MATT SHUTER + ASSOCIATES

Building Code of Australia

Design Compliance Report

100% Schematic Design Review

NSW Department of Education (DoE) Upgrade to Cammeray Public School

Report Number & Revision:	**MSA2685_BCA_SINSW_CAM_3**
Prepared For:	**NSW Department of Education (DoE)**
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Revision History & Quality Management

REPORT NUMBER	REV	STATUS	DATE
MSA2685_BCA_SINSW_CAM_1	Rev1	Draft Concept BCA Report (80%)	22.10.24
MSA2685_BCA_SINSW_CAM_2	Rev2	Draft Schematic BCA Report (80%)	17.12.24
MSA2685_BCA_SINSW_CAM_3	Rev3	Schematic BCA Report (100%)	07.02.25

ROLE	NAME + SIGNATURES	CREDENTIALS
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Contents

Executive Summary

This report assesses the **100% Schematic Level Design** for the proposed **NSW Department of Education (DoE) Upgrade to Cammeray Public School**against the requirements of the National Construction Code (NCC) / Building Code of Australia (BCA).

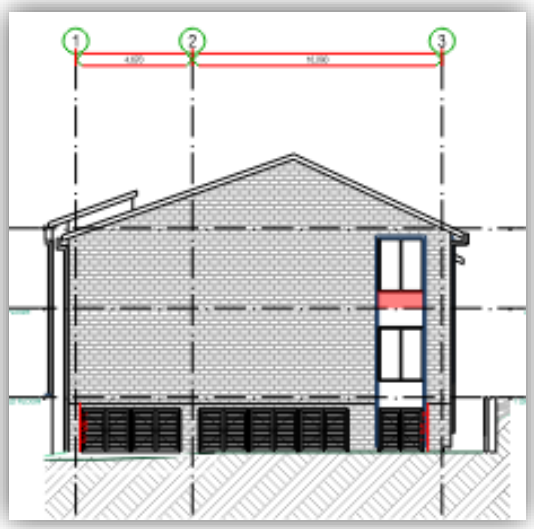
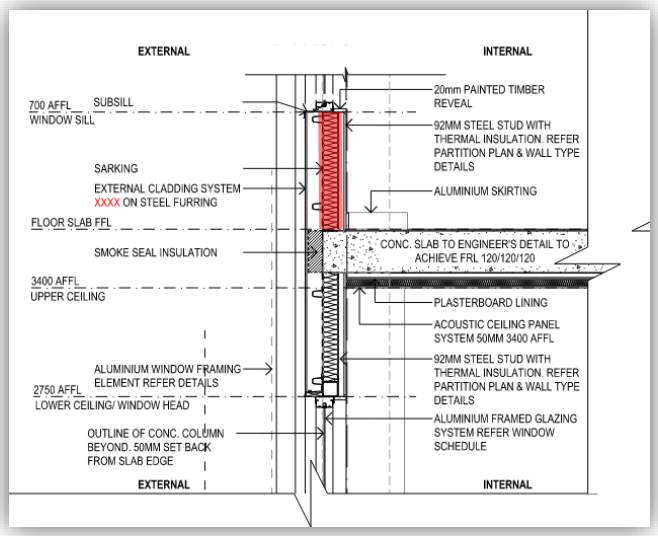
The primary purpose of the report is to identify any non-compliances with the deemed-to-satisfy provision of the BCA and provide recommendations to best comply with the requirements of the BCA.

Subject to compliance with the mitigation measures of this report, it is considered that the development can readily comply with the relevant requirements of the BCA. Recommendations have been identified as follows:

- Significant BCA matters, being those with the ability to affect the design have been included in Table 1.0 below.
- A BCA Compliance Schedule suitable for the current level of design is also contained in in Table 6.0 of this report.

Table 1.0 – Mitigation Measures - Significant BCA Compliance Matters

<table>
<tr><th>#</th><th>DTS Clause</th><th>Recommendation</th><th>Status</th></tr>
<tr><td colspan="4">BCA Compliance Issues</td></tr>
<tr><td>1.</td><td>D3D14</td><td>Riser Heights
The riser heights have been measured at 140mm, and if accurate, the (2R + G) calculation does not comply in accordance with Table D3D14 (140mm + 140mm + 265mm = 545mm) – Minimum 550mm required.
Table D3D14: Riser and going dimensions
<table><tr><th rowspan="2">Stairway location</th><th colspan="2">Riser (R)</th><th colspan="2">Going (G)Note 3</th><th colspan="2">Quantity (2R + G)</th></tr><tr><th>Max</th><th>Min</th><th>Max</th><th>Min</th><th>Max</th><th>Min</th></tr><tr><td>Public</td><td>190</td><td>115</td><td>355</td><td>250</td><td>700</td><td>550</td></tr><tr><td>Private Note 1</td><td>190</td><td>115</td><td>355</td><td>240</td><td>700</td><td>550</td></tr></table></td><td>Further Detail Required</td></tr>
<tr><td>2.</td><td>D3D29</td><td>Protection of openable windows
The provisions of this part apply to a class 9b school where the FFL is more than 4m above the ground surface beneath.
The openable windows serving the rear elevation and side of the upper floor will require a sill height of 865mm above FFL with no climbable elements located between 150mm and 760mm above FFL. Details to be confirmed during future design stages.</td><td>Further Detail Required</td></tr>
</table>

#	DTS Clause	Recommendation	Status
		  	

#	DTS Clause	Recommendation	Status
3.	Various	**Can Readily Comply/Further Details Required** Any items identified as 'can readily comply' or 'further details required' will require additional details and further assessment during later design stages.	**Can Readily Comply - Detail**

1.0 Introduction

This Building Code of Australia Design Report has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the Cammeray Public School (CPS) (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP and in consideration of the stakeholder and community participation plan.

The proposed activity is for upgrades to the existing CPS at 68 Palmer Street, Cammeray NSW 2062 (the site).

The purpose of this report is to assesses the **100% Schematic Level Design** for the proposed **NSW Department of Education (DoE) Upgrade to Cammeray Public School**against the requirements of the National Construction Code (NCC) / Building Code of Australia (BCA).

2.0 Assessed Information

The following information was specifically relied upon for this assessment:

- Desktop assessment of **100% Schematic design documentation** and supporting design plans and information prepared by **Fulton Trotter** (refer Attachment B – Assessed Plans)
- The Building Code of Australia (National Construction Code) 2022
- The Guide to the Building Code of Australia (National Construction Code) 2022

3.0 Purpose & Basis of the Report

3.1 Report Purpose

The purpose of this report is to assess the following:

- Assess the design documentation and requirements of the current BCA, and detail any significant issues (or those which have the ability to affect the current design);
- Provide recommendations to best address any significant departures from the requirements of BCA and to guide the detailed design development.

3.2 General Basis

The general basis of this report is to assess and address compliance with the significant requirements of the Building Code of Australia (BCA) as relevant to the new building works and with regard to the site conditions and current design documentation. The scope of services is limited to assessment against *Sections C - Fire Resistance, Section D - Access & Egress and Section E - Services & Equipment, Section F - Health and Amenity, and high level parameter advice on Section B – Structure and Section J - Energy Efficiency* of the BCA.

3.3 Regulatory Basis

The following outlines the regulatory basis for assessment for Crown developments and existing buildings.

3.3.1 Environmental Planning & Assessment Act, 1979 and Regulation 2021

This report assumes compliance with the Building Code of Australia is required under Environmental Planning & Assessment Act, 1979 and Regulation 2021.

3.3.2 Development within Existing Buildings

Where a development is being undertaken to an existing building, the following methodology is used to determine if 'the building works' comply with the BCA:

- All *new* works must comply with the BCA, and
- The new works must not cause a contravention of the BCA within the existing building. If a contravention is caused, it must be addressed, and
- The new works must not cause a *reduction* in the fire protection afforded to the existing building when compared to existing, and
- The existing building (beyond the scope of the above three dot points) need not upgraded to comply with the BCA – *unless required otherwise by the Consent or Certifying Authority.*

4.0 Limitations & Exclusions of the Report

The Report does not specifically consider anything beyond the considerations contains in Section 2.0 "Assessed Information" and Section 3.0 "Purpose & Basis of Report" and is otherwise also subject to the following specific limitations:

- This report is limited strictly to assessment of the proposed project scope, ie 'the new building works' as detailed in the information referenced in Section 2.0 and does not constitute a full upgrade assessment of any existing building.

- The report is limited to assessment of the development against the deemed-to-satisfy provisions of the applicable Building Code of Australia.
- No assessment has been made of any existing Fire Engineering or BCA Performance based Reports that may apply to the base building or development, unless otherwise specifically noted.
- The information provided to MSA as nominated in Section 2.0 is accepted in good faith as accurate and correct.
- Some requirements of the BCA / Access Regulations are recognised as being interpretive in nature. Where these matters are encountered, interpretations are made in accordance with MSA policy &/or as guided by other standards, guides and industry best practice. Specific relevant interpretations relevant to this assessment are included in Section 5.2 "BCA Assessment Data" of this report.
- MSA does not support the use of combustible cladding or aluminium composite panels as external cladding, lining or ancillary element in any way. Such products are recommended to be avoided and where such products are proposed, MSA automatically excludes their assessment from any reporting and certification and will not accept liability for their use in any way.
- The report does not consider compliance with *The Disability Discrimination Act, 1992*, the *Disability (Access to Premises – Buildings) Standards 2010*, or accessibility related parts of the *BCA* (unless specifically referred to). A separate accessibility (DDA) report is required.
- Detailed assessment of any engineering matters or Australian Standards– e.g: structural, civil, electrical, hydraulic, mechanical, fire, bushfire protection is beyond the scope of this report.
- The Report does not provide for any Alternative /Fire Engineered Solutions.
- The report commentary specifically considers works to Block G and adjacent Block E building in Table 6.0.

5.0 Building Characteristics

5.1 Building Details

5.1.1 Site Description - Cammeray Public School

Cammeray Public School (CPS) is located at 68 Palmer Street, Cammeray on the northern side of Palmer Road, bound by Palmer Street to the south, Bellevue Street to the east and Miller Street to the west. The site has an area of 1.36 ha and comprises 11 allotments, legally described as:

- Lot 11 DP 837836
- Lot 1 DP 316130
- Lot 1 DP 316706
- Lot 1 DP 123406
- Lot 2 DP 174370
- Lot 1 DP 174370
- Lot 4 Sec 35 DP 758790
- Lot 5 Sec 35 DP 758790
- Lot 66 DP 1049613
- Lot 3 DP 571310
- Lot 4 DP 571310

The site currently comprises an existing co-education primary (K-6) public school with 6 permanent buildings, 3 demountable structures, covered walkways linked at multiple levels, play areas, on-grade parking, sports court, covered outdoor learning area (COLA) and vegetation/green spaces with mature trees.

The existing school buildings are clustered towards the southern portion of the site and comprise both single and 2 storey buildings. The northern portion of the site contains the sports court, vegetable garden and play equipment. The north-western portion of the site is heavily vegetated with trees of high landscape significance that are protected with fencing.

The site is identified as a locally listed heritage item (I0019) under Schedule 5 Environmental Heritage pursuant to the North Sydney Local Environmental Plan 2013 (NSLEP). The school is also identified in the Plateau Heritage Conservation Area (HCA) (Part 2 Schedule 5 of the NSLEP). The school is listed on the Department of Education (DoE) Section 170 Heritage Conservation Register as 'Cammeray Public School'. The site is approximately 115m from a State heritage item (I0004) being the electricity substation at 143 Bellevue Street and in close proximity to locally heritage listed items.

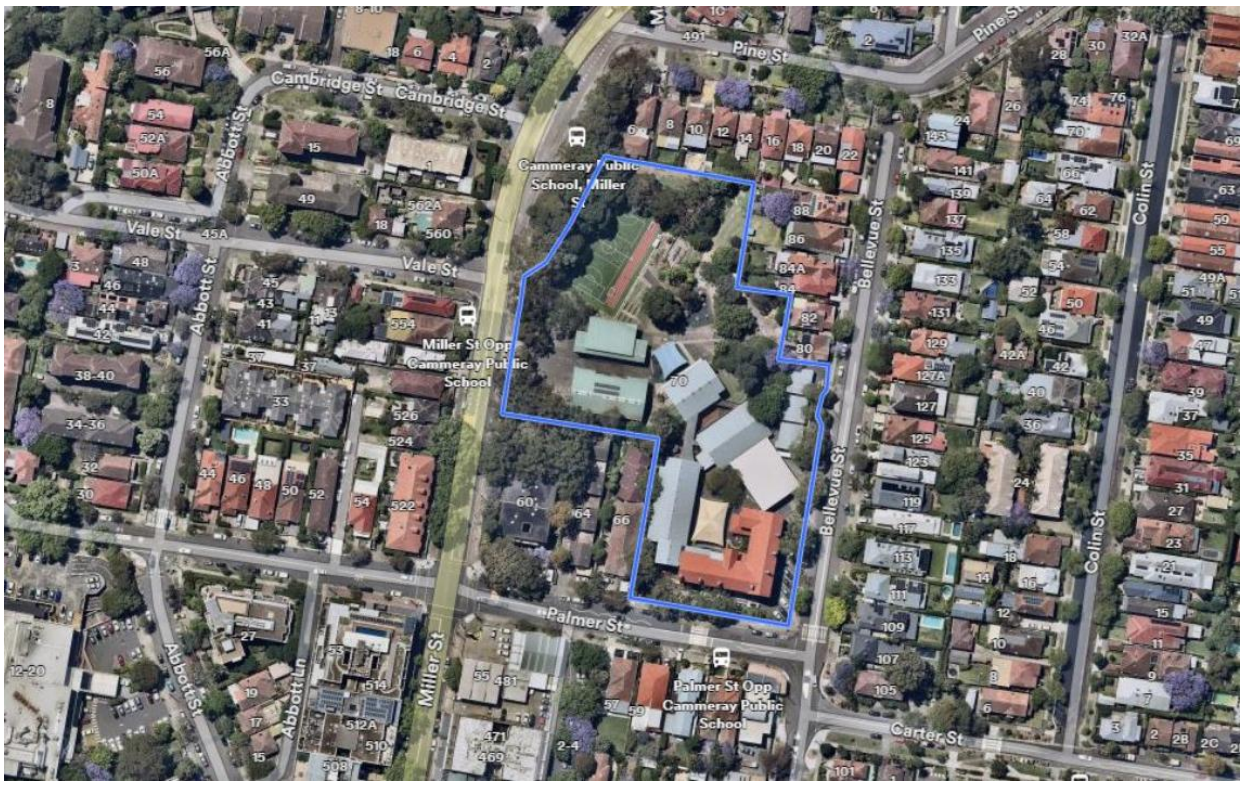


Figure 5.1.1 Aerial image of the site, outlined in blue (Source: NearMap, taken 30 October 2024)

5.1.2 Proposed Activity Description

The proposed activity involves upgrades to the existing CPS, including the following:

- Construction of 4 new permanent teaching spaces in a two-storey building incorporating 2 general learning spaces and 2 practical activity areas
- New egress lift and stairs for access to all building levels
- External covered walkways connecting the new building to the existing school network
- Landscaping and external works including compensatory planting
- Upgrades to site infrastructure and services to support the new buildings
- Removal of 3 temporary (demountable) classrooms from the eastern side of the school
- 50 bicycle parking spaces

The intent of the activity is to provide 4 permanent teaching spaces (PTS) plus 2 practical activity areas (PAA) across a two-storey addition, adjoining Building E. This will result in CPS retaining the capacity of a 'large' school (553-1,000 students) under EFSG (SINSW Education Facilities Standards and Guidelines).

Figure 5.1.2 below shows the scope of works for the proposed activity.

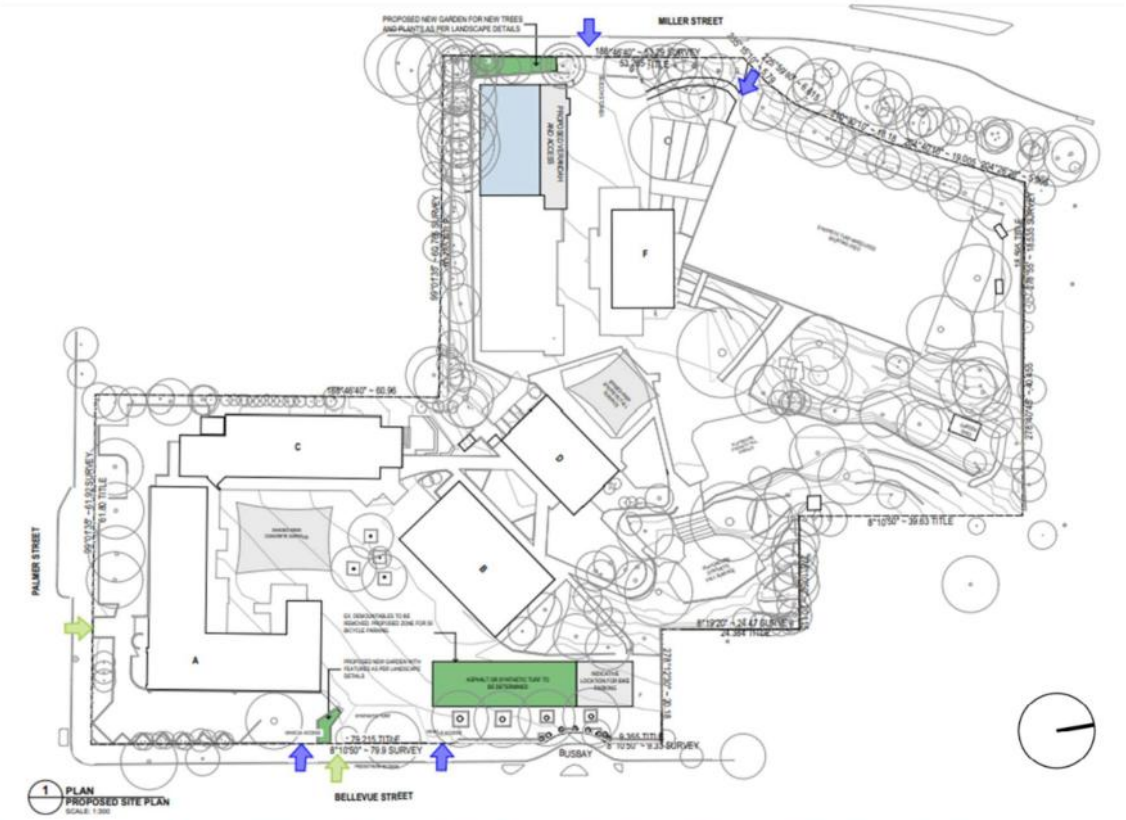


Figure 2 **Proposed Scope of Works (Source: Fulton Trotter Architects, Proposed Site Plan (Rev 6))**

Figure 5.1.2 Proposed Scope of Works (Source: Fulton Trotter Architects, Proposed Site Plan (Rev P5))

5.2 BCA Assessment Data

The following table details the key BCA characteristics of the building / development:

Table 5.2 – BCA Assessment Data

BCA Clause 2022 (BCA 2019 in brackets)		**Existing Block E**	**Proposed Block G (No change)**
Part A6 (A1.1)	Classification	Class 9b (Primary School)	Class 9b (Primary School)
C2D3 (C1.2)	Rise in Stories	2	2
C2D2 (C1.1)	Construction Type	Type B Construction (Intermediate Fire Resistance)	Type B Construction (Intermediate Fire Resistance)
C3D3 (C2.2)	Floor areas and Fire Compartment Limitations	Type B (Class 5, 9b or 9c) - Max Floor Area 5500m2, Max Volume 33000m3	Type B (Class 5, 9b or 9c) - Max Floor Area 5500m2, Max Volume 33000m3
Schedule 1 (Schedule 3)	Effective Height	Less than 12m	Less than 12m
D2D18 (D1.13)	Occupant Numbers	TBC	TBC

5.3 BCA / Access Interpretation

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:

(a) 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.

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

Fire compartment

Fire Compartment means—

(a) the total space of a building; or

(b) when referred to in—

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

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

Fire-resistance level (FRL)

FRL means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

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

Fire-source feature

Fire source feature means—

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

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

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

Fire wall

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

Non-combustible

Non-combustible means -

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

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

Occupiable Outdoor Area

Open /unroofed sections may be considered 'occupiable outdoor area' a new definition under Part G6 of BCA 2019 that requires unroofed parts of buildings meet certain BCA criteria in relation to fire resistance, egress and services and equipment as these areas can have an effect on the safety of occupants.

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.

6.0 BCA Mitigation Measures

The following Table 6.0 provides a summary of assessment of the architectural plans against the significant requirements of the BCA. The following notations are made in the "Status" column of Table 6.0 for ease of reference.

Key of Compliance Status

Status	Description
Complies	The design documentation for the development demonstrates compliance with the BCA deemed-to-satisfy (DTS) provisions as relevant to the new building works &/or the existing level of compliance is maintained.
Can Readily Comply **or** **Further Detail Required**	Though strict & full compliance can't necessarily be ascertained on the current level of documentation detail, compliance can be readily achieved within the constraints of the design. This may be in the form of a plan or specification note, or further detailed information.
NA / Informational	The matter is not applicable to the item of the project scope or the clause is informational only. No specific action required.
Does Not Comply	There is an apparent or foreseeable non-compliance with the BCA deemed-to-satisfy provisions indicated on the design documentation that will require re-design or further consideration.
Critical Detail Required	There is a critical detail required to assess or confirm full BCA compliance that should be identified as soon as possible to reduce project risk.
Fire Engineering	A Fire Engineering Report (fire safety issue) is required to address the DTS non-compliance (or re-design). *The recommendations of any fire engineering report must be incorporated into the design.*
BCA Performance Solution	A BCA Performance Solution Report (for non-fire safety issue) is required to address the DTS non-compliance (or re-design). *The recommendations of any performance solution report must be incorporated into the design.*
Certification by Designer or Specialist	Detailed assessment and confirmation is required from the relevant design engineer, designer or specialist to confirm compliance with the specified requirements of the BCA &/or referenced Australian Standards. This may be technical advice at early design stages or design compliance certification at detailed design stages.

Table 6.0 provides a summary of key BCA considerations only and should be read in conjunction with the full terms, wording and requirements of the Building Code of Australia to ensure compliance. Some BCA Clauses that are not relevant have specifically not been included in the Table.

Table 6.0 –BCA Compliance Schedule

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
BCA Regulatory Compliance				
Various	Various	**BCA Compliance – New Works & No Reduction in Fire & Life Safety** For works within existing buildings, it must be demonstrated that the modifications will maintain or improve the existing level of fire safety.	Informational. Further details provided throughout the report below.	**Informational**
Section B – Structure				
Section B	Section B	**Structural Compliance** All new works must meet current Structural Requirements of Section B of the BCA. Existing structures should be confirmed as capable of supporting any new loads.	Design compliance certification from the Structural Engineer is required.	**Certification by Designer or Specialist**
B1.4	B1D4	**Glazing – BCA Clause B1.4** All glazing must be selected and installed in accordance with AS2047 & AS1288.	Design compliance certification from the structural / glazing / façade design engineer is required. *Spec note to be provided on plans/specifications.*	**Certification by Designer or Specialist**
Section C – Fire Resistance				
Part C2 – Fire Resistance & Stability				
C1.0	C2D1	**Deemed to Satisfy Provisions** Informational clause indicating link between Part C2 performance requirements and other parts of the BCA.	The clause is informational only in nature	**Informational**
C1.1	C2D2	**Type of Construction** All new works must meet current Fire Resistance Level (FRL) requirements of Section C and Specification 5 of the BCA for the required Type of Construction. *Refer to "Fire Resistance of Building Elements below in this table and Attachment B for more Fire Resistance Level information.*	Block G and Block E are considered a united building and are of Type B Construction.	**Informational**
			Block G – Buildings FRLs Block G is of Type B Construction and has fire source features (buildings as well as the allotment boundary) located between 3m and 18m, requiring the following FRLs: • Load bearing elements of Type B buildings between 9-18m of another building on the same allotment require an FRL of 120/30/- (Block F) • Load bearing elements of Type B buildings between 9-18m of the allotment boundary require an FRL of 120/30/- *Where FRLs will not be met, the Fire Engineer will be required to rationalise the FRL's under the BCA Performance Requirements.*	**Certification by Designer or Specialist**
2.1 of Spec C1.1	S5C2	**Exposure to Fire Source Features** 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.	The clause is informational only in nature	**Informational**
2.2 of Spec C1.1	S5C3	**Fire Protection for Support of Another Part** Where a building element vertically or laterally supports a building element required to have an FRL, that part must generally maintain the same FRL as the part it supports.	Design compliance certification from the Structural Engineer is required.	**Certification by Designer or Specialist**
2.3 of Spec C1.1	S5C4	**Lintels** A lintel must have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and— (a)it spans an opening in— • a wall of a building containing only one storey; or	Design compliance certification from the Structural Engineer is required.	**Certification by Designer or Specialist**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		• a non-loadbearing wall of a Class 2 or 3 building; or (b)it spans an opening in masonry which is not more than 150 mm thick and— • not more than 3 m wide if the masonry is non-loadbearing; or • not more than 1.8 m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall.		
2.4 of Spec C1.1.	S5C5	**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 below that required.	The clause is informational only in nature	**Informational**
2.5 of Spec C1.1	S5C6	**Concessions to Fire Resistance Levels** Certain elements are given concession to compliance with the FRL requirements of Spec C1.1: • Steel columns (1 or 2 storey buildings) • Timber columns (1 storey buildings) • Structures on roofs • Curtain walls and panel walls • Balconies and verandahs • Certain non-combustible structures on roofs containing only service equipment	The clause is informational only in nature	**Informational**
2.7 of Spec C1.1	S5C8	**Enclosure of Shafts** Fire-isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction having an FRL required for the walls of a non-load-bearing shaft in the same building, as per Specification 5 This fire rating is required in two directions. The above does not apply to shafts extending beyond the roof covering, other than fire isolated stair and lift shafts and the bottom of non-combustible shafts laid directly on the ground.	The clause is informational only in nature	**Informational**
Spec C1.1	S5C21	**Fire-Resistance of Building Elements** The FRL's of all elements are to be in accordance with: • The FRL's detailed in the Table contained within **Attachment B** of this report. • The FRLs for specific separation of equipment (addressed elsewhere in this report)	The FRL's required for Block G are contained within Attachment B of this report under Type B Construction. The following building elements require the specific FRL's: **External Walls** • Non load bearing: NIL (3m +) • Load bearing: FRL 120/30/30 (3m to 9m) (Boundary) • Load bearing: FRL 120/30/- (9m to 18m) (Block F) **Floors:** • be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or • have an FRL of at least 30/30/30; or • have a fire-protective covering on the underside of the floor, including beams incorporated in it, if the floor is combustible or of metal. *Details demonstrating compliance are required to be provided in a 'BCA Compliance Specification' & via an appropriate designer such as Structural Engineer & Architect.*	**Certification by Designer or Specialist**
C1.2	C2D3	**Rise in Storeys** The building rise in stories is generally 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.	Block G and Block E are considered a united building and have a rise in storeys of 2. ***Please Note:*** *The space under Ground Floor is considered a 'sub-floor' and has not been included in the calculation in rise in storeys as it's considered a non-habitable space.*	**Informational**
C1.3	C2D4	**Buildings of Multiple Classification** In a building of multiple classification, the type of construction applying to the top storey, applies throughout.	The building will be Type B construction throughout.	**Informational**
C1.4	C2D5	**Mixed Types of Construction** Informational clause relating to the requirements for buildings more than one type of construction.	The building will be Type B construction throughout.	**Informational**

<table>
<tr><th>BCA 2019 Cl.</th><th>BCA 2022 Cl.</th><th>BCA Requirement</th><th>Compliance Comment</th><th>Status</th></tr>
<tr><td>C1.5</td><td>C2D6</td><td>Two Storey Class 2, 3 or 9c buildings
Provides a concession for construction type in certain Class 2, 3 and 9b buildings.</td><td>The buildings do not contain any Class 2, 3 or 9 parts.</td><td>Non Applicable</td></tr>
<tr><td>C1.6</td><td>C2D7</td><td>Class 4 Parts of Building
Provides construction type requirements for Class 4 parts</td><td>The buildings do not contain any Class 4 parts.</td><td>Non Applicable</td></tr>
<tr><td>C1.7</td><td>C2D8</td><td>Open Spectator Stands
Provides construction type requirements for buildings containing open spectator stands.</td><td>The buildings do not contain any open spectator stands.</td><td>Non Applicable</td></tr>
<tr><td>C1.8</td><td>C2D9</td><td>Lightweight Construction
Lightweight construction must comply with Specification 6 where it is used for fire rated elements and/or lifts shafts.</td><td>Confirmation from the Architecture team to be provided to confirm if lightweight construction is proposed for any building elements requiring an FRL.</td><td>Can Readily Comply - Detail</td></tr>
<tr><td>C1.9</td><td>C2D10</td><td>Non-combustible building elements
a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:
• External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.
• The flooring and floor framing of lift pits.
• Non-loadbearing internal walls where they are required to be fire-resisting.
b) 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; and
• a building required to be of Type B construction, subject to C2.10, in—
- a Class 2, 3 or 9 building; and
- a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.
c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification 5.
d) Certain concession apply for elements containing certain combustible elements such as plasterboard, FC and come bonded laminates
Building elements required to be non-combustible, concrete, masonry or fire-protected timber in a building of Type A construction
<table><tr><th>Building element</th><th>Type A construction</th></tr><tr><td>External wall</td><td>Non-combustible</td></tr><tr><td>Common wall</td><td>Non-combustible</td></tr><tr><td>Floor and floor framing of lift pit</td><td>Non-combustible</td></tr><tr><td>All loadbearing internal walls (including those of shafts)</td><td>Concrete, masonry or fire-protected timber</td></tr><tr><td>Loadbearing fire walls</td><td>Concrete, masonry or fire-protected timber</td></tr><tr><td>Non-loadbearing walls required to be fire-resistant</td><td>Non-combustible</td></tr><tr><td>Non-loadbearing lift, ventilation, pipe, garbage and like shafts which do not discharge hot products of combustion</td><td>Non-combustible</td></tr></table>
Building elements required to be non-combustible, concrete, masonry or fire-protected timber in a building of Type B construction
<table><tr><th>Building element</th><th>Type B construction</th></tr><tr><td>External wall</td><td>Non-combustible</td></tr><tr><td>Common wall</td><td>Non-combustible</td></tr><tr><td>Floor and floor framing of lift pit</td><td>Non-combustible</td></tr><tr><td>All loadbearing internal walls (including those of shafts)</td><td>Concrete, masonry or fire-protected timber</td></tr><tr><td>Loadbearing fire walls</td><td>Concrete, masonry or fire-protected timber</td></tr><tr><td>Non-loadbearing walls required to be fire-resistant</td><td>Non-combustible</td></tr><tr><td>Non-loadbearing lift, ventilation, pipe, garbage and like shafts which do not discharge hot products of combustion</td><td>Non-combustible (subject to conditions outlined in C1.9(b))</td></tr></table></td><td>Block G and Block E are considered a united building of Type B Construction, and as such, certain building elements, including external walls, are required to comprise of non-combustible building elements in accordance with C2D10.
In ongoing detailed design, the following will be required to confirm compliance:
• A full schedule of all non-combustible materials subject to BCA C2D10 &/or C2D14
• Location of those products to be installed (plan mark-up / highlight)
• Manufacturers details and test reports form a registered testing authority for all products confirming they have been tested per AS1530.1 and are non-combustible.
Where relevant building elements do not meet non-combustibility test, the Fire Engineer must support them under the Performance Requirements of the BCA or the product replaced with a suitable non-combustible alternative.</td><td>Can Readily Comply - Detail</td></tr>
<tr><td>C1.10</td><td>C2D11</td><td>Fire Hazard Properties
Fire hazard properties for all new floor, wall and ceiling linings and assemblies must comply with BCA Specification 7 (or otherwise considered non-combustible).</td><td>All new floor, wall and ceiling linings and assemblies must comply with BCA Specification C2D11.
Details of all floor, wall and ceiling linings and assemblies to be provided to confirm compliance.</td><td>Can Readily Comply - Detail</td></tr>
</table>

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		Floor Linings – must have an appropriate *Critical Radiant Flux* and *smoke development rate %* tested per ISO 9239.1-2003 and meeting the indices in Specification 7 for the location. Walls & Ceilings – must have an appropriate *Group Number* tested per AS 5637.1-2015 and meeting the indices in BCA Specification 7.		
C1.11	C2D12	**Performance of external walls in fire** Concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, must comply with Specification 8.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
C1.13	C2D13	**Fire protected timber: Concession** Fire protected timber can be used in certain Class 2, 3 or 5 buildings subject to meeting specified conditions in this clause.	The buildings do not contain any Class 2 or 3 parts.	**Not Applicable**
C1.14	C2D14	**Ancillary Elements** 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 non-combustible or otherwise specified (given concession) in this clause.	Block G and Block E are considered a united building of Type B Construction, and as such, certain building elements, including external walls, are required to comprise of non-combustible building elements in accordance with C2D10. In ongoing detailed design, the following will be required to confirm compliance: • A full schedule of all non-combustible materials subject to BCA C2D10 &/or C2D14 • Location of those products to be installed (plan mark-up / highlight) • Manufacturers details and test reports form a registered testing authority for all products confirming they have been tested per AS1530.1 and are non-combustible. Where relevant building elements do not meet non-combustibility test, the Fire Engineer must support them under the Performance Requirements of the BCA or the product replaced with a suitable non-combustible alternative.	**Can Readily Comply - Detail**
New Clause	C2D15	**Fixing of bonded laminated cladding panels** In a building required to be of Type A or B construction, 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 it is one of the following: A laminated glass system. (a) Layered plasterboard product. (b) Perforated gypsum lath with a normal paper finish. (c) Fibrous-plaster sheet. (d) Fibre-reinforced cement sheeting. (e) A component of a garage door.	The design can readily comply subject to ongoing design detail	**Can Readily Comply - Detail**
Part C3 – Compartmentation & Separation				
C2.0	C3D1	**Deemed to Satisfy Provisions** Informational clause indicating link between Part C3 performance requirements and other parts of the BCA.	The clause is informational only in nature	**Informational**
C2.1	C3D2	**Application of Part** C3D3, C3D4 and C3D5 do not apply to a carpark provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17, an open-deck carpark or an open spectator stand. (2)C3D13(1)(e) does not apply to a Class 8 electricity network substation.	The clause is informational only in nature	**Informational**
C2.2	C3D3	**Fire Compartment Floor Area & Volume Limitations** The BCA requires that the floor area of fire compartments is limited to certain areas and volumes dependant on the Type of Construction.	Block G and Block E are considered a united Class 9b building of Type B Construction, with an allowable fire compartment size of 5500m2, well within the permissible limits. The addition of Block G is proposes to increase the floor area, however the building will remain within the allowable fire compartment size for this type of building.	**Complies**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		Table C3D3: Maximum size of fire compartments or atria <table><tr><th>Classification</th><th>Type A construction</th><th>Type B construction</th><th>Type C construction</th></tr><tr><td rowspan="2">5, 9b or 9c</td><td>Max *floor area*—8 000 m²</td><td>Max *floor area*—5 500 m²</td><td>Max *floor area*—3 000 m²</td></tr><tr><td>Max *volume*—48 000 m³</td><td>Max *volume*—33 000 m³</td><td>max *volume*—18 000 m³</td></tr><tr><td rowspan="2">6, 7, 8 or 9a (except for *patient care areas*)</td><td>Max *floor area*—5 000 m²</td><td>Max *floor area*—3 500 m²</td><td>Max *floor area*—2 000 m²</td></tr><tr><td>Max *volume*—30 000 m³</td><td>Max *volume*—21 000 m³</td><td>Max *volume*—12 000 m³</td></tr></table>		
C2.3	C3D4	**Large Isolated Buildings**	The building is not a large-isolated building.	**Non Applicable**
C2.4	C3D5	**Requirements for Open Space & Vehicular Access**	The building is not a large-isolated building.	**Non Applicable**
C2.5	C3D6	**Class 9 Buildings** Class 9a and 9c buildings are subject to further requirements in terms of smoke and fire compartmentation. *Note BCA NSW C2.5 contains variations to this clause (Applicable in NSW)*	NA - The buildings are not class 9a or 9c buildings.	**Non Applicable**
C2.6	C3D7	**Vertical Separation of Openings in External Walls** In buildings required to be of Type A construction, openings in external walls are required to be protected with vertical spandrels or horizontal slabs to prevent fire from spreading from a storey below. Vertical separation must be in the form of: • **Vertical spandrels** must be non-combustible, have a FRL of at least 60/60/60, and a height of at least 900mm. At least 600mm must be above the surface of the intervening floor • **Horizontal Slab separation** – FRL of not less than 60/60/60 and extend outwards of the opening not less than 1100mm and horizontally not less than 450mm from the side of the opening.	NA - The building is not of Type A Construction.	**Non Applicable**
C2.7	C3D8	**Separation by Fire Walls** Fire walls being continuous vertical walls meeting the highest FRL for a fire wall and the classifications concerned as follows: • To Separate Buildings – must be vertical and extend from the lowest storey to the highest roof covering (or extend 6m above the lower roof or certain sprinklers) • To Separate Fire Compartments - must be vertical and extend through all stories and to the highest roof covering or floor slab with FRL	There are no firewalls proposed in the building	**Not Applicable**
C2.8	C3D9	**Separation of Classifications Within the Same Storey** Separate classifications within the same storey must either be • separated by a fire wall or • built to the highest FRL required by the two classifications throughout	The building and storeys are of the same classification throughout, being 9b.	**Not Applicable**
C2.9	C3D10	**Separation of Classification between Storeys** Floor separating differing classifications must meet the FRL required for the upper level floor.	The building and storeys are of the same classification throughout, being 9b.	**Not Applicable**
C2.10	C3D11	**Separation of Lift Shafts** Where a lift connects or passes by more than 2 storeys, or more than 3 storeys in a sprinkler protected building, the lift must be contained in a fire rated lift shaft achieving an FRL of no less than: • Type A Construction – the shaft meets the FRLs specified in Table 3 of Spec 5 • Type B Construction - if loadbearing, the shaft meets the FRLs specified in Table 3 of Spec 5, if non-loadbearing, the shaft must be non-combustible. • Openings for lift landing doors and services must meet BCA Part C3.	The lift only connects 2 storeys and therefore is not required to be in a fire isolated shaft.	**Informational**
C2.11	C3D12	**Stairways & Lifts in One Shaft** 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.	The stairway and the lift are not contained in the same shaft.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
C2.12	C3D13	**Separation of Equipment** 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 E2.2b; or • stair pressurizing equipment installed in compliance with the relevant provisions of AS 1668.1:2015; or • a lift installation without a machine room; or • 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. Separation of on-site fire pumps must comply with the requirements of AS 2419.1:2005.	Rooms containing equipment as detailed in C3D13 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. Electrical Design Consultant to verify where specified.	**Certification by Designer or Specialist**

C2.13	C3D14	**Electricity Supply System**
		• Any electrical substation located within the building must be separated from the remainder of the building by construction having an FRL of not less than 120/120/120, and doorways protected with self-closing fire doors having an FRL of not less than –/120/30.
		• A main switchboard which sustains emergency equipment operating in the emergency mode must be fire separated from any other part of the building by construction having an FRL of not less than 120/120/120 and have the doorway fitted with self-closing fire door having an FRL of not less than –/120/30.
		• Any electrical conductors located within the building that supply a substation or main switchboard for emergency equipment must comply with BCA clause C3D14.
		• Emergency equipment switchgear must be separated from non-emergency equipment switchgear by metal partitions designed to minimize the spread of a fault from the non-emergency equipment switchgear.
		  • Emergency equipment includes but is not limited to the following:
		  • fire hydrant booster pumps;
		  • sprinkler pumps;
		  • hose reel pumps;
		  • air-handling systems designed to exhaust and control the spread of smoke;
		  • emergency lifts;
		  • control and indicating equipment; and
		  • sound systems and intercom systems for emergency purposes.
			Rooms containing equipment as detailed in C3D14 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.
			Electrical Design Consultant to verify where specified.
				Certification by Designer or Specialist

C2.14	C3D15	**Public corridors in Class 2 & 3 Buildings** Where 'public corridors' in a Class 2 or 3 building exceed a length of 40m, they must be subdivided into smoke compartments (at intervals of not more than 40m).	Not Applicable – there are no class 2 or 3 parts proposed.	**Not Applicable**
Part C4 – Protection of Openings				
C3.1	C4D2	**Application of Part** This clause clarifies openings in construction which are not subject to this part: Control joints, weep holes and the like in external walls of masonry construction and joints between panels in external walls of pre-cast concrete panel construction if, in all cases they are not larger than necessary for the purpose. Non-combustible ventilators for subfloor or cavity ventilation, if each does not exceed 45 000 mm2 in face area and is spaced not less than 2 m from any other ventilator in the same wall.	The clause is informational only in nature	**Informational**

<table>
<tr><th>BCA 2019 Cl.</th><th>BCA 2022 Cl.</th><th>BCA Requirement</th><th>Compliance Comment</th><th>Status</th></tr>
<tr><td></td><td></td><td>Openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like.

In a single fire compartment within a carpark - floor other than a floor that separates a part not used as a carpark, and subject to, the following openings in a carpark floor: Service penetration & openings formed by a vehicle ramp.</td><td></td><td></td></tr>
<tr><td>C3.2</td><td>C4D3</td><td>Protection of Openings in External Walls

Openings in an external wall that is required to have an FRL must be protected against the spread of fire (drenchers, fire rated glazing, fire shutters) if they are not less than:

• 3m from a side or rear boundary of the allotment, or
• 6m from the far boundary of a road, river lake or the like adjoining the allotment (except for ground level openings), or
• 6m from another building on the same allotment
• If required to be protected, must not occupy more than 1/3 of the area of the external wall of the storey in which it is located</td><td>NA – All openings are >3m from a boundary and >6m from another building.</td><td>Informational</td></tr>
<tr><td>C3.3</td><td>C4D4</td><td>Separation of External Walls and Associated Openings in Different Fire Compartments

Distance (and angle) between external walls and associated openings in different fire compartments must be:

<table><tr><th>Angle Between Walls (Degrees)</th><th>Minimum Distance</th></tr><tr><td>0</td><td>6m</td></tr><tr><td>0-45</td><td>5m</td></tr><tr><td>45-90</td><td>4m</td></tr><tr><td>90-135</td><td>3m</td></tr><tr><td>135-180</td><td>2m</td></tr><tr><td>180 or more</td><td>NIL</td></tr></table>
Concessions apply if those parts of each wall have an FRL of minimum 60/60/60, and any openings protected in accordance with C4D5.</td><td>The building only contains one fire compartment.</td><td>Not Applicable</td></tr>
<tr><td>C3.4</td><td>C4D5</td><td>Acceptable Methods of Protection

(a) Openings required to be protected under Clause C4D3 (or C4D4) above must be protected as follows:
(i) Doorways—
• (A) internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or
• (B) -/60/30 fire doors that are self-closing or automatic closing.
(ii) Windows—
▪ internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or
▪ - /60/ fire windows that are automatic closing or permanently fixed in the closed position; or
▪ - /60/ automatic closing fire shutters.
(iii) Other openings—
• excluding voids — internal or external wall-wetting sprinklers, as appropriate; or
• construction having an FRL not less than /60/.
(b) Fire doors, fire windows and fire shutters must comply with Specification 12.</td><td>The clause is informational only in nature</td><td>Informational</td></tr>
<tr><td>C3.5</td><td>C4D6</td><td>Doorways in Fire Walls
• The aggregate width of doorways in fire walls must not exceed ½ of the length of the fire wall.
• The doorways can be protected with 1 or 2 doors to achieve the required FRL
• Doors must be self or automatic closing</td><td>There are no fire walls currently proposed.</td><td>Not Applicable</td></tr>
<tr><td>C3.6</td><td>C4D7</td><td>Sliding Fire Doors</td><td>There does not appear to be any sliding fire doors currently proposed.</td><td>Not Applicable</td></tr>
</table>

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		Sliding fire doors must automatically close in accordance with this clause and be provided with warning signage.		
C3.7	C4D8	**Protection of Doorways in horizontal exits** • Doors in horizontal exits must achieve the same FRL as that of the fire wall • Doors must be self or automatic closing	There are no horizontal exits in the current design.	**Not Applicable**
C3.8	C4D9	**Openings in fire isolated exits** • Doorways serving the fire isolated exit must be protected with a self-closing fire door achieving a FRL of not less than -/60/30. • Window in the external wall of a fire isolated exit within 6m and exposed to a window or other opening in a wall of the same building must be protected externally in accordance with Clause C4D5.	There are no fire isolated exits currently proposed.	**Not Applicable**
C3.9	C4D10	**Service Penetrations in fire-isolated exits** Service penetrations in fire exits must comply with this clause. Generally, only electrical wiring and water supply pipes for fire services are permitted within the exits.	There are no fire isolated exits currently proposed.	**Not Applicable**
C3.10	C4D11	**Openings in Fire isolated lift shafts** • The entrance doorways must be protected with fire doors (achieving a FRL of not less than -/60/- which comply with AS1735.11 and are set to remain in the closed position (except when discharging or receiving passengers) • The lift indicator panels and the like must be backed with construction achieving a FRL of not less than -/60/60 – if it exceeds an area of 35,000mm^2	There are no fire isolated lift shafts currently proposed.	**Not Applicable**
C3.11	C4D12	**Bounding Construction** • Applies to Class 2 and 3 buildings and Class 4 parts • The entrance doorways of the sole occupancy units, which open onto a public corridor must be protected with a self-closing fire door achieving a FRL of not less than -/60/30. • In a Class 2 or 3 building, where the path of travel to an exit does not provide a person seeking egress with a choice of travel in different directions to alternative exits and is along an open balcony, landing or the like and passes the external wall of another unit or other room, then that wall must be fire rated and openings protected internally. • Note NSW C4D12 Bounding Construction: Class 2, 3, 4 and 9b buildings	There are no class 2, 3, 4 or 9b (Entertainment Venue) parts in the subject building.	**Not Applicable**
C3.12	C4D13	**Openings in floors and ceilings for services** Where services pass through a floor which is required to achieve an FRL or a ceiling required to have a resistance to the incipient spread of fire, or fire protective covering, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C4D15.	Passive Fire Services Consultant to review and provide Certification confirming all passive fire stopping elements comply with the provisions of this clause.	**Certification by Designer or Specialist**
C3.13	C4D14	**Openings in shafts must be protected by:** • 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 – a door or hopper of non-combustible construction.	Passive Fire Services Consultant to review and provide Certification confirming all passive fire stopping elements comply with the provisions of this clause.	**Certification by Designer or Specialist**
C3.15	C4D15	**Openings for Service Installations & Construction Joints** • Where services penetrate a building element required to have an FRL, the services must generally be protected against the spread of fire (mechanical with dampers, hydraulic with collars and electrical with fire rated mastic). • All cable penetrations through floors or fire walls must be fire stopped in accordance with BCA C4D15 and AS1530.4 with fire rated mastic to seal gaps.	Passive Fire Services Consultant to review and provide Certification confirming all passive fire stopping elements comply with the provisions of this clause.	**Certification by Designer or Specialist**
C3.16	C4D16	**Construction Joints** 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 1530.4:2014 to achieve the required FRL.	The design can readily comply subject to ongoing design detail	**Can Readily Comply - Detail**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
C3.17	C4D17	**Columns protected in lightweight construction to achieve FRL** Columns protected in lightweight construction which penetrate a building element required to achieve a FRL or a RISF must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or RISF.	The design can readily comply subject to ongoing design detail	**Can Readily Comply - Detail**
Section D – Access & Egress				
Part D2 – Provision for Escape				
D1.1	D2D2	**Application of Part** This clause clarifies openings in construction which are not subject to this part: This part does not apply to the internal parts of a sole-occupancy unit in a Class 2 or 3 building or a Class 4 part of a building.	The clause is informational only in nature	**Informational**

D1.2	D2D3	**Number of Exits Required**
		• At least one exit must be provided from each storey of every building
		• At least 2 alternative exits must be provided from:
		  ○ Every storey of a building which has an effective height of more than 25m
		  ○ Basement storeys where egress from the building involves a vertical rise of 1.5m or more (some small basements provided with an exemption)
		  ○ Class 8 buildings with a rise in storeys of more than 6
		  ○ A storey which contains a 'patient care area'
		  ○ A storey which contains sleeping areas in a Class 9c building
		  ○ Every storey in a childcare centre
		  ○ Each storey of a primary/secondary school with a rise in storeys of 2 or more
		  ○ Any storey or mezzanine which accommodates more than 50 ppl
		  ○ Any storey used as a Class 9b early childhood centre, or any Class 9b early childhood centre which forms part of a storey
		• Additional requirements apply to Class 9a and 9c buildings and to open spectator stands.
		• Egress is not permitted to be provided through another sole occupancy unit.
		• A part of a storey which is provided with direct egress to a road or open space is permitted to have only 1 exit for buildings with an effective height of more than 25m.
			Each storey of Block G is required to be provided with 2 exits. The proposed plan provides 2 exits per storey and is considered compliant.	**Complies**

D1.3	D2D4	**When Fire Isolated Exits Are Required** Exits are required to be fire isolated depending on the Classification of the building and number of storeys connected. The following general requirements apply (exits are required to be fire isolated in the following circumstances): • Class 2 buildings – > 3 consecutive storeys • Class 3 buildings – > 2 consecutive storeys • Class 5-9 buildings (> 2 consecutive storeys) • Class 9a (patient care parts) & 9c buildings – all exits to be fire isolated. *Note D2D12 in relation to design of fire isolated exits.*	Fire isolated exits are not required in this building as Block G and Block E contain only 2 storeys.	**Informational**

D1.4	D2D5	**Exit Travel Distances**
		• Class 2 & 3 buildings
		  ○ The distance between the entrance door of a Sole Occupancy Unit (SOU) and an exit or Point of Choice (POC) to 2 alternative exits must not exceed 6m (20m on ground floor)
		  ○ From all parts not in a SOU – 20m to exit or POC
		• Class 4 buildings – entrance door of SOU to exit or POC must not exceed 6m
			The exit travel distances for both storeys in Block G and Block E are compliant.	**Complies**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		• Class 5, 6, 7, 8 or 9 buildings – 20m to exit or POC • Additional requirements apply to Class 9 buildings, and open Spectator stands		
D1.5	D2D6	**Distance Between Alternative Exits** • BCA requires that where exits are provided as 'alternative' should be distributed as uniformly as possible around the storey. • Alternative exits must: • Be not less than 9m apart • Be not more than 45m apart in a Class 2 or 3 building (or patient care area in a Class 9a building) • Be not more than 60m apart in any other case • Be located so that alternative paths of travel do not converge to be less than 6m apart.	The distances between alternative exits for both storeys in Block G and Block E are compliant.	**Complies**
D1.6(a)	D2D7	**Height of exits, paths of travel to exits and doorways** Required exits or path of travel to exits must have an unobstructed height throughout of not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980mm.	The height of exits appears to be greater than 2m, subject to further review of subsequent design stages.	**Can Readily Comply - Detail**
D1.6(b), (c), (d) and (e)	D2D8	**Width of Exits & Paths of Travel to Exits** • Generally a minimum 1m egress path of travel must be provided. • Wider exits required for Class 9a or 9c buildings for patients on beds • Appropriate aggregate exit width must be provided or maintained in the building to allow for safe egress of the building populations.	The width of exits are greater than 1m, complying with this clause. Based on the current design aggregate exit width for the new building complies with the provisions of this clause.	**Complies**
D1.6(f)	D2D9	**Width of doorways in exits or paths of travel to exits** General min width of doorway in an exit or path of travel: • Unobstructed egress width (as per D2D8) minus 250mm • Generally 750mm (unless to sanitary compartments) • Additional widths required in Class 9a or 9c buildings.	Based on the door schedule, each door leaf is provided with a minimum 750mm (non-accessible doorways) and minimum 850mm (accessible doorways), complying with the provisions of this clause.	**Complies**
D1.6(g)	D2D10	**Exit width not to diminish in direction of travel** 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 accordance with D2D8(1)(b) or D2D9(a)(i).	Exits do not appear to diminish in the direction of travel.	**Complies**
D1.6(h) and (i)	D2D11	**Determination and measurement of exits and paths of travel to exits** The required width of a stairway or ramp in a required exit or path of travel to an exit must— (a) be measured clear of all obstructions such as handrails, projecting parts of barriers and the like; and (b) 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.	The clause is informational only in nature	**Informational**

D1.7	D2D12	**Travel via Fire Isolated Stairs**
		• Doors from rooms must not open directly into a fire isolated exit unless the room is a public corridor, lobby, SOU occupying the whole of storey, or sanitary compartment.
		• Fire isolated exists must provide independent egress from each storey served and discharge directly to:
		  ○ A road or open space
		  ○ A covered area of the building which is suitably open
		• Where a path of travel from a fire isolated exit involves passing within 6m of the external wall of the building, the external wall must be fire rated and openings protected in accordance with BCA C4D5.
			Not Applicable – There are no fire isolated exits in the building.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
D1.8	D2D13	**External Stairways or ramps in lieu of Fire Isolated Stairs** An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit, if: • It serves a storey below an effective height of 25 m • The stair is non-combustible throughout • The stair is appropriately protected against the spread of fire if it is within 6 m of, and exposed to any part of the external wall of the building it serves (refer to clause for full details)	The matter is not applicable &/or not affected by scope.	**Not Applicable**
D1.9	D2D14	**Travel Via Non-Fire Isolated Stairs & Ramps** • Non-fire-isolated exits serving as a required exit must provide a continuous measure of travel by its own flights and landings to the level at which egress to a road or open space is provided. • The distance between the doorway of an SOU and the point of egress to a road or open space must not exceed - 30m for Type C construction - 60m in any other case. • The distance between any point on the floor and the point of egress to road/open space in a Class 5, 6, 7, 8 or 9 building must not exceed 80m. • The distance between the point of discharge of a non-fire isolated stair and a doorway leading to road open space must not exceed 15m for Class 2 or 3 buildings, or 20m for Class 5, 6, 7, 8 or 9 buildings • In Class 2 or 3 buildings – non-fire isolated exits must provide separate egress to road/open space and be smoke separated at the level of discharge.	Travel via non-fire isolated stairways for Block G and Block E complies with the provisions of this clause.	**Complies**
D1.10	D2D15	**Discharge of Exits** • Exits from the building must be provided with an unobstructed path of travel to the street. Where exits discharge at a level that is different to the street level, compliant stairs and ramps must be provided to the street. • The width of the external path must be not less than 1m wide (or if the width of the required exits is more than 1m, the width of the external path must be not less than that of the required exit) • Where necessary, exits must be provided with suitable barriers or bollards to prevent vehicles blocking them. • Additional requirements apply to Class 9b buildings containing auditoriums	Block G and Block E's exits discharge is on the same or similar level to Miller St and is considered compliant.	**Complies**
D1.11	D2D16	**Horizontal Exits** • Horizontal exits must not be used between SOUs or from a childcare centre or primary/secondary school. • Sufficient space must be allocated on either side of the fire wall serving as a horizontal exit. • Additional requirements apply in Class 9a or 9c buildings.	There are no horizontal exits in the current design.	**Not Applicable**
D1.12	D2D17	**Non-required Stairways, Ramps or Escalators** An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp— • must not be used between storeys in— o a patient care area in a Class 9a health-care building; or o a resident use area in a Class 9c building; and • may connect any number of storeys if it is— o in an open spectator stand or indoor sports stadium; or o in a carpark or an atrium; or o outside a building; or o in a Class 5 or 6 building that is sprinklered throughout, where the escalator, walkway, stairway or ramp complies with Specification D1.12; and • except where permitted above must not connect more than— o 3 storeys if each of those storeys is provided with a sprinkler system (other than a FPAA101D system) complying with Specification E1.5 throughout; or	There are no non-required stairways, ramps or escalators in the current design.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		○ 2 storeys, ○ provided that in each case, those storeys must be consecutive, and one of those storeys is situated at a level at which there is direct egress to a road or open space; and • except where permitted in 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. *Refer to BCA Specification D1.12 where required.*		
D1.13	D2D18	**Number of Persons Accommodated** The number of persons accommodated on each storey can be determined by using the estimates based on floor area in Table D1.13 or other appropriate means of determination can also be used where populations can be more reasonably estimated.	Informational clause to calculate populations where they are not otherwise known.	**Informational**
D1.14 & D1.15	D2D19 & D2D20	**Measurement of Distances & Method of Measurement** Provides details for how to measure distances for exits.	The clause is informational only in nature	**Informational**
D1.16	D2D21	**Plant Rooms and lift Motor Rooms: Concession** Ladders generally meeting AS1657 can be used for egress for: • Plant room less than 100m^2, can use a ladder for egress • Plantroom, Lift Machine Room or Class 8 substation that is 100m^2 – 200m2 can use a ladder for all but one point of egress • Must otherwise meet design requirements of this clause dependant on location	The clause is informational only in nature	**Informational**
D1.17	D2D22	**Access to lift pits** Access to lift pits must: • Where pit depth is less than 3m, through the lowest landing doors • Where pit depth is more than 3m, by a 600mm x 1980mm access door meeting certain requirements	The design can readily comply subject to ongoing design detail	**Can Readily Comply - Detail**
D1.18	D2D23	**Egress from Early Childhood Centres** • Every part of a Class 9b early childhood centre must be wholly within a storey that provides direct egress to a road or open space. • The requirements of (a) do not apply in a building with a rise in storeys of not more than 2, where the Class 9b early childhood centre is the only use in that building.	Not Applicable to subject building.	**Not Applicable**
Part D3 - Construction of Exits				
D2.1	D3D2	**Application of Part** With the exception of certain clauses (relating to stair construction, handrails, balustrades, door hardware and window fall protection, this Part does not apply to the internal parts of a SOU in residential buildings – to be noted.	Informational clause only	**Informational**
D2.2	D3D3	**Fire-Isolated stairways and ramps** The fire isolated stairs must be of non-combustible construction and be design such that if there is local failure it will not cause structural damage to or impair the fire resistance of the shaft.	There are no fire-isolated stairways and ramps proposed.	**Non Applicable**
D2.3	D3D4	**Non-Fire Isolated Stairways & Ramps** Must generally be concrete, steel or 44mmm timber.	Details for the proposed construction materials for the non-fire isolated stairs must be indicated on the plans/specification.	**Certification by Designer or Specialist**
D2.4	D3D5	**Separation of Rising and Descending Stairs** In a fire isolated stair, rising and descending stair flights must have no direct connection, being physically separated by non-combustible smoke proof construction.	There are no fire-isolated stairways proposed.	**Non Applicable**
D2.5	D3D6	**Open Access Ramps and Balconies** Where an open access ramp or balcony is provided to meet the smoke hazard management requirements of Table E2.2a, it must— • have ventilation openings to the outside air which—	Open access ramps/balconies are not relied upon to provide smoke hazard management.	**Non Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		• have a total unobstructed area not less than the floor area of the ramp or balcony; and • are evenly distributed along the open sides of the ramp or balcony; and • not be enclosed on its open sides above a height of 1 m except by an open grille or the like having a free air space of not less than 75% of its area.		
D2.6	D3D7	**Smoke Lobbies** A smoke lobby required by D2D12 must— • have a floor area not less than 6 m2; and • be fire & separated by FRL 60/60/- construction from the occupied areas in the storey by walls which are impervious to smoke • have smoke doors from any occupied area complying with Clause 3 of Specification C3.4 except that the smoke sensing device need only be located on the approach side of the opening; and • be pressurised as part of the exit if the exit is required to be pressurised under Part E2.	Smoke lobbies do not appear to be required under BCA D3D7.	**Non Applicable**
D2.7	D3D8	**Installations in the Path of Travel** • Electrical distribution and telecommunications, boards etc. where located in a path of travel to an exit, must be enclosed in non-combustible construction, with openings suitably smoke sealed. • Gas services must not be located in a required exit • Wiring associated with fire, security, lighting may be installed in a fire isolated exit • Access to service shafts (other than for fire services) must not be provided from a fire isolated exit.	Further detail of what is included in the BCR Room to understand what requirements are for fire protection.	**Further Detail Required**
D2.8	D3D9	**Enclosure of Space Below Stairs** Enclosed cupboards must not be installed in fire isolated stairs and if installed under non-fire isolated stairs must be fire separated with 60/60/60 walls & ceilings with self-closing -/60/30 fire doors.	The current design does not show any enclosed cupboards under non-fire isolated stairs. If in future an enclosed cupboard/room is provided, it must be fire separated with an FRL of 60/60/60 walls & ceilings with self-closing -/60/30 fire doors.	**Informational**
D2.9	D3D10	**Width of Required Stairways & Ramps** A stair or ramp wider than 2m only counts as 2m for aggregate exit width purposes if there is no dividing handrails.	The clause is informational only in nature	**Informational**
D2.10	D3D11	**Pedestrian Ramps** • Fire isolated ramps may be used in lieu of fire isolated stairways • Ramps must not exceed a grade of 1:14 where required to be 'accessible', or 1:8 in any other case. • Ramp surface must be slip resistant.	There are no new ramps proposed.	**Not Applicable**
D2.11	D3D12	**Fire-Isolated Passageways** Fire isolated passageways must generally achieve a FRL consistent with the stair/ramp to which it is connected OR 60/60/60 in any other case.	There are no fire isolated passageways proposed.	**Not Applicable**
D2.12	D3D13	**Roof as Open Space** If an exit discharges to the roof of a building, the roof must achieve a FRL of 120/120/120 and not contain any openings/rooflights etc within 3m of the path of travel.	The roof of the building is not relied upon as open space.	**Non Applicable**
D2.13	D3D14	**Goings & Risers** To satisfy BCA D3D14, a stairway must have— • Not more than 18 and not less than 2 risers in each flight • Going/riser/quantity dimensions in accordance with BCA Table D3D14 • Constant riser/going dimensions (variation 5mm between treads and 10mm overall permitted) • Required exits must not contain winders in lieu of a quarter landing (up to 3 winders in a quarter landing are permitted in non-required stairs and in residential SOUs') • Solid treads required where stair exceed 10m in height or 3 storeys • No openings that would allow a 125mm sphere to pass through	**Riser Heights** The riser heights have been measured at 140mm, and if accurate, the (2R + G) calculation does not comply in accordance with Table D3D14 (140 + 140 + 265 = 545 – Minimum 550mm required) Further detail of the slip resistance of the treads/nosing to be provided to confirm compliance.	**Further Detail Required**

<table>
<tr><th>BCA 2019 Cl.</th><th>BCA 2022 Cl.</th><th>BCA Requirement</th><th>Compliance Comment</th><th>Status</th></tr>
<tr><td></td><td></td><td>

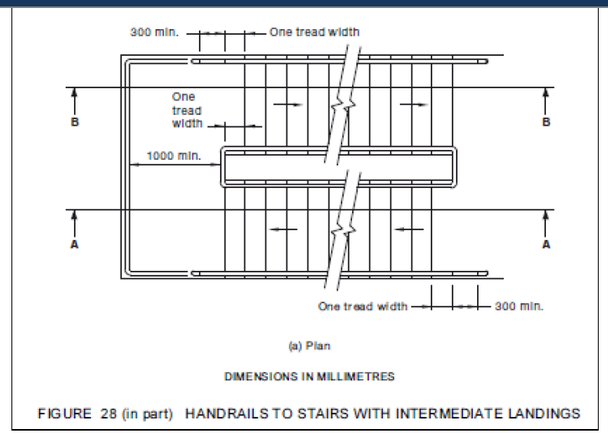
Slip resistant treads or nosings (per Table D3D15 below)
Where consecutive flights contain more than 36 risers in a Class 9b building, the stair must contain a minimum 30 degree change in direction.
Bottom riser may vary when meeting a public road only

Table D3D14: Riser and going dimensions
<table>
<tr><th rowspan="2">Stairway location</th><th colspan="2">Riser (R)</th><th colspan="2">Going (G)[Note 3]</th><th colspan="2">Quantity (2R + G)</th></tr>
<tr><th>Max</th><th>Min</th><th>Max</th><th>Min</th><th>Max</th><th>Min</th></tr>
<tr><td>Public</td><td>190</td><td>115</td><td>355</td><td>250</td><td>700</td><td>550</td></tr>
<tr><td>Private [Note 1]</td><td>190</td><td>115</td><td>355</td><td>240</td><td>700</td><td>550</td></tr>
</table>
Refer to DDA Report for specific accessibility requirements to some stairs
</td><td></td><td></td></tr>
<tr><td>D2.14</td><td>D3D15</td><td>
Landings
Landings must:

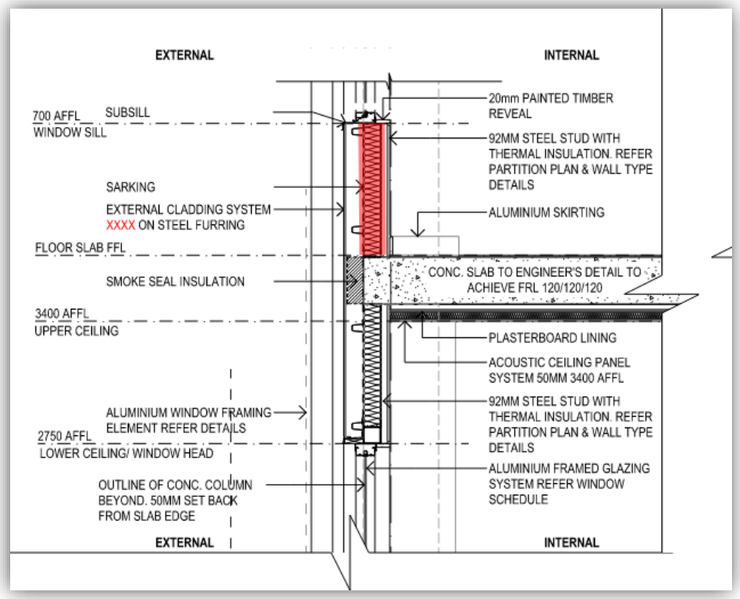
Be at least 750mm long must be provided to divide stairs into flights no greater than 18 risers (900mm preferred top and bottom to allow tactiles on a single grade)
Be no steeper than 1:50
be slip resistant as per BCA Table D3D15

Table D3D15: Slip-resistance classification
<table>
<tr><th>Application</th><th>Dry surface conditions</th><th>Wet surface conditions</th></tr>
<tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr>
</table>
</td><td>Details for the proposed stair landing crossfalls and slip resistance to be provided on the architectural plans/specifications.</td><td>Can Readily Comply - Detail</td></tr>
<tr><td>D2.15</td><td>D3D16</td><td>Thresholds
A doorway must generally not contain a step or ramp within the door threshold unless it is leading externally, and the step is no greater than 190mm (except on accessible paths where no step is allowable).</td><td>Details for any thresholds to be provided on the architectural plans/specifications.</td><td>Can Readily Comply - Detail</td></tr>
<tr><td>D2.16 (a), (b) and (c)</td><td>D3D17</td><td>Barriers to Prevent Falls
A continuous barrier must be provided along the side of—
(a) a roof to which general access is provided; and
(b) a stairway or ramp; and
(c) a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and
(d) any delineated path of access to a building,
if the trafficable surface is 1 m or more above the surface beneath.</td><td rowspan="2">Barrier details provided on drawing no. CPS-FTA-B00G-ZZ-DR-A-4501 indicate general complaince with this clause.</td><td rowspan="2">Complies</td></tr>
<tr><td>Table D2.16a</td><td>D3D18</td><td>Height of Barriers
(1) The height of a barrier required by D3D17 must be not less than the following:
(a) For stairways or ramps with a gradient of 1:20 or steeper — 865 mm.
(b) 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 — 865 mm.
(c) 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 — 700 mm.
(d) For all other locations — 1 m.
(2) For a barrier provided under (1) —
(a) barrier heights are measured vertically from the surface beneath, except that for stairways the height must be measured above the nosing line of the stair treads; and</td></tr>
</table>

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		(b) a transition zone may be incorporated where the barrier height changes from 865 mm on a stair flight or ramp to 1 m at a landing or floor.		
Table D2.16a	D3D19	**Openings in Barriers** Generally openings must not allow a 125 mm sphere to pass through. In fire isolated exits (not serving a early childhood centre, or an external stair/ramp): Must not allow a 300mm sphere to pass through OR where rails are used 150mm between nosing line and bottom rail and 460mm between rails.		
Table D2.16a	D3D20	**Barrier Climbability** (1) A barrier required by D3D17, 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. (2) The requirements of (1) do not apply to— fire-isolated stairways, fire-isolated ramps and other areas used primarily for emergency purposes, other than— (a) external stairways; and (i) external ramps; and (ii) Class 7 (other than carparks) and Class 8 buildings.		
D2.16 (a), (b) and (c)	D3D21	**Wire Barriers** Provides requirements for installation and tensioning of wire barriers		
D2.17	D3D22	**Handrails** • A handrail is required to at least one side of every stairway or ramp (and to both sides where the stair has a width of 2m or more) • Handrails must be at a height of not less than 865mm above the stair nosing line (additional handrail at 665-750mm to be provided in primary schools) • The handrail must be continuous between stair flight landings and have no obstructions that will tend to break a hand-hold (except for newel posts, ball type sanctions or the like). • Handrails required to assist people with disabilities must comply with BCA D3.3. • In a required exit, the handrail must comply with Clause 12 of AS1428.1. This typically requires the handrail to have a continuous height to the stair nosing line & around landings, and also incorporate extensions/terminations at the top and bottom as per AS1428.1.	The stairway handrail detail provided on drawing no. CPS-FTA-B00G-ZZ-DR-A-4401 details compliance for stairway handrails.	**Complies**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		 (a) Plan DIMENSIONS IN MILLIMETRES FIGURE 28 (in part) HANDRAILS TO STAIRS WITH INTERMEDIATE LANDINGS • Additional requirements apply to Class 9a and 9c buildings		
D2.18	D3D23	**Fixed Platforms, Walkways, Stairways & Ladders** Informational clause only noting fixed platforms, walkways and ladders for Access can be in accordance with AS1657 to service/plant areas or in low-use areas in a residential SOU. In summary this requires: • Risers (R) of 130mm-225mm • Goings (G) of 215-355mm • Ratio of 2R+G = 540mm-700mm • Minimum 600mm clear width, 1m preferred • Clear overhead height of 2000mm • Landings at top and bottom at least as deep as the stair is wide • Highlighted nosings • Continuous handrail to both sides if stair is >1m in width, at least one handrail if <1m • Guardrailing ≥900mm in height with mid rail at 450mm max spacing or 560mm if no toe-board installed for bottom spacing • Gaps between adjacent guardrails must be between 25mm-50mm	There are no fixed platforms, walkways, stairways & ladders proposed.	**Not Applicable**
D2.19	D3D24	**Doorways & Doors** • Doors in required exits must not be fitted with roller shutters/tilt up doors (except in Class 6-8 SOUs with a floor area of not more than 200m^2, and where only one exit is required, and the door is held open when in use. • Doors in required exits must not be sliding unless the door leads directly to road/open space (and can be manually opened with force less than 110 N) • Where power operated doors are provided they must open automatically on power failure or fire alarm trip and able to be opened manually with force no less than 110N) • Additional requirements apply to Class 9a and 9c buildings.	The design currently indicates appropriate compliance for this stage based on the plans submitted. Further design detail will continue to be developed and assessed during future design stages.	**Can Readily Comply - Detail**
D2.20	D3D25	**Swinging Doors** • Doors gates serving as a required exit for public areas should typically swing in the direction of egress and must generally not impede egress paths. • Swinging doors must not encroach: - at any part of its swing by more than 500 mm on the required 1m width of the exit and	The doors leading to the common balcony on ground and 1st floor are not required to swing in the direction of egress as they are not 'required' exits for forming required exits. The current arrangement with door swing is considered compliant.	**Complies**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		- when fully open, by no more than 100 mm on the required 1m exit width • Doors can swing against the direction of egress if serving building areas less than 200m², are the only exit and a hold-open device is provided to the door.		
D2.21	D3D26	**Operation of Latch** • Exit doors and doors in a path of travel to an exit must generally be readily operable without a key from the side that faces a person seeking egress by a single handed downward action or pushing action on a single device which is located between 900mm and 1100mm above the floor. • Some concessions are provided to certain buildings – including doors in a residential SOU, childcare centers, banks, jails, metal health facilities. Doors which open automatically on the activation of a fire trip are also provided with a concession under this clause. • Additional requirements apply to assembly buildings accommodating more than 100 people (which generally requires that panic bars be provided)	Operation of latch details are to be provided on to the plans/specification in future design stages. The design can readily comply subject to ongoing design detail	**Can Readily Comply - Detail**
D2.22	D3D27	**Re-entry from Fire isolated exits** Doors in fire isolated exits in Class 9a/9c buildings and buildings with an effective height exceeding 25m must not be locked from the inside of the exit. Some exemptions can be applied where security measures are implemented.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
D2.23	D3D28	**Signs on Doors** Signage must be provided to fire exit doors.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
D2.24	D3D29	**Protection of openable windows** This clause applies to all windows serving a bedroom in the Class 2, 3, 4 buildings and in Class 9b buildings. • Where the window (serving a floor more than 2m from the surface beneath) has a sill height of less than 1.7m, the openable portion of the window must be fitted with: ○ A device to restrict the window openings; or ○ A screen with secure fittings (refer to Clause D2.24 for requirements) ○ Note balustrading may also be required to windows. • A barrier with a height not less than 865 mm above the floor is required to an openable window where the floor below the window is 4 m or more above the surface beneath. The barrier must not permit a 125 mm sphere to pass through it and have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.	**Protection of openable windows** The provisions of this part apply to a class 9b school where the FFL is more than 4m above the ground surface beneath. The openable windows serving the rear elevation of the upper floor GLS rooms will require a sill height of 865mm above FFL with no climbable elements located between 150mm and 760mm above FFL. Details to be confirmed during future design stages. 	**Further Detail Required**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
				
D2.25	D3D30	**Timber stairways: Concession** Timber treads, risers, landings and associated supporting framework within a required fire-isolated stairway or fire-isolated passageway may be constructed from fire-protected timber in accordance with C2D13 if the timber has a finished thickness of not less than 44 mm; and has an average density of not less than 800 kg/m3 at a moisture content of 12% in accordance with clause D3D30.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Part D4 – Access for People with Disabilities				
Part D3	Part D4	**Access for People with Disabilities** Access / DDA is not specifically considered by this BCA Report. Refer to separate DDA Report for assessment.	*Refer to separate Accessibility (DDA) report by MSA*	**Certification by Designer or Specialist**

<table>
<tr><th>BCA 2019 Cl.</th><th>BCA 2022 Cl.</th><th>BCA Requirement</th><th>Compliance Comment</th><th>Status</th></tr>
<tr><td colspan="5">Section E – Services & Equipment</td></tr>
<tr><td>Section E</td><td>Section E</td><td>Services & Equipment
BCA Section E
Any new or affected Fire Services must comply with the BCA Section E and relevant Australian Standards.</td><td>Fire Services & Equipment
The following Fire Services & Equipment are required under the deemed-to-satisfy provisions of the BCA based on its classification and characteristics:
<table><tr><th>Fire Service</th><th>Required</th><th>Comments</th></tr><tr><td>Fire Hydrants</td><td>YES</td><td>Any upgrade or modification will require a Design and Design Certificate.</td></tr><tr><td>Fire Hose Reels</td><td>NO</td><td>Fire Hose Reels are not required in Class 9b Classrooms</td></tr><tr><td>Portable Fire Extinguishers</td><td>YES</td><td>To cover Class A fire risks in classrooms and associated corridors in primary schools.</td></tr><tr><td>Fire Sprinklers</td><td>NO</td><td>Fire Sprinklers are not required in Block G and Block E.</td></tr><tr><td>Automatic Smoke Detection & Alarm</td><td>TBA</td><td>Smoke Detection may be required for automatic shutdown of any air-handling system in accordance with NSW E2D16 – TBC.</td></tr><tr><td>Emergency Lighting</td><td>YES</td><td>Any new or modification to existing will require a Design and Design Certificate</td></tr><tr><td>Exit Signage</td><td>YES</td><td>Any new or modification to existing will require a Design and Design Certificate</td></tr></table>See below for details on each of the above where relevant.</td><td>Certification by Designer or Specialist</td></tr>
<tr><td colspan="5">Part E1 – Fire Fighting Equipment</td></tr>
<tr><td>E1.3</td><td>E1D2</td><td>Fire Hydrants
Fire hydrant coverage meeting AS2419.1 must be confirmed / provided:
to new buildings or new parts that are over 500m² in total floor area
to any additional floor area in an existing building that is already provided with hydrant coverage
Hydrant Boosters & Hydrants (where required) must be 10m from the building or adequately protected from fire
Hydrant Pumprooms (where required) must be accessible from open space or via fire isolated passage
Coverage and pressure & flows must meet AS2419.1-2005</td><td>Fire Hydrant Systems
A fire hydrant system is required to be provided throughout the building. Coverage must include all enclosed or covered areas as they are considered occupiable outdoor areas.
Details and design certification must be provided by the hydraulic/fire services engineer.
An existing external attack fire hydrant is located externally, with the Hydraulic Engineer confirming adequate coverage provided from the existing attack hydrant.</td><td>Certification by Designer or Specialist</td></tr>
<tr><td>E1.4</td><td>E1D3</td><td>Fire Hose Reels
Where the building is provided with an internal fire hydrant system or incorporates a fire compartment with a floor area of more than 500m², it must be provided with a fire hose reel system in accordance with BCA E1.4 and AS2441.
Fire Hose Reels must be located:
Within 4m of an exit
Along paths of travel to provide requisite coverage
Located so they are not pulled through fire or smoke doors
Note that fire hose reels are <u>not</u> required in a:
Class 2/3/4 building
Class 8 electrical substation
Class 9c building
Class 9b primary or secondary school Classrooms/corridors.</td><td>Fire Hose Reels are not required in Class 9b classrooms and associated corridors.</td><td>Informational</td></tr>
</table>

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
E1.5	E1D4 – E1D13	**Sprinklers** A building must be provided with a sprinkler system complying with when required by E1D5 to E1D12 as applicable; and comply with Specification 17 and Specification 18 as applicable. • Sprinkler Alarm Valves must be provided with direct access to a road or open space	Sprinklers are not required in Block G and Block E.	**Informational**
E1.6	E1D14	**Portable Fire Extinguishers** Portable fire extinguishers are required to serve Class A-Class E fire under BCA E1.6 & AS2444. *Note: They are not required for Class A fire where fire hose reels are otherwise provided.*	Portable fire extinguisher coverage is required throughout to meet BCA E1.6 & AS2444. Details and design certification must be provided by the hydraulic/fire services engineer.	**Certification by Designer or Specialist**
E1.8	E1D15	**Fire Control Centres** A Fire Control Centre is required where the building has: • An Effective Height over 25m • A floor area over 18,000m^2 Fire control Centres must meet Clauses 1-5 of BCA Spec E1.8 – *see below Spec E1.8*	A Fire Control Centre is not required in Block G and Block E.	**Not Applicable**
E1.8	S19C7	**Fire Control Room** A Fire Control Room is required where serving a building over 50m in effective height. It must meet the Fire Control Centre requirements of Clauses 1-5 of Specification E1.8 as well as the additional requirements of Clauses 6-12 of Specification E1.8 – *See below Spec E1.8*	A Fire Control Room is not required in Block G and Block E.	**Not Applicable**
Spec E1.8	S19C1-S19C6	**Fire Control Centres – Specification Summary** A Fire Control Centre must meet Clauses 1-5 of Specification E1.8: • Provide an area from which fire-fighting operations or other emergency procedures can be directed or controlled; and controlling necessary equipment associated with the fire fighting (and only other building security equipment is allowed in the area) • Shall not contain any internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings in the centre • Located so that egress from any part of its floor, to a road or open space, does not involve changes in level which in aggregate exceed 300 mm. • Ambient sound must not exceed 65dBA	A Fire Control Centre is not required in Block G and Block E.	**Not Applicable**

Spec E1.8	S19C7-S19C13	**Fire Control Room – Specification Summary**
		A Fire Control Room is required where serving a building over 50m in height:
		• The Fire Control Room must meet the above requirements for a Fire Control Centre as well as Clauses 6-12 of BCA Specification E1.8:
		• The fire control room must be accessible via two paths of travel—
		  ○ one from the front entrance of the building; and
		  ○ one direct from a public place or fire-isolated passageway which leads to a public place and has a door with an FRL of not less than –/120/30.
		  ○ Doors must be located so that egressing occupants won't obstruct or hinder access to the door
		• Contained in an impact resistant, FRL 120/120/120 fire separated room
		• Only services and pipes serving the room may pass though
		• Any openings protected against the spread of fire and smoke
		• Internal doors fire & smoke sealed
		• Size and contents of a fire control room
		• A fire control room must contain —
		  ○ a Fire Indicator Panel and necessary control switches and visual status indication for all required fire pumps,smoke control fans and other required fire safety equipment installed in the building; and
		  ○ a telephone directly connected to an external telephone exchange; and
			A Fire Control Room is not required in Block G and Block E.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		○ a blackboard or whiteboard not less than 1200 mm wide x 1000 mm high; and ○ a pin-up board not less than 1200 mm wide x 1000 mm high; and ○ a raked plan layout table of a size suitable for laying out the plans provided under (vi); and ○ colour-coded, durable, tactical fire plans • A fire control room must — ○ have a floor area of not less than 10 m2 and the length of any internal side must be not less than 2.5 m;and ○ if only the minimum prescribed equipment is installed — have a net floor area of not less than 8 m2 with aclear space of not less than 1.5 m2 in front of the Fire Indicator Panel; and ○ if additional equipment is installed — have an additional area of not less than 2 m2 net floor area for each additional facility and a clear space of not less than 1.5 m2 in front of each additional control or indicator panel, • In addition, a fire control room may contain— ○ master emergency control panels, lift annunciator panels, remote switching controls for gas or electrical supplies and emergency generator backup; and ○ building security, surveillance and management systems if they are completely segregated from all other systems.		
E1.9	E1D16	**Fire Precautions During Construction** Portable fire extinguishers must be provided during construction.	To be noted during construction.	**Certification by Designer or Specialist**
E1.10	E1D17	**Provision for Special Hazards** Additional PFEs may be required should the building contain special hazards.	Fire services/safety engineers to assess and determined whether additional measures are required.	**Certification by Designer or Specialist**
BCA Part E2 – Smoke Hazard Management				
E2.1	E2D2	**Application of Part** Part E2 does not apply to: An open deck carpark or open spectator stand A class 8 electricity network substation (less than 200m^2 in floor area) within a multi classified building.	The clause is informational only in nature	**Informational**
E2.2a & E2.2b	E2D3	**Smoke Hazard Management** • Smoke Hazard Management must be provided per **E2D4** to **E2D20** depending on the class, rise in stories and nature of the building design, which can require one or more of the following: ○ Zone Pressurisation ○ Smoke Exhaust ○ Smoke Vents ○ Automatic Smoke Detection & Alarm ○ Smoke Detectors to satisfy Automatic Shutdown of Mechanical (Class 9b only) ○ Sprinklers (to satisfy smoke hazard management) ○ Stair Pressurisation • Refer to Tables E2.2a and NSW E2.2b for full details • Smoke detection per AS1670.1 can also be required to allow exit / egress doors to unlock in the event of emergency under BCA D2.21.	**Smoke Hazard Management – BCA Clause NSW E2D16** Smoke Detection is generally not required to school buildings with a rise in storey of 2, however may be required for automatic shutdown of any air-handling system in accordance with NSW E2D16. Details of the mechanical ventilation system to be provided to confirm if shutdown is applicable.	**Certification by Designer or Specialist**
Table E2.2a	E2D4	**Fire-isolated exits**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D5	**Buildings more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building**	The matter is not applicable &/or not affected by scope.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
Table E2.2a	E2D6	**Buildings more than 25 m in effective height: Class 5, 6, 7b, 8 or 9b buildings**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D7	**Buildings more than 25 m in effective height: Class 9a buildings**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D8	**Buildings not more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D9	**Buildings not more than 25 m in effective height: Class 5, 6, 7b, 8 and 9b buildings** 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 in (1) must be provided with— • in each required fire-isolated stairway, including any associated fire-isolated passageway or fire-isolated ramp, an automatic air pressurisation system for fire-isolated exits in accordance with AS 1668.1; or • a zone pressurisation system between vertically separated fire compartments in accordance with AS 1668.1, if the building has more than one fire compartment; or • 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. • For the purposes of (2), vertically separated fire compartments are fire compartments above and below each other, and not fire compartments within the same storey.	**Smoke Hazard Management – BCA Clause NSW E2D16** Smoke Detection is generally not required to school buildings with a rise in storey of 2, however may be required for automatic shutdown of any air-handling system in accordance with NSW E2D16 – Details of the mechanical ventilation system to be provided to confirm if shutdown is applicable.	**Certification by Designer or Specialist**
Table E2.2a	E2D10	**Buildings not more than 25 m in effective height: large isolated buildings subject to C3D4**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D11	**Buildings not more than 25 m in effective height: Class 9a and 9c buildings**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D12	**Class 7a buildings**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2a	E2D13	**Basements (other than Class 7a buildings)**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D14	**Class 6 buildings – in fire compartments more than 2000 m2: Class 6 building (not containing an enclosed common walkway or mall serving more than one Class 6 sole-occupancy unit)**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D15	**Class 6 buildings – in fire compartments more than 2000 m2: Class 6 building (containing an enclosed common walkway or mall)**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D16	**Class 9b – assembly buildings: nightclubs, discotheques and the like**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
NSW Table E2.2b	NSW E2D16	**Class 9b – assembly buildings: all** 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 (a) 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— (i) smoke detectors installed complying with S20C6; and (ii) any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.	**Smoke Hazard Management – BCA Clause NSW E2D16** Smoke Detection is generally not required to school buildings with a rise in storey of 2, however may be required for automatic shutdown of any air-handling system in accordance with NSW E2D16 – Details of the mechanical ventilation system to be provided to confirm if shutdown is applicable.	**Certification by Designer or Specialist**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
NSW Table E2.2b	E2D17	**Class 9b – assembly buildings: exhibition halls**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D18	**Class 9b – assembly buildings: theatres and public halls**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D19	**Class 9b – assembly buildings: theatres and public halls (not listed in E2D18) including lecture theatres and cinema/auditorium complexes**	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table E2.2b	E2D20	**Class 9b assembly buildings: other assembly buildings (not listed in E2D16 to E2D19)** E2D20 does not apply in NSW. This clause is deleted from the BCA in NSW, as requirements for Class 9b – Assembly buildings in NSW are covered under NSW E2D16 to NSW E2D19.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
E2.3	E2D21	**Provision for Special Hazards** Suitable additional provision must be made for smoke hazard management where it is considered that the building incorporates a *special hazard*, including: • special characteristics of the building; or • special function or use of the building; or • special type or quantity of materials stored, displayed or used in a building; or • special mix of classifications within a building or fire compartment, which are not addressed in Tables E2.2a and E2.2b	Fire services/safety engineers to assess and determined whether additional measures are required.	**Certification by Designer or Specialist**
Part E3 – Lift Installations				
E3.1	E3D2	**Lift Installations** Electrical passenger lifts and electrohydraulic passenger lifts must comply with BCA Spec E3.1	Lift details to be provided in the developing design.	**Certification by Designer or Specialist**

Spec E3.1	S24C1-S24C6	**Lift Installations Specification**
		Lifts under E3.1 must be provided with the features included in BCA Specification E3.1 including;
		• Where exposed to solar radiation, the lift car must have mechanical ventilation at a rate of one air change per minute or mechanical cooling.
		• Have an alternative power source for ventilation or mechanical cooling in the event of normal power loss that last for at least 2 hours.
		• Contain an emergency lighting system that automatically activates upon failure of the normal lighting supply and provides at least 20 lux of lighting for 2 hours on the alarm initiation button.
		• Contain cooling of the lift shaft whilst the lift is in service that will–
		  ○ ensure that a dry bulb air temperature in the lift shaft does not exceed 40°C
		  ○ if the cooling is by a ventilation system, be provided with an air change rate determined using a temperature rise of no more than 5K.
			Lift details to be provided in the developing design.	**Certification by Designer or Specialist**

E3.2	E3D3	**Stretcher Facilities in Lifts** Where serving a level >12m in effective height, the lift must contain a portion within the internal car dimensions that is 2000mm (deep) x 600mm (wide) to allow for stretcher facilities. Note ASA / ESB prefers that *all* lifts can accommodate a stretcher.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
E3.3	E3D4	**Warning Against the Use of Lifts in Fire** A warning sign must be provided near the lift call buttons stating "DO NOT USE LIFTS IF THERE IS A FIRE"	Lift details to be provided in the developing design.	**Certification by Designer or Specialist**
E3.4	E3D5	**Emergency Lifts** Emergency lifts are typically required to buildings >25m in effective height.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
E3.5	E3D6	**Lift Landings**	Compliant egress from lift landings appears achievable.	**Can Readily Comply - Detail**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		Access and egress from lift landings must comply with BCA Section D. *Refer to DDA report for full Lift Landing Clearances and requirements for accessibility*		
E3.6, Table E3.6a, Table E3.6b	E3D7	**Passenger lift types and their limitations** 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: • Electric passenger lifts • Electrohydraulic passenger lifts • Inclined lifts • Stairway platform lifts • Low-rise platform lift • Low-rise, low-speed constant pressure lift • Small-sized, low-speed automatic lift	Lift dimensions of minimum 1100 x 1400mm appears achievable.	**Can Readily Comply - Detail**
Table E3.6a, Table E3.6b	E3D8	**Accessible features required for passenger lifts** In an accessible building, every passenger lift must be one of the types referred to in Table E3.6a and contain all features specified in the clause.	Lift details to be provided in the developing design. Refer to Accessibility report for further details.	**Certification by Designer or Specialist**
E3.7	E3D9	**Fire Service Controls** Fire service controls are required to lifts serving >12m in effective height including a fire service recall switch per BCA E3.9 and lift car fire control per BCA E3.10 – see below.	Lift details to be provided in the developing design.	**Certification by Designer or Specialist**
E3.8	E3D10	**Residential care buildings** Where residents in a Class 9c residential care building are on levels which do not have direct access to a road or open space, the building must be provided with either at least one lift to accommodate a stretcher in accordance with E3D3(2); or a ramp in accordance with AS 1428.1.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
E3.9	E3D11	**Fire Service Recall Control Switch** Fire service recall controls are required at each lift bank where serving an effective height greater than 12m in accordance with this clause.	Lift details to be provided in the developing design.	**Certification by Designer or Specialist**
E3.10	E3D12	**Lift Car Fire Service Drive Control Switch** Lift car fire service control switches must be provided in accordance with this clause where serving an effective height greater than 12m.	Lift details to be provided in the developing design.	**Certification by Designer or Specialist**
Part E4 – Visibility in an Emergency, Exit Signs & Warning Systems				
E4.2, E4.4	E4D2, E4D4	**Emergency Lighting** Emergency lighting must generally be provided throughout stories greater than 300m^2, and above all required exit stairs and ramps per AS2293.1.	Emergency lighting is required to be provided throughout – details to be provided from the fire services/electrical consultant.	**Certification by Designer or Specialist**
E4.5, E4.6 & E4.8	E4D5, E4D6, E4D8	**Exit & Directional Signs** Illuminated exit signs is required above all exit doors, stairs and final exit points and where the exit isn't readily apparent, directional exit signage is required per AS2293.1.	Exit signage is required to be provided throughout – details to be provided from the fire services/electrical consultant.	**Certification by Designer or Specialist**
E4.9	E4D9	**Sound System & Intercom Systems for Emergency Purposes** A sound system and intercom system for emergency purposes complying where applicable with AS 1670.4 must be installed to station buildings with an Effective Height >25m.	An EWIS System is not required as the building does not have a rise in storeys of more than 2.	**Informational**
Section F – Health & Amenity				
Part F1 – Surface water management, rising damp and external waterproofing				

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
F1.1	F1D3	**Stormwater Drainage** Stormwater drainage must comply with AS3500.3	Details and design certification must be provided by the hydraulic consultant.	**Certification by Designer or Specialist**
New to 2022	F1D4	**Exposed joints** 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, and not be located beneath or run through a planter box, water feature or similar part of the building.	Details and design certification must be provided by the hydraulic consultant.	**Certification by Designer or Specialist**
F1.4	F1D5	**External Above Ground Membranes** Waterproof membranes for external above ground use (balconies, terraces etc) must comply with AS4654 Parts 1&2.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
F1.9	F1D6	**Damp-proofing** To comply with AS/NZS 2904-Damproof courses and flashings.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
F1.10	F1D7	**Damp-proofing of Floors on Ground** To comply with AS2870 – 2011 Residential slabs and footings.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
F1.12	F1D8	**Sub-Floor Ventilation** Subfloor ventilation openings must be provided to the underside of suspended floors in accordance with this requirement.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
Part F2 – Wet areas and overflow protection				
F1.7(a) and (b)	F2D2	**Wet area construction** Wet areas must comply with AS3740.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
F1.7(c), (d) and (e)	F2D3	**Rooms containing urinals** Specific details on the installation of either a slab, stall or hung urinal are discussed within this clause.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F1.11	F2D4	**Floor wastes** In a Class 2 or 3 building or Class 4 part of a building, a bathroom or laundry located at any level above a sole-occupancy unit or public space must have a floor waste	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Part F3 – Roof and wall cladding				
F1.5	F3D2	**Roof Coverings** Roof covering must comply with the following: • AS2049 - 2002 *Roof Tiles;* and/or • AS/NZS 2908 - 2000 parts 1 and 2 *Cellulose cement products*; and/or • AS/NZS 1562.2 - 1999 *Design and installation of sheet roof and wall cladding –corrugated fibre-reinforced cement* and/or • AS1562.1 - 1992 *Design and installation of sheet roof and wall cladding –metal* and/or • AS/NZS 4256 - 2012 parts 1, 2, 3 and 5 – *Plastic roof and wall cladding material* • AS1562.3 – 1996 *Design and installation of sheet roof and wall cladding –plastics* and/or ASTM D3018-90 – 1994 , Class A ashphalt shingles surfaced with mineral granules	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
F1.6	F3D3	**Sarking** Must comply with AS/NZS4200-1994 Parts 1 & 2.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
F1.13	F3D4	**Glazed Assemblies** *See BCA B1.4*	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
New for 2022	F3D5	**Wall cladding** External wall cladding must comply with one or a combination of the following: • Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. • Autoclaved aerated concrete: AS 5146.3. • Metal wall cladding: AS 1562.1.	Details and design certification to be provided during detailed design.	**Certification by Designer or Specialist**
Part F4 – Sanitary & Other Facilities				
F2.1	F4D2	**Facilities in residential buildings** Facilities must be provided to residential buildings as follows: • Class 2, 4 & 9c buildings – kitchen, bath/shower, WC, washbasin & laundry facilities + WC & washbasin for employees where >10 SOU's are provided • Class 3 buildings – bath/shower	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.2	F4D3	**Calculation of number of occupants and fixtures** • Number of occupants to be calculated as per BCA D1.13 • Sanitary facilities to be generally provided assuming a 50:50 male/female split • A unisex accessible sanitary facility can be counted once for each sex	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.3	F4D4	**Facilities for Class 3 to 9 Buildings** Facilities to be provided in accordance with BCA F2.3 and Table F2.3, noting: • Separate facilities typically required for males and female (Except accessible toilets which may be unisex) • Separate facilities required for staff and student in schools • Specific kitchen, laundry and bathing facilities required to be provided in Class 9a buildings • Specific facilities are required to be provided in child care centres – including junior toilet pans & basins, kitchen facilities, laundry facilities and nappy changing benches	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.4	F4D5	**Accessible sanitary facilities** In a building required to be accessible— • accessible unisex sanitary compartments must be provided in accessible parts of the building in accordance with F4D6; and • accessible unisex showers must be provided in accordance with F4D7; and • at each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, not less than one sanitary compartment suitable for a person with an ambulant disability for use by males and one sanitary compartment suitable for a person with an ambulant disability for use by females, must be provided; and • an accessible unisex sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary products; and • the circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with F4D6 and F4D7 must comply with the requirements of AS 1428.1; and • an accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only; and	The matter is not applicable &/or not affected by scope.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		• where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible; and • where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations; and • an accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not required by D4D4(f) to be provided with a passenger lift or ramp complying with AS 1428.1.		
Table F2.4a	F4D6	**Accessible unisex sanitary compartments** Where required by F4D5(a), the minimum number of accessible unisex sanitary compartments for each class of building is as follows: • For a Class 1b building— ○ not less than 1; and ○ where private accessible unisex sanitary compartments are provided for every accessible bedroom, common accessible unisex sanitary compartments need not be provided. • For a Class 2 building, where sanitary compartments are provided in common areas, not less than 1. • For Class 3 and Class 9c buildings— ○ in every accessible sole-occupancy unit provided with sanitary compartments within the accessible sole-(i) occupancy unit, not less than 1; and ○ at each bank of sanitary compartments containing male and female sanitary compartments provided in common areas, not less than 1. • For Class 5, 6, 7, 8 or 9 buildings, where F4D4 requires closet pans— ○ 1 on every storey containing sanitary compartments; and ○ where a storey has more than 1 bank of sanitary compartments containing male and female sanitary compartments, at not less than 50% of those banks. • For a Class 10a building, at each bank of sanitary compartments containing male and female sanitary compartments, not less than 1.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Table F2.4b	F4D7	**Accessible unisex showers** Where required by F4D5(b), the minimum number of accessible unisex showers for each class of building is as follows: • For a Class 1b building— ○ not less than 1; and ○ where private accessible unisex showers are provided for every accessible bedroom, common accessible unisex showers need not be provided. • For a Class 2 building, where showers are provided in common areas, not less than 1. • For Class 3 and 9c buildings— ○ in every accessible sole-occupancy unit provided with showers within the accessible sole-occupancy unit, ○ not less than 1; and ○ 1 for every 10 showers or part thereof provided in common areas • For Class 5, 6, 7, 8 or 9 buildings, where F4D4 requires 1 or more showers, not less than 1 for every 10 showers or part thereof. • For a Class 10a building, where showers are provided, 1 for every 10 showers or part thereof.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.5	F4D8	**Construction of Sanitary Compartments** Sanitary compartments must have doors and partitions that separate adjacent compartments and extend— • from floor level to the ceiling in the case of a unisex facility; or • to a height of not less than 1.5 m above the floor if primary school children are the principal users; or • 1.8 m above the floor in all other cases • Does not apply to early childhood centres The entry door to a fully enclosed sanitary compartment must— • open outwards; or • slide; or	The matter is not applicable &/or not affected by scope.	**Not Applicable**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		• be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway.		
F2.6	F4D9	**Interpretation: Urinals and washbasins** • Urinals may be individual stalls or a length of 600mm in a trough • A closet pan may be used in lieu of a urinal • Washbasins may be single basins or part of a trough provided with a tap	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.7	F4D10	**Microbial (legionella) control** Hot water, warm water and cooling water systems in a building other than a system serving only a single sole-occupancy unit in a Class 2 or 3 building or Class 4 part of a building must be installed in accordance with AS/NZS 3666.1.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.8	F4D9	**Waste management** In a Class 9a health-care building, at least one slop-hopper or other device, other than a water closet pan or urinal, must be provided— • on any storey containing ward areas or bedrooms to facilitate emptying of containers of sewage or dirty water; and • with a flushing apparatus, tap and grating. In a Class 9c building, the following facilities must be provided for every 60 beds or part thereof on each storey containing resident use areas: • One slop-hopper or other device other than a water closet pan or urinal for the safe handling and disposal of liquid and solid wastes with a flushing apparatus, tap and grating. • An appliance for the disinfection of pans or an adequate means to dispose of receptacles.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F2.9	F4D9	**Accessible adult change facilities** One unisex accessible adult change facility must be provided in an accessible part of a— • Class 6 building that is a shopping centre having a design occupancy of not less than 3,500 people, calculated on the basis of the floor area and containing a minimum of 2 sole-occupancy units; and • Class 9b sports venue or the like that— ○ has a design occupancy of not less than 35,000 spectators; or ○ contains a swimming pool that has a perimeter of not less than 70 m and that is required by D4D2 to be accessible; and • museum, art gallery or the like having a design occupancy of not less than 1,500 patrons; and • theatre or the like having a design occupancy of not less than 1,500 patrons; and • passenger use area of an airport terminal building within an airport that accepts domestic and/or international flights that are public transport services as defined in the Disability Standards for Accessible Public Transport 2002.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
BCA Part F5 - Room Heights				
F3.1	F5D2	**Height of Rooms & Other Spaces** BCA requires that all public habitable areas must be typically: - 2700mm for public areas and corridors serving a Class 9b assembly building with >100 occupants - 2400mm generally for habitable rooms and corridors serving a Class 9b assembly building with <100 occupants - 2100mm for non-habitable rooms, including bathrooms, storerooms, service rooms - 2000mm above stairs, ramps & landings	2.4m minimum height is required for Block G and Block E. Appears compliant and subject to further review at subsequent design stages.	**Can Readily Comply - Detail**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
BCA Part F6 - Light & Ventilation				
F4.1	F6D2	**Provision of natural light** Natural light is required to be provided to habitable/sleeping rooms in Class 2, 3, 4 and 9 buildings.	Natural light appears to be provided to habitable rooms including classrooms as required. A scheduled or room areas vs window light transmitting areas has not been reviewed – although in principle calculations indicated general compliance is achieved.	**Can Readily Comply - Detail**
F4.2	F6D3	**Methods and extent of natural lighting** Natural light must be provided from: • Windows (with an aggregate light transmitting area of not less than 10% of the floor area of the area which they serve);or • Skylights with an aggregate light transmitting area of not less than 3% of the floor area of the area which they serve; or • A combination of both Windows must typically be setback from the boundary/wall of the building or other building on the allotment: • Generally at least 1m (or 3m for sleeping rooms in a Class 9a building) • 50% of the square room of the height of the wall in which the window ins located. I.e. the higher the wall the greater the setback required. *Note in Class 9b childcare centres, at least 50% of the windows must have sill height not greater than 500mm from the floor level.*	The clause is informational only in nature	**Informational**
F4.3	F6D4	**Natural light borrowed from adjoining room** This clause allows natural light in Class 2-4 buildings to be borrowed from an adjoining room. The room providing the borrowed light must be provided with windows which have a light transmitting area of at least 10% (or skylights with an area or 3%) of the combined floor area of both rooms.	The clause is informational only in nature	**Informational**
F4.4	F6D5	**Artificial Light** Artificial lighting is required to all newly created or affected areas in accordance with BCA F4.4 and AS1680.0.	Lighting to AS1680.0 required to all affected areas. See also DDA Report. Subject to certification from the design engineer.	**Certification by Designer or Specialist**
F4.5	F6D6	**Ventilation of Rooms** A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural light amounting to 5% of the floor area of the room served or mechanical ventilation complying with AS/NZS 1668.2.	Ventilation required to all newly created or affected rooms and spaces in accordance with this clause. The **Mechanical consultant** should provide design details and certification confirming compliance with this clause.	**Certification by Designer or Specialist**
F4.6	F6D7	**Natural Ventilation** Natural ventilation must constitute 5% of the floor area of the area serving and open to a suitable outdoor, covered open area or adjacent shared room with suitable natural ventilation openings.	Ventilation required to all newly created or affected rooms and spaces in accordance with this clause. The **Mechanical consultant** should provide design details and certification confirming compliance with this clause.	**Certification by Designer or Specialist**
F4.7	F6D8	**Ventilation borrowed from adjoining room** Natural ventilation can be borrowed from an adjoining room providing adjacent room is provided ventilating area that is 5% (or 10% in Class 5-9 buildings) of the both the subject room and the adjoining room combined.	Borrowed natural ventilation is not currently relied upon.	**Non Applicable**
F4.8	F6D9	**Restriction of position of water closets and urinals** Generally sanitary compartments must not open directly into: • A kitchen, pantry, public dining area or restaurant • Dormitory in a Class 3 building • Room / area used for public assembly • Workplace normally occupied by more than 1 person *Note comments in F4.9 below.*	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F4.9	F6D10	**Airlocks**	The clause is informational only in nature	**Informational**

BCA 2019 Cl.	BCA 2022 Cl.	BCA Requirement	Compliance Comment	Status
		Airlocks can be used between a sanitary compartment and area described in BCA F4.8 above. In a Class 5-9 building: • airlocks must have a floor area of at least 1.1m^2 and be fitted with self-closing doors. • Alternatively, the sanitary compartment must be provided with mechanical exhaust and the doorway suitably screened from view.		
F4.11	F6D11	**Carparks** Every storey of a carpark (except open deck) must be provided with mechanical ventilation complying with AS1668.2 or natural ventilation complying with AS1668.4.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
F4.12	F6D12	**Kitchen Local Exhaust** Commercial kitchens must have exhaust hoods complying with this clause and AS1668.1 & AS1668.2.	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Part F7 - Sound Transmission & Insulation				
Part F5	F7D2	**Sound Transmission and Insulation** This part applies to Class 2, 3 & 9c buildings and provides the requirements for sound insulation must be provided between sole occupancy units (and between units and other parts of the building).	The matter is not applicable &/or not affected by scope.	**Not Applicable**
Section J – Energy Efficiency				
Section J	Section J	**Energy Efficiency** *BCA Section J* New works must comply with the Energy Efficiency requirements of Section J, including: Part J1 - Energy efficiency performance requirements Part J2 - Energy efficiency Part J3 - Elemental provisions for a sole-occupancy unit of a Class 2 building or a Class 4 part of a building. Part J4 - Building fabric Part J5 – Building sealing Part J6 - Air-conditioning and ventilation Part J7 - Artificial lighting and power Part J8 – Heated water supply and swimming pool and spa pool plant	A Section J report must be provided from a suitably qualified energy efficiency consultant to demonstrate compliance with this part.	**Certification by Designer or Specialist**

7.0 Conclusion

This report assesses the **100% Schematic Level Design** for the proposed **NSW Department of Education (DoE) Upgrade to Cammeray Public School at Cammeray Public School** against the requirements of the National Construction Code (NCC) / Building Code of Australia (BCA).

The primary purpose of the report is to identify any non-compliances with the deemed-to-satisfy provision of the BCA and provide recommendations to best comply with the requirements of the BCA.

Subject to compliance with the mitigation measures of this report, the development can readily comply with the relevant requirements of the BCA. Recommendations have been identified as follows:

- Significant BCA matters, being those with the ability to affect the design have been included in Table 1.0 below and in the Executive Summary.
- A BCA Compliance Schedule suitable for the current level of design is also contained in in Table 6.0 of this report.

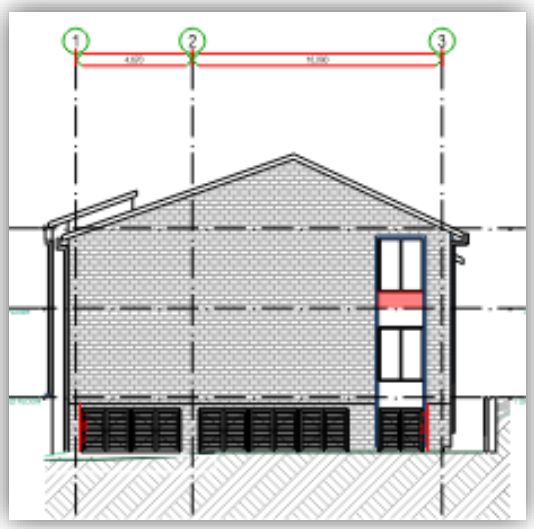
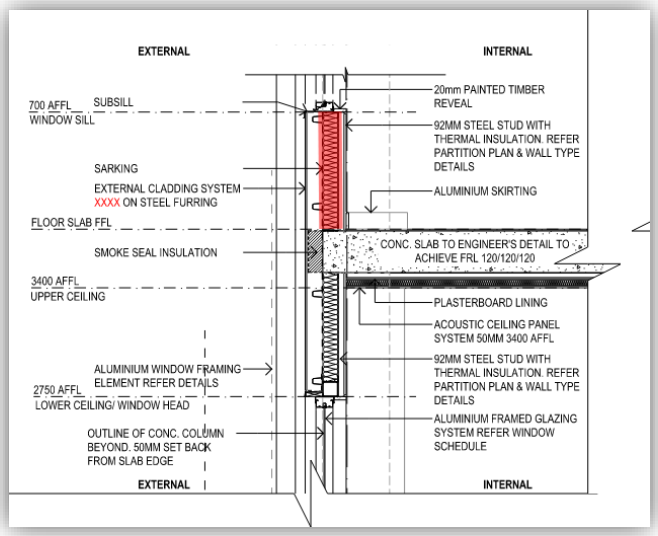
Table 1.0 – Mitigation Measures - Significant BCA Compliance Matters

<table>
<tr><th>#</th><th>DTS Clause</th><th>Recommendation</th><th>Status</th></tr>
<tr><td colspan="4">BCA Compliance Issues</td></tr>
<tr><td>1.</td><td>D3D14</td><td>Riser Heights

The riser heights have been measured at 140mm, and if accurate, the (2R + G) calculation does not comply in accordance with Table D3D14 (140mm + 140mm + 265mm = 545mm) – Minimum 550mm required.

Table D3D14: Riser and going dimensions
<table><tr><th rowspan="2">Stairway location</th><th colspan="2">Riser (R)</th><th colspan="2">Going (G)Note 3</th><th colspan="2">Quantity (2R + G)</th></tr><tr><th>Max</th><th>Min</th><th>Max</th><th>Min</th><th>Max</th><th>Min</th></tr><tr><td>Public</td><td>190</td><td>115</td><td>355</td><td>250</td><td>700</td><td>550</td></tr><tr><td>Private Note 1</td><td>190</td><td>115</td><td>355</td><td>240</td><td>700</td><td>550</td></tr></table></td><td>Further Detail Required</td></tr>
<tr><td>2.</td><td>D3D29</td><td>Protection of openable windows

The provisions of this part apply to a class 9b school where the FFL is more than 4m above the ground surface beneath.
The openable windows serving the rear elevation and side of the upper floor will require a sill height of 865mm above FFL with no climbable elements located between 150mm and 760mm above FFL. Details to be confirmed during future design stages.</td><td>Further Detail Required</td></tr>
</table>

#	DTS Clause	Recommendation	Status
		  	

#	DTS Clause	Recommendation	Status
3.	Various	**Can Readily Comply/Further Details Required** Any items identified as 'can readily comply' or 'further details required' will require additional details and further assessment during later design stages.	**Can Readily Comply - Detail**

Attachment A – Summary of Fire Resistance Levels (Type B)

The following is a summary of the required fire resistance levels of buildings elements for **Type B Construction** (refer to BCA Specification 5 for full requirements & concessions):

Table S5C21a: Type B construction: FRL of loadbearing parts of external walls

Distance from a *fire-source feature*	FRL (in minutes) *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/30	120/90/60	180/120/90	240/180/120
3 m to less than 9 m	90/30/30	120/30/30	180/90/60	240/90/60
9 m to less than 18 m	90/30/–	120/30/–	180/60/–	240/60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C21b: Type B construction: FRL of non-loadbearing parts of external walls

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	–/90/90	–/120/120	–/180/180	–/240/240
1.5 m to less than 3 m	–/60/30	–/90/60	–/120/90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C21c: Type B construction: FRL of external columns not incorporated in an external wall

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing column — less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing column — 18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
Non-*loadbearing* column	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C21d: Type B construction: FRL of common walls and fire walls

Wall type	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-*loadbearing*	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C21e: Type B construction: FRL of loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	90/90/90	120/120/120	180/120/120	240/120/120
Bounding *public corridors*, public lobbies and the like	60/60/60	120/–/–	180/–/–	240/–/–
Between or bounding *sole-occupancy units*	60/60/60	120/–/–	180/–/–	240/–/–

Table S5C21f: Type B construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	–/90/90	–/120/120	–/120/120	–/120/120
Bounding *public corridor*, public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*	–/60/60	–/–/–	–/–/–	–/–/–

Table S5C21g: Type B construction: FRL of other building elements not covered by Tables S5C21a to S5C21f

Building element	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other *loadbearing* internal walls and columns	60/–/–	120/–/–	180/–/–	240/–/–
Roofs	–/–/–	–/–/–	–/–/–	–/–/–

The above should be read in conjunction with the remainder and further concessions contained within Specification 5.

Attachment B – Assessed Plans

The following plans have been assessed for the purposes of this report, dated 10.01.25:

						Drawing Name	Rev
CPS	FTA	XX	XX	DR	A	0000	COVER SHEET + DRAWING LIST	03
CPS	FTA	XX	XX	DR	A	0001	SPECIFICATION SCHEDULE & MATERIAL SELECTIONS	02
CPS	FTA	00	00	DR	A	1001	EXISTING SITE PLAN	03
CPS	FTA	00	00	DR	A	1002	DEMOLITION SITE PLAN	03
CPS	FTA	00	00	DR	A	1003	SITE ANALYSIS PLAN	03
CPS	FTA	00	00	DR	A	1101	PROPOSED SITE PLAN	03
CPS	FTA	00	00	DR	A	1201	SITE SECTIONS	03
CPS	FTA	00	00	DR	A	1401	EXTERNAL WORKS PLAN	03
CPS	FTA	00	00	DR	A	1501	STAGING PLAN	03
CPS	FTA	00	00	DR	A	1601	PLAYSCAPE CALCULATION	01
CPS	FTA	00	00	DR	A	1602	AMENITIES STRATEGY	01
CPS	FTA	00	00	DR	A	1603	ACCESS STRATEGY	01
CPS	FTA	00	00	DR	A	1604	TREE REMOVAL PLAN	01
CPS	FTA	00	00	DR	A	1610	INDIGENOUS ARTWORK STRATEGY	02
CPS	FTA	00	00	DR	A	1630	EXTERNAL MATERIAL AND FINISHES	02
CPS	FTA	00	00	DR	A	1640	SHADOW DIAGRAM	02
CPS	FTA	00	00	DR	A	1650	CONSTRUCTION MANAGEMENT STRATEGY	01
CPS	FTA	B00E	GF	DR	A	2001	BUILDING E - EXISTING/DEMOLITION GROUND FLOOR PLAN	05
CPS	FTA	B00E	L1	DR	A	2002	BUILDING E - EXISTING/DEMOLITION LEVEL 1 PLAN	04
CPS	FTA	B00E	LR	DR	A	2003	BUILDING E - EXISTING/DEMOLITION ROOF PLAN	03
CPS	FTA	B00G	LG	DR	A	2100	BUILDING G - UNDERCROFT LEVEL	04
CPS	FTA	B00G	GF	DR	A	2102	BUILDING G - GROUND FLOOR PLAN	04
CPS	FTA	B00G	L1	DR	A	2103	BUILDING G - LEVEL 1 FLOOR PLAN	04
CPS	FTA	B00G	LR	DR	A	2104	BUILDING G - ROOF PLAN	04
CPS	FTA	B00G	GF	DR	A	2201	CEILING PLAN - GROUND FLOOR	03
CPS	FTA	B00G	L1	DR	A	2202	CEILING PLAN - LEVEL 1	03
CPS	FTA	B00G	GF	DR	A	2301	GROUND FLOOR FINISHES PLAN	01
CPS	FTA	B00G	L1	DR	A	2302	FIRST FLOOR FINISHES PLAN	01
CPS	FTA	B00G	ZZ	DR	A	3001	BUILDING G - ELEVATIONS 01	04
CPS	FTA	B00G	ZZ	DR	A	3101	BUILDING G - SECTIONS 01	04
CPS	FTA	B00G	ZZ	DR	A	4001	WALL TYPES 01	03
CPS	FTA	B00G	ZZ	DR	A	4201	SECTION DETAILS 01	03
CPS	FTA	B00G	ZZ	DR	A	4202	SECTION DETAILS 02	03
CPS	FTA	B00G	ZZ	DR	A	4203	SECTION DETAILS 03	03
CPS	FTA	B00G	ZZ	DR	A	4401	STAIR DETAILS	02
CPS	FTA	B00G	ZZ	DR	A	4501	BALUSTRADE AND HANDRAIL DETAILS	03
CPS	FTA	B00G	ZZ	DR	A	4701	LIFT DETAILS	02
CPS	FTA	B00G	ZZ	DR	A	4901	TYPICAL FASCIA DETAILS	03
CPS	FTA	B00G	ZZ	DR	A	5001	ROOM ELEVATIONS 01	02
CPS	FTA	B00G	ZZ	DR	A	5002	ROOM ELEVATIONS 02	02
CPS	FTA	B00G	ZZ	DR	A	6001	EXTERNAL DOOR & WINDOW SCHEDULE	P2
CPS	FTA	B00G	ZZ	DR	A	6002	INTERNAL DOOR & WINDOW SCHEDULE	01
CPS	FTA	B00G	ZZ	DR	A	9001	PERSPECTIVES 1	02
CPS	FTA	B00G	ZZ	DR	A	9002	PERSPECTIVES 2	02