CROWN GROUP

DA STAGE BCA ASSESSMENT REPORT

40 The Retreat, Bringelly NSW 2556

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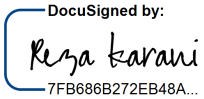
	6 June 2024	Reza Karani Senior Consultant, Building Regulations	Signed:	

Jensen Hughes Australia

Providing building regulations, fire engineering, accessibility, and energy consulting services to NSW for over 25 years

Our story begins in 1997 with the founding of BCA Logic to fulfill the demand of a consultancy company whose expertise expanded across the entire life cycle of a building, from consulting on the initial planning through to construction and occupation.

BCA Logic, SGA Fire and BCA Energy joined Jensen Hughes in 2021, a leading global, multi-disciplinary engineering, consulting and technology firm focused on safety, security and resiliency. We continue to be at the forefront of our industry and work thoroughly to preserve our position by ensuring the successful delivery of projects.

Jensen Hughes was launched in 2014 through the historic merger of Hughes Associates and Rolf Jensen & Associates (RJA), two of the most experienced and respected fire protection engineering companies at the time. Since then, we have gained market leadership in nuclear risk consulting and established commanding positions in areas like forensic engineering, security risk consulting and emergency management. Over the past 22 years, our integration of more than 30 privately held engineering and consulting firms has dramatically expanded our global footprint, giving us a powerful market presence ten times larger than our nearest competitor in some of our markets and extending our historical lineage back to 1939.

With more than 90 offices and 1500 employees worldwide supporting clients globally across all markets, we utilise our geographic reach to help better serve the needs of our local, regional, and multinational clients. In every market, our teams are deeply entrenched in local communities, which is important to establishing trust and delivering on our promises.

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Executive summary

This document provides an assessment of the architectural design drawings for the proposed residential building development at 40 The Retreat, Bringelly NSW 2556, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2022 Volume 1.

Part 3 'Matters for Further Consideration' of this report outlines the identified BCA compliance items that may 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.

Item	Description	BCA Provision
Performance Solutions Required		
1.	To permit areas categorised as Class 7b to have FRL's reduced from 240/240/240 FRL to 120/120/120 FRL across the basement levels including where this exceeds the compartmentation limit prescribed for Class 7b compartments.	Specification 5
2.	Where the garbage shafts are not laid directly on the ground and are not fire rated at the base of the shaft including where the garbage rooms will from part of the same fire compartment as the shaft. These will need to be addressed through a fire engineered Performance Solution . Applicable to all garbage shafts.	Specification 5
3.	To address where the summation of public corridors are more than 40m in length on a performance basis. Applicable to 'Building C part' of Building (A-B-C) on ground level.	Clause C3D15
4.	To permit a single exit to be provided in lieu of two (2) to the following areas: Fire Pump Room(s) on Lower Ground Floor; Fire Tank Room(s) on Lower Ground Floor; Main Switch Room on Lower Ground Floor; Fire Control Centre (as applicable) Bike Parking, Switch Room, Comms Room and Storage Room within Building F on Lower Ground Floor;	Clause D2D3
5.	To permit an exit travel distance to a point of choice within the Basement Levels of up to: - 45m to a point of choice in lieu of 20m on Lower Ground Level of Building (A-B-C)	Clause D2D5

Item	Description	BCA Provision
	- 40m to point of choice in lieu of 20m within Basement Levels B1 and B2 within Building (D-E-F) To permit an exit travel distance of up to the nearest exit within Basement Levels of up to: - 50m to the nearest exit in lieu of the required 40m on SW corner of Basement Level B2 within Building (D-E-F). - 50m to the nearest exit in lieu of the required 40m from on Basement Level B1 within Building (A-B-C). - 60m to the nearest exit in lieu of the required 40m on Basement Level B1 within Building (D-E-F) - 70m to the nearest exit in lieu of the required 40m on Lower Ground Level within Building (A-B-C)	
6.	To permit extended travel distances within the residential levels of up to: - 11m to a point of choice in lieu of 6m on Levels 1 to 11, within Tower A of Building (A-B-C) - 35m to an exit from the communal open space within Level 4, Tower A of Building (A-B-C) - 23m to an exit from the balcony of the Amenity room within Level 10, Tower B of Building (A-B-C) - 26m to an exit from the communal open space within Level 10, Tower B of Building (A-B-C) - 15m to a point of choice in lieu of 6m on Levels 1 to 8 , within Tower C of Building (A-B-C) - 28m to an exit from the communal open space within Level 7, Tower C of Building (A-B-C) - 16m to a point of choice in lieu of 6m on Levels 1 to 6 within Tower D of Building (D-E-F) - 30m to an exit from the communal open space within Level 4, Tower D of Building (D-E-F)	Clause D2D5

Item	Description	BCA Provision
	15m to a point of choice in lieu of 6m on Level 1 within Tower E of Building (D-E-F) - 23m to an exit from the balcony of the Amenity room within Level 10, Tower E of Building (D-E-F) - 25m to an exit from the communal open space within Level 10, Tower E of Building (D-E-F) - 11m to a point of choice in lieu of 6m on Levels 1 to 10 within Tower F of Building (D-E-F) - 23m to an exit from the communal open space within Level 4, Tower F of Building (D-E-F)	
7.	To permit extended travel distances between alternative exits on the lower ground floor of Building (D-E-F) of up to 80m in lieu of the required 45m.	Clause D2D6
8.	It is proposed to have the fire-isolated exits serving the residential levels of the building discharge within the confines of the building on ground floor that is not open for at least 2/3 of its perimeter, as well as to covered areas that are not open for at least 1/3 of its perimeter in lieu of complying in accordance with BCA Clause D2D12(2). It is proposed to have the path of travel from the fire-isolated exit necessitates passing within 6 m of unprotected openings within the external walls and where occupant egress to the road re-exposes occupants to voids when travelling adjacent Building (A-B-C) and Building (D-E-F) respectively.	Clauses D2D4 & D2D12
9.	To address where the pump room is not technically provided with a doorway that leads directly to an airlock that leads to a fire isolated stair leading to a road or open space due to the size, amount of doorways and contents of the proposed area. As there are multiple doors opening into it the area a Performance Solution will be required.	Clause D2D12
10.	To address where discharge from various scissor stairs discharge directly next to one	Clause D2D15

Item	Description	BCA Provision
	another and are technically not as far apart as practical.	
11.	The fire hydrant and sprinkler booster assemblies serving Building (A-B-C) as well as the required booster for Building (D-E-F) is required to be located sight of the main entrance into the building. A fire engineered solution will be required to address where it is not within sight of due to each building being design to have multiple pedestrian entries.	Clause E1D2
12.	To omit fire hose reel coverage within the waste storage rooms on lower ground and basement level that are fire-separated from the remainder of the building as fire hose reels are technically not permitted to pass through fire/smoke doorsets.	Clause E1D3
13.	A fire engineered solution will be required to permit the deletion of sprinklers within the main switch room and communications rooms.	Clause E1D5
14.	To address where the sprinkler alarm valve enclosure is not located such that it opens directly to a road or open space.	Clause S17C6
15.	A fire engineered Performance Solution will be required to address the provision of EV charging bays within the development on a performance basis.	Clauses E1D17 & E2D21
16.	A Performance Solution will be required from the façade engineer to demonstrate that the construction of the new external walls (other than glazing, masonry, autoclaved aerated concrete, and metal wall cladding for which Deemed-to-Satisfy Provisions are provided) 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.	Clauses F3D4 & F3D5
17.	To demonstrate the compliance of the drainage of swimming pool (where there are not deemed-to-satisfy provision).	Part G
Building Code of Australia Compliance Matters to be Addressed		
1.	External wall construction including all components incorporated within them such as	Clauses C2D10 & C2D14

Item	Description	BCA Provision
	facade covering, framing and insulation are required to be of non-combustible construction. Facade engineer and Architect to confirm if a Performance Solution will be required to address any combustible materials that may be installed in the external walls, or internal walls required to be fire resisting / fire rated. This may include plastic packers, timber noggings, etc. that are not provided in 'isolated' instances which may require a fire engineered Performance Solution . Details to be confirmed in subsequent design stages following provision of wall type and fire compartmentation drawings.	
2.	The public corridors in Building A and Building B on Ground Level, and communal open space on Building F exceed 40m length and need smoke-proof separation construction. Alternatively, a fire engineered Performance Solution will be required to address where the summation of public corridors exceed	Clause C3D15
3.	All residential units are only provided with a single exit in lieu of two exits. Drawings are to be amended to identify a scissor stair in this location showing two exits on each storey. Applicable to egress from units: A.01.07, A.01.08 A.01.09, A.01.10, A.02.07, A.02.08 A.02.09, A.02.10, A.02.11, A.03.07, A.03.08 A.03.09, A.03.10, A.03.11 and Amenity Room on Level 04.	Clause D2D3
4.	Services engineers to confirm if there will be any areas with reduced 1m clear widths e.g. within plant rooms. If there are no known instances of this occurring then this Performance Solution can be removed where not required.	Clauses D2D7 and D2D8
5.	Services rooms shall have an internal ceiling height of not less than 2100mm. Drawings shall be amended to show a compliant ceiling height to Building D plantroom below swimming pool.	Clause F5
6.	Natural light must be provided to all habitable rooms in the Class 2 areas. No details have been provided on the sizing and location of habitable rooms and their respective window openings. Details to be confirmed in subsequent design stages.	Clause F6D2

Item	Description	BCA Provision
7.	Proposed Swimming Pool area, including the swimming pool safety barrier on Building D to be compliant with AS 1926.1 - 2012. Note: the waterbody located on ground floor is assumed to not be used for swimming, wading, paddling or the like and therefore not required to comply with Clause G1D2 as it does not meet the BCA definition of a *swimming pool.*	Clause G1D2
8.	The proposed development is within a designated bush fire prone area. As it is a Class 2 building, the building must comply with Clause G5D3 and be in accordance AS 3959.	Clause G5D3
Further Information Required		
1.	No detail has been provided on the location of the fire control centre. The room shall be located such that egress to the road does not involve a change in level which in aggregate exceeds 300mm. Alternatively a fire engineered Performance Solution may be required to address this change in level (as required).	Specification 19
2.	All grades of paths of travel connecting discharge points from fire-isolated exits to public roads shall be no steeper in any part than 1:8 grade. Where also required to be accessible this path shall be no steeper than 1:14. Details to be confirmed in subsequent design stages.	Clause D2D15
3.	Sanitary facilities are to be provided on Ground Floor to serve the retail areas. Maximum intended staff populations, and the use of the retail tenancies are to be confirmed at subsequent design stages for a complete assessment against BCA Clause F4D4 noting that sanitary facilities are only required to be provided for staff of the retail tenancies, and patrons of retail food premises where the patron population of a retail food premises tenancy exceeds 20.	Clause F4D4

1.0 Basis of Assessment

1.1 DEVELOPMENT DESCRIPTION

The building development, the subject of this report, is located at 40 The Retreat, Bringelly, NSW 2556. The proposed development is considered two buildings for the purposes of the BCA report;

1- Buildings A, B and C are considered one building joined by shared basement levels; herein referenced within this report at 'Building (A-B-C)' .

2- Buildings D, E and F are considered one building where they connected through shared basement levels; and herein referenced within this report as 'Building (D-E-F)'.

The primary use of the buildings are residential with a basement carpark, it is noted the building does contain retail and amenity areas. Pedestrian and vehicular access is derived from 'Future Collector Road'.

Figure 1 – Site Plan- Image courtesy of DKO Architecture

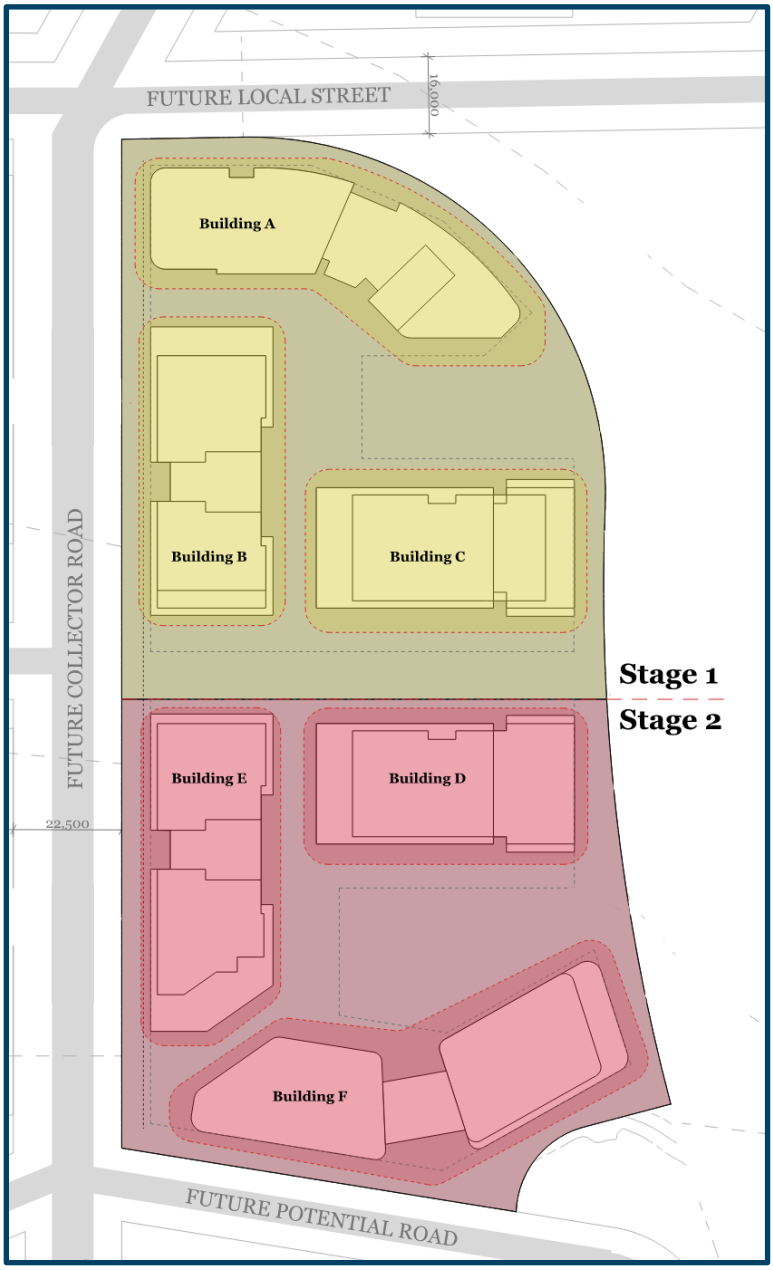

Figure 2 – Site 'Building' references diagram (Indicative)

This State Significant Development Application seeks consent for the detailed design and delivery (including construction and use) of a new mixed use residential development, to be developed in two (2) stages. Specifically, development consent is sought for:

1.1.1.1 Stage 1

+ Overall site clearing and preparation works, including demolition of all existing development on the Site;
+ The redevelopment of the northern portion of the Site, comprising:
  - Temporary Site access to the northern portion of the Site from The Retreat;
  - Temporary bin enclosure adjacent the temporary access;

- Excavation works and construction of a shared two (2) storey basement to a maximum depth of RL 60.60, with capacity for 311 vehicle car spaces;
- Construction of three (3) individual mixed use buildings, comprising:
  - Maximum building heights between 30.4m and 39.8m;
  - A total Gross Floor Area (GFA) of 26,204sqm, comprising 25,744 sqm of residential GFA, 248 sqm of non-residential GFA and 212 sqm of retail GFA, distributed across the three buildings;
  - 254 residential units, distributed across the three buildings.
- Associated landscaping, communal open space and embellishment works; and
- Delivery and augmentation of services.

1.1.1.2 Stage 2

+ The redevelopment of the southern portion of the Site, comprising:
  - Removal of the Stage 1 temporary access from The Retreat;
  - Connection and access of the Stage 1 basement to the western boundary (to become a future Collector Road);
  - Excavation works and construction of a shared three (3) storey basement to a depth of RL 56.35, with capacity for 336 vehicle car spaces;
  - Site and basement access from the western boundary (to become a future Collector Road);
  - Construction of three (3) individual mixed use buildings, comprising:
    - Maximum building heights between 23.8m and 39.9m;
    - A total Gross Floor Area (GFA) of 29,126 sqm, comprising 28,540 sqm of residential GFA, 212 sqm of retail GFA and 374 sqm of non-residential GFA, distributed across the three buildings;
    - 279 residential units, distributed across the three buildings.
  - Associated landscaping, communal open space and embellishment works; and
  - Delivery and augmentation of services.

A detailed description of the proposed development is detailed in Section 3.0 of the Environmental Impact Statement prepared by Ethos Urban.

1.1.1.3 Secretary's Environmental Assessment Requirements

In accordance with section 4.39 of the *Environmental Planning & Assessment Act 1979* (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) for **SSD-65729209** were issued on 18 January 2024. This report has been prepared to respond to the relevant issued SEARs, as set out in the table below.

SEAR	Response
Built Form and Urban Design	Building Code of Australia Compliance Report

1.1.1.4 Summary of Mitigation Measures

All consultants must also include a Mitigation Measures table in their report. The table should list the recommended mitigation measures being proposed by the consultant. See below for formatting and an example.

ID	Mitigation Measure
N/A	Nil

1.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the applicable 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. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance-based Assessment (Performance Solution) 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 One – Building Code of Australia, 2022 Edition (BCA), incorporating the State variations where applicable. It is to be noted that a reference to the BCA in this report is a reference to BCA2022.

1.4 LIMITATIONS

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

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

This report does not include, or imply compliance with:

7. the National Construction Code – Plumbing Code of Australia Volume 3
8. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to) (Note: The provision of access for people with a disability for the subject development has *not* been assessed against the Deemed-to-Satisfy Provisions of Part D4 and Clauses E3D7, E3D8, F4D5, F4D6, F4D7 and F4D12 of BCA2022 unless otherwise discussed in this report);
9. Demolition Standards not referred to by the BCA;
10. Work Health and Safety Act 2011;
11. Requirements of Australian Standards unless specifically referred to;
12. 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
13. 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 proposed Building (A-B-C) has a rise in storeys of thirteen (13).

The proposed Building (D-E-F) has a rise in storeys of thirteen (13).

2.2 CLASSIFICATION (CLAUSE A6G1)

The proposed building work is considered to be classified as follows.

Table 1: Building Classification for Building (A-B-C)

Class	Level	Description
Class 7a, 7b	Basement B1	Carpark and Storage
Class 7a, 7b	Lower Ground	Carpark, Storage
Class 2, 6	Ground Level	Residential and Retail
Class 2	Levels 1 – 3	Residential Sole Occupancy Units
Class 2	Level 4	Residential Sole Occupancy Units and Amenity Room
Class 2	Levels 5 – 12	Residential Sole Occupancy Units

Table 2: Building Classification for Building (D-E-F)

Class	Level	Description
Class 7a, 7b	Basement Levels B2 – B1	Carpark and Storage
Class 7a, 7b, 2	Lower Ground	Carpark, Storage and Residential
Class 2, 6, 9b	Ground Level	Residential, Wellness Gym and Retail
Class 2	Levels 1 – 3	Residential Sole Occupancy Units
Class 2, 9b, 10b	Level 4	Residential Sole Occupancy Units, Amenity Room and Swimming Pool
Class 2	Levels 5 – 12	Residential Sole Occupancy Units

2.3 EFFECTIVE HEIGHT (SCHEDULE 1)

The Building (A-B-C) has an *effective height* of 42.77m (RL 104.37 - RL 61.60) which is more than 25 metres.

The Building (D-E-F) has an *effective height* of 42.77m (RL 104.37 - RL 61.60) which is more than 25 metres.

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

Both Building (A-B-C) and Building (D-E-F) are required to be of Type A Construction.

2.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C2D3)

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

1. The combined basement and lower ground levels in building (A-B-C)
2. The combined basement and lower ground levels in building (D-E-F)
3. The storage areas within the basement levels *forming part of a Fire Engineering Performance Solution* .
4. Each residential storey forms its own fire compartment separate from the remainder of the building in building (A-B-C)
5. Each residential storey forms its own fire compartment separate from the remainder of the building in building (D-E-F)

2.7 EXITS

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

1. Fire doors opening to fire isolated exits within the Basement levels;
2. Where open space is reached on Lower Ground and Ground levels;
3. Fire doors opening to fire isolated exits on the residential storeys.

2.8 CLIMATE ZONE

The building is located within Climate Zone 6

2.9 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. The proposed development is considered Importance Level Three (3).

Table B1D3a of the BCA provides the following:

Importance Level	Building Types
1	Buildings or structures presenting a low degree of hazard to life and other property in the case of failure.
2	Buildings or structures not included in Importance Level 1, 3 and 4.
3	**Buildings or Structures that are designed to contain a large number of people.**
4	Buildings or Structures that are essential to post-disaster recovery or associated with hazardous facilities.

2.10 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of Local Street

South: The far boundary of unnamed roadway

East: The allotment boundary common with 30 The Retreat, Bringelly

West: The far boundary of Collector Road

Note: It shall be formalised in subsequent design stages that the local streets and collector roads are formal registered roadways for consideration in the determination of fire source features.

3.0 Matters for Further Consideration

3.1 GENERAL

Assessment of the Architectural design documentation against the Deemed-to-Satisfy Provisions of the Building Code of Australia has revealed the following areas where compliance with the BCA may require further consideration and/or may involve assessment as *Performance Solutions*. Any *Performance Solutions* will be required to clearly indicate methodologies for achieving compliance with the relevant *Performance Requirements*.

3.1.1 External wall construction including all components incorporated within them such as facade covering, framing and insulation are required to be of non-combustible construction. Facade engineer and Architect to confirm if a Performance Solution will be required to address any combustible materials that may be installed in the external walls, or internal walls required to be fire resisting / fire rated. This may include plastic packers, timber noggings, etc. that are not provided in 'isolated' instances which may require a fire engineered Performance Solution. Details to be confirmed in subsequent design stages following provision of wall type and fire compartmentation drawings. **(Clauses C2D10 & C2D14)**

3.1.2 The public corridors in Building A and Building B on Ground Level, and communal open space on Building F exceed 40m length and need smoke-proof separation construction. Alternatively, a fire engineered Performance Solution will be required to address where the summation of public corridors exceed 40m **(Clause C3D15)**

3.1.3 All residential units are only provided with a single exit in lieu of two exits. Drawings are to be amended to identify a scissor stair in this location showing two exits on each storey. Applicable to egress from units: A.01.07, A.01.08 A.01.09, A.01.10, A.02.07, A.02.08 A.02.09, A.02.10, A.02.11, A.03.07, A.03.08 A.03.09, A.03.10, A.03.11 and Amenity Room on Level 04. **(Clause D2D3)**

3.1.4 Services engineers to confirm if there will be any areas with reduced 1m clear widths e.g. within plant rooms. If there are no known instances of this occurring then this Performance Solution can be removed where not required. **(Clauses D2D7 & D2D8)**

3.1.5 All grades of paths of travel connecting discharge points from fire-isolated exits to public roads shall be no steeper in any part than 1:8 grade. Where also required to be accessible this path shall be no steeper than 1:14. Details to be confirmed in subsequent design stages. **(Clause D2D15)**

3.1.6 Sanitary facilities are to be provided on Ground Floor to serve the retail areas. Maximum intended staff populations, and the use of the retail tenancies are to be confirmed at subsequent design stages for a complete assessment against BCA Clause F4D4 noting that sanitary facilities are only

required to be provided for staff of the retail tenancies, and patrons of retail food premises where the patron population of a retail food premises tenancy exceeds 20. **(Clause F4D4)**

3.1.7 Services rooms shall have an internal ceiling height of not less than 2100mm. Drawings shall be amended to show a compliant ceiling height to Building D plantroom below swimming pool. **(Clause F5D2)**

3.1.8 Natural light must be provided to all habitable rooms in the Class 2 areas. No details have been provided on the sizing and location of habitable rooms and their respective window openings. Details to be confirmed in subsequent design stages. **(Clause F6D2)**

3.1.9 Proposed Swimming Pool area, including the swimming pool safety barrier on Building D to be compliant with AS 1926.1 - 2012. Note: the separate waterbody located on ground floor is assumed to not be used for swimming, wading, paddling or the like and therefore not required to comply with Clause G1D2 as it does not meet the BCA definition of a *swimming pool.* **(Clause G1D2)**

3.1.10 The proposed development is within a designated bush fire prone area. As it is a Class 2 building, the building must comply with Clause G5D3 and be in accordance AS 3959. **(Clause G5D3)**

3.1.11 No detail has been provided on the location of the fire control centre. The room shall be located such that egress to the road does not involve a change in level which in aggregate exceeds 300mm. Alternatively a fire engineered Performance Solution may be required to address this change in level (as required). **(Specification 19)**

3.2 DIMENSIONS AND TOLERANCES

The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. Jensen Hughes' assessment of the plans and specifications has been undertaken to ensure the minimum dimensions have been met.

The designer and builder should ensure that the minimum dimensions are met onsite, and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical matters such as access for people with disabilities, stair and corridor widths and balustrade heights.

3.3 PERFORMANCE-BASED DESIGN – PERFORMANCE SOLUTIONS

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance may not be achieved by the proposed design and site constraints. These matters may need to be addressed in a detailed Performance Solution and/or Fire Engineering Report, to be prepared for this development under separate cover:

Table 3: Performance Solutions

Item	Description	BCA Provision
Performance Solutions Required		
1.	To permit areas categorised as Class 7b to have FRL's reduced from 240/240/240 FRL to	Specification 5

Item	Description	BCA Provision
	120/120/120 FRL across the basement levels including where this exceeds the compartmentation limit prescribed for Class 7b compartments.	
2.	Where the garbage shafts are not laid directly on the ground and are not fire rated at the base of the shaft including where the garbage rooms will from part of the same fire compartment as the shaft. These will need to be addressed through a fire engineered Performance Solution . Applicable to all garbage shafts.	Specification 5
3.	To address where the summation of public corridors are more than 40m in length on a performance basis. Applicable to 'Building C part' of Building (A-B-C) on ground level.	Clause C3D15
4.	To permit a single exit to be provided in lieu of two (2) to the following areas: Fire Pump Room(s) on Lower Ground Floor; Fire Tank Room(s) on Lower Ground Floor; Main Switch Room on Lower Ground Floor; Fire Control Centre (as applicable) Bike Parking, Switch Room, Comms Room and Storage Room within Building F on Lower Ground Floor;	Clause D2D3
5.	To permit an exit travel distance to a point of choice within the Basement Levels of up to: - 45m to a point of choice in lieu of 20m on Lower Ground Level of Building (A-B-C) - 40m to point of choice in lieu of 20m within Basement Levels B1 and B2 within Building (D-E-F) To permit an exit travel distance of up to the nearest exit within Basement Levels of up to: - 50m to the nearest exit in lieu of the required 40m on SW corner of Basement Level B2 within Building (D-E-F). - 50m to the nearest exit in lieu of the required 40m from on Basement Level B1 within Building (A-B-C). - 60m to the nearest exit in lieu of the required 40m on Basement Level B1 within Building (D-E-F) - 70m to the nearest exit in lieu of the required 40m on Lower Ground Level within Building (A-B-C)	Clause D2D5

Item	Description	BCA Provision
6.	To permit extended travel distances within the residential levels of up to: - 11m to a point of choice in lieu of 6m on Levels 1 to 11, within Tower A of Building (A-B-C) - 35m to an exit from the communal open space within Level 4, Tower A of Building (A-B-C) - 23m to an exit from the balcony of the Amenity room within Level 10, Tower B of Building (A-B-C) - 26m to an exit from the communal open space within Level 10, Tower B of Building (A-B-C) - 15m to a point of choice in lieu of 6m on Levels 1 to 8 , within Tower C of Building (A-B-C) - 28m to an exit from the communal open space within Level 7, Tower C of Building (A-B-C) - 16m to a point of choice in lieu of 6m on Levels 1 to 6 within Tower D of Building (D-E-F) - 30m to an exit from the communal open space within Level 4, Tower D of Building (D-E-F) 15m to a point of choice in lieu of 6m on Level 1 within Tower E of Building (D-E-F) - 23m to an exit from the balcony of the Amenity room within Level 10, Tower E of Building (D-E-F) - 25m to an exit from the communal open space within Level 10, Tower E of Building (D-E-F) - 11m to a point of choice in lieu of 6m on Levels 1 to 10 within Tower F of Building (D-E-F) - 23m to an exit from the communal open space within Level 4, Tower F of Building (D-E-F)	Clause D2D5
7.	To permit extended travel distances between alternative exits on the lower ground floor of Building (D-E-F) of up to 80m in lieu of the required 45m.	Clause D2D6

Item	Description	BCA Provision
8.	It is proposed to have the fire-isolated exits serving the residential levels of the building discharge within the confines of the building on ground floor that is not open for at least 2/3 of its perimeter, as well as to covered areas that are not open for at least 1/3 of its perimeter in lieu of complying in accordance with BCA Clause D2D12(2). It is proposed to have the path of travel from the fire-isolated exit necessitates passing within 6 m of unprotected openings within the external walls and where occupant egress to the road re-exposes occupants to voids when travelling adjacent Building (A-B-C) and Building (D-E-F) respectively.	Clauses D2D4 & D2D12
9.	To address where the pump room is not technically provided with a doorway that leads directly to an airlock that leads to a fire isolated stair leading to a road or open space due to the size, amount of doorways and contents of the proposed area. As there are multiple doors opening into it the area a Performance Solution will be required.	Clause D2D12
10.	To address where discharge from various scissor stairs discharge directly next to one another and are technically not as far apart as practical.	Clause D2D15
11.	The fire hydrant and sprinkler booster assemblies serving Building (A-B-C) as well as the required booster for Building (D-E-F) is required to be located sight of the main entrance into the building. A fire engineered solution will be required to address where it is not within sight of due to each building being design to have multiple pedestrian entries.	Clause E1D2
12.	To omit fire hose reel coverage within the waste storage rooms on lower ground and basement level that are fire-separated from the remainder of the building as fire hose reels are technically not permitted to pass through fire/smoke doorsets.	Clause E1D3
13.	A fire engineered solution will be required to permit the deletion of sprinklers within the main switch room and communications rooms.	Clause E1D5
14.	To address where the sprinkler alarm valve enclosure is not located such that it opens directly to a road or open space.	Clause S17C6
15.	A fire engineered Performance Solution will be required to address the provision of EV charging	Clauses E1D17 & E2D21

Item	Description	BCA Provision
	bays within the development on a performance basis.	
16.	A Performance Solution will be required from the façade engineer to demonstrate that the construction of the new external walls (other than glazing, masonry, autoclaved aerated concrete, and metal wall cladding for which Deemed-to-Satisfy Provisions are provided) 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.	Clauses F3D4 & F3D5
17.	To demonstrate the compliance of the drainage of swimming pool (where there are not deemed-to-satisfy provision).	Part G

3.4 FACADE CONSTRUCTION – NON COMBUSTIBLE

As the building is required to be of Type A Construction, the external façade is required to be non-combustible and comply with Clause C2D10 of the BCA.

It is also noted that this clause also prohibits the use of in situ formwork containing combustible elements including PVC lined formwork products where the PVC lining remains in place for the life of the building where proposed to be used as an external wall element, common walls, the flooring and floor framing of lift pits, services riser shafts or non-loadbearing internal walls required to be fire resisting. It further noted that perimeter walls of basement (below ground) floor levels are also deemed to be external walls and the above provisions apply.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 4: Architectural Plans

Architectural Plans Prepared by DKO Architecture (NSW) Pty Ltd			
Drawing Number	**Revision**	**Date**	**Title**
DA0000	F	27/05/2024	COVER PAGE
DA2000	D	27/05/2024	BASEMENT 02 PLAN
DA2001	E	27/05/2024	BASEMENT 01 PLAN
DA2002	F	27/05/2024	LOWER GROUND PLAN
DA2003	F	27/05/2024	GROUND LEVEL PLAN
DA2004	F	27/05/2024	LEVEL 01 PLAN
DA2005	E	27/05/2024	LEVEL 02 PLAN
DA2006	E	27/05/2024	LEVEL 03 PLAN
DA2007	E	27/05/2024	LEVEL 04 PLAN
DA2008	E	27/05/2024	LEVEL 05 PLAN
DA2009	E	27/05/2024	LEVEL 06 PLAN
DA2010	E	27/05/2024	LEVEL 07 PLAN
DA2011	E	27/05/2024	LEVEL 08 PLAN
DA2012	E	27/05/2024	LEVEL 09 PLAN
DA2013	E	27/05/2024	LEVEL 10 PLAN
DA2014	E	27/05/2024	LEVEL 11 PLAN
DA2015	C	27/05/2024	ROOF PLAN
DA3000	B	25/03/2024	STREETSCAPE ELEVATIONS 1 OF 2
DA3001	B	27/05/2024	STREETSCAPES ELEVATIONS 2 OF 2
DA3100	C	27/05/2024	BLD A ELEVATIONS 1 OF 2
DA3101	B	27/05/2024	BLD A ELEVATIONS 2 OF 2
DA3102	B	27/05/2024	BLD B ELEVATIONS 1 OF 2
DA3103	B	27/05/2024	BLD B ELEVATIONS 2 OF 2
DA3104	A	27/05/2024	BLD C ELEVATIONS 1 OF 2
DA3105	A	27/05/2024	BLD C ELEVATIONS 2 OF 2
DA3200	B	27/05/2024	BLD D ELEVATIONS 1 OF 2
DA3201	B	27/05/2024	BLD D ELEVATIONS 2 OF 2
DA3202	B	27/05/2024	BLD E ELEVATIONS 1 OF 2

DA3203	B	27/05/2024	BLD E ELEVATIONS 2 OF 2
DA3204	B	27/05/2024	BLD F ELEVATIONS 1 OF 2
DA3205	B	27/05/2024	BLD F ELEVATIONS 2 OF 2
DA3300	B	27/05/2024	SECTIONS 1 OF 4
DA3301	B	27/05/2024	SECTIONS 2 OF 4
DA3302	B	27/05/2024	SECTIONS 3 OF 4
DA3303	B	27/05/2024	SECTIONS 4 OF 4

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, including any omissions or additions as a result of the fire engineering processes.

Table 5: 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.	Fire doors	**BCA2022 C3D13** (Separation of Equipment) **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 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2022 C4D12** (Bounding Construction) **BCA2022 C4D14** (Opening in Shafts) **BCA2022 D2.8** (Enclosure of Space under Stairs) Specification 19 (Fire Control Centres) Specification 12 AS1905.1: 2015
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 C4D16** (Construction joints) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005
4.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** **BCA2022 C3D8** (Fire Walls) **BCA2022 C3D9** (Separation – same storey) **BCA2022 C4D12** (Bounding Construction) **BCA2022 C3D13** (Separation of Equipment) **BCA2022 D3D7** (Smoke Lobby)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA2022 D3D9 (Enclosure of Space under Stairs and ramps) **BCA2022 D3D12** (Fire Isolated Passageways) AS1530.4:2014
5.	Smoke Walls	**BCA2022 C3D15** (Public Corridors Class 2) **BCA2022 D3D5** (Separation of Rising and Descending Stair Flights)
6.	Smoke Lobby	**BCA2022 D2D12** (Fire Isolated Stairs) **BCA2022 D3D7** (Smoke Lobby)
7.	Smoke Doors	**BCA2022 C3D15** (Public Corridors Class 2) **BCA2022 D3D5** (Separation of Rising and Descending Stair Flights) **BCA2022 D3D7** (Smoke Lobby) **BCA2022 Specification 12** AS1670.1:2018
General		
8.	Fire control centres & rooms + >25m	**BCA2022 E1D15, Specification 19** (Fire Control Centres)
9.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
General Egress		
10.	Automatic fail safe devices	**BCA2022 D3D26** (Operation of Latches) **BCA2022 D3D27** (Re-entry from fire-isolated stairs) AS 1670.1:2018 (Fire)
11.	Operation of Door latches	**D3D26** (Operation of Latch) AS 1670.1:2018
12.	Required Automatic Doors	**D3D24** (Doorways and Doors)
13.	Swing of Exit Doors	**D3D24** (Swinging Doors)
14.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
15.	Access to Lift Pits	**BCA2022 D2D22** (Access to Lift Pits)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
16.	Emergency lifts	**BCA2022 E3D5** AS 1735.1:2003 (Appendix A) or AS 1735.2:2001
17.	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) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
18.	Automatic fail safe devices	**BCA2022 D3D26** (Operation of Latches) **BCA2022 D3D27** (Re-entry from fire-isolated stairs) AS1670.1:2018 (Fire)
19.	Automatic fire detection & alarm: + Clause S20C3 – AS 3786:2014 Smoke Alarm systems powered from consumer mains to all residential SOU's, and spaced, interlinked to AS 1670.1:2018 to all common areas connected to a BOWS @ 85dB(A). + Clause S20C4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS @ 100dB(A) + Incorporating a thermal detection system in the basement carpark Note: if there is a SSISEP or EWIS applies different dB(A) i.e. At bedheads not SOU doors.	**BCA2022 Part E2,** NSW Part E2 **Specification 20** **BCA2022 C4D6** (Doors in Fire Walls) **BCA2022 C4D9** (Openings in Fire-Isolated Exits) **BCA2022 C4D12** (Bounding Construction) **BCA2022 D3D26** (Operation of Latch) **Specification 12** **BCA2022 S20C3** (Smoke alarm system) **BCA2022 S20C4** (Smoke detection system) **BCA2022S20C5** (Combined smoke alarm and smoke detection system) **BCA2022S20C6** (Smoke detection for smoke control systems) **BCA2022S20C7** (BOWS) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 AS 1670.4:2018 (EWIS)
20.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
21.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs) **BCA2022 E4D7** (Residential Concession) **BCA2022 E4D8** (Design and Operation - Exits)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS/NZS 2293.1:2018
22.	Emergency warning and intercom system (EWIS) + >25m Residential areas: 75 dB(A) at all bedheads.	**BCA2022 E4D9** AS 1670.4:2018 (EWIS)
Hydraulic Services		
23.	Automatic fire suppression systems	**BCA2022 E1D4, E1D5, E1D6, E1D9, E1D13** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers) AS 2118.6:2012 (Combined Sprinklers/Hydrant)
24.	Fire hydrant systems + NSW Storz Couplings + Ring Main required (>25m) + On-site water storage (>25m)	**BCA2022 E1D2** **BCA2022 C3D13 (Separation of Equipment)** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
25.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
Mechanical Services		
26.	Fire dampers	**BCA2022 E2, Specification 20, Specification 21** **BCA2022 C4D16** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
27.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark. 3. Zone Pressurisation System. 4. Fire Isolated Exit Pressurisation System	**BCA2022 E2,** **Specification 20, Specification 21** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point.
30.	Smoke dampers	**BCA2022 C3D6 and Specification 11** **BCA2022 E2, Specification 20** Spec 31 AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015

Item	Essential Fire and Other Safety Measures	Standard of Performance

E2D3 General Requirements

1. An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 to 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, subject to (2), be designed and installed—
    a. to operate as a smoke control system in accordance with AS 1668.1; or
    b. such that it—
        i. incorporates smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and
        ii. is 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.
2. For the purposes of (1), each sole-occupancy unit in a Class 2 building is treated as a separate fire compartment.
3. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 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 these Sections of the Standard.
4. A smoke detection system must be installed in accordance with S20C6 to operate AS 1668.1 systems that are provided for zone pressurisation and automatic air pressurisation for fire-isolated exits

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 6: 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 Part	Class 7a or 9b	Class 6	Class 7b
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 Part	Class 7a or 9b	Class 6	Class 7b
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 Part	Class 7a or 9b	Class 6	Class 7b
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 Part	Class 7a or 9b	Class 6	Class 7b
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 Part	Class 7a or 9b	Class 6	Class 7b
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 Part	Class 7a or 9b	Class 6	Class 7b
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 the discharge of hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120

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 Part	Class 7a or 9b	Class 6	Class 7b
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

Annexure D - BCA Compliance Specification

The following BCA matters (including any applicable NSW variations) 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 and to satisfy their obligations under the Design and Building Practitioners Act 2020 within their individual design compliance declarations.

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. Lightweight construction used to achieve required fire resistance levels will comply with Specification C2D9 of the BCA.
2. Building elements must be non-combustible in accordance with C2D10 of the BCA.
3. 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 the BCA.
4. 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 the BCA.
5. The fire walls proposed to separate buildings and/or fire compartments will comply with Clause C3D8 of the BCA.
6. 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 the BCA.
7. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of the BCA.
8. Equipment will be separated in accordance with Clause C3D13 of the BCA.
9. The electricity substation, any 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 C3D14 of the BCA.
10. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of the BCA.
11. 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 the BCA.
12. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of the BCA.
13. 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 the BCA.
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 C4D16.
15. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of the BCA.
16. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of the BCA.

17. 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 S5C4 of the BCA.
18. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with S5C6 of the BCA.
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 S5C8 of the BCA.
20. Fire doors will comply with AS 1905.1:2015 and Specification 12 of the BCA.
21. The number of exits provided to the building will be in accordance with Clause D2D3 of the BCA.
22. The required exits will be fire-isolated in accordance with Clause D2D4 of the BCA.
23. Travel distances to exits will be in accordance with Clause D2D5 of the BCA.
24. 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 in accordance with Clause D2D6 of the BCA.
25. The dimensions of exits and paths of travel to exits, including the height, width, and width of doorways will be provided in accordance with D2D7 to D2D10 of the BCA.
26. The fire-isolated exits will be in accordance with Clause D2D12 of the BCA.
27. The external stairway or ramp serving as a required exit will be in accordance with Clause D2D13 of the BCA.
28. Discharge from exits will be in accordance with Clause D2D15 of the BCA.
29. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of the BCA.
30. 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 the BCA.
31. Access to the lift pit will be in accordance with Clause D2D22 of the BCA.
32. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure will not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of the BCA.
33. The non-fire isolated stairs will be constructed in accordance with Clause D3D5 of the BCA.
34. 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 the BCA.
35. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D3D8 of the BCA 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.
36. 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 the BCA.
37. Stair geometry will be in accordance with Clause D3D14 of the BCA. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.

38. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D16 of the BCA. Landings will 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.
39. The handrails and balustrades to all stairs and throughout the building will be in accordance with D3D17 to D3D22 of the BCA.
40. 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 1657:2018 or Part D3 of the BCA.
41. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of the BCA.
42. Door latching mechanisms will be in accordance with Clause D3D26 of the BCA
43. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of the BCA.
44. 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 the BCA. 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.
45. The entry/exit to the swimming pool will be in accordance with Clause D4D11, and Specification 16 of the BCA.
46. The fire control centre will be in accordance with Specification 19 of the BCA.
47. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of the BCA.
48. Additional provisions will be made in accordance with Clause E1D17 of the BCA, due to the special hazards associated with the building works or the location of the building works.
49. Non-illuminated exit signage will be installed in accordance with Clause E4D7, and of the BCA.
50. External above ground waterproofing membranes will comply with Clause F1D5 of the BCA and AS 4654 Parts 1 & 2:2012.
51. The new roof covering will be in accordance with Clause F3D1 of the BCA.
52. Any sarking proposed will be installed in accordance with Clause F3D2 of the BCA.
53. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 of the BCA and AS 3740:2010.
54. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of the BCA.
55. Floor wastes will be installed to bathrooms and laundries above sole-occupancy units or public space in accordance with Clause F2D4 of the BCA.
56. All new glazing will be in accordance with Clause F3D4 of the BCA and AS 1288:2021 / AS 2047:2014
57. Sanitary facilities will be provided in the building in accordance with Clause F4D1, and F4D2 to F4D8 of the BCA.
58. The construction of the sanitary facilities will be in accordance with Clause F4D8 of the BCA.

59. Ceiling heights will be in accordance with Clause F5D2 of the BCA.
60. Natural light will be provided in accordance with Clause F6D6, F6D7, and F6D8 of the BCA.
61. Natural ventilation will be provided in accordance with Clause F6D6, F6D7, and F6D8 of the BCA.
62. Water closets and urinals will be located in accordance with Clause F6D9 of the BCA.
63. The sanitary compartments will either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of the BCA.
64. Pliable building membranes installed in external walls will comply with Clause F8D3 of the BCA 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.
65. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F6D11 of the BCA.
66. 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 the BCA.
67. The swimming pool associated with the new building will comply with Clause NSW G1D2 of the BCA and AS 1926 parts 1 and 2.
68. The building is within a bushfire prone area and therefore will be in accordance with Part G5 of the BCA and NSW G5D3.
69. The occupiable outdoor area is to comply with the requirements of Part G6 of the BCA.
70. Essential fire or other safety measures will be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.

Electrical Services Design Certification:

71. A smoke detection and alarm system will be installed throughout the building in accordance with Part E2 of the BCA.
72. Emergency lighting will be installed throughout the development in accordance with Clause E4D2 and E4D4 of the BCA and AS/NZS 2293.1:2018.
73. Exit signage will be installed in accordance with Clause E4D5, E4D7 and E4D8 of the BCA and AS/NZS 2293.1:2018.
74. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of the BCA.
75. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of the BCA and AS/NZS 1680.0:2009.
76. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of the BCA.

Hydraulic Services Design Certification:

77. Storm water drainage will be provided in accordance with Clause F1D3 of the BCA and AS/NZS 3500.3:2018
78. Fire hydrant system will be installed in accordance with Clause E1D2 of the BCA and AS 2419.1:2021 as required.

79. Fire hose reels will be installed in accordance with Clause E1D3 of the BCA and AS 2441:2005.
80. A sprinkler system will be installed in accordance with Clauses E1D4 to E1D13 of the BCA as applicable
81. Portable fire extinguishers will be installed in accordance with Clause E1D14 of the BCA and AS 2444:2001.
82. The heated water supply systems will be designed and installed to NCC Volume Three – Plumbing Code and Clause J7.2 of the BCA.

Mechanical Services Design Certification:

83. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of the BCA, and AS 1668.1:2015.
84. Stair pressurisation will be installed in the building in accordance with Clause E2D4 of the BCA and AS 1668.1:2015.
85. Zone pressurisation will be installed in the building in accordance with Clause E2D6 of the BCA and AS1668.1:2015.
86. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of the BCA and AS 1668.2:2012.
87. Every storey of the carpark will be ventilated in accordance with Clause F6D11 of the BCA and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
88. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 *sole-occupancy unit* will have a minimum flow rate and discharge location in accordance with Clause F8D4 of the BCA.
89. Where exhaust discharges directly or via shaft into a roof space of a Class 2 *sole-occupancy unit*, ventilation of the roof space will comply with Clause F8D5 of the BCA.
90. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of the BCA
91. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

92. The material and forms of construction for the proposed works will be in accordance with Clause B1D2, B1D3 and B1D4 of the BCA as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002 (incorporating amendments 1 and 2)
    b. Wind Loads – AS/NZS 1170.2:2021
    c. Earthquake actions – AS 1170.4:2007
    d. Masonry – AS 3700:2018
    e. Concrete Construction – AS 3600:2018
    f. Steel Construction AS 4100:1998
    g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
    h. ABCB Standard for Construction of Buildings in Flood Hazard Areas.

93. The FRL's of building elements for the proposed works have been designed in accordance with Tables S5C11a to S5C11g of the BCA for a building of Type A Construction.
94. The lift shaft will have an FRL in accordance with S5C8 of the BCA.
95. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of the BCA.
96. The construction joints to the structure will be in accordance with Clause C4D16 of the BCA to reinstate the FRL of the element concerned.
97. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D3D3 of the BCA for the fire isolated stairs.

Lift Services Design Certification:

98. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of the BCA 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.
99. Warning signage in accordance with Clause E3D4 of the BCA will be provided to advise not to use the lifts in a fire.
100. An emergency lift will be provided in the building in accordance with Clause E3D5 of the BCA.
101. 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.
102. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D9.
103. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D8 of the BCA.
104. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of the BCA.

Acoustic Services Design Certification:

105. The sound transmission and insulation of the residential portions of the development will comply with Part F75 of the BCA.