BCA Assessment Report

3 Golf Avenue, Mona Vale

Project:	3 Golf Avenue, Mona Vale
Reference No:	115505-BCA-r4
Date:	1 April 2022
Client:	Megan Cotton
Email:	Megan.cotton@hgwprojects.com.au
BCA Logic Contact:	Warwick Hunter
Direct:	8484 4077
Email:	whunter@bcalogic.com.au

Suite 302, Level 3, 151 Castlereagh St, Sydney NSW 2000 | **Postal Address** PO Box Q1440, Queen Victoria Building NSW 1230

Document Control

Revision	Date	Description	
115505-BCA-r1	02 February 2022	BCA Assessment Report (DA Stage)	
115505-BCA-r2	25 February 2022	Updated BCA Assessment Report (DA Stage)	
115505-BCA-r3	30 March 2022	Updated BCA Assessment Report (DA Stage) (Updated to include new access bathroom)	
115505-BCA-r4	1 April 2022	Updated BCA Assessment Report (DA Stage) (Updated to include FHR deletion)	
		Prepared by	Verified by
		Alexanda Lederthoug	Warwick Hunter
		Assistant Building Surveyor	Registered Certifier Grade A1, No. BDC 2417 Building Regulations Consultant
			

Table of Contents

Tables

EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed golf club building development at 3 Golf Avenue, Mona Vale, 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.

<table>
<tr><th>Item</th><th>Description</th><th>BCA Provision</th></tr>
<tr><td colspan="3">Performance Solutions Required</td></tr>
<tr><td>1.</td><td>Due to the Building Code defining the golf club as a sporting venue it will require showers to be provided at the rate of one per 10 persons. Based upon a likely maximum of 120 persons for a shotgun start this would equate to 12 male showers and 12 female showers.

The existing number of shower facilities provided is not sufficient to meet DtS requirements of the above shower numbers. The existing number of male showers of 2 and Female showers of 2 are not proposed to be increased as part of the lower ground level modifications.

A performance solution is proposed to the permit the existing number of shower amenities in lieu of the DtS requirements to facilitate the current and future occupants of the Golf Club at the lower ground level via supporting statistics by the Golf Club and further documentation in the form of a letter by the Gold Club.
<table>
<tr><th></th><th>Existing Number of showers</th><th>DtS Number of showers</th></tr>
<tr><td>Male Participants</td><td>2</td><td>12</td></tr>
<tr><td>Female Participants</td><td>2</td><td>12</td></tr>
</table></td><td>BCA Clause F2.3</td></tr>
<tr><td>2.</td><td>Based upon a sporting venue type use, the proposed new amenities will need to serve up to 120 males and 120 females and would require the following facility numbers;
<table>
<tr><th></th><th>Closet Pans</th><th>Urinals</th><th>Washbasins</th></tr>
<tr><td>Male Participants</td><td>5
(Note: 1 x WC moved to Urinal count)</td><td>12
(Note: 1 x WC counted here)</td><td>11</td></tr>
<tr><td>Female Participants</td><td>11</td><td>N/A</td><td>11</td></tr>
<tr><td colspan="3">Accessible bathroom (x1)</td><td>1</td></tr>
</table></td><td>BCA Clause F2.3</td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th><th>BCA Provision</th></tr>
<tr><td></td><td>However, the existing number of washbasins, Urinals for Males and number of Closet Pans for Females are less than the DtS requirements and are as follows;

<table>
<tr><th></th><th>Closet Pans</th><th>Urinals</th><th>Washbasins</th></tr>
<tr><td>Male Participants</td><td>6</td><td>8
(Note: 2 x Access WC counted here)</td><td>5</td></tr>
<tr><td>Female Participants</td><td>9</td><td>N/A</td><td>5</td></tr>
<tr><td colspan="3">Accessible bathroom (x2)</td><td>1</td></tr>
</table>

A performance solution is proposed to address the reduction in the required number of handwash basins, water closet for females and urinals to males from DtS provisions for the facilitation for existing and future use of the occupants of the lower ground level.

Supporting evidence is to be provided by the Golf Club to address the statistical use of these existing facilities and expected future use based on current functions served by these facilities.</td><td></td></tr>
<tr><td>3.</td><td>Due to the fire compartment size of the building, a pump room with two (2) hydrant outlets are required to flow simultaneously, due to the low available flow rate of the town mains, a water tank with 36kL is required to be provided to the building.

A fire-engineered performance solution is proposed to permit the fire hydrant booster not being within sight of the building in which it serves.</td><td>BCA Clause E1.3</td></tr>
<tr><td>4.</td><td>Provide fire extinguishers in lieu of fire hose reels to lower ground floor level</td><td>BCA Clause E1.4</td></tr>
</table>

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at 3 Golf Avenue, Mona Vale. The building development is an existing two (2) storey mixed development containing dining/function room, offices and associated storage parts located throughout the building on both levels. The proposed building works involve alterations to the existing lower ground floor of the building development with no alterations to be made to the upper ground floor.

1.2. Purpose

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

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (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.

1.4. Limitations

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

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

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

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

This report does not include, or imply compliance with:

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

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

(c) The deemed to satisfy provision of Part D3 and F2.4 of BCA2019;

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

(e) Work Health and Safety Act 2011;

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

(g) 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

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

1.5. Design Documentation

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

2 BUILDING DESCRIPTION

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

2.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of two (2)

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
Class 5	Part ground, part lower ground	Office
Class 6	Part ground, part lower ground	Dining area, Café
Class 7b	Part ground, part lower ground	Store room, Locker room
Class 9b	Part ground, part lower ground	Function room, Bar

2.3. Effective Height (Clause A1.0)

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

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

The building is required to be of Type B Construction.

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

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

Class 5	Maximum Floor Area	5 500 m^2
	Maximum Volume	33 000 m^3
Class 6	Maximum Floor Area	3 500 m^2
	Maximum Volume	21 000 m^3
Class 7b	Maximum Floor Area	3 500 m^2
	Maximum Volume	21 000 m^3
Class 9b	Maximum Floor Area	5 500 m^2
	Maximum Volume	33 000 m^3

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) The building as a whole is deemed a single fire compartment.

2.7. Exits

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

(a) The north end of the ground floor contains dual doors in the public lobby leading to an open space toward Golf Avenue.

(b) A second northern door on the ground floor, providing egress from the kitchen space to an open space toward Golf Avenue.

(c) The west end of the lower ground provides a single door opening into a passageway leading to the golf course open space.

(d) A second exit on the north end of the lower ground floor contains dual doors leading to an open space along Golf Avenue.

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 5

2.9. Location of Fire-source features

The fire source features for the subject development are:

North: The far boundary of Golf Avenue

South: No fire-source features

East: No fire-source features

West: No fire-source features

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

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

(b) is neither transparent nor translucent.

3 BCA ASSESSMENT

3.1. Introduction

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

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

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

3.2. 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.

The plans do not indicate the materials of the external wall and further details will be required to be submitted at CC stage for assessment, however compliance is readily achievable by a number of common wall types.

Due to the building requiring Type B Fire Resisting Construction and as outlined within Part 3.3 below, the Class 7b storage use is not fire separated from other parts of the building therefore, the higher 240-minute fire resistance levels (FRL) of the class 7b part would apply throughout.

The existing concrete columns are assumed to already meet this FRL240/-/- requirement however, any alterations including steel beams or new columns would need to be designed with FRL240/--/-- to comply with Table 4 of BCA Specification C1.1.

The floor slab above lower ground floor level is required to achieve FRL30/30/30 and due to existing concrete slab it would almost certainly already meet this FRL. Where steel beams are installed beneath the slab and support only the slab a reduction to FRL30/-/- could be possible subject to the beam not providing lateral support to a loadbearing column which would otherwise require FRL240/-/-.

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

3.3. Compartmentation and Separation – Part C2

The class 5/6/7b and 9b portions of the building have been assessed and the floor area and volume of these compartments is less than that permitted by Clause C2.2 of the BCA. As such compliance with the provisions of the BCA for compartmentation is readily achieved.

Due to the mixed development containing Classes 5, 6, 7b and 9b throughout the two (2) levels of the building, the higher fire-rating requirements of the Class 7b storage portion shall be applied to the new works being incorporated in the lower ground level. The lower ground floor incorporating new Class 7b locker rooms will be required to contain FRL240/240/240 columns (supporting beams) and internal loadbearing walls. The floor of the ground floor above the lower ground level shall meet Type B fire-requirements of FRL30/30/30.

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

3.4. Protection of Openings – Part C3

3.4.1. Openings in external walls

The external walls are proposed to be non-loadbearing and are located more than 3m from any boundary. As such there is no requirement to protect any openings within the external walls.

3.4.2. Openings in Floors for Services and Service Installations

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

3.5. Occupant Access and Egress – Section D

3.5.1. Egress from the building

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

The proposed development comprises internal alterations at lower ground floor level and there are exits located at the eastern and western ends of the lower ground floor as well as via the proposed new reception resulting in compliant exit travel distance.

The egress path leading to the east and western sides of the building are not likely to be obstructed.

The external stair from the upper-level balcony is being demolished and it will be necessary to infill the balustrade to a height of not less than 1000mm in accordance with BCA Clause D2.16. Furthermore, as this stair was an egress path of travel from the upper level it will be necessary for the exit paths to instead lead to the existing exits at upper floor level. The remaining exit width is in the order of approximately 4000mm and will be adequate for the maximum populations which will be not more than 425 persons to the upper level in accordance with BCA Clause D1.6.

3.5.2. Access for people with disabilities

Access assessment to be conducted and provided in a separate report by Access consultant.

3.6. 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.

Fire Hydrant

The existing building has an existing fire hydrant booster system and attack hydrant located at the front of the site. The attack hydrant is located more than 70 metres (ie 2 x 30m hose +10m spray) from the furthermost part of the building and it will be necessary for the existing hydrant system to be upgraded to ensure compliance with BCA Clause E1.3 and AS2419.1-2005.

Due to the size of the fire compartment of the building, two (2) fire hydrants outlets are required to flow simultaneously as per the requirements of AS2419.1-2005 and due to low street hydrant pressure and flow it is necessary for an onsite tank and pumpset to be provided. This is proposed to be located to the western side of the pro-shop and the booster will not be within sight of the building it serves (and at 90 degrees to road) so is a technical non-compliance requiring performance solution at Construction Certificate stage.

Fire Hose Reel

The building has existing fire hose reels located throughout. As a result of the proposed development, it is proposed to delete the installation of fire hose reels at lower ground floor level in lieu of provision of additional portable fire extinguishers via fire engineered performance solution to be prepared at Construction Certificate stage.

Portable Fire Extinguishers

The building has existing portable fire extinguishers located throughout. As a result of the proposed development, it will be necessary for new portable fire extinguishers to serve the proposed new development works at lower ground floor level in accordance with BCA Clause E1.6 and AS2444-2001.

Smoke Detection and Alarm System

The existing building has limited AS3786 smoke alarms installed. It is unclear why these are installed. As a result of the proposed new development there will be no requirement to install a smoke detection and alarm system in accordance with Clause E2.2 of the BCA2019.

However, due to the likely performance solution for the fire hydrant system the fire engineer has preliminarily indicated that ASE (alarm system monitoring) will be needed and this will subsequently trigger the need for smoke detection and alarm system.

Exit and Emergency Lighting

The existing building has exit and emergency lighting throughout and will need to be installed within the new development portion of the building in accordance with Part E4 and AS2293.1-2018.

Due to the removal of the external exit stair from the upper-level balcony it will be necessary for all redundant exit signs to be deleted and new exit signs installed to indicate the other exits at that level. To be further assessed with design development.

3.7. Lift Installations – Part E3

No lifts are required or proposed to be installed within the building.

3.8. Facilities in Class 3 to 9 buildings – Part F2

The lower ground floor facilities are to cater for a population of up to 120 occupants at any one time. The exact mix of occupants are not known for the proposed facilities, however, based upon discussion with the club a maximum number is for a shotgun start which should account for up to 120 males and up to 120 females (separately).

The number facilities required for a Class 6 bar type use and 9b public hall type use result in equivalent sanitary facility requirements.

The most intensive use would be for participants of a sporting venue in accordance with BCA Table F2.3 where the full 120 persons (male or female) attend the club for a shotgun start. This would require the following facilities to be provided to the lower ground floor level amenities and change room for participants:-

Class 9b Sporting Use	Closet Pans	Urinals	Washbasins	Showers
Male Participants	5	12	11	12
Female Participants	11	N/A	11	12
Accessible Bathroom (x1)				1

However, only the following facilities are proposed to the lower ground floor level:-

Class 9b Sporting Use	Closet Pans	Urinals	Wash basins	Showers
Male Participants	6 = 120	8=80 Note1: 1st Access WC counted here Note2: 2nd Access WC counted here	5=50	2
Female Participants	9=90 Note: 1st Access WC counted here	N/A	5=50	2
Accessible Bathroom (x2) Note: Access WC can only be counted once for each sex a single time. The second Access WC will be used towards the male WC count only				1

Based upon the current drawings there is a shortfall of amenities when compared against the Deemed to Satisfy provisions of Table F2.3 as follows:-

a. Two (2) male showers provided in lieu of twelve (12)
b. Two (2) female showers provided in lieu of twelve (12)
c. Five (5) handwash basins in lieu of twelve (12)
d. Eight (8) male urinals (ie 2x (3x600mm width = 1800mm troughs) provided in lieu of eleven (11)
e. Nine (9) female WC pans in lieu of eleven (11). Note: Accessible WC increases WC pan count from 8 to 9.

The provision of showers is going to be in excess of actual club needs as this is not a sporting venue as intended by Table F2.3 of the BCA2019 and less showers has been outlined by the club based upon current usage statistics and therefore, a reduced number of showers may be possible subject to a performance solution being formulated at Construction Certificate stage. The club will be providing a letter to support the existing shower numbers to confirm adequate provisions for current and future populations are readily available which will form part of the support for a performance solution in future with design development.

Similarly, the shortfall in handwash basins (5), male urinals (7) and female WC pan facilities (9) is due to higher population calculation of 120 persons for a shotgun start when the realistic use of amenities will be much smaller due to the 120-person maximum is at a narrow timeslot in the day when sanitary facilities will not likely be used by the entire maximum population at the same time. Instead, they will be used consecutively when golfers return from their round of golf. Therefore, where the Golf Club can provide statistics in addition to the letter of support of the existing male urinals and female water closet numbers for existing and future populations, this would further form part of a performance solution at Construction Certificate stage.

Note1: The number of facilities for sporting facility use would be adequate for function room/restaurant/bar use. Therefore, it will be necessary to design for worst case scenario sporting use.

Note2: The above assessment is based upon lower ground floor amenities for golf participants and due to discussions with the club that the upper level is likely to be separately sub-letted and therefore, over flow usage would not be possible.

3.9. Room Heights – Part F3

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

3.10. Light and Ventilation – Part F4

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

4 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.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 2. Architectural Plans

Architectural Plans Prepared by TEAM 2 ARCHITECTS, Project Number: 1053			
Drawing Number	**Revision**	**Date**	**Title**
A0010	2	02/02/2022	Site Plan
A0100	2	02/02/2022	Lower Ground Floor Plan - Existing
A0102	4	12/02/2022	Lower Ground Floor Plan – Demolition
A0103	1	02/02/2022	Ground Floor Plan - Demolition
A1000	10	22/03/2022	Lower Ground Floor Plan - Proposed
A1100	2	02/02/2022	Ground Floor Plan – Existing
A1020	1	22/03/22	Pumproom and tank

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 3. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
General		
2.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
General Egress		
3.	Required Automatic Doors	**D2.19** (Doorways and Doors)
4.	Warning & operational signs	**BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs))
Electrical Services		
5.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
6.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
Hydraulic Services		
7.	Fire hydrant systems	**BCA2019 E1.3** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections' **Proposed fire engineering report**
8.	Hose reel systems	**BCA2019 E1.4** AS 2441:2005

Item	Essential Fire and Other Safety Measures	Standard of Performance
Mechanical Services		
9.	Auto-shutdown of Air-handling System.	**BCA2019 E2.2, NSW Table E2.2b** **Clause 6 of Spec E2.2a**

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements:

Type B Construction

Table 4. Type B Construction

Item	Class 7b
Loadbearing External Walls - Less than 1.5m to a *fire- source feature* - 1.5 – less 3m from *fire- source feature* - 3 – less 9m from *a fire- source feature* - 9 – less 18m from a *fire- source feature* - 18m or more from a *fire- source feature*	240/240/240 240/180/120 240/90/60 240/60/- -/-/-
Non-Loadbearing 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*	-/240/240 -/180/120 -/-/-
Loadbearing External Columns - Less than 18m - 18m or more	240/-/- -/-/-
Non-Loadbearing External Columns	-/-/-
Common Walls & Fire Walls	240/240/240
Stair and Lift Shafts required to be fire-resisting - Loadbearing Stair & Lift shaft - Non-loadbearing Stair shaft only	240/120/120 -/120/120
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	240/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	240/-/- -/-/-
Other loadbearing internal walls and columns	240/-/-
Roofs	-/-/-

Note1: Due to the lack of fire separating from the class 7b storage areas the higher FRL of the Class 7b part will apply throughout.

Note2: In a Class 9b building, a floor separating storeys 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 E DEFINITIONS

Annexure E - Definitions

Average specific extinction area

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

Critical radiant flux

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

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.

Horizontal exit

Horizontal exit means a required doorway between 2 parts of a building separated from each other by a fire wall.

Loadbearing

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

Non-combustible

Non-combustible means—

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

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

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index

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

Smoke development rate

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

Smoke growth rate index

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

Sole-occupancy unit

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

(a) a dwelling; or

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

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

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

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – BCA Compliance Specification

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

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 4 of Specification C1.1 of BCA2019 for a building of Type B Construction.
2. Building elements, including external walls and their components, must be non-combustible in accordance with C1.9 of BCA2019.
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 C1.10 and Specification C1.10 of BCA2019.
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 C1.14 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. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12 and C3.15 and Specification C3.15 of BCA2019.
8. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
9. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
10. The balustrade to the upper level balcony will be in accordance with Clause D2.16 of BCA2019.
11. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
12. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
13. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
14. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
15. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
16. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
17. 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.
18. Sanitary facilities will be provided in the building in accordance with Clause F2.3 and Table F2.3 of BCA2019.
19. Accessible sanitary facilities will be provided in the building in accordance with Clause F2.4, Table F2.4 (a) of BCA2019 and AS1428.1:2009.

20. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
21. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
22. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
23. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
24. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
25. The refrigerated or cooling chamber, strongroom or vault will be in accordance with Clause G1.2.
26. 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.

Electrical Services Design Certification:

27. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
28. Exit signage will be installed in accordance with Clause E4.5, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
29. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
30. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.

Hydraulic Services Design Certification:

31. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
32. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005, except where modified by performance solution.
33. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
34. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
35. 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:

36. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
37. Shutdown of the mechanical ventilation system will be provided in accordance with NSW table E2.2b and Clause 6 of BCA Spec E2.2
38. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2019, and AS 1668.1:2015 and AS 1668.2:2012.
39. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
40. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

41. 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
42. Earthquake actions – AS 1170.4:2007
43. Masonry – AS 3700:2018
44. Concrete Construction – AS 3600:2018
45. Steel Construction AS 4100:1998
46. Aluminium Construction – AS/NZS 1664.1 or 2:1997
47. Timber Construction – AS 1720.1:2010
48. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
49. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, Table 4, for a building of Type B Construction

NSW Specification Design Certificate:

50. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10, NSW Clause C1.10, Specification C1.10 and NSW Specification C1.10 of BCA2019.
51. The discharge points of exits will be in accordance with Clause D1.10, and NSW Clause D1.10(f) of BCA2019.
52. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6, and NSW Clause D1.6(f)(vi)&(j) of BCA2019.
53. The balustrades throughout the building will be in accordance with Clause D2.16, NSW Clause D2.16 & NSW Table D2.16a 1 and D2.17 of BCA2019.
54. The doorways and doors will be in accordance with Clause D2.19, NSW Clause D2.19(b)(v) and D2.20 of BCA2019.
55. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 and NSW Clause D2.21(c)&(d) of BCA2019.
56. Exit signage will be installed in accordance with Clause E4.5, NSW Clause E4.6, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
57. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5(b) of BCA2019 and AS 1668.2:2012.