BCA Assessment Report

84 Cambewarra Road, Bomaderry

Project:	84 Cambewarra Road, Bomaderry
Reference No:	114572-BCA-r02.1
Date:	14 September 2022
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Document Control

Revision	Date	Description	
114572-BCA-r01	17 June 2022	BCA Assessment Report (DA Stage)	
114572-BCA-r02	28 June 2022	BCA Assessment Report (DA Stage) – Update reflecting final plan amendments for DA Submission. Removal of Clause C1.11 & Spec C1.11 Compliance Items.	
114572-BCA-r02.1	14 September 2022	BCA Assessment Report (DA Stage) – Minor update to property address	
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BCA Logic Acquired by Jensen Hughes

BCA Logic was acquired by Jensen Hughes, the largest specialist fire and safety engineering firm in the world, in September 2021.

A respected global leader in safety, security and risk-based engineering and consulting, Jensen Hughes employs more than 1,400 people across 100 countries. This acquisition marks the company's entry into the Australian market and speaks to BCA Logic's experience and expertise in building legislation and regulations, fire, accessibility, and energy consulting.

Partnering with Jensen Hughes allows BCA Logic to further advance our capabilities in all aspects of fire safety engineering and support our clients with an expanded range of complementary services. Both companies share a commitment to technical excellence and exceptional client service.

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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed development at 84 Cambewarra Road, Bomaderry (Lot 100 DP1237704), against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1. The development consists of the regentrification of the existing Bomaderry Indoor Basketball Centre encompassing significant building upgrade works to the external façade, internal alterations to the existing sanitary facilities, meeting rooms, café, official rooms, retention of the two existing basketball courts, and the uniting of the building to the new Indoor Sports Centre (built Circa 2016) with the construction of a new lobby and foyer café. However, each building will be separated by the construction of a *fire wall* in an effort to utilise two separate construction types for each part of the united building. The upgrades to the new United Building will be subject to NSW H101 provisions whereby the definition of *Entertainment Venue* under the *Environmental Planning and Assessment Regulations 2021* apply.

For the purposes of this report BCA compliance is primarily focussed on the building works occurring on the Bomaderry Indoor Basketball Centre only, not the Shoalhaven Indoor Sports Centre (SISC).

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
Performance Solutions Required		
1.	Rationalise the omission of hose reel coverage complying with AS2441-2005 to each fire resisting storeroom (NSWH101.16) and lobby area of the Bomaderry Basketball Centre.	DtS Provision – E1.4 Performance Requirement – EP1.1
2.	To demonstrate that 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.	Fire Resisting Construction	DtS Provisions – C1.1 & Spec C1.1
2.	Mixed Types of Construction	DtS Provision – C1.4
3.	Separation by Fire Walls	DtS Provision – C2.7
4.	Doorways in Fire Walls	DtS Provision – C3.5
5.	Protection of Doorways in Horizontal Exits	DtS Provision – C3.7
6.	Operation of Latch	DtS Provision – D2.21
7.	Doors in Path of Travel in an Entertainment Venue	DtS Provision – NSW D2.101
8.	Signs on Doors	DtS Provision – D2.23
9.	General Requirements	DtS Provision – E2.2 & NSW2.2a Table 2.2b
10.	Fire Hydrants	DtS Provision – E1.3
11.	Fire Hose Reels	DtS Provision – E1.4

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at 84 Cambewarra Road, Bomaderry. The proposed building works will form a United Building, as defined by Part A7 of the BCA, between the existing Bomaderry Basketball Centre (blue) and the newer Shoalhaven Indoor Sports Centre (SISC).

Site Photograph: Subject building where works will be carried out (blue)

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, 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 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, 2019 (Amdt 1) Edition (BCA) Amendment 1, 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 services.

This report does not include, or imply compliance with:

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

(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.

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 united building has a rise in storeys of two (2).

However, where the Bomaderry basketball centre and SISC are proposed to be separated by the *fire wall* and treated as separate building for the sole purposed of C, D, & E of the BCA the following RIS apply.

i) Bomaderry Basketball Centre has a rise in storeys of one (1).

ii) SISC has a rise in storeys of two (2).

2.2. Classification (Clause A6.0)

The united building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
Class 9b	Ground Floor	Indoor Sports Centre
Class 9b	First Floor	Conference Room

2.3. Effective Height (Clause A1.0)

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

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

The united building may be constructed to two separate construction types whereby the design proposal will separate the buildings by use of a *fire wall* complying with Clause C2.7 (a) & (b). The following construction types are applicable to the respective fire compartments:

- SISC (Circa 2016) is required to be of Type B Construction; and
- Bomaderry Basketball Centre is required to be of Type C Construction.

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

The Type C Construction portion of the united building where the development works are being carried out is subject to maximum floor area and volume limits of:-

Class 9b	Maximum Floor Area	3,000m^2
	Maximum Volume	18,000m^3

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) Bomaderry Basketball Centre – The new building for the purposes of C, D, & E of the BCA being formed by the C2.7 *fire wall* is identified in blue highlight overleaf.

(b) SISC – The compartmentation of the existing building is assumed to comply with the relevant DtS Provisions and no upgrading with respects to fire separation is recommended with respects to the assessment of Clause 64 considerations.

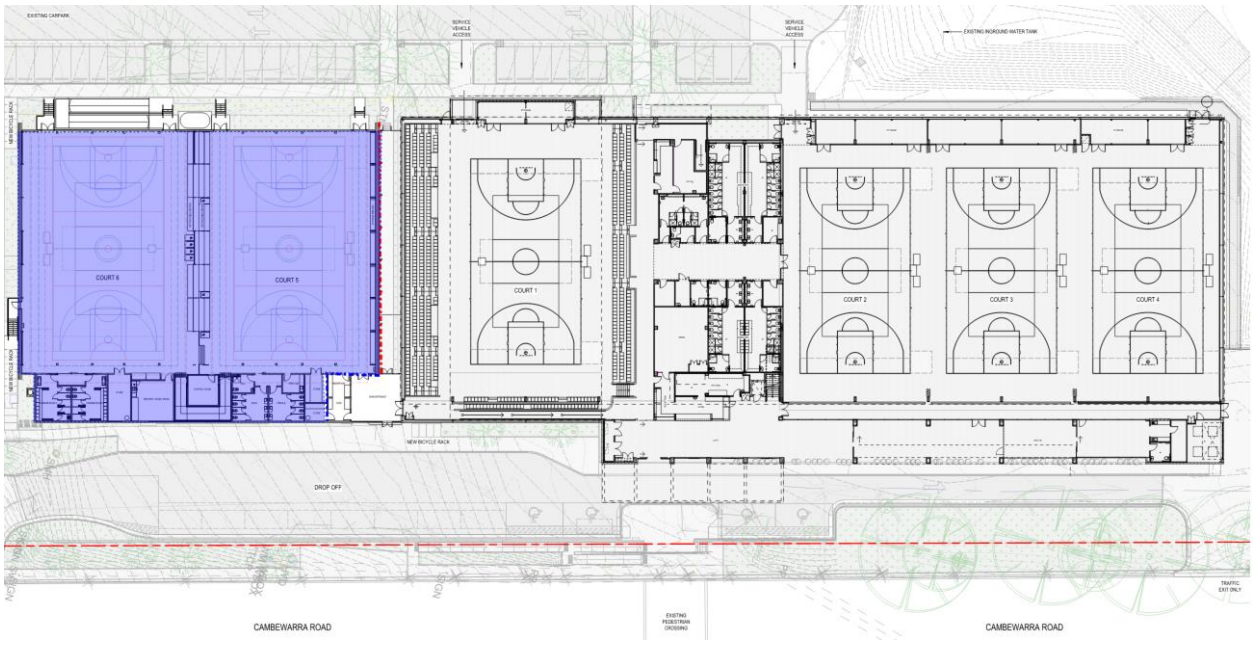
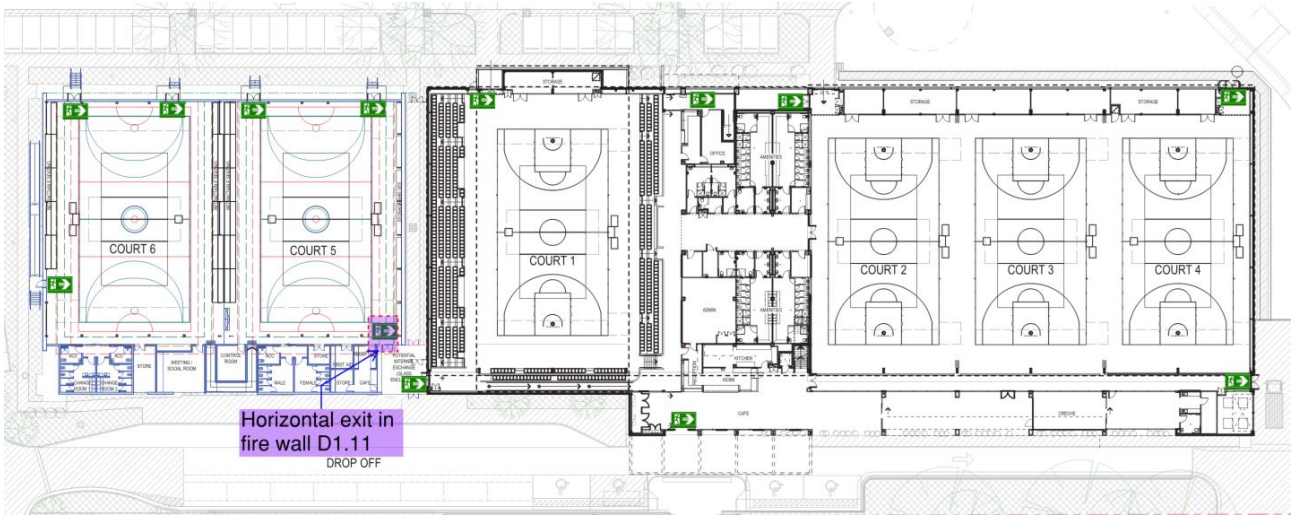


Figure: New fire compartments to be formed of United Building.

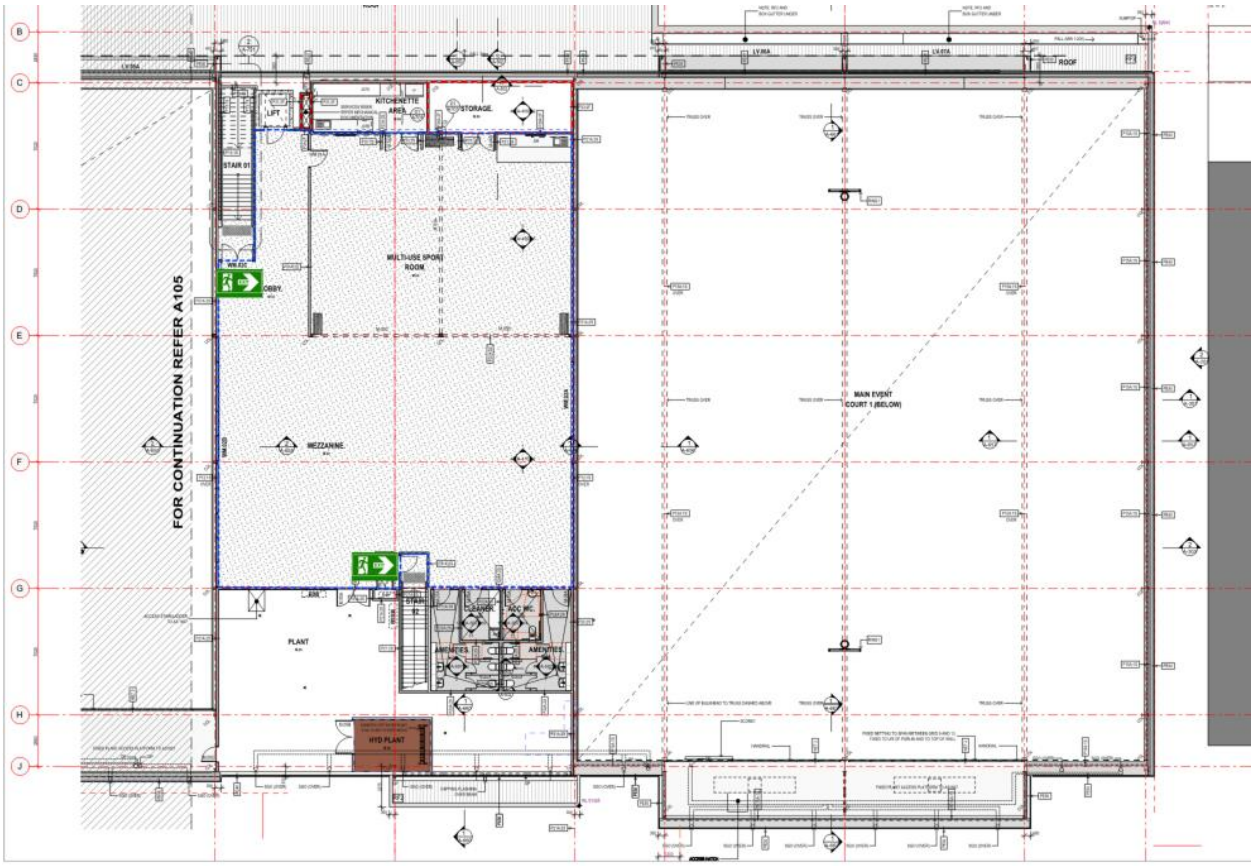
2.7. Exits

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

(a) Ground floor – Horizontal exit nominated in purple highlight.



(b) First Floor – SISC only



2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 6.

2.9. Location of Fire-source features

The fire source features for the subject development, being the **Bomaderry Basketball Centre**, are:

North: The far road-side boundary of Camberra Road - >6m setback existing.

South: The far road-side boundary of W Birriley Street - >6m setback existing.

East: The side boundary of the allotment - >6m setback existing.

West: The existing SISC building located on the same allotment - ~0m setback existing.

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.

Photograph: Location of site boundaries.

3 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, 2019 (BCA) 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*.

3.2. Dimensions and Tolerances

The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. BCA Logic's 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 will need to be addressed in a detailed Performance Solution Report to be prepared for this development under separate cover:

Table 2. Performance Solutions

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
1.	To demonstrate that the construction of the 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.	F1.0 (No DtS Provisions)	FP1.4
2.	Rationalise the omission of hose reel coverage complying with AS2441-2005 to each fire resisting storeroom (NSWH101.16) and lobby area of the Bomaderry Basketball Centre.	DtS Provision – E1.4	Performance Requirement – EP1.1

3.4. Environmental Planning and Assessment Regulations 2021: Clause 64 *Consent Authority May Require Upgrading of Buildings*

Where the development works will be subject to a statutory approval under the *Environmental Planning and Assessment Act 1979 (NSW)* and its supporting Regulations 2021, a review of the existing fire safety and egress measures contained within the building is required to determine where measures are **inadequate** to protect persons using the building, to facilitate egress, and/or contain fire spread from the building. Council may consider upgrading of the existing structure to achieve full or partial compliance with the relevant Performance Requirements of the BCA where it sees reasonable to do so. An excerpt of the applicable clause is provided below:

64 Consent authority may require upgrade of buildings

(1) This section applies to the determination of a development application that involves the rebuilding or alteration of an existing building if—

(a) the proposed building work and previous building work together represent more than half of the total volume of the building, or

(b) the measures contained in the building are inadequate—

(i) to protect persons using the building, if there is a fire, or

(ii) to facilitate the safe egress of persons using the building from the building, if there is a fire, or

(iii) to restrict the spread of fire from the building to other buildings nearby.

(2) The consent authority must consider whether it is appropriate to require the existing building to be brought into total or partial conformity with the Building Code of Australia.

(3) In this section—

***previous building work** means building work completed or authorised within the previous 3 years.*

***total volume** of a building means the volume of the building before the previous building work commenced and measured over the building's roof and external walls.*

A review of the existing SISC building has found there is no material impact to the egress, fire services, or fire separation provisions that would warrant upgrading in this instance, particularly noting the fire separation between the existing buildings to ensure that the new works do not impinge upon or diminish the fire safety of the existing building.

In relation to the Bombaderry Basketball Centre where new works are being proposed, the report recommends full compliance with the Performance Requirements of Volume One (Amdt 1) BCA 2019.

3.5. PART C1 – FIRE RESISTANCE AND STABILITY

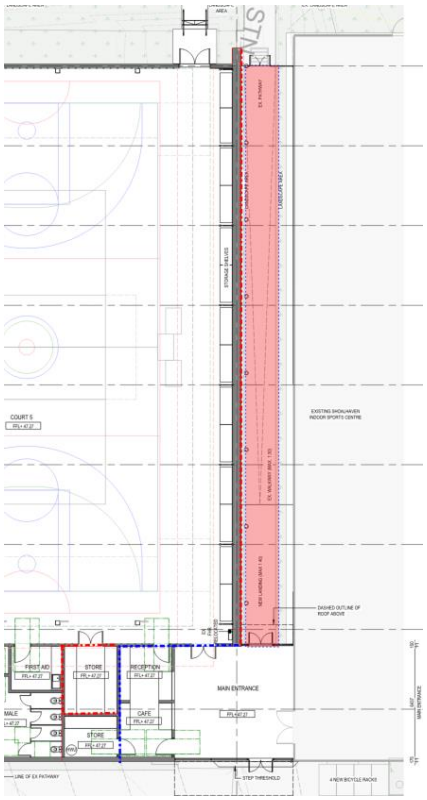
3.5.1. Spec C1.1 Fire Resisting Construction

The relevant Fire Resistance Levels (FRL's) for the respective building elements within the Bomaderry Basketball Centre is to comply with Table 5 of Spec C1.1 and Annexure C of this document. Furthermore, the existing steel portal frame within the building may receive a general concession from maintaining any FRL under Clause 2.5 of Spec C1.1.

Photograph: Steel portal frame of existing structure.

The construction of the new façade wall situated within 1.5m to 3m of the external wall of the SISC is proposed to demonstrate an FRL of 60/60/60 tested from the outside only.

Finally, the awning situated between the separate buildings (for the purposes of C, D, & E of the BCA only) is considered completely independent from either building and can be assigned a Class 10b classification for the structure, resulting in the awning not being considered a *fire-source feature* as per the definition contained within Schedule 4 of the BCA.



3.5.2. C1.4 Mixed Types of Constriction

The united building may be constructed of two separate types of construction being Type B of the unaltered SISC and Type C for the Bomaderry Basketball Centre whereby the two 'buildings' (for the purposed of C, D, & E only) will be separated by a *fire wall* in accordance with the requirements of Clause C2.7, the requirements of which have been describe further into the report.

3.6. PART C2 – COMARTMENTATION AND SEPARATION

3.7. C2.7 Separation by Fire Walls

The construction of the *fire wall* that is required to limit the overall compartment size of the united building is to be designed and constructed in accordance with the following provisions in order to achieve the application of Type C construction for the new building works.

(A) Construction –

(i) The fire wall has the relevant FRL prescribed by Specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL.

(ii) Any openings in a fire wall will not reduce the FRL required by Specification C1.1 for the fire wall, except where permitted by the DtS Provisions of Part C3.

(iii) Building elements, other than roof battens with dimensions of 75mm x 50mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire-resting performance of the fire wall is maintained.

(B) Separation of Building –

(i) The fire wall extends through all storeys and spaces that are common to the adjoining parts of the building.

(ii) The fire wall carries through to the underside of the roof covering.

(iii) Where the roof covering of one side is lower than the other the fire wall extends to the highest roof covering or not less than 6m above the lower roof covering.

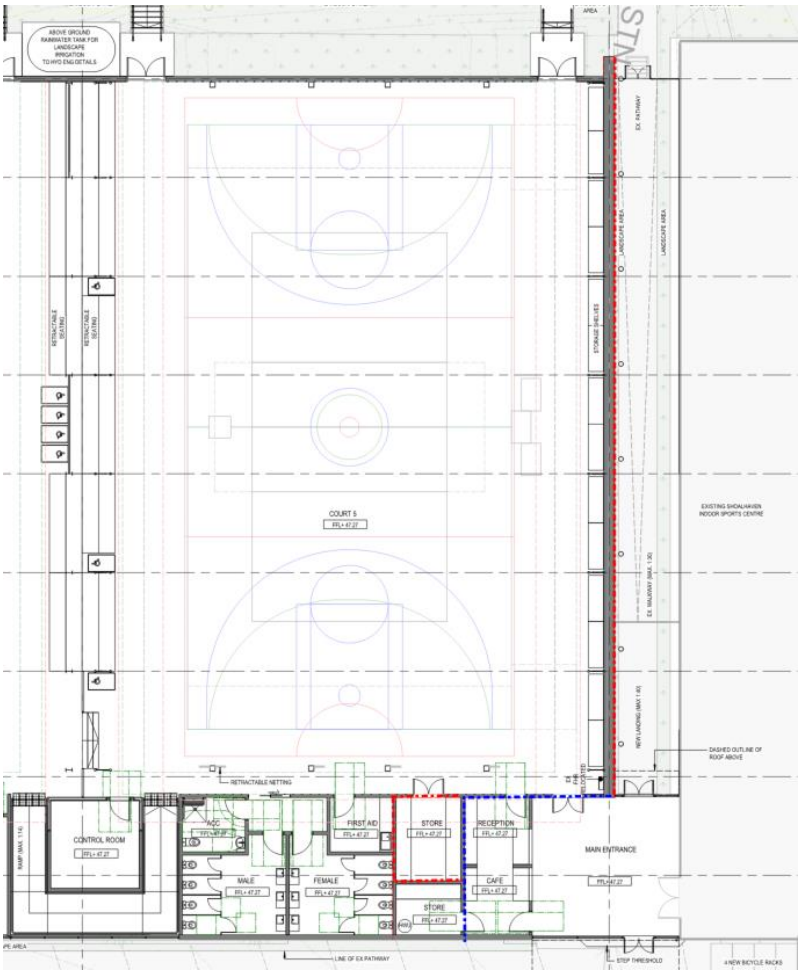


Figure: Illustration of fire wall in blue.

3.8. PART C3 – PROTECTION OF OPENINGS

3.8.1. C3.5 Doorways in Fire Walls

The storage door located within the fire wall is required to be a self-closing fire door with an FRL of -/120/30 to not reduce the fire resisting composition of the wall.

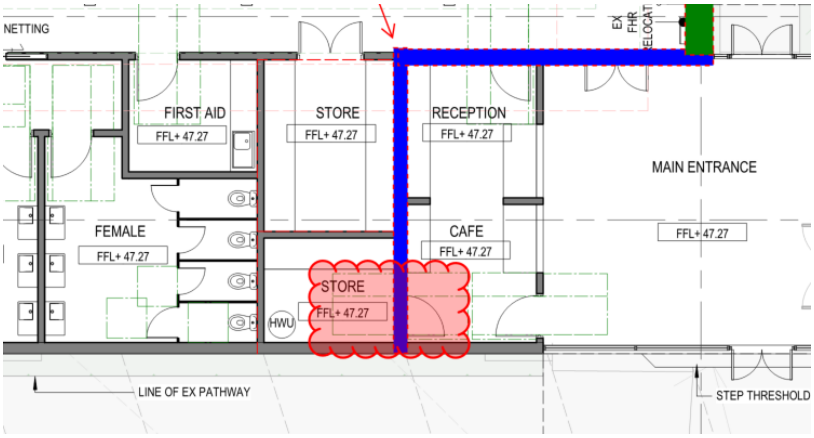


Figure: Door opening within fire wall requiring protection.

3.8.2. C3.7 Protection of Doorways in Horizontal Exits

The horizontal exit located within the fire wall is required to be a self-closing fire door achieving an FRL of -/120/30 to not reduce the fire resisting composition of the wall.

3.9. PART D2 – CONSTRUCTION OF EXITS

3.9.1. D2.21 Operation of Latch

Where the population of the Bomaderry Basketball Centre is capable of being occupied by an estimated 350 persons, based on the number of available retractable spectator seating space worked out in accordance with NSW D1.13 and the number of participants competing across two available courts, each required exit door and the horizontal exit is to be fitted with panic bars fitted at a height between 900mm to 1.2m.

3.9.2. NSW D2.101 Doors in Path of Travel in an Entertainment Venue

Where the united building is subject to *Entertainment Venue* provisions outlined in the BCA, all doorways in the path of travel to an exit are required to swing in the direction of egress (including sanitary facilities). It is recommended this issue be resolved at Construction Certificate stage by minor adjustments to internal floor plans or address by means of a fire engineered Performance Solution.

3.9.3. D2.23 Signs on Doors

The single horizontal exit leading from the courtside 5 to the foyer is required to have signage specified on the face of the fire door reading ‘FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN’.

3.10. PART E2 – SMOKE HAZARD MANAGEMENT

3.10.1. E2.2 General Requirements

The building under NSW Table E2.2b is required to incorporate automatic shut down of ducted air handling equipment installed throughout. This will require the design to extend the existing fire detection and alarm system through the Bomaderry Basketball Centre and operate in accordance with Clause 6 of Spec E2.2a of the BCA.

3.11. PART E1 – FIRE FIGHTING SERVICES

3.11.1. E1.3 Fire Hydrants

Currently both buildings are serviced via on-site external hydrants situated on all elevation of the respective buildings. Furthermore, the on-site hydrant system is supported by both a booster assembly and one diesel pump set. The hydraulic engineer, being an *accredited practitioner – fire safety*, is to review the system to ensure system coverage and the required flow rates and pressures are capable of satisfying the requirements of AS2419.1-2005.

3.11.2. E1.4 Fire Hose Reels

A fire engineered Performance Solution is recommended to address the omission of hose reel coverage complying with AS2441-2005 where hose reels are not permitted to pass through fire doors. This will impact each storage room and the new lobby foyer uniting both buildings. Appropriate coverage will likely be maintained by the installation of additional portable fire extinguishers to the affected areas.

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 Connybear Morrison Pty Ltd			
Drawing Number	**Revision**	**Date**	**Title**
DA0901	G	24.06.22	PLAN – SITE
DA1000	I	24.06.22	PLAN – OVERALL
DA1001	I	24.06.22	PLAN – GROUND LEVEL
DA1021	F	24.06.22	PLAN – ROOF LEVEL
DA2001	G	24.06.22	ELEVATIONS – SHEET 1
DA2002	G	24.06.22	ELEVATIONS – SHEET 2
DA2101	G	24.06.22	SECTIONS – SHEET 1
DA2102	E	24.06.22	SECTIONS – SHEET 2
DA6001	E	24.06.22	SCHEDULE – FINISHES – SHEET 1
DA6002	E	24.06.22	SCHEDULE – FINISHES – SHEET 2
DA7001	A	24.06.22	WASTE ENCLOSURE – DEMOLITION PLAN
DA7101	A	24.06.22	WASTE ENCLOSURE – PLAN
DA7201	A	24.06.22	WASTE ENCLOSURE – ELEVATIONS
DA7211	A	24.06.22	WASTE ENCLOSURE – SECTIONS
DA9001	C	24.06.22	PERSPECTIVE – SHEET 1
DA9002	B	24.06.22	PERSPECTIVE – SHEET 2
DA9003	B	24.06.22	PERSPECTIVE – SHEET 3
DA9004	A	24.06.22	PERSPECTIVE – SHEET 4
DA9005	B	24.06.22	PERSPECTIVE – SHEET 5
DA9006	A	24.06.22	PERSPECTIVE – SHEET 6
DA9007	A	24.06.22	PERSPECTIVE – SHEET 7

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

The following fire safety measures are required to be installed in the building and incorporated onto the existing Fire Safety Schedule of the SISC AFSS (see Table 5.) where to buildings becomes united. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Table 4. Essential Fire Safety Measures (Bomaderry Basketball Centre)

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Construction Joints	**BCA2019 C1.1, Spec C1.1** **BCA2019 C3.16** AS 1530.4:2014 & AS 4072.1:2005
2.	Fire doors	**BCA2019 C3.5** (Doors in Fire Walls) **BCA2019 C3.7** and D1.11 (Horizontal Exits) **BCA2019 NSW H101.16** (Store rooms) AS1905.1: 2015
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 > Fire Rating of store rooms & *fire wall* construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** **BCA2019 C2.7** (Fire Walls) **BCA2019 NSW H101.16** (Store rooms) AS1530.4:2014
General		
5.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
General Egress		
6.	Warning & operational signs	**BCA2019 D2.23 (**Signs on Fire Doors) **BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs))
Electrical Services		
7.	Automatic fail safe devices > Auto open Sliding Exit doors > Break Glass release	**BCA2019 D2.21** (Operation of Latches) **BCA2019 D2.22** (Re-entry from fire-isolated stairs)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		AS1670.1:2018 (Fire)
8.	Automatic fire detection & alarm: > Clause 4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS	**BCA2019 E2.2**, NSW Table E2.2a, NSW Table 2.2b, **Spec E2.2a** **BCA2019 C3.7** (Horizontal Exits) **Spec E2.2a** - Clause 4 (Smoke detection system) **Spec E2.2a** – Clause 6 (Smoke detection for smoke control systems) **Spec E2.2a** - Clause 7 (BOWS)
9.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
10.	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		
11.	Fire hydrant systems > NSW Storz Couplings	**BCA2019 E1.3** AS 2419.1:2005
12.	Hose reel systems	**BCA2019 E1.4** AS 2441:2005 PS Required
Mechanical Services		
13.	Fire dampers	**BCA2019 E2.2, Spec E2.2a, Spec E2.2b** **BCA2019 C3.15** AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
14.	1. Mechanical air handling systems 2. Auto-shutdown of Air-handling System. > (Clause E2.2(b)) - Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1:2015; > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form	**BCA2019 E2.2, Table E2.2a, NSW Table E2.2b** **Spec E2.2a, Spec E2.2b** AS 1668.1:2015 (Amdt 1)

Item	Essential Fire and Other Safety Measures	Standard of Performance
	part of a smoke hazard management system, other than: ○ non-ducted individual room units with a capacity of not more than 1000 L/s; or ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	

Performance Solutions

	Description of Performance Solution	DTS Provision	Performance Requirements	Method of meeting performance solutions
15.	Rationalise the omission of hose reel coverage complying with AS2441-2005 to each fire resisting storeroom (NSWH101.16) and lobby area of the Bomaderry Basketball Centre.	DtS Provision – E1.4	Performance Requirement – EP1.1	

Table 5. Essential Fire Safety Measures – Shoalhaven Indoor Sports Centre

Fire Safety Certificate

Approved under the Environmental Planning and Assessment Regulation 2000.

Version 2.0 Effective from 1 December

How to complete this form

1. Please print in CAPITAL LETTERS.
2. Please complete all relevant sections in full.

Section 1: Type of certificate

This is (mark applicable box) ☒ a final fire safety certificate (complete the declaration at Section 6 of this form)

☐ an interim fire safety certificate (complete the declaration at Section 7 of this form)

Section 2: Building the subject of this certificate

Street No.	Street Name	Suburb	Postcode
84	CAMBEWARRA ROAD	BOMADERRY	2541

Lot No (if known)	DP/SP (if known)	Building Name (if applicable)
1	1228958	SHOALHAVEN INDOOR SPORTS CENTRE

This certificate applies to (mark applicable box) ☐ the whole building

☐ part of the building

Section 3: Description of building or part the subject of this certificate

Storeys above ground in the building (No.)	Storeys below ground in the building (No.)
2	0

If this certificate relates to a part of the building – describe that part and its location in the building

Uses of building or part the subject to this certificate (e.g. retail, offices, residential, assembly, carparking)

INDOOR SPORTS CENTRE

Section 4: Name and address of the owner of the building or part

Title	Given Name/s	Family Name
	SHOALHAVEN CITY COUNCIL	

Street No.	Street Name	Suburb	Postcode
36	BRIDGE ROAD	NOWRA	2541

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Section 5: Fire Safety Measures

1. All essential fire safety measures for the building must be listed for a final fire safety certificate
2. All essential fire safety measures for the relevant part of the building must be listed for an interim fire safety certificate

Fire Safety Measure	Status*	Date**	Minimum Standard of Performance
FIRE HYDRANT SYSTEM	N	15/08/19	NCC (BCA 2016) Clause E1.3, and AS2419.1-2005
FIRE HOSE REEL SYSTEM	N	15/08/19	NCC (BCA 2016) Clause E1.4, and AS2441-2005
PORTABLE FIRE EXTINGUISHERS	N	15/08/19	NCC (BCA 2016) Clause E1.6, and AS2444-2001
EMERGENCY LIGHTING	N	15/08/19	NCC (BCA 2016) Clauses E4.2 & E4.4, and AS2293.1-2005
EXIT SIGNS	N	15/08/19	NCC (BCA 2016) Clauses E4.5, E4.6 & E4.8, and AS2293.1-2005
MECHANICAL AIR-HANDLING SYSTEMS SHUTDOWN ON FIRE ALARM	N	15/08/19	NCC (BCA 2016) NSW Table E2.2b
SMOKE & THERMAL DETECTION SYSTEM	N	15/08/19	NCC (BCA 2016) Specification E2.2a Clause 5, and AS1670.1-2015
FIRE RATED WALLS	N	15/08/19	NCC (BCA 2016) NSW Clause H101.16 & H101.19.1
LIGHTWEIGHT FIRE RATED CONSTRUCTION	N	15/08/19	NCC (BCA 2016) Clause C1.8
FIRE DOORS	N	15/08/19	NCC (BCA 2016) Clause C2.13, NSW Clause H101.16 & H101.19.1, and AS1905.1-2005
FIRE SEALS (protecting openings in fire-resisting components of the building)	N	15/08/19	NCC (BCA 2016) Clause C3.15, and AS1530.4-2014 & AS4072.1-2005
FIRE DAMPERS	N	15/08/19	NCC (BCA 2016) Clause C3.12 & C3.15, and AS1668.1-2015, AS1682.1-2015 & AS1682.2-2015
FAIL SAFE DOOR DEVICES	N	15/08/19	NCC (BCA 2016) Clause D2.21
WARNING & OPERATIONAL SIGNAGE	N	15/08/19	NCC (BCA 2016) Clause E3.3
PATHS OF TRAVEL TO EXITS	N	15/08/19	NCC (BCA 2016) Section D and EP&A Regulation Clause 186

Notes

* Indicate whether the measure is new (N), existing (E) or modified (M)

** Date (DD-MM-YYYY) measure was assessed by a properly qualified person

A fire safety certificate must generally deal with all essential fire safety measures in the current fire safety schedule for the building. However, the certificate need not deal with any measure the subject of other fire safety certificates or fire safety statements issued within the previous 6 months. The assessment of a measure must have been carried out within 3 months prior to the date on which this fire safety certificate is issued.

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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 B Construction (Shoalhaven Indoor Sports Centre)

Table 6. Type B Construction

Item	Class 9b
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*	120/120/120 120/90/60 120/30/30 120/30/- -/-/-
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*	-/120/120 -/90/60 -/-/-
Loadbearing External Columns - Less than 18m - 18m or more	120/-/- -/-/-
Non-Loadbearing External Columns	-/-/-
Common Walls & Fire Walls	120/120/120
Stair and Lift Shafts required to be fire-resisting - Loadbearing Stair & Lift shaft - Non-loadbearing Stair shaft only	120/120/120 -/120/120
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	120/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	120/-/- -/-/-
Other loadbearing internal walls and columns	120/-/-
Roofs	-/-/-

In a Class 2 or 3 building, except where within the one *sole-occupancy unit*, or a Class 9a health-care building or a Class 9b building, 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.

Type C Construction (Bomaderry Basketball Centre)

Table 7. Type C Construction

Item	Class 9b
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 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/-/- 60/-/- -/-/-
Common Walls and Fire Walls	90/90/90
Internal walls bounding sole occupancy units	-/-/-
Internal walls bounding public corridors, hallways and the like	-/-/-
Internal walls bounding a stair if required to be fire rated	60/60/60

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

ANNEXURE D DEFINITIONS

Annexure E - Definitions

Accredited Practitioner – Fire Safety

Means the holder of an accreditation under the *Building and Development Certifiers Act 2018* that authorises the holder to exercise the functions of an accredited practitioner (fire safety) who is acting in relation to matters to which the accreditation relates.

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).

Entertainment Venue

Means a building used as a cinema, theatre or concert hall or an indoor sports stadium.

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

Occupiable outdoor area

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

(a) that is open to the sky; and

(b) to which access is provided, other than access only for maintenance; and

(c) that is not open space or directly connected with open space.

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index

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

Smoke 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 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 outlining the specifications relevant to the **new construction works only,** 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 5 of Specification C1.1 of BCA2019 for a building of Type C Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 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. The external walls and openings of separate fire compartments will be protected in accordance with Clause C3.3.
5. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
6. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
7. Doorways in horizontal exits will be protected in accordance with Clause C3.7 of BCA2019.
8. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
9. 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.
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. 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 Clause 2.4 of Specification C1.1 of BCA2019.
12. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2019.
13. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
14. The number of exits provided to the building will be in accordance with Clause D1.2 of BCA2019.
15. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019.
16. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 60m, in accordance with Clause D1.5 of BCA2019.
17. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.

18. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
19. Horizontal exits will be in accordance with Clause D1.11 of BCA2019.
20. 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.
21. 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.
22. 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.
23. 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.
24. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
25. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plant-room, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2013 or Part D2 of BCA2019.
26. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
27. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
28. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
29. The openable portion of a window in a 9b early childhood centre or a bedroom of a Class 2, 3, 4
30. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
31. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
32. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
33. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
34. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
35. Sub-floor ventilation will be provided in accordance with Clause F1.12 of BCA2019.
36. 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.
37. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
38. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
39. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.

40. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
41. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
42. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
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.

Electrical Services Design Certification:

44. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
45. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
46. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
47. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
48. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
49. 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:

50. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
51. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
52. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
53. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.

Mechanical Services Design Certification:

54. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
55. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
56. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

57. 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
58. Earthquake actions – AS 1170.4:2007
59. Masonry – AS 3700:2018

60. Concrete Construction – AS 3600:2018
61. Steel Construction AS 4100:1998
62. Aluminium Construction – AS/NZS 1664.1 or 2:1997
63. Timber Construction – AS 1720.1:2010
64. 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.
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.

NSW Specification Design Certificate:

68. 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.
69. The number of exits provided to the building will be in accordance with Clause D1.2 and NSW Clause D1.2(d)(vii) of BCA2019.
70. The discharge points of exits will be in accordance with Clause D1.10, and NSW Clause D1.10(f) of BCA2019.
71. 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.
72. Stair geometry to the new stairways will be in accordance with Clause D2.13, and NSW Clause D2.13(a)(ix)(x)(xi) 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 or a nosing strip with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
73. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15, and NSW Clause D2.15(d)&(e) 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 leads to a flight below.
74. The handrails and balustrades to all stairs and 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.
75. The doorways and doors will be in accordance with Clause D2.19, NSW Clause D2.19(b)(v) and D2.20 of BCA2019.
76. 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.
77. The building is an Entertainment Venue and will be in accordance with NSW Part H101 of BCA2019.
78. A smoke detection and alarm systems will be installed throughout the building in accordance with Table E2.2a, NSW Table E2.2a and NSW Specification E2.2a of BCA2019.
79. Exit signage will be installed in accordance with Clause E4.5, NSW Clause E4.6, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.

80. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5(b) of BCA2019 and AS 1668.2:2012.