BCA and Access Assessment Report

27 Gulliver Street Brookvale

Project:	27 Gulliver Street Brookvale
Reference No:	116371-BCA-r1
Date:	27 June 2022
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Document Control

Revision	Date	Description	
116371-BCA-r1	27 June 2022	DA Stage BCA Assessment Report	
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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed new residential development at 27 Gulliver Street Brookvale, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 3 'Matters for Further Consideration' of this report 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.

Item	Description	BCA Provision
Fire Related Performance Solutions Required		
1.	Allow for the building to be considered Type C Construction although a Class 7 portion is provided within the building.	Clause C1.5
Non-Fire Related Performance Solutions Required		
2.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only
Building Code of Australia Compliance Matters to be Addressed		
1.	Walkways	Clause D3.3

1 ADOPTION OF BCA 2022

1.1. Proposed Introduction

It is proposed to introduce the National Construction Code (NCC), Volume One, Building Code of Australia (BCA) 2022 on 1 September 2022. BCA2022 is proposing some major changes to Condensation Management, Energy Efficiency and the introduction of Livable Housing Design.

The introduction of the BCA is in stages and therefore it is not clear what the extent of changes will be as each and every state is still considering whether or not to adopt the proposed changes.

At present there is a draft available however the changes to condensation management and energy efficiency have not been released. The proposed timeline is summarised below:

Figure 1- Source: www.abcb.gov.au

1.2. Major Changes known to date

Below is a summary of the proposed changes which were released in the May draft preview. We have also provided a table below for quick reference. Your project has been assessed against the proposed changes where applicable.

Livable housing

Note: NSW have advised that the livable housing provisions **will not be adopted** at this time as a result of the impact of the pandemic, rising interest rates and stability of the current housing market. This could change at any time in the future.

Volumes One and Two contain new livable housing requirements for Class 1a buildings (houses and townhouses) and Class 2 sole-occupancy units (individual apartments). This puts in place features based on the Livable Housing Design Guidelines silver standard, with a voluntary gold standard also available for features over and above silver.

Consistent volume structure

BCA2022 uses a new structure and clause referencing system to create better consistency across all volumes. 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.

Fire safety of external walls

Volume One contains a number of amendments to the fire safety of external walls. This clarifies interpretation of concessions from non-combustibility requirements. Also included is a new provision that prevents fixing of certain bonded laminated cladding panels by adhesive only.

Waterproofing

There are new DTS Provisions in Volume Two for waterproofing of wet areas, not previously covered by an acceptable construction practice or manual.

Waterproofing in Volume One is restructured into three parts to enhance readability and accommodate future changes.

Weatherproofing

Volume One contains additional DTS Provisions, providing new solutions for weatherproofing of external walls. These include references to weatherproofing provisions in Australian Standards for masonry, autoclaved aerated concrete and metal wall sheeting.

Falls for floor wastes

Volumes One and Two are amended to require bathrooms and laundries where a floor waste is installed, to have a fall of the floor in order to help drain the surface. This also applies to floor wastes included voluntarily.

Number of exits

Some minor amendments to the required number of exits are in Volume One. This includes a new concession allowing a single exit for a part of a storey in some circumstances, where previously at least two exits were required.

1.3. Summary of Major Changes

Summary of Major Changes		
Clause Reference		Description of proposed changes
BCA 2019	BCA2022	
C1.9	C2D10	**Non-combustible building elements** Further exemptions to the non-combustible requirements of external walls added. Larger list of materials that can be used where non-combustible materials are required.
-	C2D15	**Fixing of Bonded Laminated Cladding panels**
D1.2	D2D3	**Number of Exits** • Ground floor can be provided with a single exit in lieu of 2 • 2 exits required from each storey and each fire compartment of an **early childhood centre**
D1.6	D2D7 – D2D11	**Dimensions of Exits** Clause split into multiple clauses
D1.11	D2D16	**Horizontal Exits** – New provisions relating to early childhood centres
D2.16	D3D17 - D3D21	**Barrier** clause split into multiple clauses
E1.5	E1D4 - E1D13	**Sprinkler** requirements split into separate clauses for each building class.
E2.2	E2D3 – E2D21	General Requirements – **Smoke Hazard Management** Tables removed and replaced with clauses for each building class
F1.7	Part F2	**Wet Area and Overflow Prevention**
F1.11	F2D4	**Floor wastes –** floor must be graded with a minimum fall of 1:80
FP1.4	Part F3	**Roof and Wall Cladding** Introduces DTS provisions for walls and roofs in lieu of the previous BCA requiring performance solutions for all weatherproofing
-	G7	**Livable housing design**

1.4. August Changes

The August draft of BCA2022 is proposed to include significant changes to condensation management in external walls and changes to all parts of Section J Energy Efficiency.

At the present time, we do not have any information on these proposed changes and therefore cannot give any advice on the likely impact on the design proposal the subject of this report.

It is suggested that when the next draft is released in August 2022, the design be re-assessed against these new provisions, if it is likely that a construction certificate (including a staged CC) will be issued after 1 September 2022.

2 BASIS OF ASSESSMENT

2.1. Location and Description

The building development, the subject of this report, is located at 27 Gulliver Street Brookvale. There proposal is for a townhouse development located above a shared basement carpark. Each of the townhouses are two-storey and will have direct access into the basement carpark.

Both vehicular and pedestrian access is provided via Gulliver Street.

Photo sourced from google maps

2.2. Purpose

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

2.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (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 updated generally on a three-yearly cycle, starting from the 1st of May 2016.

2.4. Limitations

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

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

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

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

This report does not include, or imply compliance with:

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

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to),

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

(d) Work Health and Safety Act 2011;

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

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

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

2.5. Design Documentation

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

3 BUILDING DESCRIPTION

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

3.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of three (3)

3.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
Class 2	Ground Floor First Floor	Residential Sole Occupancy Units
Class 7a	Basement	Carparking

Note: the storage and waste room provided within the basement represent less than 10% of the storey and would not require its own classification in accordance with Clause A6.0

3.3. Effective Height (Clause A1.0)

The building has an *effective height* of less than 12 metres. (RL37.55 – RL30.150 = 7.4m)

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

The building is required to be of Type C Construction – this will be based upon Fire Engineering.

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

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

Class 7a	Maximum Floor Area	2,000m^2
	Maximum Volume	12,000m^3
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.	

3.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) The basement carpark will form a single fire compartment

(b) The residential portions of the building will form a fire compartment

3.7. Exits

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

(a) Each of the doorways leading directly to open space on the Ground Floor

(b) The first tread of the non-fire isolated stairway within the basement

(c) The construction edge of the building within the basement

3.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 5

3.9. Location of Fire-source features

The fire source features for the subject development are:

North: The far boundary of Gulliver Street | more than 6m

South: The rear boundary of the allotment | more than 3m

East: The side boundary of the allotment | more than 3m

West: The side boundary of the allotment | less than 3m

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

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

(b) is neither transparent nor translucent.

4 BCA ASSESSMENT

4.1. Introduction

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

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

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

4.2. Relationship to the Design and Building practitioners Act

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

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

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

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

The required fire resistance levels for the building elements are outlined in **Annexure C** of this report. This will be based upon the provision of a Fire Engineered Performance Solution to reduce the building to Type C Construction similar to the rationale of BCA Clause C1.5. Each of the Sole Occupancy Units are provided with direct access to open space but the Class 7a carpark will not allow the application of this concession.

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

4.4. Compartmentation and Separation – Part C2

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

The carpark is not required to have sprinklers, and therefore is subject to the floor area and volume limitations of the BCA. The proposed floor area and volume of the carpark is less than that permitted by clause C2.2 of the BCA and therefore compliance is achieve.

The building is to be of Type C Construction and will not require the provision of vertical separation between openings in the external walls as per BCA Clause C2.6.

The main switch board is not considered to service emergency equipment required to operate in an emergency and therefore will not need to be separated from the remainder of the building.

Compliance with Part C2 of the BCA can be readily achieved by the proposal, based on separation being maintained in accordance with Specification C1.1 between the Class 2 portions and Class 7a portion.

4.5. Protection of Openings – Part C3

4.5.1. Openings in external walls

The external walls are not required to maintain an FRL when they are located more than 1.5m from the fire source feature under Type C Construction. Therefore, the openings within proximity to the western boundary are not required to be protected in accordance with this Clause.

This will be subject to a Fire Engineering Performance Solution being provided to address Type C Construction.

4.5.2. Bounding Construction

The walls between the SOU's and the external wall way will need to be protected in accordance with BCA Clause C3.11(g) due to the requirement of the rear units to egress past the openings. This will require the external walls to be construction from concrete or masonry, or be lined internally with a fire-protective covering. Additionally, the doors are required to be self-closing solid core doors and the windows shall be located 1500mm above the path. Nothing that this is only applicable to Units 1 and 2.

4.5.3. 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.

4.6. Occupant Access and Egress – Section D

4.6.1. Egress from the building

Egress from the carpark is required in sufficient numbers and locations to ensure that no point on the floor is more than 20m from and exit, or a point of choice of two exits, in which case the distance to one of those exits is not more than 40m, as required by Clause D1.4 of the BCA.

The distance between alternative exits is required by Clause D1.5 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

Each of the residential sole occupancy units open directly to open space and would be sufficient in accordance with Clause D1.4 of the BCA.

The stairway serving the basement carpark leading to the Ground Floor connects only two storeys, and therefore under the provisions of clause D1.3 of the BCA, is permitted to be a non fire isolated stairway.

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

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

It is noted that a stairway lift has been provided on the main stairway to enter this building and this will likely have implications on the handrail compliance with BCA Clause D2.17 and AS1428.1-2009, this may need to be subject to a Performance Solution at CC Stage.

Any electrical distribution cupboards in the basement are to be provided with smoke separation to satisfy the requirements of BCA D2.7. The doors are to be lined internally with fire grade plasterboard or metal

backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitable sealed against smoke spread by sealing with fire mastic.

4.6.2. Access for people with disabilities

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

Class 2 Common Areas	From a pedestrian entrance required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level. Upon review of the proposed plans, it is noted that access will generally be maintained throughout the accessible areas with turning spaces and appropriate provisions provided.
Class 7a	To and within any level containing accessible carparking spaces. However, it is noted that the basement carpark is not provided with any accessible parking spaces and will not be provided with Access. This would be subject to Council requirements for the visitor space and whether this is required to be accessible.

4.7. 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.

However, it is proposed to use the existing street hydrant coverage to comply with BCA Clause E1.3. During detailed design it would be required that confirmation be sought from a Hydraulic Designer to ensure that suitable pressure and flows will be available and maintain the required coverage in accordance with AS 2419.1-2005.

4.8. Lift Installations – Part E3

No lifts are installed within the building; however, there is a stairway platform lift provided at the main entry stairway. In accordance with BCA Clause E3.6 it is noted that these lifts are not suitable where other lifts are able to be provided. Therefore, it would not be considered that a stairway platform lift may be used in this scenario. Confirmation will need to be sought by the Project Certifier at the CC stage to ensure they would be willing to accept this provision.

4.9. Facilities in Residential Buildings – Part F2

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

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

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

4.10. Room Heights – Part F3

The ceiling heights have been assessed in accordance with Part F3 of the BCA which has indicated that compliance is readily achievable within all habitable spaces within the Sole Occupancy Unit and throughout the carpark.

4.11. Light and Ventilation – Part F4

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

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

6 STATEMENT OF COMPLIANCE

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

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code.

Furthermore, the following Performance Solutions will be required at CC stage. Please note this list may require further updates as the design develops.

Required Performance Solutions	
Required Performance Solution	**BCA Clauses**
Allow for the building to be considered Type C Construction although a Class 7 portion is provided within the building.	Clause C1.5
The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions (F1.0)

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 3. Architectural Plans

Architectural Plans Prepared by Walsh Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA100	A	24.06.2022	Basement Floor Plan
DA101	A	24.06.2022	Ground Floor Plan
DA102	A	24.06.2022	Level 1 Floor Plan
DA103	A	24.06.2022	Roof Plan
DA200	A	24.06.2022	Building Sections - Sheet 1
DA201	A	24.06.2022	Building Sections - Sheet 2
DA300	A	24.06.2022	Proposed Elevations - Sheet 1

ANNEXURE B ESSENTIAL SERVICES

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.

Table 9. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire doors	**BCA2019 C3.5** (Doors in Fire Walls) Spec C3.4 AS1905.1: 2015
2.	Solid core doors Type 'B' and 'C' Construction	**BCA2019 Spec. C3.4** C3.11 (Bounding Construction)
3.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 C3.16** (Construction joints) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
4.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** AS1530.4:2014
General		
5.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
6.	Operation of Door latches	**D2.21** (Operation of Latch)
7.	Swing of Exit Doors	**D2.20** (Swinging Doors)
8.	Warning & operational signs	**BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs))
Electrical Services		
9.	Automatic fire detection & alarm: > Clause 3 – AS 3786:2014 Smoke Alarm systems powered from consumer mains to all residential SOU's > Incorporating a thermal detection system in the basement carpark	**BCA2019 E2.2**, NSW Table E2.2a, **Spec E2.2a** - Clause 3 (Smoke alarm system) **Spec E2.2a** - Clause 7 (BOWS) AS 3786:2014 (Amdt 1-4)
10.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
11.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.7** (Residential Concession) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
Hydraulic Services		
12.	Fire hydrant systems > Street Hydrant	**BCA2019 E1.3** AS 2419.1:2005
Mechanical Services		
13.	1. Mechanical ventilation to carpark.	**BCA2019 E2.2, Table E2.2a,** **Spec E2.2a,** 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. **Note:** Signage should be located at the car park entry indicating the location of the control switches.
Performance Solutions		

	Description of Performance Solution	DTS Provision	Performance Requirements	Method of meeting performance solutions
14.	TBC	TBC	TBC	TBC

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

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

Type C Construction

Table 10. Type C Construction

Item	Class 2,	Class 7a
External Walls - Less than 1.5m to a *fire-source feature* - 1.5 – less 3m from *fire-source feature* - 3m or more from a *fire-source feature*	90/90/90 -/-/- -/-/-	90/90/90 60/60/60 -/-/-
External Column not incorporated in an external wall - Less than 1.5m to a fire source feature - 1.5 – less 3m from fire source feature; - 3m or more from a fire source feature	90/-/- -/-/- -/-/-	90/-/- 60/-/- -/-/-
Common Walls and Fire Walls	90/90/90	90/90/90
Internal walls bounding sole occupancy units	60/60/60	-/-/-
Internal walls bounding public corridors, hallways and the like	60/60/60	-/-/-
Internal walls bounding a stair if required to be fire rated	60/60/60	60/60/60

Note: An external wall that is required to have an *FRL* need only be tested from the outside to satisfy the *FRL* requirement.

In a Class 2 or 3 building, except where within the one *sole-occupancy unit*, a floor separating storeys or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, must—

(a) be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or

(b) have an *FRL* of at least 30/30/30; or

(c) have a fire-protective covering on the underside of the floor, including beams incorporated in it, if the floor is combustible or of metal; and

ANNEXURE D DEFINITIONS

Annexure - Definitions

Average specific extinction area

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

Critical radiant flux

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

Designated bushfire prone area

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

Effective height

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

Envelope

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

(a) the exterior of the building; or

(b) a non-conditioned space including—

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

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

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

Exit

Exit means –

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

(i) An internal or external stairway.

(ii) A ramp.

(iii) A fire-isolated passageway.

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

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

Fire compartment

Fire compartment means –

(a) the total space of a building; or

(b) when referred to in—

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

(ii) the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

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

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

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

Fire-source feature

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

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

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

Fire wall

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

Flammability index

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

Group number

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

Loadbearing

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

Non-combustible

Non-combustible means—

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

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

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index

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

Smoke development rate

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

Smoke growth rate index

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

Sole-occupancy unit

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

(a) a dwelling; or

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

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

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

ANNEXURE E BCA COMPLIANCE SPECIFICATION

Annexure E – BCA Compliance Specification

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

Architectural Design Certification

2. The FRL's of building elements for the proposed works have been designed in accordance with Table 5 of Specification C1.1 of BCA2019 for a building of Type C Construction – subject to Fire Engineering.
3. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
6. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
7. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
8. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
9. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.
10. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non-loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.
11. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
12. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
13. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
14. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
15. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
16. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.

17. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
18. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
19. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
20. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
21. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
22. The openable portion of a window in a bedroom will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019. In addition to window protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.
23. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.
24. Braille and tactile signage will in accordance with Clause D3.6, and Specification D3.6 of BCA2019.
25. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2019 and AS/NZS 1428.4.1:2009.
26. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS 1428.1:2009 and Clause D3.12 of BCA2019.
27. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
28. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of BCA2019.
29. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
30. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
31. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
32. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
33. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
34. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
35. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
36. Sanitary facilities will be provided in the building in accordance with Clause F2.1 and Table F2.1, of BCA2019.
37. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.

38. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
39. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
40. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
41. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.
42. 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.
43. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
44. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
45. Glazing will be in accordance with Part J1 of BCA2019.
46. Building sealing will be in accordance with Part J3 of BCA2019.
47. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

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

Hydraulic Services Design Certification:

54. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
55. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
56. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
57. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

Mechanical Services Design Certification:

58. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.

59. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
60. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 *sole-occupancy unit* will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.
61. 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 F6.4 of BCA2019.
62. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
63. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

64. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    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. Timber Construction – AS 1720.1:2010
    i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
65. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 5, for a building of Type C Construction – subject to Fire Engineering.
66. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
67. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

68. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.
69. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.
70. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.
71. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

Acoustic Services Design Certification:

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