specification.
- The clause Types used in the NCC are as follows:
- G = Governing requirements (mandatory)
- O = Objective (guidance)
- F = Functional Statement (guidance)
- P = Performance Requirement (mandatory)V = Verification Method (optional)
- D = Deemed-to-Satisfy Provision (optional)
- C = Clause in a Specification (can be mandatory or optional depending on how the Specification is called up by the NCC).

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 669-683 Old South Head Road Vaucluse. The development is described as a mixed-use development for seniors housing (involving independent living units) with a small component of retail floor space.

The development consists of the following:

- two basement levels of car parking and storage
- Lower Ground Floor with storage and communal facilities for residents and one residential SOU on the northern end
- Upper Ground Floor with residential SOUs, central lobby area and one retail tenancy on the southern end
- Level 1 to 3 is residential SOUs with a northern and southern tower.

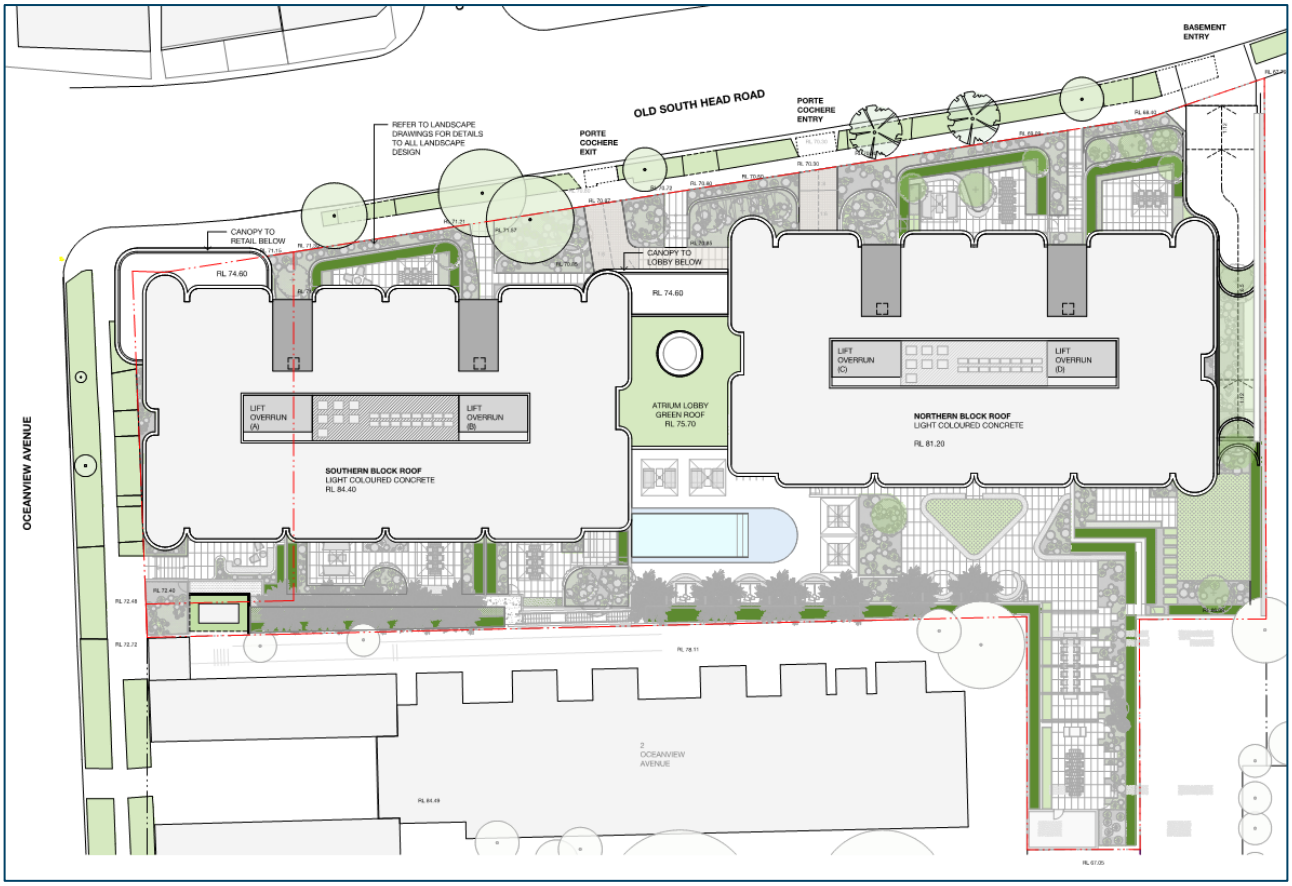

Figure 1: Site Plan DA01.003/A: Development site showing the corner allotment with Old South Head Road to the west and Oceanview Avenue to the south.

Figure 2: View of main entry from Old South Head Road.

1.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the BCA, 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 2022. 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 (**NCC**) Series Volume One – Building Code of Australia, 2022 Edition (**BCA**), 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 currently updated on a three-yearly cycle.

A reference to the BCA in this report is a reference to **BCA2022**, being volume 1 of the NCC.

1.4 LIMITATIONS

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

1. the structural adequacy or design of the building;
2. the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
3. the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic services.

This report does not include, or imply compliance with:

1. the National Construction Code – Plumbing Code of Australia Volume 3
2. the Disability Discrimination Act 1992 including the Disability (Access to Premises – Buildings) Standards 2010;
3. the deemed to satisfy provisions of Part D4 and F4D5/D6 of BCA2022;
4. the deemed to satisfy provisions of Section J of BCA2022;
5. BASIX requirements;
6. Demolition Standards not referred to by the BCA;
7. Work Health and Safety Act 2011;
8. Requirements of Australian Standards unless specifically referred to;
9. 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
10. 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.

2.0 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 C2D3)

The building has a rise in storeys of five (5) – from Lower Ground to Level 3.

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 7a	Basement Level 1 & 2	Car Parking
Class 7b	Basement Level 1 & 2 and part Lower Ground	Storage rooms
Class 9b	Part Lower Ground and part Upper Ground	Communal facilities and lobby area
Class 2	Part Lower Ground & Upper Ground, Level 1 to 3	Residential SOUs
Class 6	Upper Ground Southern End	Retail tenancy
Class 10a	Lower Ground landscape area	Toilet block
Class 10b	Lower Ground landscape area	Swimming pool & shade structures

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

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

Effective Height: Level 3 RL 81.00 – Lower Ground RL 67.40 = 13.60m

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

The building is required to be of Type A Construction.

2.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C3D3)

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

Class 6 & 7b	Maximum Floor Area	5,000m^2
	Maximum Volume	30,000m^3
Class 9b	Maximum Floor Area	8,000m^2
	Maximum Volume	48,000m^3

Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 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 C3D3 as Specifications 5 and Clause C4D12 of the BCA regulate the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 buildings.

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assessed:

1. Basement Level 1 & 2 form a single fire compartment, which includes the enclosed driveway up to the lower ground level. Residential SOU on northern end of Lower Ground will be separated by a fire wall from the enclosed driveway part.
2. Lower Ground: Storage rooms area is a separate fire compartment and communal facilities is a separate fire compartment. Northern SOU and residential lobby are a separate fire compartment. Fire wall separation also provided to the shared internal area between car park and residential. Fire walls will separate fire compartments. Refer Figure 3 & 4 below.
3. Upper Ground: Residential areas will be separate fire compartments as they are separated by fire walls from the central lobby area. The central lobby area is connected with the communal facilities fire compartment via the non-fire isolated stair. Retail tenancy will be fire separated from the adjoining residential part. Fire walls will separate fire compartments. Refer Figure 5 below.
4. Level 1 to 3: Each storey will be a separate fire compartment.
5. Performance Solution will address the provision of glazed construction within the fire walls. Performance Solution will permit parts of the fire walls to be glazed wall/door construction in lieu of fire-resistant construction.

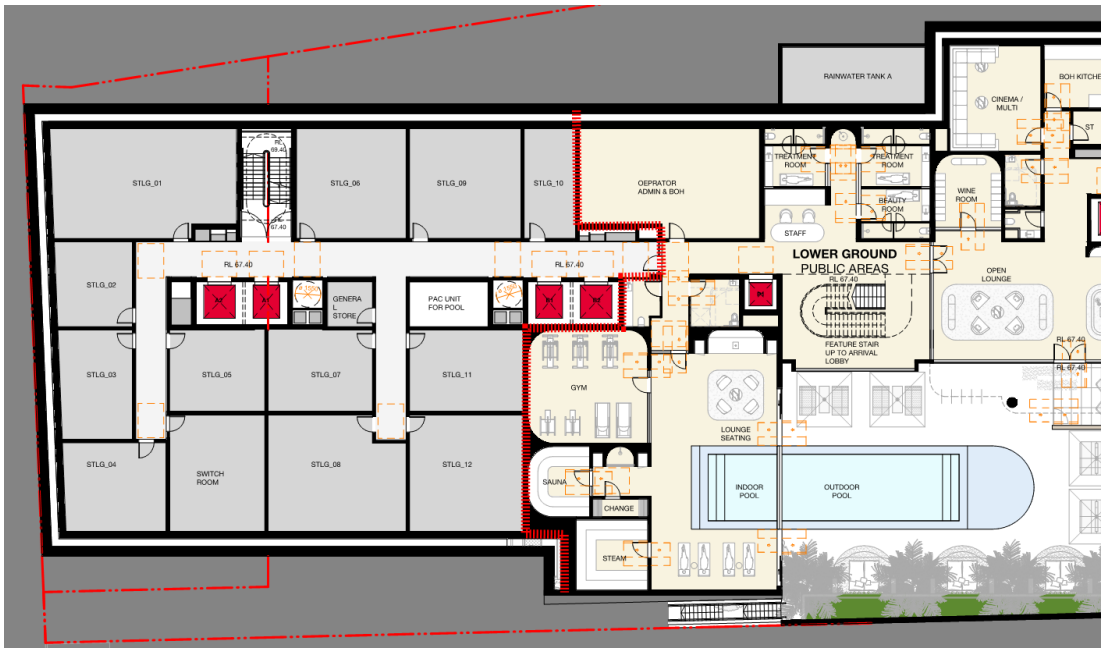

Figure 3: Lower Ground Floor – fire wall separation from storage area (Class 7b) to communal areas (Class 9b).

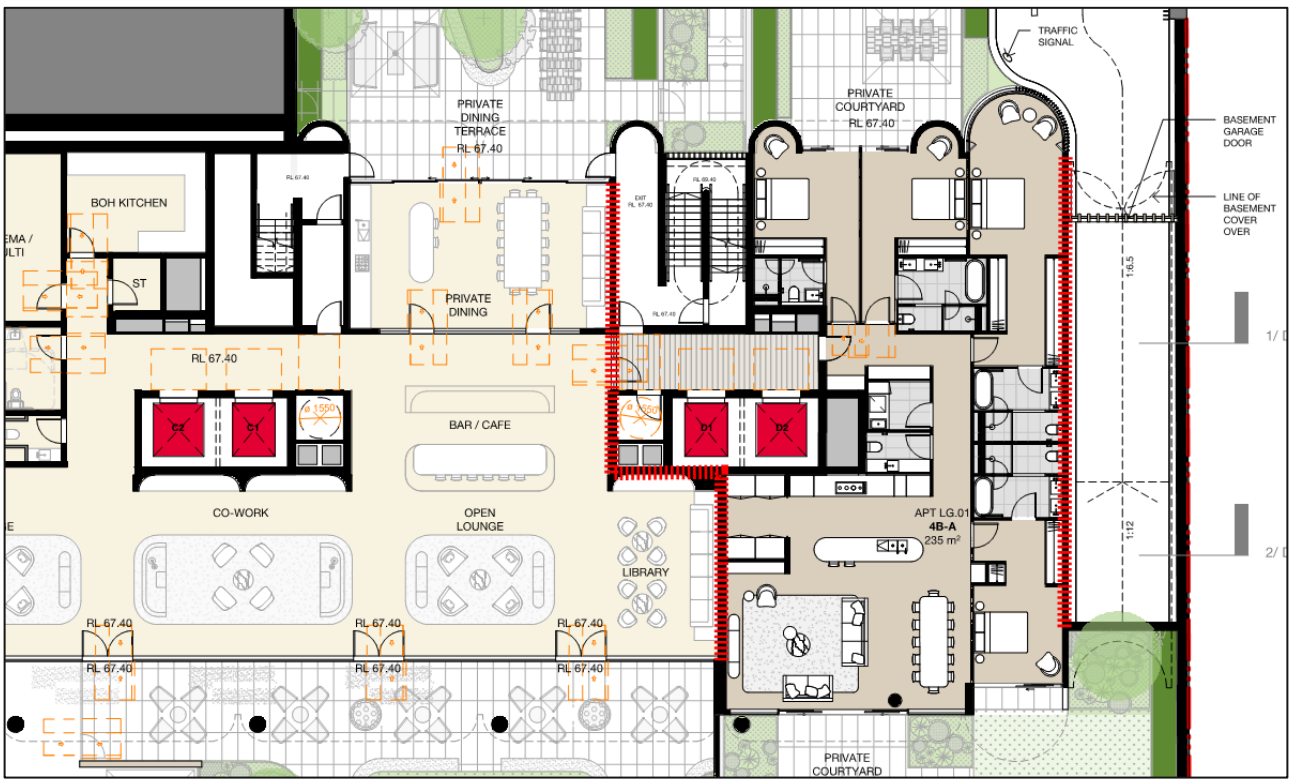

Figure 4: Lower Ground Floor – fire wall separation of communal area (Class 9b) and residential area (Class 2). Fire wall separation also provided to the shared internal area between car park (Class 7a) and residential (Class 2).

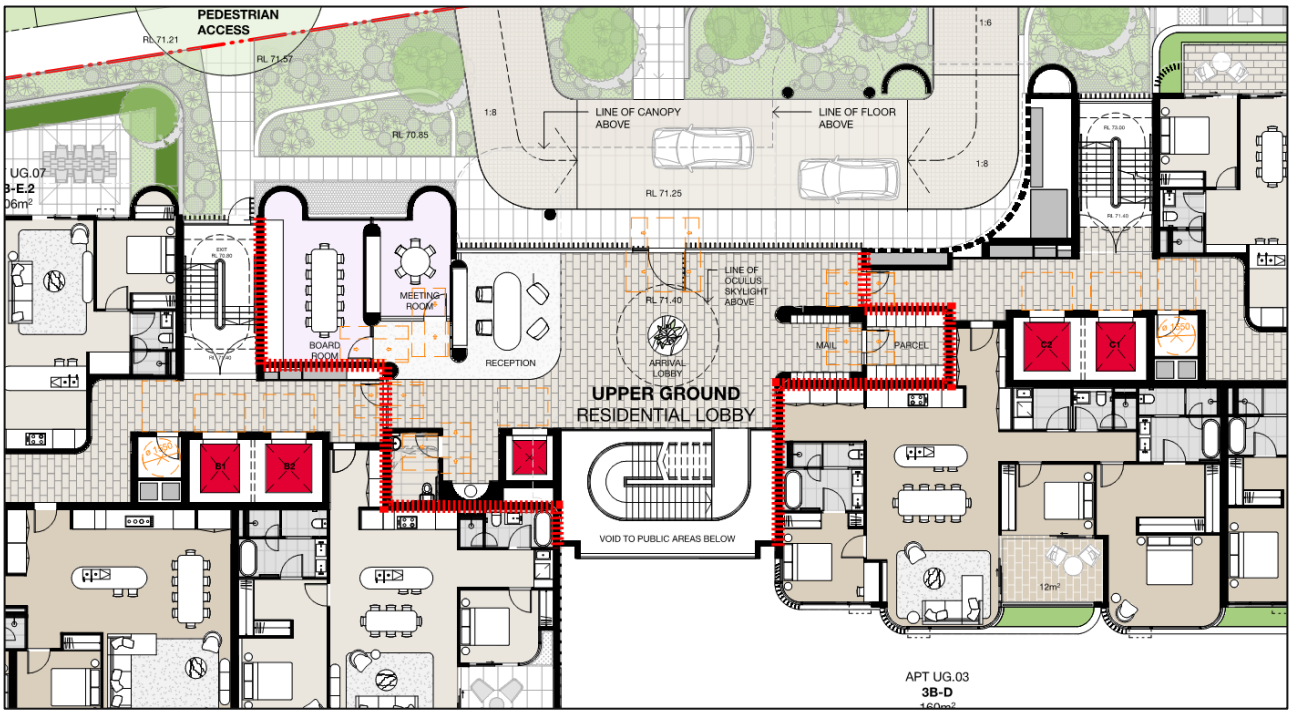

Figure 5: Ground Floor – Fire wall separation between communal areas (Class 9b) and the residential parts on either side (Class 2).

2.7 EXITS

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

1. Basement Level 1 & 2 have two fire-isolated stairs.
2. Lower Ground: The southern fire-isolated stair. Exit doors into the two northern fire-isolated stairs which discharge to open space on Lower Ground floor. The central non-fire isolated stair.
3. Lower Ground external landscape: The external landscape areas have egress via open space via the external stair to eastern boundary up to Oceanview Avenue. As such, the external landscape area has direct egress to the public road via open space – therefore it is not considered an occupiable outdoor area.
4. Upper Ground: Core A&B egress via the exit door into the fire-isolated stairs to open space. Core C&D have access to two fire-isolated stairs. Lobby area will exit via the Core B & Core C fire-isolated stairs.
5. Level 1 to Level 3: Each core has a fire-isolated exit.

2.8 CLIMATE ZONE

The building is located within Climate Zone 5.

2.9 ENTERTAINMENT VENUE

The NSW variation of the BCA, Part NSWI4 contains additional requirements for entertainment venues. An entertainment venue is defined by the Environmental Planning and Assessment Act 2021 as:

*'**entertainment venue** means a building used as a cinema, theatre or concert hall or an indoor sports stadium'.*

The subject building has not been considered an entertainment venue for the purposes of this report. The communal facilities are not used for public events for the showing of theatre or cinema shows. The small private cinema room is simply a communal room where residents can watch TV and movies.

2.10 BUILDING IMPORTANCE LEVEL

Certain Australian Standards (particularly structural standards) require the Importance Level of the building to be determined. The importance level relates to the individual actions on a building listed in clause B1D3 of the BCA.

Table B1D3a of the BCA provides the following:

Importance Level	Building Types	Jensen Hughes Interpretation and Examples
1	Buildings or structures presenting a low degree of hazard to life and other property in the case of failure.	1 and 2 storey factory buildings
2	Buildings or structures not included in Importance Level 1, 3 and 4.	Residential apartment buildings and associated carparking. Office buildings
3	Buildings or Structures that are designed to contain a large number of people.	Stadia, Entertainment venues, shopping centres. Transport facilities
4	Buildings or Structures that are essential to post-disaster recovery or associated with hazardous facilities.	Data centres, evacuation centres

The Guide to the BCA provides a generic description of building types which have Importance Levels assigned. The Guide state that the “Importance Level” concept is applicable to building structural safety only. Specific examples from the Guide are provided below. The examples provided by the Guide are not exhaustive of all building types.

Importance Level 1:

- Farm buildings and farm sheds.
- Isolated minor storage facilities.
- Minor temporary facilities.

Importance Level 2:

- Low rise residential construction.
- Buildings and facilities below the limits set for Importance Level 3.

Importance Level 3:

- Buildings and facilities where more than 300 people can congregate in one area.
- Buildings and facilities with a primary school, a secondary school or day care facilities with a capacity greater than 250.
- Buildings and facilities with a capacity greater than 500 for colleges or adult educational facilities.
- Health care facilities with a capacity of 50 or more residents but not having surgery or emergency treatment facilities.

2.11 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The allotment boundary. Th enclosing structure over the driveway is built within 3m of the boundary.

South: The far boundary of Oceanview Parade.

East: The allotment boundary. The pool area on Lower Ground is built within 3m of the boundary.

West: The far boundary of Old South Head Road.

In accordance with Clause S5C2 of Specification 5, 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.

- Lower Ground – the driveway entry / garage door is the opening in the perimeter of the building and it is prevented from being exposed to the northern boundary due to the extension of the external wall.

3.0 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 E 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 (e.g. Façade);
- Fire Safety Systems (e.g. 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 C2 & SPECIFICATION 5

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 all of 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 by a number of common wall types. Masonry brick is shown as the predominate cladding on elevations and this is a compliant material.

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. The basement levels have both Class 7a & 7b classification and under DTs provisions requires the higher FRL of 240/240/240 to cater for Class 7b use. However, it is proposed by the applicant to undertake a performance solution to rationalise the fire-resistance levels of the Class 7b parts to be 120 mins in lieu of 240 mins.

It is proposed by the applicant to undertake a performance solution to rationalise the fire-resistance levels of the retail tenancy to be 120 mins in lieu of 180 mins.

It is proposed by the applicant to undertake a performance solution to permit the lobby skylight to be within 3m of the external walls of the SOUs on Level 1 whereby the external walls and openings will not be protected.

3.4 COMPARTMENTATION AND SEPARATION – PART C3

Under the provisions of clause C3D3 of the BCA, the residential portion of the building is not the subject to any floor area and volume limitations.

The class 5/6/7b/9 portions of the building have been assessed and the floor area and volume of these compartments is less than that permitted by Clause C3D3 of the BCA. The Class 9b fire compartment is less than 2000m^2. For the basement levels the car park use does not have a limit on the fire compartment size due to the sprinkler system. The storage rooms within this fire compartment total less than the floor area limitations under Clause C3D3. As such compliance with the provisions of the BCA for compartmentation is readily achieved.

Reefer to Part 2.6 of the Report for assessment of fire compartments and provisions of fire walls. The details and locations of fire walls can be further reviewed at CC stage if required.

It is proposed by the applicant to undertake a performance solution to permit parts of the fire walls to be glazed wall/door construction in lieu of fire-resistant construction.

The carpark is required to have a AS 2118.1:2017 sprinkler system, therefore the carpark is not the subject of floor area and volume limitations under the provision of clause C3D3 of the BCA.

The building is 4 storeys or more and therefore is required to have a sprinkler system. The proposed sprinkler system is AS 2118.1:2017. As such, spandrel panels are not required under the provisions of clause C3D7 of the BCA to protect opening on different storeys of the building.

The main switchboard is located in the basement level of the building. As 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.

Compliance with Part C3 of the BCA can be readily achieved by the proposal.

3.5 PROTECTION OF OPENINGS – PART C4

3.5.1 Openings in external walls

The external walls are located within 3m of the boundary in certain locations. Any openings which are within 3m of and exposed to the boundary will require protection. Protection can be provided by self-closing fire windows, fire shutters or fixed glazing with sprinklers. Details are to be provided with the Construction Certificate to outline how compliance will be achieved with Clause C4D3 & C4D5.

The opening/garage door at the entry to the enclosed driveway on the northern end is an opening in the perimeter of the building, as identified by C4D2(3) of the BCA. However, due to the setback of the opening it appears to not be exposed to the boundary due to the extension of the external wall along boundary, therefore no protection required.

The external wall of the fire-isolated stairs has glazed windows which are permitted under Clause C4D9(4) of the BCA. The windows are not exposed to another opening therefore do not require protection.

3.5.2 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 shafts and fire-isolated stairs require an FRL. As such, the doors to the sole occupancy units and fire-isolated stairs are required to be self-closing FRL --/60/30 fire doors in accordance with clause C4D9 & C4D12 of the BCA. It is noted the doors to the fire-isolated stairs can be either self-closing or held open and automatic-closing FRL -/60/30 fire doors under C4D9.

The doors to the lift are required to have an FRL of -/60/- in accordance with C4D11 of the BCA.

3.5.3 Separation of external walls and associated openings in different fire compartments

On the Lower Ground and Upper Ground levels, there are multiple locations where the external walls in different fire compartments require protection under Clause C4D4 & C4D5 of the BCA. The external walls can readily comply with FRL 60/60/60. Protection of the openings can be provided by, including but not limited to, self-closing fire windows, self-closing doors with sprinklers or fixed glazing with sprinklers. Details are to be provided with the Construction Certificate to outline how compliance will be achieved with Clause C4D3, C4D4 & C4D5.

It is noted there is scope to pursue a Performance Solution, subject to confirmation with the Fire Engineer, to rationalise the protection to one external wall in lieu of both external walls/openings required under C4D4. Such a Performance Solution would be beneficial for the junction of different fire compartments for residential and private dining terrace on Lower Ground Floor.

3.5.4 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.

3.6 OCCUPANT ACCESS AND EGRESS – SECTION D

3.6.1 Egress from the building

Egress from the basement levels and Lower Ground communal facilities is required in sufficient numbers and locations to ensure that no point on the floor is more than 20m from an 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 D2D5 of the BCA. The distance between alternative exits is required by clause D2D6 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. It is proposed by the applicant to undertake a performance solution for the following travel distances:

- Basement Level 2: Permit the southern end to have 23m to a point of choice in lieu of 20m and up to 95m between alternative exits in lieu of 60m. Permit the central parking area to have up to 45m to an exit in lieu of 40m.
- Basement Level 1: Permit the north-eastern storage room to have 28m to a point of choice in lieu of 20m and up to 45m to an exit in lieu of 40m. Permit up to 82m between alternative exits in lieu of 60m.
- Lower Ground: Permit the south-eastern storage area to have 23m to a point of choice in lieu of 20m. Permit the steam room to have 23m to a point of choice in lieu of 20m.

The Lower Ground external landscape area is connected with the public road Oceanview Parade via the external stairway along the eastern boundary. This allows egress from the external landscape area to be via open space all the way to reach Oceanview Parade, as open space is directly connected via the stairway to the public road. As such, this external landscape area satisfies the definition of 'open space' and 'roof as open space'. As a result, the external landscape area is not considered an 'occupiable outdoor area' and therefore compliance with travel distance to an exit or the like is not required under Part G6 of the BCA.

On the Upper Ground floor, the distance to a single exit is permitted to be 30m for the retail tenancy which complies with Clause D2D5.

In the residential portion of the building, the distance from the SOU entry door to an exit on the ground level is permitted to be 30m for a sprinkler protected building. The distance from the SOU entry door to an exit in other areas or on other floors is to be no more than 12m for a sprinkler protected building, or a point of choice of 2 exits in which case the distance between those 2 exits is to exceed 60m. The travel distances and distances between alternative exits comply with the above.

The residential stairs are proposed to be fire-isolated stairs. The stairs have been assessed and they are indicated as fire-isolated with discharge at a level with direct egress to open space. As such compliance with the provisions of the Clause D2D4 of the BCA are satisfied.

Under Clause D2D12 the fire-isolated stairs are permitted to discharge into open space or a covered area. Core B discharges to open space and Core A discharges into a covered area in accordance with D2D12(2)(c). Core C&D discharge on Lower Ground into a covered area in accordance with D2D12(2)(c)

Where the discharge of the fire-isolated stairs passes within 6m of the external walls, the walls and any associated openings are required to be protected in accordance with Clause D2D12 & C4D5 of the BCA. For Core A&B fire-isolated stairs compliance can be readily achieved with walls having FRL 60/60/60 and fixed glazing with sprinklers to retail glazing. Details are to be provided with the Construction Certificate to outline how compliance will be achieved with Clause C4D5.

It is proposed by the applicant to undertake a performance solution to rationalise the discharge path of Core C&D fire-isolated stairs to pass within 6m of the external wall of private dining room and fire stair of Core D.

Rising and descending fire-isolated stairs are required to have no direct connection between them in accordance with Clause D3D5 of the BCA. Core A&D have the rising and descending stairs and the design shows the smoke-proof construction separating the basement rising stair before connection into the descending stair to discharge to open space. The proposed design can readily achieve compliance with Clause D3D5 of the BCA.

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, including stairs where required, and as such the provisions of Clause D2D15 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 D3D8. 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.

3.7 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.

The building is proposed to be provided with a combined sprinkler and hydrant system to AS 2118.6:2012, which includes compliance with AS 2118.1:2017 & AS 2419.1:2021. As such, this will satisfy Clauses E1D2, E1D4, E1D6, E2D8(b)(ii) & E2D9 of the BCA. During detailed design further coordination is required to provide the sprinkler / hydrant control assembly within the fire stairs, in particular stairs with double doors.

The Class 2 building will require an automatic smoke detection and alarm system complying with Specification 20 and Clause E2D8 of the BCA.

The basement fire-isolated stairs only connect two storeys below ground level (not counted in rise in storeys) therefore the stairs are not required to have stair pressurisation.

The Class 9b fire compartment for communal facilities is less than 2,000m^2 floor area therefore no requirement for smoke exhaust. The Class 9b parts shall have automatic shutdown of any air-handling systems which are not part of smoke hazard management system in accordance with Clause NSW E2D16 of the BCA.

It is proposed by the applicant to undertake a performance solution to rationalise the location of the fire booster not within sight of the main entrance to the building.

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. For each core, at least one lift with a stretcher facility is required as the building is over 12m in effective height and the dimensions of the shaft are sufficient to allow compliance.

3.9 FACILITIES IN BUILDINGS – PART F4

Clause F4D2 of the BCA requires the following facilities within a Class 2 building:

- Kitchen sink and facilities for preparing & cooking food;
- 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 F4D2 of the BCA.

3.10 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

The number of facilities required have been calculated in accordance with Clause F4D3. The number of toilet facilities shown on the plans are sufficient to satisfy the requirements of Clause F4D4 based on a maximum population of 200 people on the Lower Ground communal facilities area. The number of residents does not exceed 160 people base don two people per bedroom. As such, the provision of toilet facilities is acceptable for the building population.

Reception area has access to a unisex accessible toilet for up to 20 staff.

Class 9b - public halls, function rooms or the like						
			Required sanitary facilities			
Gender	Design occupancy	User group	Closet pans	Urinals	Washbasins	Showers
Male		employees	0	0	0	NA
Female		employees	0	NA	0	NA
Male	100	patrons	1	2	2	NA
Female	100	patrons	3	NA	2	NA

3.11 ROOM HEIGHTS – PART F5

The ceiling heights have been assessed in accordance with Part F5 of the BCA which has indicated that compliance is readily achievable within all habitable spaces, corridors and the like.

3.12 LIGHT AND VENTILATION – PART F6

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 sufficient in size to provide the required minimum natural light and ventilation to all habitable rooms.

For class 5,6,7b, 8 and 9b building artificial lighting and mechanical ventilation are required and these systems can be readily installed in the building.

The carpark is required to be provided with a system of mechanical ventilation where required by clause F6D11 of the BCA.

4.0 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.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by			
Drawing Number	**Revision**	**Date**	**Title**
DA01.003	A	15.12.2023	Site Plan
DA03.001	A	15.12.2023	Basement 02
DA03.002	A	15.12.2023	Basement 01
DA03.003	A	15.12.2023	Ground Lower Plan
DA03.004	A	15.12.2023	Ground Upper Plan
DA03.005	A	15.12.2023	Level 01 Plan
DA03.006	A	15.12.2023	Level 02 Plan
DA03.007	A	15.12.2023	Level 03 Plan
DA03.008	A	15.12.2023	Roof Plan
DA09.001A	A	15.12.2023	Elevation Old South Head Road
DA09.001B	A	15.12.2023	Elevation Old South Head Road
DA09.002	A	15.12.2023	Elevation Oceanview Avenue
DA09.003	A	15.12.2023	Elevation North
DA09.004A	A	15.12.2023	Elevation East
DA09.004B	A	15.12.2023	Elevation East
DA09.005	A	15.12.2023	Elevation Outhouse

Annexure B - Essential Services

The following fire safety measures are required 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.

This section provides information for the design team, including service designers, and may need to be updated upon receipt of final designs and performance solutions at the construction approval stage.

Table 3: 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)	**BCA2022 C4D14** (Openings in Shafts) **BCA2022 Specification 12** AS 1905.1:2015 (Fire Resistant Doorsets)
2.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
3.	Fire doors	**BCA2022 C3D14** (Electricity Supply Systems) **BCA2022 C4D5** (Acceptable methods of Protection) **BCA2022 C4D6** (Doors in Fire Walls) **BCA2022 C4D9 (**Openings in Fire Isolated Exits) **BCA2022 C4D12** (Bounding Construction) Specification 12 & AS1905.1: 2015 **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005
5.	Fire windows + Fixed Internal wall-wetting sprinklers + Fixed External wall-wetting sprinklers	**BCA2022 C4D3** (Protection of Openings) **BCA2022 C4D4** (Separation of external walls and associated openings in different fire compartments) **BCA2022 C4D5** (Acceptable Methods of Protection) **BCA2022 D2D12** (Travel Via Fire Isolated Exits) AS 2118.1:2017
6.	Lightweight construction + Fire Rating of Bounding Construction to Class 2 parts	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** AS1530.4:2014
7.	Smoke Walls	**BCA2022 D3D5** (Separation of Rising and Descending Stair Flights) Clause S11C2
8.	Smoke Doors + Smoke Seals + Solid Core 35mm Door	**BCA2022 D3D5** (Separation of Rising and Descending Stair Flights) Clause S12C3&4

Item	Essential Fire and Other Safety Measures	Standard of Performance
General		
9.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
10.	Automatic fail safe devices + Auto unlock egress doors + Auto-closing fire stair doors	**BCA2022 D3D26** (Operation of Latches) **BCA2022 C4D9 (**Openings in Fire Isolated Exits) AS 1670.1:2018 (Amdt 1)
11.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
12.	Stretcher Lifts including + Fire Service Controls + Recall Operation + Drive control switch	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls) **BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch)
Electrical Services		
13.	Automatic fire detection & alarm:	**BCA2022 E2D3, E2D8, E2D9, NSW E2D16** **BCA2022 S20C3** (Smoke alarm system) **BCA2022 S20C6** (Smoke detection for smoke control systems) **BCA2022 S20C7** (BOWS) **BCA2022 S20C8** (System Monitoring) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 (Amdt 1) AS 1670.3:2018 (Amdt 1)
14.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
15.	Exit signs	**BCA2022 E4D5, E4D6 & E4D8** AS/NZS 2293.1:2018
16.	System Monitoring + AS2118.1 Sprinkler System	**BCA2022 E1D4 & Spec 17, S20C8** AS 1670.3:2018 (Amdt 1)
Hydraulic Services		
17.	Automatic fire suppression systems	**BCA2022 E1D4, E1D6,** **BCA2022 Specification 17** AS 2118.6:2012 (Combined Sprinklers/Hydrant)

Item	Essential Fire and Other Safety Measures	Standard of Performance
18.	Fire hydrant systems + NSW Storz Couplings + Ring Main required for AS 2118.6 combined system	**BCA2022 E1D2** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
19.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
20.	Wall-wetting sprinkler / drenchers	**BCA2022 C4D4, C4D5, D2D12** AS 2118.1:2017 Wall-wetting sprinklers
Mechanical Services		
21.	Fire dampers	**BCA2022 C4D16** AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015
22.	Mechanical air handling systems + Mechanical ventilation to carpark. + Auto-shutdown of Air-handling System Class 9b part: Any air-handling system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: • non-ducted individual room units with a capacity of not more than 1000 L/s; or • miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	**BCA2022 E2D12 & NSW E2D16** **Specification 20 – S20C6** AS 1668.1:2015 (Amdt 1)

Notes:

1. An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 or E2D20 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—

    a. ((be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or

    b.

        i. incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and

        ii. 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 (Amdt 1); and

Item	Essential Fire and Other Safety Measures	Standard of Performance
		2. for the purposes of this provision, each *sole-occupancy unit* in a Class 2 or 3 building is treated as a separate *fire compartment*. 3. 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. **4.** A smoke detection system must be installed in accordance with S20C6 to operate AS 1668.1:2015 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.
46.	**Performance Solutions – Refer Executive Summary** *Fire Engineering Report (FER) prepared at CC stage.	

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 4: Type A Construction

Table S5C11a: Type A construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/90/90	180/180/180	240/240/180
3m, or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	-/90/90	-/120/120	-/180/180	-/240/240
1.5 to less than 3 m	-/60/60	-/90/90	-/180/120	-/240/180
3m, or more	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11c: Type A construction: FRL of external columns not incorporated in an external wall

Column Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-bearing	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	90/90/90	120/120/120	180/120/120	240/120/120
Bounding public corridors, public lobbies and the like	90/90/90	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy unit	90/90/90	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	-/90/90	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy unit	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for	-/90/90	-/90/90	-/120/120	-/120/120

the discharge of hot products of combustion				

Table S5C11g: Table A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building Element	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	Class 2, 3 or 4 Part	Class 5, 7a or 9	Class 6	Class 7b or 8
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

N.B. There are FRL concessions applicable for fully sprinkler protected buildings under Clause S5C15 of BCA Specification 5, permitting the roof to have nil FRL. However, where the roof of the building is used for discharge of exits for egress to the road then the roof requires FRL 120/120/120.

Annexure D - 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/m^2) as determined by AS ISO 9239.1:2003.

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—

1. the exterior of the building; or
2. a non-conditioned space including—
    a. the floor of a rooftop plant room, lift-machine room or the like; and
    b. the floor above a carpark or warehouse; and
    c. the common wall with a carpark, warehouse or the like.

Exit

Exit means –

1. Any, or any combination of the following if they provide egress to a road or open space—
    a. An internal or external stairway.
    b. A ramp.
    c. A fire-isolated passageway.
    d. A doorway opening to a road or open space.
    e. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

1. the total space of a building; or
2. when referred to in—
    a. 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

b. 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—

1. structural adequacy; and
2. integrity; and
3. 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

1. the far boundary of a road, river, lake or the like adjoining the allotment; or
2. a side or rear boundary of the allotment; or
3. 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—

1. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
2. applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Occupiable outdoor area

Occupiable outdoor area means a space on a roof, balcony or similar part of a building–

1. that is open to the sky; and
2. to which access is provided, other than access only for maintenance; and
3. that is not open space or directly connected with open space.

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 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—

1. a dwelling; or
2. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. 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 E - BCA Compliance Specification

The following BCA Compliance Specification highlights the BCA items to be addressed by the relevant architectural, services and engineering consultants at the Construction Certificate Stage.

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with S5C11 of Specification 5 of BCA2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
3. Building elements, including external walls and their components in buildings of Type A Construction, must be non-combustible in accordance with C2D10 of BCA2022.
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 C2D11 and Specification 7 of BCA2022.
5. Any fire-protected timber proposed will comply with Clause C2D13 of BCA2022.
6. 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 C2D14 of BCA2022.
7. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C3D9 and Specification 5 of BCA2022.
8. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
9. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
10. Any main switch board/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 C3D14 of BCA2022.
11. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
12. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
13. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C4D9 of BCA2022.
14. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.
15. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C4D13, C4D14 and C4D15 and Specification 13 of BCA2022.
16. 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 C4D16.
17. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.

18. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
19. 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 5 Clause S5C4 BCA2022.
20. 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 S5C8 of Specification 5 of BCA2022.
21. Smoke-proof walls and doorways required in the fire-isolated stairs will be in accordance with Clause D3D5 and Clause 2 of Specification 11.
22. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
23. Smoke doors will be constructed so smoke will not pass from one side of the doorway to the other in accordance with Specification 12 of BCA2022.
24. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
25. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
26. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
27. 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 D2D6 of BCA2022.
28. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
29. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
30. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
31. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D2D21 of BCA2022.
32. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
33. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of BCA2022.
34. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
35. The construction separating rising and descending stairs in the fire-isolated exit stairway will be non-combustible and smoke proof, in accordance with Clause D3D5 of BCA2022.
36. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D3D8 of BCA2022 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.
37. New pedestrian ramps will comply with AS 1428.1:2009, Clause D3D11 and Part D4 of BCA2022. The floor surface of a ramp must have a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.

38. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
39. 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 D3D13 of BCA2022.
40. Stair geometry to the new stairways will be in accordance with Clause D3D14 of BCA2022. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
41. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D16 of BCA2022. Landings to have either a surface with a slip-resistance classification complying with Table D3D15 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 D3D15 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
42. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
43. 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 D3 of BCA2022.
44. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
45. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
46. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
47. The openable portion of a window in a bedroom of a Class 2 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 D3D29 of BCA2022. 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.
48. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1D16 of BCA2022.
49. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
50. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
51. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
52. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS 3740:2010.
53. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
54. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F2D4 of BCA2022.
55. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS 1288:2006 / AS 2047:2014.
56. Facilities in residential SOUs provided in the building in accordance with Clause F4D2 of BCA2022.

57. Sanitary facilities will be provided in the communal areas of the building in accordance with Clause F4D3 & F4D4 of BCA2022.
58. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
59. Ceiling heights to the new areas will be in accordance with Clause F5D2 of BCA2022.
60. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
61. Natural ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
62. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
63. Pliable building membranes installed in external walls will comply with Clause F8D3 of BCA2022 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.
64. 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 G1D5 of BCA2022.
65. The swimming pool associated with the new building will comply with NSW G1D2 of the BCA 2022, Swimming Pools Act 1992, Swimming Pools Regulation 2018 and AS 1926.1:2012. AS 1926.2:2007 and AS 1926.3:2010 as required.
66. 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.

Electrical Services Design Certification:

67. A smoke detection and alarm system will be installed throughout the building in accordance with E2D8, E2D9 and NSW E2D16, and Specification 20 of BCA2022.
68. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
69. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
70. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
71. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
72. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of BCA2022.

Hydraulic Services Design Certification:

73. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
74. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
75. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
76. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.

77. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
78. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.

Mechanical Services Design Certification:

79. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of BCA2022, and AS 1668.1:2015.
80. Automatic shutdown of the air-handling systems in the Class 9b parts will be in accordance with NSWE2D16 and Specification 20 of BCA2022.
81. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
82. Every storey of the car park will be ventilated in accordance with Clause F6D11 of BCA2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
83. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F6D12 of BCA2022, and AS 1668.1:2015 and AS 1668.2:2012.
84. 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 F8D4 of BCA2022.
85. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F8D5 of BCA2022.
86. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022
87. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

88. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 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.
89. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification 5 of BCA2022, including S5C11 for a building of Type A Construction.

90. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.
91. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
92. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.
93. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D3D3 of BCA2022 for the fire isolated stairs.

Lift Services Design Certification:

94. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of BCA2022 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.
95. Warning signage in accordance with Clause E3D4 of BCA2022 will be provided to the lifts to advise not to use the lifts in a fire.
96. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3D11.
97. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
98. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D4 of the BCA2022 and will be suitable to accommodate disabled persons.
99. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 and E3D8 and will also have accessible features in accordance with E3D7 and E3D8 of BCA2022.
100. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
101. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.

Acoustic Services Design Certification:

102. The sound transmission and insulation of the residential portions of the development will comply with Part F7 of BCA2022.

NSW Specification Design Certificate:

103. The swimming pool associated with the new building will comply with Clause G1D2 and NSW G1D2 of the BCA, Swimming Pools Act 1992, Swimming Pools Regulation 2018 and AS 1926.1:2012. AS 1926.2:2007 and AS 1926.3:2010.