DC PARTNERSHIP

BCA Design Assessment Report

For REF Submission

NSW GOVERNMENT Education School Infrastructure

Melrose Park High School –
37 Hope Street,
Melrose Park NSW 2114

Fire Safety Engineers | Inclusive Accessibility Consultants | Building Code Consultants

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Revision History—

OUR REFERENCE	REMARKS	ISSUE DATE
P223_273-1 (BCA) JR	Draft report issued – for masterplan phase	12 March 2024
P223_273-2 (BCA) JR	Draft report issued – for concept design phase	22 October 2024
P223_273-3 (BCA) JR	Final report issued – for schematic design phase	09 December 2024
P223_273-4 (BCA) JR	Final report issued – for REF submission	23 January 2025

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EXECUTIVE SUMMARY

This BCA Design Assessment Report has been prepared by DC Partnership at the request of School Infrastructure NSW and relates to the proposed new state of the art high school development located at 84 Wharf Road, Melrose Park

Based upon our assessment to date we are of the opinion that the subject development is capable of achieving compliance with the performance provisions of the BCA, either by complying with the prescriptive requirements or via a performance-based approach. With respect to the assessment undertaken, the following areas shall be reviewed further as the project develops—

ITEM	DESCRIPTION	RESPONSIBILITY
1.	**General Comment: NCC2022** The following report has been assessed against the provision of NCC2022. However, it is understood that based on the anticipated project design programme, NCC2025 may need to be adopted prior to the issuance of a CC. *Note [1] – Pursuant to clause 19(1)(c) of the EPA (DC&FS) Regs 2012, the proposed building work involving the entrance floor must comply with the relevant provisions of the Building Code of Australia (i.e. NCC2025), which is applicable at the time the Construction Certificate (CC) is issued.*	Project Architect & Design Team
2.	**General Comment: Staging Assessment** For the purpose of this assessment, the staging of Building A (stage 1) and Building B (Stage 2) have been considered.	Design Team
3.	**General Comment: United Buildings** For the purpose of this assessment, buildings A, B, C have been deemed as a united building.	Design Team

In addition to undertaking an assessment of the design against the prescriptive requirements of the BCA a preliminary performance-based assessment has also been undertaken. The table below lists scenarios where we believe the adoption of a performance design may add value to development in-lieu of complying with the prescriptive (DtS) provisions—

ITEM	PROPOSED PERFORMANCE SOLUTION	BCA DTS CLAUSE	PERFORMANCE REQUIREMENT
FIRE SAFETY			
1.	Roof and associated structure (includes main building and hall structure) are required to achieve an FRL no less than 120/60/30. As such the following design options are available - - Option 1 - Amend the design to include a fire rated roof structure - Option 2 - Provide sprinklers throughout the building - Option 3 - Pursue a fire engineered performance solution	C2D2 & Spec 5	C1P1 & C1P2
2.	The fire egress stairway is required one of the following fire separation strategies - - Option 1 - Enclose stairway within a 120-minute fire rated shaft - Option 2 - Provide a 60/60/60 fire blade wall within a 6m radius of the buildings external wall - Option 3 - Pursue a fire engineered performance solution	C2D2 & Spec 5	D1P4 & C1P2

3.	All exit discharge doorways are required to swing in the direction of egress. If we are unable to reverse the door-swing, we recommend pursing a fire engineered performance solution for this item. *Note - we understand that there may be additional EFSG requirement which can prevent DtS compliance*	D3D25	D1P4
4.	▪ Covered outdoor space area (COLA) will be located within the discharge path of travel. As it carries a class 9b classification. It is recommended to justify under a fire engineered performance solution	D2D15	D1P4
5.	The provision of EV chargers shall be documented within the FEBQ/FER based on recent FRNSW advice. *Note - Further consultation would be required with the projects fire safety engineer should EV chargers be provided within the structure*	E1D11	E1P2
6.	We recommend removing the FHR from the all 'non-classroom & associated corridors' areas under a fire engineered performance solution *Note - FHR will be required within the carpark and the hall space*	E1D3	E1P1
7.	The booster does not have a direct line of sight to the principal pedestrian entranceway to the building. Hence it is recommended to justify under a fire engineered performance solution	E1D2	E1P2
8.	The following extended travel distance have been identified: ▪ Ground Floor o Up to 23m to a single exit in lieu of 20m ▪ Level 1 o - 30m to a point of choice in lieu of 20m o - 50m to a single exit in lieu of 40m o - 65m between exits in lieu of 60m ▪ Level 2 o - 23m to a point of choice in lieu of 20m o - 49m to a single exit in lieu of 40m o - 65m between exits in lieu of 60m ▪ Level 3 o - 25m to a point of choice in lieu of 20m o - 50m to a single exit in lieu of 40m o - 65m between exits in lieu of 60m ▪ Level 4 o - 25m to a point of choice in lieu of 20m o - 50m to a single exit in lieu of 40m o - 65m between exits in lieu of 60m ▪ Level 5 o - 25m to a point of choice in lieu of 20m	D2D5 & D2D6	D1P4 & E2P2

	- 50m to a single exit in lieu of 40m		
NON-FIRE SAFETY			
9.	Weatherproofing performance solution report to be prepared by an appropriate consultant (i.e. façade engineer) demonstrating compliance with performance requirements F3P1 and F3V1	F3D5	F3P1 & F3V1
10.	Waterproofing performance solution report to be prepared by an appropriate consultant (i.e. waterproofing consultant) for the omission of waterproofing membrane to the podiums external balcony required in AS4654.1 & AS4654.2 Note – this performance solution can only be pursued for areas of the projected slab space not above a habitable space.	F1D5	F1P2

The implementation of a performance-based approach in lieu of compliance with the deemed-to-satisfy (DtS) provisions shall be in consultation with all relevant stakeholders and is subject to the approval of the certifying authority.

The adoption of performance solutions for fire safety matters must be subject to consultation with the NSW Fire Brigade under Sections 25 – 29, 50, & 51 of the Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.

1.0 INTRODUCTION

1.1 General

This BCA Design Assessment Report has been prepared by DC Partnership on behalf of the Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction and use of the new Melrose Park High School project (the Activity) at 37 Hope Street, Melrose Park. This report supports the assessment of the proposed Activity under Part 5 of the Environmental Planning and Assessment Act 1979. The Activity is proposed by the DoE to meet the growth in educational demand in the Melrose Park precinct.

1.2 Purpose of report

This report has been prepared to identify the extent to which the architectural design documentation complies with the prescriptive provisions of the NCC 2022 Volume One - Building Code of Australia, thereby after referred to as the BCA.

1.3 Documentation Provided for Assessment

This assessment is based upon the Architectural documentation prepared by NRBS & Partners listed within **Appendix 1.**

1.4 Limitations

In interpreting the report, the following limitations shall be noted –

This report is based upon, and limited to, the information depicted in the documentation provided for assessment, and does not make any assumptions regarding 'design intention' or the like;

This assessment does not contain comments regarding detailed design issues such as (but not limited to): slip resistance, handrail design, door schedule and door hardware specification and lift specification.

The list of fire safety measures in Appendix 6 not a proposed fire safety schedule within the context of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021; and

This report is not a regulated design, as defined by the Design Building Practitioners Regulations 2021.

1.5 Report Exclusions

It is conveyed that this report should not be construed to infer that an assessment for compliance with the following has been undertaken –

- Work Health & Safety Act (2011) and Regulations (2017);
- WorkCover Authority requirements;
- Structural and Services Design Documentation;
- The individual requirements of service authorities (i.e. Telecommunication Carriers, Sydney Water, Endeavour Energy);
- Any conditions imposed by the Consent Authority;

- Any conditions imposed by the Principal Certifying Authority;
- Design and Building Practitioners Act (2020) and Regulations (2021);
- Adaptable Housing (AS4299-1995);
- Liveable Housing Guidelines;
- BASIX certificate;
- The Disability Discrimination Act (DDA) 1992;
- The accessibility requirements of the BCA, as contained within Part D4 and F4D5 of the BCA; and
- The energy efficiency provisions of the BCA, as contained with Section J of the BCA.

1.6 Relevant Legislative Framework

New building works –

Sub-section 19(1)(c) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021 requires that all works forming part of the Construction Certification ('new works') comply with the current requirements of the BCA.

All new works proposed in the architectural documentation are required to comply but existing features of an existing building need not comply with the BCA unless specified under different parts of the legislation e.g. change of building use or consent authority may require upgrade of buildings.

2.0 DEVELOPMENT DESCRIPTION

2.1 General

This BCA Design Assessment Report has been prepared by DC Partnership on behalf of the Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction and use of the new Melrose Park High School project (the Activity) at 37 Hope Street, Melrose Park. This report supports the assessment of the proposed Activity under Part 5 of the Environmental Planning and Assessment Act 1979. The Activity is proposed by the DoE to meet the growth in educational demand in the Melrose Park precinct.

The proposed activity involves the construction and use of a new high school in two stages for approximately 1,000 students.

Stage 1 of the proposed activity includes the following:

- Site preparation works.
- Construction of Block A – a six-storey (with additional roof/plant level) school building in the south-western portion of the site containing staff rooms and General Learning Spaces (GLS).
- Construction of Block B – a one storey (double height) hall, gymnasium, canteen and covered outdoor learning area (COLA) building in the south-eastern portion of the site.
- Construction of Block C – a single storey plant and storage building at the north-eastern portion of the site.
- Associated landscaping.
- Construction of on-site car parking.
- Provision and augmentation of services infrastructure.
- Associated public domain infrastructure works to support the school, including (but not limited to):
  - Provision of kiss and drop facilities along Wharf Road, and widening of the Wharf Road footpath.
  - Raised pedestrian crossings on Wharf Road and Hope Street.

Stage 2 of the proposed activity includes the following:

- Construction of Block D – a five-storey (with additional roof/plant level) school building in the north-western portion of the site containing staff rooms and GLS:
- Additional open play spaces within the terrace areas of Building D.
- Minor layout amendments to Block A.

Figure 2.1 (a) *– 3D Perspective (Source: NBRS)*

2.2 Site Description

The site is located at 37 Hope Street, Melrose Park within the Parramatta LGA. The school covers an approximate area of 9,500m2 and is generally rectangular in shape. The site is currently cleared and vacant. The site is located approximately 8km east of the Parramatta CBD.

2.3 Building Description

Within the context of the BCA, the development / building can be described as –

DESCRIPTION		
Classification	Office	Class 5
	School/Assembly Building	Class 9b
Storeys Contained	Six (6)	
Rise in Storeys	Six (6)	
Type of Construction	Type A	
Effective Height	More than 12m Less than 25m	(RL 16.800 – RL 35.550 = 18.75m)
Floor Area	Ground Floor = 4,289m2 Level 1 = 2,581m2 Level 2 = 2,516m2 Level 3 = 2,516m2 Level 4 = 2,516m2 Level 5 = 2,516m2	Total = 16,934m2
Sprinkler Protected	N/A	
Max Permitted Fire Compartment Size	Class 5 & 9b - 8,000m2 / 48,000m3	*Note - Fire compartmentation strategy has been adopted – Refer to*

		Part 2.3 for further information
Climate Zone	Zone 6	
Importance Level (AS1170.0)	(Structural engineer to confirm)	
Bushfire Prone Land	N/A	

Table 2.2 – Building description

The following interpretations have been considered within the following BCA assessment –

- **Secondary School -** For the purpose of assessment, the subject building has been assessed against the provision of the BCA as a 'Secondary' School.

- **Classrooms -** For the purpose of compliance with clauses C2D11, D2D18, D2D23, E1D3, E1D14, F5D2, F6D2, and NSW E2D19, the term 'classroom' within a school is extended to all areas in which classes convene. This definition further encompasses ancillary spaces that are utilized in association with and in support of classroom activities.

  Ancillary spaces extended to areas such as Covered Outdoor Learning Areas (COLAs), canteens, halls, storage areas, plant areas, and sanitary facilities. These spaces are essential for supporting classroom activities or and function of the school's operation.

  As the term 'classroom' is not explicitly defined in Schedule 3 of the NCC, standard Australian dictionaries—namely the Oxford and Macquarie Dictionary—have been referred to for clarification. According to the Macquarie Dictionary, a 'classroom' is defined as "a room in a school, etc., in which classes meet." This aligns with its common and functional interpretation within the educational context.

- **Entertainment Venue (Not Applicable) -** The Environment Planning & Assessment Regulation defines an entertainment venue as a means a building used as a cinema, theatre or concert hall or an indoor sports stadium. The subject building would not established as a cinema, theatre or concert hall or an indoor sports stadium or the like, the building has not considered an entertainment venue.

2.4 Fire Compartmentation / Separation Strategy

As shown in table 2.4 below, the buildings fire compartment size comprising of a class 9b use cannot exceed the maximum floor area of 8,000m2 and volume size of 48,000.

Table 2.4 – Maximum Fire Compartment Size

CLASSIFICATION		TYPE OF CONSTRUCTION		
		A	B	C
Class 9b	Max floor area	**8,000**	5,500	3,000
	Max volume	**48,000**	33,000	12,000

2.5 Fire Safety Schedule

Schedule of Statutory Fire Safety Measures

MEASURE	STANDARD OF PERFORMANCE
Access Panels, Doors and Hoppers to Fire-Resisting Shaft	BCA 2022 Clause C4D14 AS 1905 suite & Manufacturer's specifications
Automatic Fail-Safe Devices	BCA 2022 Clause D3D24, D3D26 & D3D28 AS 2118.1-2017, AS 1670.1-2018
Automatic Fire Detection and Alarm System	BCA 2022 Clause E2D3 & Spec 20. (S20C3, S20C4, S20C5), Spec. 31 AS 3786-2014, AS 1670.1-2018, AS 1603 suite
Automatic Fire Suppression System (Sprinklers)	BCA 2022 Clause E1D4, & Spec. 17 AS 2118.1-2017,, AS 2118.6-2012
Building Occupant Warning System	BCA 2022 Clause E2D3 & Spec. 20 (S20C7) AS 1670.1-2018
Emergency Lighting	BCA 2022 Clause E4D2, E4D3 & E4D4 AS 2293.1-2018
Exit And Directional Signage	BCA 2022 Clause E4D5, E4D6 & E4D8, Spec 25 AS 2293.1-2018
Emergency Warning and Intercommunication Systems	BCA 2022 Clause E4D9 AS 1670.4-2018
Fire (& Smoke) Dampers	BCA 2022 Clause E2D3, C3D6, C4D13, C4D15, Spec. 20, Spec. 11, AS/NZS 1668.1-2015, AS 1682.1-2015, AS 1682.2-2015, Manufacturer's specifications
Fire Doors	BCA 2022 Clause C3D13, C3D14, C4D6, C4D7, C4D8, C4D9, C4D12 & Spec. 12, AS 1905.1-2015
Fire Hose Reel Systems	BCA 2022 Clause E1D3 AS 2441-2005
Fire Hydrant Systems	BCA 2022 Clause E1D2 AS 2419.1-2021, AS 2118.6-2012 (Combined System)
Fire Seals (Protecting Openings in Fire-Resisting Components Of The Building)	BCA 2022 Clause C4D15, Spec. 13 AS 4072.1-2005, AS 1530.4-2014, Manufacturer's specifications
Lightweight Construction	BCA 2022 Clause C2D9, Spec. 6 Manufacturer's specifications
Mechanical Air Handling Systems	BCA 2022 Clause E2D3, Spec. 19, Spec. 20, Spec. 21, AS/NZS 1668.1-2015, AS 1668.2-2012
Openings in Fire-isolated Lift Shafts	BCA 2022 Clause C3D10 AS 1735.11-1986
Portable Fire Extinguishers	BCA 2022 Clause E1D14 AS 2444-2001
Smoke Detectors and Heat Detectors	BCA Clause E2D3, Spec. 20 (S20C3) AS 1670.1-2018, AS3786-2014
Warning And Operational Signs	BCA 2022 Clause C4D7, D3D28, E3D4 & Spec. 19 Section 108 & 109 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021
Fire Engineering Report Measure (TBC)	Fire Engineering Report (TBC)

Table 2.10 – Fire Safety Schedule

Note - the fire safety schedule is subject to change as the design progress and will need to be amended with an inclusion of a fire engineered performance solution.

2.6 Sanitary Facilities

Proposed population can be determined by D2D18 of the BCA based on floor area or be provided by the client.

The school will accommodate up to 1000 students across stage 1 & 2 with approx. 560-600 in stage 1.

Number of required sanitary calculation provided below

STAGE 1			Closet Pan	Urinal	Basin
Male	300	students	5	4	6
Female	300	students	9	NA	6

STAGE 1 & 2			Closet Pan	Urinal	Basin
Male	500	students	7	6	9
Female	500	students	13	NA	9

Note – we understand that the above figures may change based on additional EFSG requirements. SINSW / Project architect to confirm if additional facilities are required.

3.0 BCA ASSESSMENT SUMMARY

The following table summarises the compliance status of the architectural design in terms of each applicable prescriptive provision of the BCA and indicates a capability for compliance with the BCA. The following is an explanation of the terminology used in the summary checklist:

- N/A: Not Applicable. This clause is not applicable to the proposed design.
- Complies: The proposed design complies with the relevant provisions of the BCA.
- PS: Performance Solution. The proposed design can comply with the relevant Performance Requirements of the BCA via a Performance Solution.
- Does not comply: The proposed design does not comply with the BCA and requires amendment or investigations into the feasibility of a Performance Solution.
- Design Detail: The proposed design does not provide enough information to determine compliance. Compliance will be determined as the design develops. A detailed analysis and commentary are provided within **Section 4.0** of this report.
- Design Certification: To be designed or implemented by the appropriate discipline within the design team and assessed by the certifying authority at relevant stages of the project. A detailed outline of requirements is provided within **Section 4.0** of this report.

Table 3 – BCA Assessment summary checklist

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL	DESIGN CERTIFICATION
Section B – Structure					
Part B1 - Structural provisions					
B1D2	Resistance to actions				✓
B1D3	Determination of individual actions				✓
B1D4	Determination of structural resistance of materials and forms of construction				✓
Section C – Fire Resistance					
Part C2 - Fire Resistance and Stability					
C2D2	Type of construction required		**PS**		
C2D9	Lightweight construction				✓
C2D10	Non-combustible building elements				✓
C2D11	Fire hazard properties				✓
C2D14	Ancillary elements				✓
C2D15	Fixing of bonded laminated cladding panels				✓
Part C3 - Compartmentation and separation					
C3D3	General floor area and volume limitations	✓			
C3D7	Vertical separation of openings in external walls			✓	

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL	DESIGN CERTIFICATION
C3D8	Separation by fire walls		**PS**		
C3D11	Separation of lift shafts	✓			
C3D12	Stairways and lifts in one shaft	✓			
C3D13	Separation of equipment				✓
C3D14	Electricity supply system				✓
Part C4 - Protection of openings					
C4D3	Protection of openings in external walls		**PS**		
C4D5	Acceptable methods of protection		**PS**		
C4D6	Doorways in fire walls			✓	
C4D7	Sliding fire doors			✓	
C4D11	Openings in fire-isolated lift shafts			✓	
C4D13	Openings in floors and ceilings for services				✓
C4D14	Openings in shafts				✓
C4D15	Openings for service installations				✓
C4D16	Construction joints				✓
C4D17	Columns protected with lightweight construction to achieve an FRL				✓
Section D – Access and Egress					
Part D2 - Provisions for escape					
D2D3	Number of exits required		**PS**		
D2D5	Exit travel distances		**PS**		
D2D6	Distance between alternative exits		**PS**		
D2D7	Height of exits, paths of travel to exits and doorways			✓	
D2D8	Width of exits and paths of travel to exits			✓	
D2D9	Width of doorways in exits or paths of travel to exits			✓	
D2D10	Exit width not to diminish in direction of travel			✓	
D2D11	Determination and measurement of exits and paths of travel to exits	Note			
D2D13	External stairways or ramps in lieu of fire-isolated exits		**PS**		
D2D14	Travel by non-fire-isolated stairways or ramps			✓	
D2D15	Discharge from exits			✓	
D2D16	Horizontal exits			✓	

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL	DESIGN CERTIFICATION
D2D17	Non-required stairways, ramps or escalators			✓	
D2D21	Plant rooms, lift machine rooms and electricity network substations: Concession	Note			✓
D2D22	Access to lift pits			✓	
Part D3 - Construction of exits					
D3D4	Non-fire-isolated stairways and ramps			✓	
D3D8	Installations in exits and paths of travel			✓	
D3D9	Enclosure of space under stairs and ramps			✓	
D3D10	Width of required stairways and ramps			✓	
D3D13	Roof as open space			✓	
D3D14	Goings and risers			✓	
D3D15	Landings			✓	
D3D16	Thresholds			✓	
D3D17	Barriers to prevent falls			✓	
D3D18	Height of barriers			✓	
D3D19	Openings in barriers			✓	
D3D20	Barrier climbability			✓	
D3D21	Wire barriers			✓	
D3D22	Handrails			✓	
D3D23	Fixed platforms, walkways, stairways and ladders			✓	
D3D24	Doorways and doors			✓	
D3D25	Swinging doors			✓	
D3D26	Operation of latch				✓
D3D28	Signs on doors			✓	
Section E – Services and Equipment					
Part E1 – Fire fighting equipment					
E1D2	Fire hydrants			**PS**	
E1D3	Fire hose reels				✓
E1D14	Portable fire extinguishers				✓
E1D16	Fire precautions during construction				✓
E1D17	Provisions for special hazards			**PS**	
Part E2 - Smoke hazard management					
E2D3	General requirements			✓	
E2D4	Fire-isolated exits				✓
E2D5 - E2D20	Smoke hazard management system				✓

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL	DESIGN CERTIFICATION
E2D21	Provision for special hazards				✓
Part E3 - Lift installations					
E3D2	Lift installations				✓
E3D4	Warning against use of lifts in fire				✓
E3D6	Landings			✓	
Part E4 - Visibility in an emergency, exit signs and warning systems					
E4D4	Design and operation of emergency lighting				✓
E4D8	Design and operation of exit signs				✓
E4D9	Emergency warning and intercom systems				✓
Section F - Health and amenity					
Part F1 - Surface water management, rising damp and external waterproofing					
F1D3	Stormwater drainage				✓
F1D4	Exposed joints				✓
F1D5	External waterproofing membranes				✓
F1D6	Damp-proofing				✓
F1D7	Damp-proofing of floors on the ground				✓
F1D8	Subfloor ventilation				✓
Part F2 - Wet areas and overflow protection					
F2D2	Wet area construction				✓
F2D3	Rooms containing urinals				✓
F2D4	Floor wastes			✓	
Part F3 - Roof and wall cladding					
F3D2	Roof coverings				✓
F3D3	Sarking				✓
F3D4	Glazed assemblies				✓
F3D5	Wall cladding				✓
Part F4 - Sanitary and other facilities					
F4D4	Facilities in Class 3 to 9 buildings		**PS**		
F4D8	Construction of sanitary compartments			✓	
F4D11	Waste management			✓	
Part F5 - Room heights					
F5D2	Height of rooms and other spaces			✓	
Part F6 - Light and ventilation					
F6D2	Provision of natural light			✓	

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL	DESIGN CERTIFICATION
F6D3	Methods and extent of natural light	Note			
F6D4	Natural light borrowed from adjoining room	Note			
F6D5	Artificial lighting			✓	
F6D6	Ventilation of rooms			✓	
F6D7	Natural ventilation	Note			
F6D8	Ventilation borrowed from adjoining room	Note			
F6D9	Restriction on location of sanitary compartments			✓	
F6D10	Airlocks			✓	
F6D12	Kitchen local exhaust ventilation			✓	
Section G - Ancillary provisions					
Part G1 - Minor structures and components					
G1D10 1	Provision for window cleaning			✓	
Part G6 - Occupiable outdoor areas					
G6D2 – G6D10	Occupiable outdoor areas			✓	
Section I – Special use buildings					
Part I1 Class 9b buildings					
I1D2-I1D7	Class 9b buildings			✓	

4.0 BCA DETAILED ASSESSMENT

4.1 General

With reference to the 'BCA Assessment Summary' contained within **Section 3** of this report, the following detailed analysis and commentary is provided. This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA

4.2 Section B – Structure

Part B1 - Structural provisions

Note	Structural works shall comply with this section. Compliance with Section B of the BCA shall be addressed by the project's Structural Engineer as part of the structural design documentation.
B1D2	**Resistance to actions (prev. B1.1)** The resistance of a building or structure shall be greater than the most critical action effect resulting from different combinations of actions – ▪ The most critical action is determined in accordance with AS/NZS 1170.0-2002 and B1D3; and ▪ The resistance of a building or structure is determined in accordance with B1D4. *DCP Comment -* ▪ *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from a qualified structural engineer.*
B1D3	**Determination of individual actions (prev. B1.2)** The magnitude of individual actions must be determined in accordance with the actions contained within this clause, including – ▪ Permanent actions; ▪ Imposed actions; ▪ Wind / snow / earthquake actions; ▪ Considerations to the nature of the – - Action; - Building or structure; and - Importance level; and ▪ Any additional addition actions that may be applicable. *DCP Comment -*

	▪ *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from a qualified structural engineer.*

B1D4 **Determination of structural resistance of materials and forms of construction (prev. B1.4)**

The structural resistance of materials and forms of construction must be determined in accordance with this clause (as appropriate or as applicable), a summary is as follows –

- Masonry: AS 3700:2018.
- Concrete:
  - Concrete construction: AS 3600:2018.
  - Autoclaved aerated concrete: AS 5146.1:2015 & AS 5146.3:2018.
  - Post-installed and cast-in fastenings: AS 5216:2021.
- Steel construction:
- Steel structures: AS 4100:2020.
  - Cold-formed steel structures: AS/NZS 4600:2018.
  - Composite steel and concrete: AS/NZS 2327-2017.
  - Aluminium construction: AS/NZS 1664.1:1997 or AS/NZS 1664.2:1997.
- Piling: AS 2159:2009.
- Glazed assemblies:
  - External: AS 2047:2014.
  - Internal: AS 1288:2021.
- Termite Risk Management: AS 3660.1:2014.

DCP Comment -

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from a qualified structural engineer.*

4.3 Section C – Fire Resistance & Stability

Part C2 – Fire Resistance and Stability

C2D2 **Type of Construction Required (prev. C1.1)**

Exposure to fire source features

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 has an FRL of not less than 30/–/– and is neither transparent nor translucent.

Fire protection for a support of another part

Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part,

must have an FRL not less than that required by other provisions of this specification and be non-combustible. In addition, the supporting element must have an FRL (with respect to structural adequacy), greater of that required for the supporting part itself and for the part it supports.

Lintels

A lintel must have the FRL required for the part of the building in which it is situated. A lintel need not require fire rating if it meets the requirements of this clause.

Method of attachment not to reduce the fire-resistance of building elements

The method of attaching or installing a finish, lining, ancillary element, or service installation to a building element must not reduce the fire-resistance of that element to below that required.

Enclosure of Shafts

Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building, except the top of a shaft extending being the roof covering, other than an enclosing a fire isolated stairway and ramp or non-combustible floor which is laid directly on natural ground.

Type A Requirements: Fire Resistance of Building Elements

- (General) each building element are required to achieve the nominated FRLs as nominated within BCA Specification 5 as applicable. - These FRLs have been summarised within Tables C5C11a – C5C11g.

- (Internal Walls) any internal wall required to have an FRL with respect to integrity and insulation must extend to—
  - the underside of the floor next above; or
  - the underside of a (non-combustible) roof covering, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or
  - a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes

- (Loadbearing internal walls & fire walls & shafts) must be constructed from concrete, masonry, fire-protected timber.

Type A Requirements: Concession for Floors

A floor need not comply with an FRL if—

- it is laid directly on the ground; or

Type A Fire-resisting Construction — Floor Loading of Class 5 and 9b Buildings: Concession

If a floor in a 9b building is designed for a live load not exceeding 3 kPa the floor next above (including floor beams) may have an FRL of 90/90/90.

Alternatively, the roof, if that is next above (including roof beams), may have an FRL of 90/60/30.

Type A Fire-resisting Construction — Roof Superimposed on Concrete Slab: Concession

A roof superimposed on a concrete slab roof need not comply with S5C11 as to fire-resisting construction if the superimposed roof and any construction between it and the concrete slab roof are non-combustible throughout, the concrete slab roof complies with Table S5C11g.

Type A fire-resisting construction — roof: Concession

A roof need not comply with Table S5C11g if its covering is non-combustible and the building –

- has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 installed throughout.
- has a rise in storeys of 3 or less; or

Type A fire-resisting construction — Roof Lights

If a roof is required to have an FRL or its covering is required to be non-combustible, roof lights or the like installed in that roof must—

- have an aggregate area of not more than 20% of the roof surface; and
- be not less than 3 m from—
  - any boundary of the allotment other than the boundary with a road or public place; and
  - any part of the building which projects above the roof unless that part has the FRL required of a fire wall and any openings in that part of the wall for 6 m vertically above the roof light or the like are protected in accordance with C4D5; and
  - any roof light or the like in an adjoining sole-occupancy unit if the walls bounding the unit are required to have an FRL; and
  - any roof light or the like in an adjoining fire-separated section of the building; and
- if a ceiling with a resistance to the incipient spread of fire is required, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space.

Type A fire-resisting construction — Internal Columns & Walls: Concession

For a building with an effective height of not more than 25 m and is provided with a non-combustible roof in accordance with this specification, the internal columns (other than fire walls and shaft walls) in the storey immediately below that roof, may have FRL no less than 60/60/60 (for rise in storeys exceeding 3) or have 'nil FRL' (for rise in storeys exceeding 3) (in the Class 5, 6, 7, 8 or 9 part with rise in storeys exceeding 3: FRL 60/60/60 or with rise in storeys not exceeding 3: no FRL.

DCP Comment -

- *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
  - *Updated FRL & compartmentation markup; and*
  - *Fire rated external wall and internal wall details; and*
  - *Floor / wall / roof junction details*

C2D3 **Calculation of Rise in Storeys (prev. C1.2)**

The rise in storeys is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space above the finished ground next to that part. If part of the external wall is on the boundary of the allotment, above the natural ground level at the relevant part of the boundary.

A storey is not counted if it is situated at the top of the building and contains only heating, ventilating or lift equipment, water tanks, or similar service units or equipment or it is situated partly below the finished ground and the underside of the ceiling is not more than 1 m above the average finished level of the ground at the external wall, or if the external wall is more than 12 m long, the average for the 12 m part where the ground is lowest.

Table 2.2 Table C2D3 – RIS Calculation Table

RISE IN STOREYS	CLASS OF BUILDINGS 2, 3, 9	CLASS OF BUILDINGS 5, 6, 7, 8
4 or more	A	A
3	A	B
2	B	C
1	C	C

Table 2.3

C2D9 **Lightweight Construction (prev. C1.8)**

Any lightweight construction to internal walls required to achieve an FRL or protection to steel columns required achieve an FRL are required to be tested for resistance in accordance with this clause.

Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from a qualified structural engineer. Project architect to provide details of the proposed systems to be installed in accordance with a tested prototype and specification 6.*

C2D10 **Non-combustible Elements (prev. C1.9)**

The following building elements and their components must be non-combustible.

- External walls, including all components incorporated in them including the façade covering, framing and insulation;
- The flooring and floor framing of lift pits;
- Internal loadbearing elements;
- Non-loadbearing internal walls where they are required to be fire-resisting.

A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in a building required to be of Type A construction.

A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification 5.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the project architect. Details of wall construction required for further assessment i.e., test report stating non-combustibility. As design progresses it is requested that testing certificates be provided confirming all material within the external wall have been tested in accordance with AS1530.1 and AS1530.3.*

C2D11 **Fire Hazard Properties (prev. C1.10)**

This clause outlines the minimum fire hazard properties of materials inside the subject development which is susceptible to the effects of flame or heat. All linings, materials or assemblies used for flooring, floor coving, wall and ceiling lining are required to comply with Specification 7.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the project architect. It is requested that testing certificates confirming all material (internal linings) have been tested in accordance with AS1530.4.*

  Note [1] - Fire hazard properties for materials proposed to be provided have been summarised within Appendix A1 of this report.

C2D14 **Ancillary Elements (prev. C1.14)**

An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the elements permitted under this clause.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the project architect. Details of wall construction required for further assessment i.e., test report stating non-combustibility. As design progresses it is requested that*

	testing certificates be provided confirming all material within the external wall have been tested in accordance with AS1530.1 and AS1530.3.

C2D15 **Fixing of Bonded Laminated Cladding Panels**

Externally located bonded laminated cladding panels must have all layers of cladding mechanically supported or restrained to the supporting frame. An externally located bonded laminated cladding panel need not comply with the above if the material is laminated glass system, layered plasterboard product, perforated gypsum lath with a normal paper finish, fibrous-plaster sheet or fibre-reinforced cement sheeting.

DC Comment –

- *[Design Certification] As the design progresses, schedule of cladding materials to be provided to DCP for review. Should the proposed development incorporate any bonded laminated cladding, additional design details demonstrating how all layers of cladding will mechanically supported / restrained to the supporting frame.*

Part C3 - Compartmentation and separation

C3D3 **General Floor Area & Volume Limitations (prev. C2.2)**

The maximum floor area and volume limitations of a fire compartment as nominated in the deemed to satisfy provisions are as follows:

Type A - The floor area and volume limitations for Class 9b is: 8,000 m^2 and 48,000 m^3

Note - The BCA does not require Class 2 and 3 parts of the building to be considered. The basement carpark levels are not required to be considered as they're provided with a sprinkler system throughout

DC Comment –

- *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
- *Updated FRL & compartmentation markup; and*

C3D7 **Vertical Separation of Openings in External Walls (prev. C2.6)**

Below outlines the requirements of the BCA, as relevant to this clause / requirement.
Spandrels - The provision of spandrels within the external walls not less than 900mm in height and extend not less than 600mm above the finished floor level. The spandrels are required to non-combustible and have an FRL being not less than 60/60/60; or
Horizontal Projections - The provision of horizontal aprons/projections that project outwards from the external face of the wall not less than 1100mm and extends along the wall not less than 450mm beyond the openings concerned. The horizontal projections are required to be non-combustible and have an FRL being not less than 60/60/60).

DC Comment -

	▪ *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:* *- Updated FRL & compartmentation markup; and*
C3D8	**Separation by fire walls (prev. C2.7)** A fire wall must be constructed in accordance with the following: ▪ The fire wall has the relevant FRL prescribed by Specification 5 for each of the adjoining parts and if these are different, the greater FRL, except where Tables Tables C5C11a – C5C11g of Specification 5 permit a lower FRL on the carpark side; and ▪ Any openings in a fire wall must not reduce the FRL required by Specification 5 for the fire wall, except where permitted by the Deemed-to-Satisfy Provisions of Part C4. ▪ 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-resisting performance of the fire wall is maintained *DC Comment –* ▪ [*Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:* *- FRL & compartmentation markup; and* *- Fire rated external wall and internal wall details; and* *- Floor / wall / roof junction details*
C3D11	**Separation of Lift Shafts (prev. C2.10)** In a building required to be of Type A construction, any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered, (other than lifts which are wholly within an atrium) must be separated from the remainder of the building by enclosure in a shaft the walls have the relevant FRL prescribed by Specification 5. *DC Comment –* ▪ *[Complies] An assessment has shown that the subject lift does not connect more than three (3) storeys within a sprinkler protected building, thereby complying with the requirements of this BCA clause.*
C3D12	**Stairways and lifts in one shaft (prev. C2.11)** A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft. DC Comment –

- *[Complies] An assessment of the design shows that the stairways and lifts are contained in separate fire rated shafts, thereby complying with the requirements of this BCA clause.*

C3D13 **Separation of Equipment (prev. C2.12)**

Any of the following equipment located in the building must be separated from the remainder of the building:

- lift motors and lift control panels; or
- emergency generators used to sustain emergency equipment operating in the emergency mode; or
- central smoke control plant; or
- boilers; or
- a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more.

Equipment need not be separated in if the equipment comprises:

- smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification 21; or
- stair pressurising equipment installed in compliance with the relevant provisions of AS 1668.1; or
- a lift installation without a machine-room; or
- equipment otherwise adequately separated from the remainder of the building.

Equipment otherwise adequately separated from the remainder of the building. Separation must be by construction having an FRL as required by Specification 5, but not less than FRL 120/120/120 with openings protected by self-closing fire doors having an FRL of not less than –/120/30.

DC Comment -

- [*Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
  - *FRL & compartmentation markup; and*
  - *Fire rated external wall and internal wall details; and*
  - *Floor / wall / roof junction details*

C3D14 **Electricity Supply Systems (prev. C2.13)**

If the main switchboard sustains emergency equipment operating in emergency mode, then the switchboard shall be separated with construction achieving an FRL of 120/120/120 or /120/120 (if non-loadbearing) and any access doorway shall be protected with a self-closing fire door having an FRL of -/120/30.

The emergency switchgear shall be separated from the non-emergency switchgear via a metal partition to minimise the spread of a fault from the non-emergency switchgear. For the purposes of the above, emergency equipment includes fire hydrant booster pumps.

DC Comment –

- *[Design Detail] As the design progresses, further design detail is required which demonstrates that all electrical supply systems are fire separated from the remainder of the building.*

Part C4 - Protection of openings

C4D3 **Separation of Openings (prev. C3.2)**

If the distance between the opening and the fire source feature to which it is exposed is less than 3m from a side or rear boundary of an allotment, it must be protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located externally.

Openings that require protection should not occupy more than 1/3 of the storey in which they occur.

C4D5 **Acceptable Methods of Protection (prev. C3.4)**

Where protection is required, doorways, windows and other openings must be protected as follows:

- External wall-wetting sprinklers used with windows that are automatically closing or permanently fixed in the closed position; or
- Fire windows having an FRL -/60/- that are automatically closing or permanently fixed in the closed position; or
- External wall-wetting sprinklers used with doors that are self-closing or automatic closing; or
- Self-closing fire door having an FRL of --/60/30; or
- Fire shutter achieving an FRL of --/60/--;

DC Comment –

- *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
  - *Window & wall schedule with the method of fire protection included*

C4D6 **Doorways in fire walls (prev. C3.5)**

Doorways in firewalls are to be protected by a fire door or fire shutter that has an FRL of not less than that required for the firewall except that the insulation rating must be at least 30.

DC Comment –

- *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
  - *Door schedule with the method of fire protection included.*

C4D13 **Openings in Floors and Ceilings for Services (prev. C3.12)**

Where a service passes through a floor required to achieve an FRL, that service is required to be protected by either a shaft which has been construction in accordance with BCA Spec 5 (listed above) or in accordance with C3.15 (see below).

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification ans test reports from the relevant design consultants.*

C4D14 **Openings in Shafts (prev. C3.13)**

Any opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by one of the following methods:

- If it is in a sanitary compartment – a door or panel which together with its frame is non-combustible or has an FRL of not less than --/30/30; or
- A self-closing --/60/30 fire door or hopper; or
- An access panel having an FRL of not less than --/60/30; or
- If the shaft is a garbage shaft the door or hopper is to be of non-combustible construction.

DC Comment –

- *[Design Detail] Due to the preliminary nature of the design, compliance with the requirement of this BCA clause could not be determined. As such, the project architect to provide the following design documentation:*
  - Updated FRL & compartmentation markup;

C4D15 **Openings for Services Installations (prev. C3.15)**

Any opening(s) for service(s) such as electrical, mechanical, plumbing, etc) that penetrate a building element which is required to be of fire- resisting construction is required to be protected (i.e. fire seal).

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

C4D16 **Construction Joints (prev. C3.16)**

This clause sets out to limit the spread of fire between elements which are required to achieve an FRL. Construction joints, spaces and the like in and

between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 4072.1 and AS 1530.4 to achieve the required FRL or that differs from a prototype in accordance with Section 4 of AS 4072.1 and achieves the required FRL.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the structural engineer and project architect.*

C4D17 **Columns Protected with Lightweight Construction to Achieve an FRL (prev. C3.17)**

This clause prohibits columns with lightweight fire protection from lowering the fire-resistance levels (FRLs) of other building elements. A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from a qualified structural engineer. Project architect to provide details of the proposed systems to be installed in accordance with a tested prototype and specification 6.*

4.4 Section D - Access and egress

Part D2 - Provisions for escape

D2D3 **Number of exits required (prev. D1.2)**

General

Without passing through another sole-occupancy unit every occupant of a storey must have access to an exit or at least 2 exits if required.

Class 9

- Two (2) exits must be provided from each storey in a primary or secondary school with a rise in storeys of 2 or more.

- Two (2) exits must be provided from any storey or mezzanine that accommodates more than 50 persons.

DCP Comment –

- *[Performance Solution] Multiple areas on the ground floor which are not provided with 2 exits.*

D2D5 **Exit travel distances (prev. D1.4)**

Class 5, 6, 7, 8 or 9

- 20 m from any point on the floor to an exit or a point of choice to at least two (2) exits; and.
- 40 m from any point on the floor to an exit, if more than one (1) exit is available.

Class 5 and 6

In a Class 5 or 6 building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m.

DC Comment –

[Performance Solution] Justify the following extended travel distances from –

- *Ground Floor*
  - *Up to 25m to a single exit in lieu of 20m*
- *Level 1*
  - *- 30m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 2*
  - *- 30m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 3*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 4*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 5*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*

D2D6 **Distance between alternative exits (prev. D1.5)**

General

Alternative exits must –

- be located so that alternative paths of travel do not converge such that they become less than 6 m apart.
- distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily

available from all points on the floor including lift lobby areas.

Class 5, 6, 7, 8 or 9

Exits shall be located to not be more than 60m apart and not closer than 9m.

DC Comment –

[Performance Solution] Justify the following extended travel distances from –

- *Ground Floor*
  - *- 65m between exits in lieu of 60m*
- *Level 1*
  - *- 30m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 2*
  - *- 30m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 3*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 4*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*
- *Level 5*
  - *- 25m to a point of choice in lieu of 20m*
  - *- 50m to a single exit in lieu of 40m*
  - *- 68m between exits in lieu of 60m*

D2D7 **Height of exits, paths of travel to exits and doorways (prev. D1.6)**

In a required exit or path of travel to an exit the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm.

DC Comment –

- *[Complies] Egress heights have been assessed as compliant with the DTS provisions of the BCA. Further assessment is to be carried out at the next design phase to ensure compliance is maintained.*

D2D8 **Width of exits and paths of travel to exits (prev. D1.6)**

General

The unobstructed width of each required exit or path of travel to an exit, must be not less than 1 m.
If the storey, mezzanine or open spectator stand accommodates more than 100 persons but not more than 200 persons, the aggregate unobstructed width of required exits or paths of travel to an exit, must be not less than 1 m plus 250 mm for each 25 persons (or part) in excess of 100.

If the storey, mezzanine or open spectator stand accommodates more than 200 persons, the aggregate unobstructed width of required exits or paths of travel to an exit, must be not less than –

- 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12, or
- in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200.

DC Comment –

- *[Complies] Dimension of exits have been assessed as compliant with the DTS provisions of the BCA. Further assessment is to be carried out at the next design phase to ensure compliance is maintained.*

D2D9 **Width of doorways in exits or paths of travel to exits (prev. D1.6)**

General

The unobstructed width of each exit provided to comply with D2D8, minus 250 mm.

In any other case except where it opens to a sanitary compartment or bathroom, the doorway must not be less than 750 mm wide.

DC Comment –

- *[Complies] Dimension of exits have been assessed as compliant with the DTS provisions of the BCA. Further assessment is to be carried out at the next design phase to ensure compliance is maintained.*

D2D10 **Exit width not to diminish in direction of travel (prev. D1.6)**

The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space, except where the width is increased in patient care areas.

DC Comment –

- *[Complies] Dimension of exits have been assessed as compliant with the DTS provisions of the BCA. Further assessment is to be carried out at the next design phase to ensure compliance is maintained.*

D2D11 **Determination and measurement of exits and paths of travel to exits (prev. D1.6)**

The required width of a stairway or ramp in a required exit or path of travel to an exit must –

- Be measured clear of all obstructions such as handrails, projecting parts of barriers and the like; and.
- Extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosings of the treads or the floor surface of the ramp or landing; and
- To determine the aggregate unobstructed width, the number of persons accommodated must be calculated according to D2D18.

DC Comment –

- *[Complies] Dimension of exits have been assessed as compliant with the DTS provisions of the BCA. Further assessment is to be carried out at the next design phase to ensure compliance is maintained.*

D2D13 **External stairways or ramps in lieu of fire-isolated exits**

An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit serving a storey below an effective height of 25 m, if the stairway or ramp is—

- non-combustible throughout; and
- protected in accordance with (3) if it is within 6 m of, and exposed to, any part of the external wall of the building it serves.

(2) For the purposes of this clause—

- exposure under (1)(b), is measured in accordance with S5C2, as if the exit was a building element and the external wall of the building was a fire-source feature to the exit, except that the FRL required in S5C2(1)(a) must not be less than 60/60/60; and
- the plane formed at the construction edge or perimeter of an unenclosed building or part such as an open-deck carpark, open spectator stand or the like, is deemed to be an external wall; and
- openings in an external wall and openings under (3) and (4), are determined in accordance with C4D2.

(3) The protection referred to in (1)(b), must adequately protect occupants using the exit from exposure to a fire within the building, in accordance with one of the following methods:

- The part of the external wall of the building to which the exit is exposed must have—
- an FRL of not less than 60/60/60; and
- no openings less than 3 m from the exit (except a doorway serving the exit protected by a –/60/30 fire door in accordance with C4D9(1)); and
- any opening 3 m or more but less than 6 m from the exit, protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located internally.

- The exit must be protected by construction of a wall, roof, floor or other shielding element as appropriate in accordance with
- (4) from—any part of the external wall of the building having an FRL of less than 60/60/60; and
- any openings in the external wall.

(4) The wall, roof, floor or other shielding element required by (3)(b) must—

- Have an FRL of not less than 60/60/60; and
- have no openings less than 3 m from the external wall of the building (except a doorway serving the exit protected by a –/60/30 fire door in accordance with C4D9(1)); and
- have any opening 3 m or more but less than 6 m from any part of the external wall of the building protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located on the side exposed to the external wall.

DC Comment –

- *[Performance Solution] The fire egress stairway is required one of the following fire separation strategies –*
  - *Option 1 - Enclose stairway within a 120-minute fire rated shaft*
  - *Option 2 - Provide a 60/60/60 fire blade wall within a 6m radius of the buildings external wall*
  - *Option 3 - Pursue a fire engineered performance solution*

D2D14 **Travel by non-fire-isolated stairways or ramps (prev. D1.9)**

General

A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided.

Class 5, 6, 7, 8 or 9

The distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or ramp must not exceed 80m.

Required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than –

- 20 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or
- 40 m from one of two (2) such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions.

DC Comment –

- *[Complies] All non-fire-isolated stairways have been assessed as being capable of complying with the provisions of this clause*

D2D15 **Discharge from exits (prev. D1.10)**

General

An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it e.g. discharge points.
If a required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than –

- 1 m or minimum width of the required exit; or
- If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by a ramp or other incline having a gradient not steeper than 1:8 at any part (not steeper than 1:14 if required to be accessible) or a stairway.

DC Comment –

- *[Complies] All exit discharges have been assessed as being capable of complying with the provisions of this clause*

D2D17 **Non-required stairways, ramps or escalators (prev. D1.12)**

General

An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp must not connect more than –

- Three (3) storeys if each of those storeys is provided with a sprinkler system (other than a FPAA101D system) complying with Specification 17 throughout and at least one of those storeys is situated at a level at which there is a direct egress to a road or open space.
- Two (2) storeys, provided that those storeys are consecutive, and one of the storeys is situated at a level at which there is direct egress to a road or open space.
- Except where permitted by the above, must not connect, directly or indirectly, more than 2 storeys at any level in a Class 5, 6, 7, 8 or 9 building and those storeys must be consecutive.

D2D21 **Plant rooms, lift machine rooms and electricity network substations: Concession (prev. D1.16)**

A ladder may be used in lieu of a stairway to provide egress from a plant room with a floor area of not more than 100m^2 or all but one point of egress from a plant room or a lift machine room with a floor area not more than 200m^2.

Sub-clause (2) sets out the parameters for the ladders permitted to be used in this circumstance.

D2D22 **Access to lift pits (prev. D1.17)**

Access to the lift pit must be through the lowest landing doors, where the pit depth is not more than 3m.

Where the lift pit is more than 3m, access must be provided through an access doorway complying with the requirements of this clause.

Part D3 - Construction of exits

D3D4 **Non-fire-isolated stairways and ramps (prev. D2.3)**

Non-fire-isolated stairways and ramps should be constructed in accordance with one of the following:

- reinforced or prestressed concrete; or
- steel in no part less than 6 mm thick; or

DC Comment –

- *[Complies] An assessment of the design documentation shows that the proposed stairways will be reinforced concrete, thereby complying with the requirements of this BCA clause.*

  Note [1] – All required stairways have been assessed as 'non-fire isolated stairways for the purpose of this assessment

D3D8 **Installations in exits and paths of travel (prev. D2.7)**

Gas or other fuel services shall not be installed within the required exits.

Any services or equipment (being electrical meters, distribution boards or the like) installed within the hallway are required to be enclosed by non-combustible construction or a fire-protective covering (i.e. 1 layer of 13mm fire-protective grade plasterboard) with doorway(s) or opening(s) suitably sealed against smoke spreading from the enclosure.

DC Comment

- *[Design Detail] At the next design phase, a detailed assessment of the services cupboards to be carried out.*

D3D9 **Enclosure of space under stairs and ramps (prev. D2.8)**

If the space below a required fire-isolated stairway or fire-isolated ramp is within the fire-isolated shaft, it must not be enclosed to form a cupboard or similar enclosed space.
The space below a required non-fire-isolated stairway must not be enclosed to form a cupboard or other enclosed space unless –

- the enclosing walls and ceilings have an FRL of not less than 60/60/60; and
- any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D10 **Width of required stairways and ramps (prev. D2.9)**

A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D11 **Pedestrian ramps (prev. D2.10)**

A fire-isolated ramp may be substituted for a fire-isolated stairway if the construction enclosing the ramp and the width and ceiling height comply with the requirements for a fire-isolated stairway.

A ramp serving as a required exit must –

- where the ramp is also serving as an accessible ramp under Part D4, be in accordance with AS 1428.1; or
- in any other case, have a gradient not steeper than 1:8.
- have a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D14 **Goings and risers (prev. D2.13)**

General

A stairway must have –

- The going and risers of a stair must be constant throughout each flight except that between adjacent risers or going, not greater than 5mm and not more than 10mm throughout the flight; and
- No openings greater than 125mm; and
- In a required stair, no winders in lieu of a landing; and
- The stair treads are required to have a surface or nosing strip achieving a slip-resistance classification of P3 or R10 in dry or P4 or R11 in wet tested in accordance with AS4586-2013; and
- Treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 storeys; and
- The going, riser and steepness dimension of the stairways are required to be designed within the following range –

RISER (R)		GOING (G)		SLOPE RELATIONSHIP (2R+G)	
Max	**Min**	**Max**	**Min**	**Max**	**Min**
190	115	355	250	700	550

In the case of a non-required stairway –

- the stairway must have—
  - not more than 3 winders in lieu of a quarter landing; and
  - not more than 6 winders in lieu of a half landing; and
- the going of all straight treads must be constant throughout the same flight and the dimensions of goings (G) is considered constant if the variation between -
  - adjacent goings, is no greater than 5 mm; and
  - the largest and smallest going within a flight, does not exceed 10 mm; and
- the going of all winders in lieu of a quarter or half landing may vary from the going of the straight treads within the same flight provided that the going of all such winders is constant.

Class 9b

A stairway in an entertainment venue in a Class 9b building, must not have not more than 36 risers in consecutive flights without a change in direction of at least 30°.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D15 **Landings (prev. D2.14)**

General

Stair landings are required to be a minimum of 750mm long with a gradient not steeper than 1:50 and have a slip-resistance surface or strip.
The surface or strip is required to achieve a slip-resistance classification of P3 or R10 in dry or P4 or R11 in wet tested in accordance with AS4586-2013

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D16 **Thresholds (prev. D2.15)**

General

The threshold of a doorway is not permitted to incorporate a step or ramp at any point closer to the doorway than the width of the door leaf.

That is unless the doorway opens to a road or open space and:

- In a building required to be accessible, is provided with a threshold or step ramp in accordance with AS1428.1-2009; or
- In all other cases, the door sill is not more than 190mm above the finished surface of the ground.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D17 **Barriers to prevent falls (prev. D2.16)**

A continuous barrier must be provided along the side of the following if the trafficable surface is 1 m or more above the surface beneath –

- a roof to which general access is provided; and
- a stairway or ramp; and
- a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and.
- any delineated path of access to a building.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D18 **Height of barriers (prev. D2.16)**

The height of a barrier should comply with the following –

- For stairways or ramps with a gradient of 1:20 or steeper, the barrier must be at least 865 mm in height.
- For landings to a stair or ramp where the barrier is provided along the inside edge of the landing and does not exceed 500 mm in length, the barrier must be at least 865 mm in height.
- In front of fixed seating on a mezzanine or balcony within an auditorium in a Class 9b building, where the horizontal projection extends not less than 1 m outwards from the top of the barrier, the barrier must be at least 700 mm in height.

For all other locations, the barrier must be at least 1 m in height.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D19 **Openings in barriers (prev. D2.16)**

<u>General</u>

Openings in barriers must –

- Not allow a 125 mm sphere to pass through; or
- In fire-isolated stairways or ramps, must not allow a 300 mm sphere to pass through, or, if rails are used –
  - A 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like; and
  - The opening between rails must not be more than 460 mm.
- If fixed to the vertical face forming an edge of a landing, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm. The opening is measured horizontally from the edge of the trafficable surface to the nearest internal face of the barrier.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D20 **Barrier climbability (prev. D2.16)**

A required barrier located on a floor more than 4 m above the surface beneath, must not incorporate horizontal or near horizontal elements that could facilitate climbing between 150 mm and 760 mm above the floor.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D22 **Handrails (prev. D2.17)**

General

Handrails are required to all ramps or flights (2 risers or more) at a height not less than 865mm. The handrail must be continuous between stair flights and have no obstruction on or above them that will tend to break a handhold.

In a required exit serving an accessible area, it must be designed to clause 12 of AS1428.1.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D24 **Doorways and doors (prev. D2.19)**

General

A doorway serving as a required exit or forming part of a required exit must not be fitted with –

- a revolving door; and
- a roller shutter or tilt-up door unless—
  - it serves a Class 6, 7 or 8 building or part with a floor area not more than 200 m^2; and

- the doorway is the only required exit from the building or part; and
- it is held in the open position while the building or part is lawfully occupied; and

- a sliding door unless it leads directly to road or open space and the door can be manually opened by a force of not more than 110N; and

- a power operated door It must be opened manually under a force of not more than 110N and if it leads directly to road or open space, must open automatically on power failure, or activation of a fire or smoke alarm.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

D3D25 **Swinging doors (prev. D2.20)**

A swinging door in a required exit or forming part of a required exit must not encroach more than 500 mm on the required width of a required stairway, ramp or passageway if it is likely to impede the path of travel of the people already using the exit. Furthermore, such a swinging door must swing in the direction of egress, unless it serves a sanitary compartment, airlock or is the only required exit serving a building part with floor area not more than 200m² and is fitting with hold open device.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment.*

D3D26 **Operation of latch (prev. D2.21)**

General

Any door in a required exit, forming part of a required exit or in the path of travel to a required exit are required to be readily operable without a key from the side that faces a person seeking egress-

- By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor-

- Be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and

- Have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm nor more than 45mm.

- A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor. Where the latch operation device is not located on the door, the power operated manual controls must be at least 25mm wide, proud of the surrounding surface and located 500mm from an internal corner and between 1-2m of the doorway.

- Is fitted with a fail-safe device which automatically unlocks the door upon activation of any smoke or any other detector deemed suitable in accordance with AS1670.1-2015.

- Certain requirements or concessions apply when the door serves a vault, strong-room, sanitary compartment, an SOU, Australian Government Security Zones 4 or 5; or the secure parts of a bank, detention centre, mental health facility, early childhood centre, 9a or 9c building.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

Part D4 - Access for people with a disability

Part D4 Refer to Access Design Assessment Report

4.5 Section E - Services and equipment

Part E1 - Fire fighting equipment

E1D2 **Fire Hydrants (prev. E1.3)**

A fire hydrant system complying with AS2419.1-2021 is required to serve the building, including –

- If internal hydrants are provided, all points on a floor are required to be within 40 m of an internal hydrant;
  - If external hydrants are provided, all points on a floor are required to be within 70 m of an external hydrant;
  - Where a sprinkler system is installed throughout the building in accordance with AS2118.1, AS2118.4, AS2118.6, FPAA101H or FPAA101D, the protection requirements to fire brigade booster assemblies and external hydrants do not apply;
  - If the fire brigade booster assembly is within, or affixed to, the external wall of the building, the booster shall be within 20 m of the principal pedestrian entrance and be identified by a visual alarm device;

- if the fire brigade booster assembly is remote from the building, it is required to be-
  - adjacent to the site boundary and the principal vehicle access for the fire brigade pumping appliance to the building or site;
  - or within 20 m of the façade of the building containing the principal pedestrian entrance and within 20 m of the main pedestrian entrance.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

- *[Performance Solution] It is understood that the project will adopt a fire engineered solution to justify the proposed location of hydrant booster not being within sight of the buildings main entrance.*

E1D3 **Hose Reels (prev. E1.4)**

A hose reel system complying with AS2441-2005 is required to serve the Theatre and Sporting Court parts, where one or more internal fire hydrants are installed.

A fire hose reel system must be provided in accordance with the following –

- Hose reels are required to be located within 4m of an exit, except that a fire hose reel need not be located adjacent to every exit, provided system coverage can be achieved;
- All points on a floor are required to be in reach of a 4m hose stream at the end of a 36m hose length laid on the floor;
- Additional hose reels can be installed along the path of travel where additional coverage is required;
- A hose reels must be located so that the fire hose will not pass through a fire or smoke door.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*
- *[Performance Solution] It is understood that the project will adopt a fire engineered solution to justify the omission of fire hose reels throughout areas not deemed classrooms.*

E1D4 **Sprinklers (prev. E1.5)**

A sprinkler system must —

- be installed in a building or part of a building when required by E1D5 to E1D12 as applicable; and
- comply with Specification 17 and Specification 18 as applicable.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*
- *[Design Detail] It is recommended to liaise with the wet fire engineer to confirm if there are any areas of the building which will not afford coverage in accordance with AS2118.1.*

E1D14 **Portable fire extinguishers (prev. E1.6 and Table E1.6)**

Portable fire extinguishers must be provided in accordance with the below –

- subject to (2), selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.

In Class 2 to 9 buildings (except within sole-occupancy units of a Class 9c building), portable fire extinguishers must be provided as follows:

- To cover Class AE or E fire risks associated with emergency services switchboards.
- To cover Class F fire risks involving cooking oils and fats in kitchens.
- To cover Class B fire risks in locations where flammable liquids in excess of 50 litres are stored or used (not including that held in fuel tanks of vehicles).
- To cover Class A fire risks in classrooms and associated corridors in primary and secondary schools not provided with fire hose reels.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part E2 - Smoke hazard management

E2D9 **Buildings not more than 25 m in effective height: Class 5, 6, 7b, 8 and 9b buildings (prev. Table E2.2a)**

A building not more than 25 m in effective height that—

- is a Class 5 or 9b school building or part of a building having a rise in storeys of more than 3; or
- is Class 6, 7b, 8 or 9b building (other than a school) or part of a building having a rise in storeys of more than 2;or
- has a rise in storeys of more than 2, and contains—
  - a Class 5 or 9b school part; and
  - a Class 6, 7b, 8 or 9b (other than a school) part, must meet the requirements of (2).

A building referred to above must be provided with—

- a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.
- an automatic smoke detection and alarm system complying with Specification 20; or

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

NSW E2D16 **Class 9b – assembly buildings: all (prev. Table E2.2b)**

The following provisions apply to all Class 9b assembly buildings:

- A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of—
  - smoke detectors installed complying with S20C6; and
  - any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

NSW E2D19

Class 9b – assembly buildings: other assembly buildings (not listed in NSW E2D16 top E2D18) (prev. NSW Table E2.2b)

Unless otherwise described below, in a building or part of a building used as an assembly building (not being a night club, discotheque or the like; or an exhibition hall, museum or art gallery) where the floor area of a fire compartment is more than 2000 m^2, the fire compartment must be provided with—

- an automatic smoke exhaust system complying with Specification 21; or
- roof mounted automatic smoke-and-heat vents complying with Specification 22, in a single storey building or the top storey of a multi storey building; or
- if the floor area of the fire compartment is not more than 5000 m^2 and the building has a rise in storeys of not more than 2—
  - an automatic smoke detection and alarm system complying with Specification 20; or
  - a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.

The following buildings are exempt from the provisions of the above:

- Sporting complexes, (including sports halls, gymnasiums, swimming pools, ice and roller rinks, and the like) other than indoor sports stadiums with total spectator seating for more than 1000 persons.
- Churches and other places used solely for religious worship.
- School classrooms.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part E3 - Lift installations

E3D2 **Lift Installations (prev. E3.1)**

An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification 24.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D3 **Stretcher facility in lifts (Prev. E3.2)**

A stretcher facility is required to be provided in each lift, on the basis the passenger lift serves storeys above an effective height of 12m.

A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.

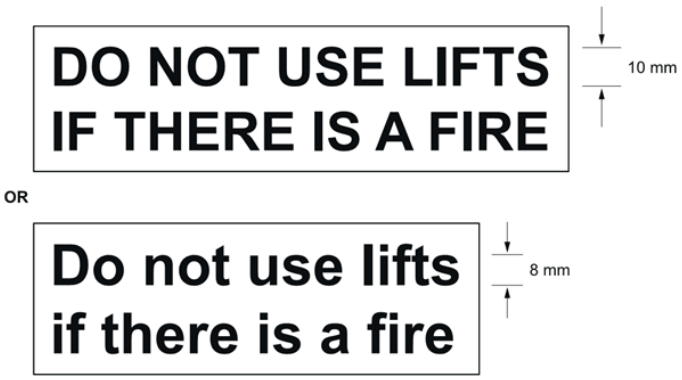
DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D4 **Warning against the use of lifts in fire (prev. E3.3)**

A warning sign must be displayed where it can be readily seen near every call button for a passenger lift and comply with the details and dimensions of Figure E3D4 of the BCA.

Figure E3D4: Warning sign for passenger lifts



DC Comment –

[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.

E3D6 **Landings (prev. E3.5)**

Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Parts D2, D3 and D4.

DC Comment –

	▪ *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D7 **Passenger lift types and their limitations (prev. E3.6, Table E3.6a, Table E3.6b)**

In an accessible building, every passenger lift must be one of the following lift types, subject to the limitations (if any) of each lift type –

- There are no limitations on the use of electric passenger lifts, electrohydraulic passenger lifts or inclined lifts.

- Stairway platform lifts must not—
  - be used to serve a space in a building accommodating more than 100 persons calculated according to D2D18; or
  - be used in a high traffic public use area such as a theatre, cinema, auditorium, transport interchange, shopping centre or the like;
  - or be used where it is possible to install another type of passenger lift; or
  - connect more than 2 storeys; or
  - where more than 1 stairway lift is installed, serve more than 2 consecutive storeys; or
  - when in the folded position, encroach on the minimum width of a stairway required by D2D8 to D2D11.

- A low-rise platform lift must not travel more than 1000 mm.

- A low-rise, low-speed constant pressure lift must not—
  - for an enclosed type, travel more than 4 m; or
  - for an unenclosed type, travel more than 2 m; or
  - be used in a high traffic public use areas in buildings such as a theatre, cinema, auditorium, transport interchange, shopping complex or the like.

- A small-sized, low-speed automatic lift must not travel more than 12 m.

A passenger lift referred to above must not rely on a constant pressure device for its operation if the lift car is fully enclosed.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D9 **Fire service controls (prev. E3.7)**

Where lifts serve any storey above an effective height of 12m, each lift proposed within the building must be provided with –

- A fire service recall control switch complying with E3D11; and

- A lift car fire service drive control switch complying with E3D12.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D11 **Fire service recall control switch (prev. E3.9)**

Each group of lifts must be provided with one fire service recall control switch required by E3D9 that activates the fire service recall operation.

Fire service recall switches must comply with the requirements of E3D11.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E3D12 **Lift car fire service drive control switch (prev. E3.10)**

The lift car control switch required by E3D9 must be activated from within the lift car. The switch must comply with the requirements of E3D12.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part E4 - Visibility in an emergency, exit signs and warning systems

E4D2 **Emergency lighting requirements (prev. E4.2)**

Emergency lighting complying with AS2293.1-2018 is required to be installed throughout every fire-isolated stairway, fire-isolated passageway, fire-isolated ramp, common areas, every passageway, in an SOU in a Class 5, 6 or 9 building with a floor area more than 300m^2, in a Class 9a health building in every passageway, corridor or the like, in every room having a floor area of more than 120m^2, in every Class 9c building excluding within SOU's, in every fire control centre.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D3 **Measurement of distance (prev. E4.3)**

Distances, other than vertical rise, must be measured along the shortest path of travel whether by straight lines, curves or a combination of both.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D4 **Design and operation of emergency lighting (prev. E4.4)**

Every required emergency lighting system must comply with AS/NZS 2293.1-2018.
The design is to be certified by the dry fire designer at the construction certificate phase of the development.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D5 **Exit signs (prev. E4.5)**

An exit sign must be clearly visible to persons approaching the exit, and must be installed on, above or adjacent to each—

- door providing direct egress from a storey to—
  - an enclosed stairway, passageway or ramp serving as a required exit; and
  - an external stairway, passageway or ramp serving as a required exit; and
  - an external access balcony leading to a required exit; and
- door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space; and
- horizontal exit; and
- door serving as, or forming part of, a required exit in a storey required to be provided with emergency lighting in accordance with E4D2.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D6 **Direction signs (prev. E4.6)**

If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D8 **Design and operation of exit signs (prev. E4.8)**

Every required exit sign must—

- comply with—
  - AS/NZS 2293.1; or
  - for a photoluminescent exit sign, Specification 25; and
- clearly visible at all times when the building is occupied by any person having the right of legal entry to the building.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

E4D9 **Emergency warning and intercom systems (prev. E4.9)**

An emergency warning and intercom system complying, where applicable, with AS 1670.4 must be installed—

(a) in a Class 9b building—

- used as a school and having a rise in storeys of more than 3; or
- used as a theatre, public hall, or the like, having a floor area more than 1000 m2 or a rise in storeys of more than 2.

4.6 Section F - Health and amenity

Part F1 - Surface water management, rising damp and external waterproofing

F1D3 **Stormwater drainage (prev. F1.1)**

Stormwater drainage must be designed and constructed in accordance with AS/NZS 3500.3:2018. The system is to be designed by the project's Hydraulic or Civil Engineer as part of the hydraulic / civil design documentation.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F1D4 **Exposed joints (new for 2022)**

Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must—

- be protected in accordance with Section 2.9 of AS 4654.2:2012; and
- not be located beneath or run through a planter box, water feature or similar part of the building.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F1D5 **External waterproofing membranes (prev. F1.4)**

A roof, balcony, podium, or similar horizontal surface part of a building must be provided with a waterproofing membrane in accordance with AS 4654.1:2012 and AS 4654.2:2012

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F1D6 **Damp-proofing (F1.9)**

Moisture from the ground must be prevented from reaching –

- the lowest floor timbers and the walls above the lowest floor joists; and
- the walls above the damp-proof course; and
- the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.

Where a damp-proof course is required, it must consist of materials complying with AS/NZS 2904:1995 or impervious sheet material in accordance AS 3660.1:2014.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F1D7 **Damp-proofing of floors on the ground (prev. F1.10)**

A floor laid directly onto ground or fill must be provided with a vapour barrier complying with AS2870:2011.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part F2 - Wet areas and overflow protection

F2D2 **Wet area construction (prev. F1.7)**

Class 5,6,7,8 or 9

Building elements in a bathroom or shower room, a slop hopper or sink compartment, a laundry or sanitary compartment must be water resistant or waterproof in accordance with Spec. 26 and AS 3740:2021.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F2D4 **Floor wastes (F1.11)**

Where a floor waste is installed, the continuous fall of a floor plane to the waste must be between 1:80 and 1:50.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part F3 - Roof and wall cladding

Note F3P1 Weatherproofing (of external walls) may be satisfied by compliance with F3D3, F3D4 and F3D5, provided the form of construction is referenced by these DtS clauses. Otherwise, compliance with F3P1 (of external walls) to be achieved by a Performance Solution satisfying F3V1 or other suitable method from A5G2 of the BCA.

F3D2 **Roof coverings (prev. F1.5)**

A roof must be covered with —

- An external waterproofing membrane complying with F1D5.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F3D3 **Sarking (prev. F1.6)**

Any sarking-type materials used for weatherproofing of roofs and walls are required to comply with AS/NZS4200.1:2017 and AS4200.2:2017.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F3D4 **Glazed assemblies (prev. F1.13)**

The following glazed assemblies in an external wall, must comply with AS 2047:2014 requirements for resistance to water penetration:

- Windows.
- Sliding and swinging glazed doors with a frame, including French and bi-fold doors with a frame.
- Adjustable louvres.
- Shopfronts.
- Window walls with one piece framing.

Despite the above The following glazed assemblies are exempt from complying with AS 2047:2014:

- All glazed assemblies not in an internal wall.
- Revolving doors.
- Fixed louvres.
- Skylights, roof lights and windows in other than the vertical plane.
- Sliding and swinging glazed doors without a frame.
- Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047.
- Second-hand windows, re-used windows and recycled windows.
- Heritage windows.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

F3D5 **Wall cladding (New for 2022)**

External wall cladding must comply with one or a combination of following:

- Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700:2018.
- Autoclaved aerated concrete: AS 5146.3:2018.
- Metal wall cladding: AS 1562.1:2018.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part F4 - Sanitary and other facilities

F4D4 **Facilities in Class 3 to 9 buildings (F2.3)**

General

- Generally, only female facilities are required.
- In a Class 5,7 or 8 building, facilities are not required for visitors.
- Employees and the public may share the same facilities in a Class 6 and 9b building (other than a school or early childhood centre) provided the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public.
- Accessible unisex sanitary compartment has been counted once for each sex, hence supporting up to 20 x staff ***being 10 x male and 10 x female staff (rounded down from 15x on the basis of equal numbers of males and females.
- It is assumed less than 10 staff are present at a given time, hence single non-accessible facility is permitted.

DC Comment –

- *[Complies] Sanitary facilities shall be provided for occupants in accordance with the relevant tables from this clause. It is noted that adequate sanitary facilities have been provided and ongoing studies are being carried out to reduce the amount of facilities within the building.*

F4D8 **Construction of sanitary compartments (prev. F2.5)**

Sanitary compartments must have doors and partitions that separate adjacent compartments and extend 1.8m above the floor.

The door to a full enclosed sanitary compartment is required to:

- Open outwards;
- Slide; or
- Be readily removable from the outside of the sanitary compartment (i.e. lift-off hinges).

Unless there is a clear space of at least 1.2m between the closest pan within the sanitary compartment and the hinge side edge of the doorway.

DC Comment –

- *[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.*

Part F5 - Room heights

F5D2 **Height of rooms and other spaces**

Specific rooms and other spaces (all classes)

- bathroom, shower room, sanitary compartment, other than an accessible adult change facility, airlock, tea preparation room, pantry, storeroom, garage, car parking area, or the like — 2.1 m; and
- commercial kitchen — 2.4 m; and
- above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like; and
- required accessible adult change facility — 2.4 m.

Class 9b

- school classroom or other assembly building or part that accommodates not more than 100 persons (including any corridor that serves the assembly building) — 2.4 m;
- theatre, public hall or other assembly building or part that accommodates more than 100 persons (including any corridor that serves the assembly building) — 2.7 m

DC Comment –

- *[Design Detail] Generally, all areas of the proposed development will achieve compliant ceiling height,*

Part F6 - Light and ventilation

F6D2 **Provision of natural light (Prev. F4.1)**

Natural light must be provided in:

- A Class 9b building — to all general purpose classrooms in primary or secondary schools and all playrooms or the like for the use of children in an early childhood centre.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

F6D3 **Methods and extent of natural light (prev. F4.2)**

Natural light must be provided by—

- windows that—
  - have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and
  - are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or
- roof lights, that—
  - have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 3% of the floor area of the room; and
  - are open to the sky; or

- a proportional combination of windows and roof lights

Class 2, 3 or 9 or Class 4 part

a required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of—

- generally — 1 m; and
- in a patient care area or other room used for sleeping purposes in a Class 9a building — 3 m; and
- 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill.

DC Comment –

- *[Design Detail] As the design progresses, additional design detail to be provided for further assessment*

F6D5 **Artificial lighting (prev. F4.4)**

Artificial lighting in accordance AS/NZS 1680.0.must be provided—

- in required stairways, passageways, and ramps; and
- if natural light of a standard equivalent to that required by F6D3 is not available, and the periods of occupation or use of the room or space will create undue hazard to occupants seeking egress in an emergency, in—
  - Class 9 buildings — to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress.

The system may provide a lesser level of illumination to the following spaces during times when the level of lighting would be inappropriate for the use:

- A theatre, cinema or the like, when performances are in progress, with the exception of aisle lighting required by Part I1.
- A museum, gallery or the like, where sensitive displays require low lighting levels
- A discotheque, nightclub or the like, where to create an ambience and character for the space, low lighting levels are used.

DC Comment –

[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.

F6D6 **Ventilation of rooms (prev. F4.5)**

Natural or mechanical ventilation is required to be provided any habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose.

If mechanical ventilation is provided Mechanical Engineer / Contractor to ensure the system is in accordance AS 1668.2-2012.

DC Comment –

[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.

F6D7 **Natural ventilation (prev. F4.6)**

Natural ventilation must consist of openings, windows, doors or other devices which can be opened with a ventilating area not less than 5% of the floor area of the room required to be ventilated; and open to—

- a suitably sized court, or space open to the sky; or
- an open verandah, carport, or the like; or
- an adjoining room in accordance with F6D8.

DC Comment –

[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.

F6D8 **Ventilation borrowed from adjoining room (prev. F4.7)**

Natural ventilation to a room may come through a window, opening, door or other device from an adjoining room (including an enclosed verandah) if both rooms are within the same sole-occupancy unit or the enclosed verandah is common property, and—

- in a Class 5, 6, 7, 8 (except a Class 8 electricity network substation) or 9 building—
  - the window, opening, door or other device has a ventilating area of not less than 10% of the floor area of the room to be ventilated, measured not more than 3.6 m above the floor; and
  - the adjoining room has a window, opening, door or other device with a ventilating area of not less than 10% of the combined floor areas of both rooms; and
  - the ventilating areas specified in (a) and (b) may be reduced as appropriate if direct natural ventilation is provided from another source.

DC Comment –

[Design Certification] Compliance with the requirements of this BCA clause is subject to design certification from the relevant design consultants.

4.7 SECTION I - SPECIAL USE BUILDINGS

PART I1 - CLASS 9B BUILDINGS

NSW I1D1 **Application of part (prev. H1.1)**

For a Class 9b building or part of a building that is not an entertainment venue the Deemed-to-Satisfy Provisions of Part I1 apply to every enclosed Class 9b building or part of a building which—

(a) is a school assembly, church or community hall with a stage and any backstage area with a total floor area of more than 300 m^2; or
(b) otherwise, has a stage and any backstage area with a total floor area of more than 200 m^2; or
(c) has a stage with an associated rigging loft.

Notwithstanding — I1D4 applies to every open or enclosed Class 9b building; and I1D7 applies to every enclosed Class 9b building.

I1D4 **Seating area (prev. H1.4)**

In a seating area—

(a) the gradient of the floor surface must not be steeper than 1 in 8, or the floor must be stepped so that—
  (i) a line joining the nosings of consecutive steps does not exceed an angle of 30° to the horizontal; and
  (ii) the height of each step in the stepped floor is not more than 600 mm; and
  (iii) the height of any opening in such a step is not more than 125 mm; and
(b) if an aisle divides the stepped floor and the difference in level between any 2 consecutive steps—
  (i) exceeds 230 mm but not 400 mm — an intermediate step must be provided in the aisle; and
  (ii) exceeds 400 mm — 2 equally spaced intermediate steps must be provided in the aisle; and
  (iii) the going of intermediate steps must be not less than 270 mm and such as to provide as nearly as practicable equal treads throughout the length of the aisle; and
(c) the clearance between rows of fixed seats used for viewing performing arts, sport or recreational activities must be not less than—
  (i) 300 mm if the distance to an aisle is not more than 3.5 m; or
  (ii) 500 mm if the distance to an aisle is more than 3.5 m.

5.0 CONCLUSION

Our strategy for ensuring compliance will be refined and documented during the design process in conjunction with the continual development of the architectural documentation, as required.

Based upon our assessment to date we are of the opinion that the subject development is capable of achieving compliance with the performance provisions of the BCA. Compliance would be achieved via a mixture of adopting a performance-based approach as well as complying with the relevant deemed-to-satisfy requirements as outlined within the BCA, compliance via the performance based approach could occur without significant changes to the proposed design.

The Performance Solutions for the building will be developed as part of the ongoing design and consultation with the design team.

The details of the proposed Performance Solutions with respect to fire safety are subject to the outcome of the fire engineering brief and analysis which will be carried out in accordance with the International Fire Engineering Guidelines.

Report By

Jake Robson
Senior Building Regulations Consultant
For Design Confidence (Sydney) Pty Ltd

Verified By

Lindsay Beard
Principal | Building Regulations
For Design Confidence (Sydney) Pty Ltd

APPENDIX 1 – DOCUMENTATION PROVIDED FOR ASSESSMENT

This BCA assessment was based upon the architectural documentation dated 25.11.2024 prepared by NBRS namely—

DRAWING NUMBER	REV	DRAWING TITLE	DATE
MPHS-NBRS-ZZ-ZZ-DR-A-0001	6	COVER & DRAWING LIST	25.11.2024
MPHS-NBRS-ZZ-ZZ-DR-A-0200	14	SITE PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-ZZ-ZZ-DR-A-0201	14	SITE PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-ZZ-ZZ-DR-A-0501	1	STAGING PLAN	25.11.2024
MPHA-NBRS-B00A-GF-DR-A-1001	5	BUILDING A - GROUND FLOOR PLAN	25.11.2024
MPHA-NBRS-B00A-GF-DR-A-1201	5	BUILDING A - GROUND FLOOR FURNITURE PLAN	25.11.2024
MPHA-NBRS-B00A-L1-DR-A-1002	4	BUILDING A – LEVEL 1 PLAN	25.11.2024
MPHA-NBRS-B00A-L1-DR-A-1202	3	BUILDING A – LEVEL 1 FURNITURE PLAN	25.11.2024
MPHA-NBRS-B00A-L2-DR-A-1003	4	BUILDING A – LEVEL 2 PLAN STAGE 1	25.11.2024
MPHA-NBRS-B00A-L2-DR-A-1203	3	BUILDING A – LEVEL 2 FURNITURE PLAN STAGE 1	25.11.2024
MPHA-NBRS-B00A-L3-DR-A-1005	4	BUILDING A – LEVEL 3 PLAN STAGE 1	25.11.2024
MPHA-NBRS-B00A-L3-DR-A-1205	3	BUILDING A – LEVEL 3 FURNITURE PLAN STAGE 1	25.11.2024
MPHA-NBRS-B00A-L4-DR-A-1007	4	BUILDING A – LEVEL 4 PLAN STAGE 1	25.11.2024
MPHA-NBRS-B00A-L4-DR-A-1207	3	BUILDING A – LEVEL 4 FURNITURE PLAN	25.11.2024
MPHA-NBRS-B00A-L5-DR-A-1008	4	BUILDING A – LEVEL 5 PLAN	25.11.2024
MPHA-NBRS-B00A-L5-DR-A-1208	3	BUILDING A – LEVEL 5 FURNITURE PLAN	25.11.2024
MPHS-NBRS-B00A-ZZ-DR-A-3101	6	BUILDING A ELEVATIONS 1	25.11.2024
MPHS-NBRS-B00A-ZZ-DR-A-3102	6	BUILDING A ELEVATIONS 2	25.11.2024
MPHA-NBRS-B00B-GF-DR-A-1011	6	BUILDING B – GROUND FLOOR PLAN	25.11.2024
MPHA-NBRS-B00B-GF-DR-A-1211	5	BUILDING B – GROUND FLOOR FURNITURE PLAN	25.11.2024
MPHA-NBRS-B00C-GF-DR-A-1600	5	BUILDING C	25.11.2024
MPHA-NBRS-B00D-GF-DR-A-1601	2	BUILDING D	25.11.2024
MPHA-NBRS-B00E-GF-DR-A-1602	2	BUILDING E	25.11.2024
MPHS-NBRS-ZZ-DR-A-0202	15	OVERALL GROUND PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-L1-ZZ-DR-A-0203	14	OVERALL LEVEL 1 PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-L2-ZZ-DR-A-0204	14	OVERALL LEVEL 2 PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-L3-ZZ-DR-A-0205	14	OVERALL LEVEL 3 PLAN (STAGE 1)	25.11.2024

MPHS-NBRS-L4-ZZ-DR-A-0206	15	OVERALL LEVEL 4 PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-L5-ZZ-DR-A-0207	14	OVERALL LEVEL 5 PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-RF-ZZ-DR-A-0208	14	OVERALL ROOF PLAN (STAGE 1)	25.11.2024
MPHS-NBRS-ZZ-DR-A-0211	15	OVERALL GROUND FLOOR PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-L1-ZZ-DR-A-0212	14	OVERALL LEVEL 1 PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-L2-ZZ-DR-A-0213	14	OVERALL LEVEL 2 PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-L3-ZZ-DR-A-0214	14	OVERALL LEVEL 3 PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-L4-ZZ-DR-A-0215	15	OVERALL LEVEL 4 PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-L5-ZZ-DR-A-0216	14	OVERALL LEVEL 5 PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-RF-ZZ-DR-A-0217	13	OVERALL ROOF PLAN (STAGE 2)	25.11.2024
MPHS-NBRS-ZZ-ZZ-DR-A-3002	9	SITE ELEVATIONS SHEET 2	25.11.2024
MPHS-NBRS-ZZ-ZZ-DR-A-3002	9	SITE ELEVATIONS SHEET 2	25.11.2024

APPENDIX 2 – ABBREVIATIONS & DEFINITIONS

The following acronyms and abbreviations are used throughout the report.

ACRONYM / ABBREVATION	DEFINITION
AS	Australian Standard
CHF	Critical Heat Flux
BCA	Building Code of Australia 2022
DTS	Deemed to Satisfy
FRL	Fire-resistance level
FH	Fire hydrant
FHR	Fire hose reel
NCC	National Construction Code
PFE	Portable fire extinguisher
PBDB	Performance Based Design Brief
RC	Reinforced concrete
SOU	Sole occupancy unit
SPEC.	Specification
U-Value	Thermal transmittance

DEFINITIONS

The following definitions are provided for words used throughout the report.

Accessible

Accessible means having features to enable use by people with a disability.

Combustible

A material — means combustible as determined by AS 1530.1; and construction or part of a building — means constructed wholly or in part of combustible materials.

Deemed-to-Satisfy Provisions

Provisions which are deemed to satisfy the Performance Requirements.

Deemed-to-Satisfy Solution

A method of satisfying the Deemed-to-Satisfy Provisions.

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).

Exit

Exit means –

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

- An internal or external stairway.

  A ramp.

  A fire-isolated passageway.

  A doorway opening to a road or open space.

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

Fire compartment

Fire compartment means –

- the total space of a building; or
- when referred to in—

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

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—

- structural adequacy; and

  integrity; and

  insulation,

  — 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

- the far boundary of a road, river, lake or the like adjoining the allotment; or
- a side or rear boundary of the allotment; or
- 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.

Loadbearing

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

Non-combustible

Non-combustible means—

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

- that is open to the sky; and
- to which access is provided, other than access only for maintenance; and
- 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.

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 dwelling; or
- a room or suite of rooms in a Class 3 building which includes sleeping facilities: or
- a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
- 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.

APPENDIX 3 – FRLS

Table A1 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
Loadbearing	90/–/–	120/–/–	180/–/–	240/–/–
Non-loadbearing	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES				
and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

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