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PARRAMATTA EAST PUBLIC SCHOOL UPGRADE –

BUILDING CODE OF AUSTRALIA REPORT

PARRAMATTA EAST PUBLIC SCHOOL
30-32 BRABYN STREET NORTH PARRAMATTA, NSW 2150

Report prepared for:	Department of Education (DoE) Level 8, 8 Central Avenue, Eveleigh NSW 2015
Report prepared by:	Philip Chun BC NSW Pty Ltd Suite 22.02, Level 22, Australia Square, Tower Building 264 George Street, Sydney, NSW 2000 Contact: Michael Cuschieri / Rhoebee Clemente
Report Ref:	24-222129 SINSW_100%ParramattaEast_BCAReportR06_20250226
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Date:	28 February 2025

REVIEWED BY

	Name	Description	Date
Reviewed by	Rhoebee Clemente	Final BCA Report_100% Schematic Design for REF Assessment (DoE Update)	27/02/2025

REVISION HISTORY

Revision No.	Prepared by	Description	Date
R01	Rhoebee Clemente	Draft BCA Design Report_50% Schematic Design	-
R02	Michael Cuschieri	Draft BCA Design Report_80% Schematic Design	02/08/2024
R03	Michael Cuschieri	Draft BCA Design Report_100% Schematic Design	04/10/2024
R04	Michael Cuschieri	Final BCA Report_100% Schematic Design	31/10/2024
R05	Michael Cuschieri	Final BCA Report_100% Schematic Design for REF Assessment	06/02/2025
R06	Michael Cuschieri	Final BCA Report_100% Schematic Design for REF Assessment (DoE Update)	27/02/2025

1.0 Introduction

At the request of the Department of Education (DOE), this Building Code of Australia (BCA) Report has been prepared to accompany a Review of Environmental Factors (REF) for an activity proposed by the Department of Education under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Transport and Infrastructure) 2021* (SEPP TI). This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments* (the Guidelines) by the Department of Planning, Housing and Infrastructure. This report examines and takes into account the relevant environmental factors in the Guidelines and *Environmental Planning and Assessment Regulations 2021* under Section 170, Section 171 and Section 171A of the EP&A Regulation.

We offer an assessment in respect to the Deemed-to-Satisfy requirements of the Building Code of Australia (BCA) 2022 for the proposed works at Parramatta East Public School (PEPS). The works include refurbishments to Buildings A, B, G & H and the construction of a new 'Block R' building which is three (3) storeys and to comprise of 24 General Learning Spaces (GLS), 3 Support Units, Library and Student Amenities. New staff carparking with associated landscaping works and service upgrades are included within the scope of proposed works.

We have reviewed the submitted documentation for compliance with the deemed-to-satisfy provisions of the Building Code of Australia 2022 and the relevant major Australian Standards referenced by this code. The assessment does not include review according to the Educational Facilities Standards and Guidelines (EFSG). Areas of the design are still being refined so that resolution will be possible prior to the issue of the Crown Design Verification Certificate (CDVC) for the works.

This report does not assess the impact of the Disability Discrimination Act (DDA) which is outside the scope of the BCA, nor does it include compliance with Parts D4 or F4D5 of the BCA. Refer to Access Report by Philip Chun Access for DDA compliance. Any Access design amendments or additional information is to be addressed prior to CDVC issue. It also excludes any authority or utilities requirements applicable to the building design.

We have made every attempt to cover the main issues under Parts B, C, D, E, F, G and J of Volume 1 of BCA 2022 (including the NSW variations) which is the applicable version for the building. Areas of the building design will need further assessment, and we have highlighted where we believe this is to occur. This assessment has been carried out within the role of a BCA consultant.

This report does not include nor implies any detailed assessment of the building with respect to Structural Engineering or Engineering services, material fire resistance levels or compliance with any Australian Standards.

Therefore, the following are excluded from this assessment;

- structural adequacy of the building;
- fire-resistance ratings of any structural elements of the building;
- design basis and/or operating capabilities of electrical, mechanical, hydraulic, fire services and fire protection services;
- Disability Discrimination Act 1992 including the Disability (Access to Premises – Buildings) Standards 2010;
- requirements of other regulatory authorities and utilities including, but not limited to, Telstra and the like communications authority, Gas Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, TfNSW, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and any existing conditions of Development Consent issued by the Local Consent Authority.
- Review according to the Educational Facilities Standards and Guidelines (EFSG)
- Assessment of schedules and specifications for the building
- Compliance with title requirements for the building and building survey information relating to easements etc.
- Assessment with respect to Bushfire requirements under Section G5 of the BCA.

It is the responsibility of all designers and engineers to ensure that the design complies with the requirements of the Building Code of Australia, the Australian Standards and the applicable legislation. This report does not infer compliance of the design at this stage of documentation. Further assessment will be required to validate the full compliance of the building design.

This report is for the exclusive use of the client and cannot be used for any other purpose without prior permission from Philip Chun BC NSW Pty Ltd. The report is valid only in its entire form. 'Philip Chun accepts no responsibility for any loss suffered as a result of any reliance upon such assessment or report other than as being accurate at the date the report was issued.

1.1 Site / Project Description

The site is located at Brabyn Street within the City of Parramatta Local Government Area. Parramatta East Public School is located in the suburb of North Parramatta, within the City of Parramatta Local Government Area (LGA). The site is approximately 1.5km northeast of the Parramatta CBD, and 24km west of the Sydney CBD. The site currently comprises a single lot to make up Parramatta East Public School, referred to as Lot 100, DP1312418, and the land is owned by the Minister for Education and Early Learning. The site has an area of approximately 1.782Ha, is of an irregular shape, and is bounded by Brabyn Street to the West, Albert Street East to the North, and Gaggin Street/Webb Street to the East. The project area is contained within the site and represents where the proposed works will be undertaken, with an area of approximately 1.492Ha.

An aerial image of the site and project area is shown at Figure 1 below.

Figure 1: Aerial Photograph

Figure 1. Site Aerial
Source: Nearmap, Ethos Urban

Proposed Activity Description:

The activity comprises upgrades to PEPS to provide replacement teaching facilities in place of the existing temporary and permanent facilities that are no longer fit for purpose, involving the following works:

- Site preparation and required earthworks;
- Demolition of existing Buildings C, D, E and F, and associated structures including adjacent ramps and walkways;
- Construction of the following:
    - A new 3-storey school building (referred to as Block R) including teaching spaces, library/administration, and staff/student amenities;
    - Upgrade of soft and hard landscape and playground areas;
    - A new at-grade parking area;
    - Formalised waste area, with access being retained from Gaggin Street;
    - Public Domain Works with upgrades to the pedestrian access south of the school, and new kiss and ride zone on Albert Street East;
    - Entrance and School logo signage along the Northern Albert Street East frontage of Block R;
    - Refurbishment works to existing buildings;

- Removal of trees as required and retention where possible; and
- Installation and augmentation of services and infrastructure as required.

1.2 Purpose of the Report

This report will attempt to address the following:

- Identify compliance upgrade issues triggered form the proposed scope of works
- Undertake an assessment of the proposed scope of works against the deemed-to-satisfy provisions of the BCA 2022
- Identify matters that may require documentation amendment in order to achieve compliance
- Identify potential matters that may be addressed by Performance Solutions;
- This Review of Environmental Factors (REF) report has been prepared by Philip Chun BC NSW P/L on behalf of the NSW Department of Education to assess the potential environmental impacts that could arise from the Parramatta East Public School (PEPS) upgrade (the Proposal) at 30-32 Brabyn Street, North Parramatta (the site). The works are proposed by the NSW Department of Education to meet the growth in educational demand in Collet Park precinct, and the broader North Parramatta area.

  This report has been prepared to review the proposed REF design plan documentation against applicable Australian Standards, BCA and applicable legislation.

1.3 Documentation available and assessed

The architectural drawings assessed comprises of the following relevant plans issued by JDH Architects:

Drawing Number/Revision		Title	Date
1.	PEPS-JDH-XX-XX-DR-A-0000 (A)	COVER PAGE	28/11/2024
2.	PEPS-JDH-XX-XX-DR-A-0001 (A)	DRAWINGS SCHEDULE, LEGENDS & SYMBOLS	28/11/2024
3.	PEPS-JDH-ZZ-XX-DR-A-0010 (A)	SITE PLAN EXISTING	28/11/2024
4.	PEPS-JDH-ZZ-XX-DR-A-0011 (B)	SITE PLAN DEMOLITION	11/12/2024
5.	PEPS-JDH-ZZ-XX-DR-A-0012 (B)	SITE PLAN PROPOSED	11/12/2024
6.	PEPS-JDH-ZZ-XX-DR-A-0015 (A)	SITE PLAN ESTABLISHMENT	28/11/2024
7.	PEPS-JDH-ZZ-GF-DR-A-0101 (A)	GENERAL ARRANGEMENT - DEMOLITION GROUND FLOOR PLAN SHEET 1	28/11/2024
8.	PEPS-JDH-ZZ-GF-DR-A-0102 (B)	GENERAL ARRANGEMENT - DEMOLITION GROUND FLOOR PLAN SHEET 2	11/12/2024
9.	PEPS-JDH-ZZ-GF-DR-A-0103 (A)	GENERAL ARRANGEMENT - GROUND FLOOR PLAN SHEET 1	28/11/2024
10.	PEPS-JDH-ZZ-GF-DR-A-0104 (B)	GENERAL ARRANGEMENT - GROUND FLOOR PLAN SHEET 2	11/12/2024
11.	PEPS-JDH-ZZ-L1-DR-A-0105 (A)	GENERAL ARRANGEMENT - FIRST FLOOR PLAN	28/11/2024
12.	PEPS-JDH-ZZ-L2-DR-A-0106 (A)	GENERAL ARRANGEMENT - SECOND FLOOR PLAN	28/11/2024
13.	PEPS-JDH-ZZ-RF-DR-A-0107 (A)	GENERAL ARRANGEMENT - ROOF PLAN	28/11/2024
14.	PEPS-JDH-ZZ-ZZ-DR-A-0108 (A)	AMENITIES PLAN	28/11/2024
15.	PEPS-JDH-B00R-GF-DR-A-0114 (A)	GROUND FLOOR PLAN SHEET 1	28/11/2024
16.	PEPS-JDH-ZZ-GF-DR-A-0115 (A)	GROUND FLOOR PLAN SHEET 2	28/11/2024
17.	PEPS-JDH-ZZ-GF-DR-A-0116 (A)	GROUND FLOOR PLAN SHEET 3	28/11/2024
18.	PEPS-JDH-ZZ-GF-DR-A-0117 (A)	GROUND FLOOR PLAN SHEET 4	28/11/2024
19.	PEPS-JDH-B00R-L1-DR-A-0118 (A)	FIRST FLOOR PLAN SHEET 1	28/11/2024
20.	PEPS-JDH-B00R-L1-DR-A-0119 (A)	FIRST FLOOR PLAN SHEET 2	28/11/2024
21.	PEPS-JDH-B00R-L2-DR-A-0120 (A)	SECOND FLOOR PLAN SHEET 1	28/11/2024

22.	PEPS-JDH-B00R-L2-DR-A-0121 (A)	SECOND FLOOR PLAN SHEET 2	28/11/2024
23.	PEPS-JDH-B00R-RF-DR-A-0122 (L)	ROOF PLAN SHEET 1	16/9/2024
24.	PEPS-JDH-B00R-ZZ-DR-A-0501 (A)	ELEVATION SHEET 1	28/11/2024
25.	PEPS-JDH-B00R-ZZ-DR-A-0502 (A)	ELEVATION SHEET 2	28/11/2024
26.	PEPS-JDH-B00R-ZZ-DR-A-0503 (A)	ELEVATION SHEET 3	28/11/2024
27.	PEPS-JDH-B00R-ZZ-DR-A-0504 (A)	ELEVATION SHEET 4	28/11/2024
28.	PEPS-JDH-B00R-ZZ-DR-A-0506 (A)	ELEVATION SHEET 5	28/11/2024
29.	PEPS-JDH-ZZ-ZZ-DR-A-0507 (A)	ELEVATION SHEET 6	28/11/2024
30.	PEPS-JDH-B00R-ZZ-DR-A-0511 (A)	SECTION SHEET 1	28/11/2024
31.	PEPS-JDH-B00R-ZZ-DR-A-0512 (A)	SECTION SHEET 2	28/11/2024
32.	PEPS-JDH-ZZ-ZZ-DR-A-0513 (A)	SECTION SHEET 3	28/11/2024

2.0 Compliance and Performance solutions

Where compliance with the deemed to satisfy provisions is not readily achievable, performance-based assessment and performance solutions will need to be used to demonstrate compliance with the BCA. This may not be the final list of performance solutions as the building will undergo design development and other issues may arise that also affect ability to comply with the deemed to satisfy provisions of the Building Code of Australia.

This comes about due to the generic and prescriptive nature of the BCA with respect to the deemed to satisfy provisions and the inability for the document to be ultimately flexible for all building types and applications. This is the main reason the document allows performance-based solutions, where meeting the performance requirements of the code, are deemed to also be in compliance with the BCA.

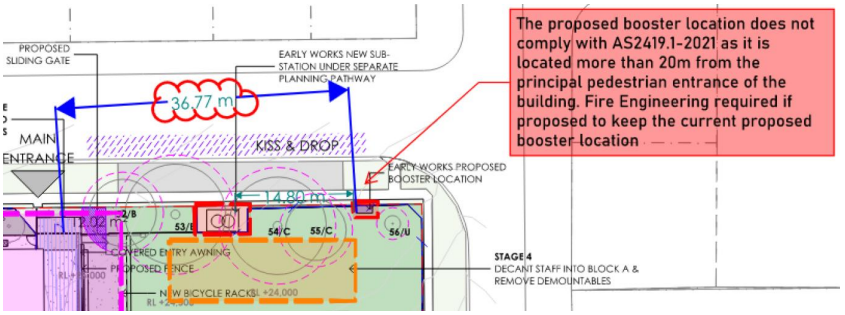
The following performance solutions identified, although needing justification at the next stage of design is anticipated based on our assessment and reviews completed to date.

2.1 Current anticipated performance solutions

Fire Related Performance Solutions

<table>
<tr><th>DtS Clause</th><th>Performance Requirement</th><th>Variance from Deemed-to-Satisfy provisions</th></tr>
<tr><td>D2D5(3)(a)</td><td>D1P4</td><td>Travel distances to a Point of Choice were measured to be in excess of 20m as prescribed under Cl D2D5(3)(a). The following maximum travel distances were measured and noted in the table of locations below:
<table>
<tr><th>Floor Level</th><th>Location</th><th>Max Distance Measured (m)</th><th>Requirement to POC (m)</th></tr>
<tr><td>Ground Floor</td><td>General Learning Space (SLU1)</td><td>22</td><td>20</td></tr>
<tr><td rowspan="2">First Floor</td><td>General Learning Space (GLS1)</td><td>21</td><td>20</td></tr>
<tr><td>General Learning Space (GLS11)</td><td>22</td><td>20</td></tr>
<tr><td rowspan="2">Second Floor</td><td>General Learning Space (GLS13)</td><td>21</td><td>20</td></tr>
<tr><td>General Learning Space (GLS23)</td><td>22</td><td>20</td></tr>
</table>
Fire Engineering justification required for the retention of the existing travel distances within the locations specified in the proposed R Block Building.

Please note: Fire Engineering Performance Solution is being sought for the above-mentioned non-compliance.</td></tr>
<tr><td>E1D2</td><td>E1P3</td><td>The location of the proposed Booster is more than 20m from the principal pedestrian entrance of the building, contrary to AS2419.1 – 2021. Fire Engineering justification required for the retention of the proposed location of Booster being >20m from the principal pedestrian entrance of the building.</td></tr>
</table>

DtS Clause	Performance Requirement	Variance from Deemed-to-Satisfy provisions
		 ***Please note: Fire Engineering Performance Solution is being sought for the above-mentioned non-compliance.***

Non fire and life safety variances from the deemed to satisfy provisions and hence addressable by performance solutions are as follows:

DtS Clause	Performance Requirement	Variance from Deemed-to-Satisfy provisions
F3D2 – F3D5	F3P1	Where a Deemed-to-Satisfy Solution is proposed, Performance Requirement F3P1 is satisfied by complying with F3D2 to F3D5. Otherwise, to be addressed in a Performance Solution.

3.0 Building Code of Australia 2022 Assessment

Section A – Governing Requirements

1. **Compliance with the NCC (BCA) is achieved by complying with –**

   a. The Governing Requirements of the NCC; and
   b. The Performance Requirements.

   This development will comply with the Governing Requirements and adopt Performance Solutions to satisfy the Performance Requirements of the NCC (BCA). Performance Solutions are identified in the body of this report.

2. **Building Assessment**

BCA Parameters		
BCA Classifications	**R Block Building**	Class 9b (GLS, Library, Support Units, Amenities)
	A Block Building	Class 5 and 9b (Staff Room / GLS)
	B Block Building	Class 9b (GLS)
	G Block Building	Class 9b (GLS)
	H Block Building	Class 9b (GLS / Canteen)
Rise in Storeys (RIS)	**R Block Building**	Three (3)
	A Block Building	One (1)
	B Block Building	One (1)
	G Block Building	One (1)
	H Block Building	One (1)
Effective Height	**Blocks A, B, G, H**	<12m
	R Block Building	11.025m *(RL36.325 – RL25.300)*
Type of Construction	**Blocks A, B, G, H**	Type C Construction
	R Block Building	Type A Construction
		Floor Level / **Approx. Floor Area (m²)**: Ground Floor / 1,430 (excl. service stairs)

<table>
<tr><td rowspan="6">Approximate Floor Area (m²)</td><td>R Block Building</td><td><table><tr><td>First Floor</td><td>1,430 (excl. service stairs)</td></tr><tr><td>Second Floor</td><td>1,430 (excl. service stairs)</td></tr><tr><td>Total Area</td><td>4,290</td></tr></table></td></tr>
<tr><td>A Block Building</td><td><table><tr><th>Floor Level</th><th>Approx. Floor Area (m²)</th></tr><tr><td>Ground Floor</td><td>281</td></tr></table></td></tr>
<tr><td>B Block Building</td><td><table><tr><th>Floor Level</th><th>Approx. Floor Area (m²)</th></tr><tr><td>Ground Floor</td><td>142</td></tr></table></td></tr>
<tr><td>G Block Building</td><td><table><tr><th>Floor Level</th><th>Approx. Floor Area (m²)</th></tr><tr><td>Ground Floor</td><td>186</td></tr></table></td></tr>
<tr><td>H Block Building</td><td><table><tr><th>Floor Level</th><th>Approx. Floor Area (m²)</th></tr><tr><td>Ground Floor</td><td>123</td></tr></table></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Fire Compartment Size</td><td>R Block Building</td><td>Total Floor Area <8,000m²
Total Volume <30,000m³</td></tr>
<tr><td>Structural Importance Level</td><td colspan="2">Level 3</td></tr>
<tr><td>Climate Zone</td><td colspan="2">6</td></tr>
</table>

Section B – Structure

1. **Structural Provisions**

The structural components of the building must comply with the applicable Australian Standards. A suitably qualified structural engineer will need to ensure the structural requirements of BCA Clauses B1D3, B1D4, and Specification 4 are considered in the building design (including the importance level of the building). This will mean assessment according to all relevant parts of Section B of the Building Code of Australia and where any provisions cannot be met, a performance solution to be formulated for consideration of the relevant project stakeholders.

Under Part B1D3 of the Building Code of Australia (BCA), a building or structure must be designed to withstand earthquake loads in accordance with AS1170.4-2007, as appropriate. Whilst earthquake loads have obvious implications to the structural design of a building or structure, it is important to note that within AS1170.4-2007, there is also an obligation for certain non-structural parts, components, and their connections to be designed & constructed to withstand earthquake loads. All designers need to be aware of this required.

Structural design, specifications, and certification to be provided from suitably qualified and experienced Structural Engineers to accompany the CDVC Application where structural works are proposed.

Section C – Fire Resistance / Compartmentation / Separation

1. **Type of Construction (C2D2)** – The proposed *'R Block'* Building will comprise of 3 storeys; therefore, Type A Construction is required per Table C2D2 of the BCA. Buildings A, B, G and H are subjected to internal fit out works only and are required to be of Type C Construction as they each contain a rise in storeys of 1.

Table C2D2 Type of construction required

Rise in storeys	Class of building 2, 3, 9	Class of building 5, 6, 7, 8
4 or more	A	A
3	A	B
2	B	C
1	C	C

2. Building Elements for Type A Construction are detailed under Specification 5, specifically Clauses S5C11 – S5C20, and building elements for Type C Construction are detailed under S5C24.

Architectural and Structural Engineer to note the requirements and provide details to accompany the relevant Construction Documentation at CDVC Stage.

3. **Lightweight construction (C2D9**) –
   1. Lightweight construction must comply with Specification 6 if it is used in a wall system—
      a) that is required to have an FRL; or
      b) for a lift shaft, stair shaft or service shaft or an external wall bounding a public corridor including a non-fire-isolated passageway or non-fire-isolated ramp, in a spectator stand, sports stadium, cinema or theatre, railway station, bus station or airport terminal.

   2. If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if
      a) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and
      b) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.

Architectural details and specifications to accompany the relevant Construction Documentation at CDVC Stage.

4. **Non-Combustible building elements (C2D10)** –
   1. In a building required to be of Type A construction, the following building elements and their components must be non-combustible:
      a) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.
      b) The flooring and floor framing of lift pits.
      c) Non-loadbearing internal walls where they are required to be fire-resisting.

   2. 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) a building required to be of Type A construction.

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

   4. The requirements of (1) and (2) do not apply to the following:
      a) Gaskets.
      b) Caulking.
      c) Sealants.
      d) Termite management systems.
      e) Glass, including laminated glass, and associated adhesives, including tapes.
      f) Thermal breaks associated with—
         a. glazing systems; or
         b. external wall systems, where the thermal breaks—
            i. are no larger than necessary to achieve thermal objectives; and
            ii. do not extend beyond one storey; and
            iii. do not extend beyond one fire compartment.
      g) Damp proof courses
      h) Compressible fillers and backing materials, including those associated with articulation joints, closing gaps not wider than 50 mm.
      i) Isolated—
         a. construction packers and shims; or
         b. blocking for fixing fixtures; or
         c. fixings, including fixing accessories; or
         d. acoustic mounts.
      j) Waterproofing materials applied to the external face, used below ground level and up to 250 mm above ground level.
      k) Joint trims and joint reinforcing tape and mesh of a width not greater than 50 mm.
      l) Weather sealing materials, applied to gaps not wider than 50 mm, used within and between concrete elements.

m) Wall ties and other masonry components complying with AS 2699 Part 1 and Part 3 as appropriate and associated with masonry wall construction.
n) Reinforcing bars and associated minor elements that are wholly or predominately encased in concrete or grout.
o) A paint, lacquer or a similar finish or coating.
p) Adhesives, including tapes, associated with stiffeners for cladding systems.
q) Fire-protective materials and components required for the protection of penetrations.

6. The following materials may be used wherever a non-combustible material is required:
   1. Plasterboard.
   2. Perforated gypsum lath with a normal paper finish.
   3. Fibrous-plaster sheet.
   4. Fibre-reinforced cement sheeting.
   5. Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread of Flame Index of the product is not greater than 0.
   6. Sarking Type Materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5.
   7. Bonded laminated materials where—
      i. each lamina, including any core, is non-combustible; and
      ii. each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
      iii. the Spread of Flame Index and the Smoke Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively; and
      iv. when located externally, are fixed in accordance with C2D15

Architect and Structural Engineer to note for the construction of the 'R Block' Building and ensure non-combustibility of building elements where applicable. Where rectification is undertaken in Blocks A, B, G and H, the Architect and Structural Engineer is to ensure non-combustible building elements are used where appropriate in accordance with this clause. Details to be provided to accompany the relevant Construction Documentation at CDVC Stage to confirm compliance.

5. **Fire Hazard Properties (C2D11)** – All new surface finishes, assemblies and linings are to comply with BCA Clause C2D11 and Specification 7 regarding Fire Hazard Properties.

   Additional details, specifications & test reports will be required to verify compliance of new surface finishes, assemblies and linings. This is to be provided with the relevant Construction Documentation at CDVC Stage.

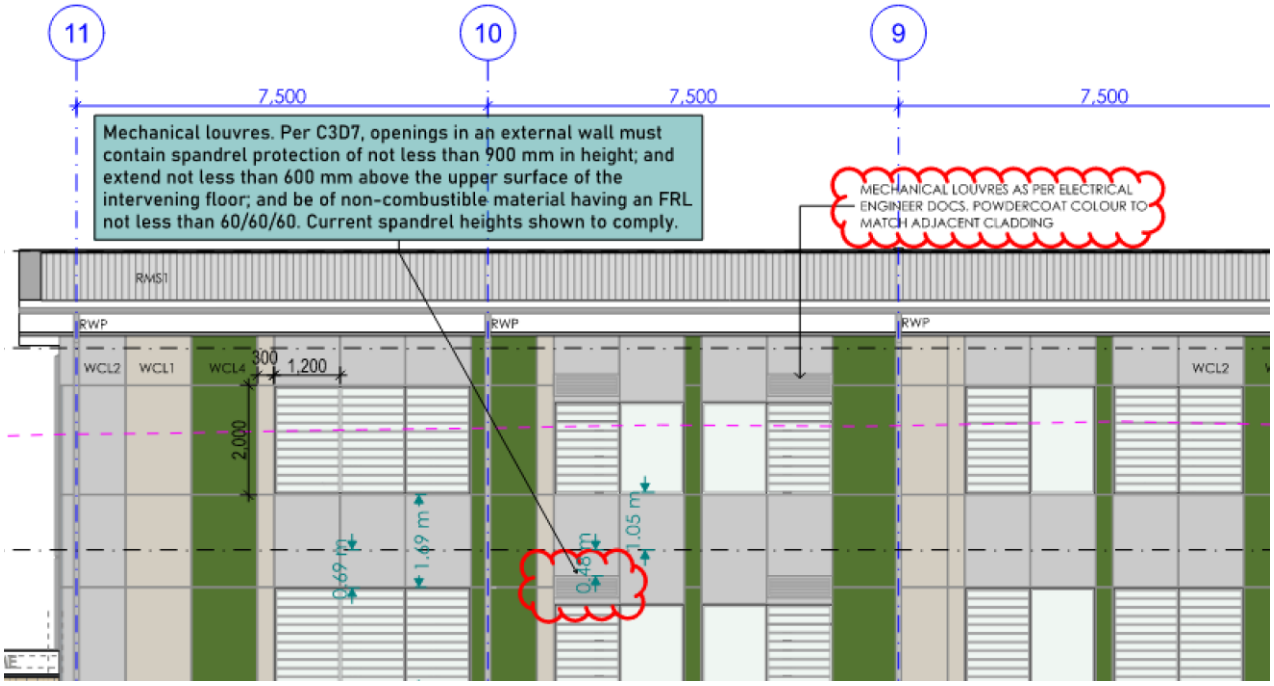
6. **Fire Compartmentation (C3D3)** – The table below depicts the floor area and volume limitations applicable for Type A construction.

Classification	Type A Construction
Class 9b	Max floor area permitted– 8000m^2
	Max volume permitted – 48000m^3

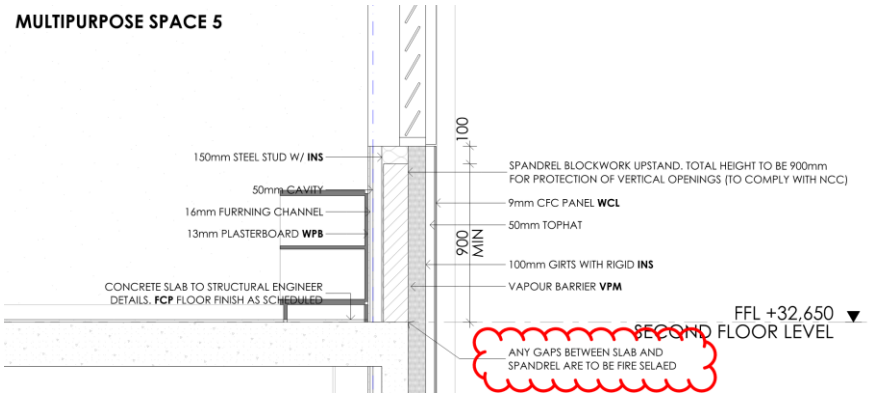
   The design of the 'R Block' Building does not exceed the floor area and volume limitations prescribed in this Clause, therefore complies.

7. **Vertical separation of openings in external walls (C3D7) –** A building of Type A Construction must be provided with fire separation between floors. This separation is achieved by the floor containing a Fire Resistance Level and it applies to openings above one another in different storeys if they are within a horizontal distance of 450mm of each other. This does not apply to sprinkler protected buildings or openings within a fire isolated stair shaft.

   The design of the 'R Block' includes adequate measurements for spandrel protection to ensure vertical separation of openings are achievable. The north and west elevation drawings specify spandrels with a minimum height of 900mm, extending at least 600mm above the upper surface of the intervening floor. This requirement does not apply to the south elevation openings due to the extended concrete slab walkway projecting more than 1100mm from the external face of the wall. The Eastern Elevation to 'R Block' does not require spandrel protection.



Further review of the external wall section drawings also shows that any gaps between the slab and spandrel are to be fire sealed in accordance with Clause C4D16. In addition, please note that any supporting elements must be appropriately treated to ensure the Spandrel FRL is maintained,



8. **Separation of lift shafts (C3D11) –** Any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered, (other than lifts which are wholly within an atrium) must be separated from the remainder of the building by enclosure in a shaft in which a building required to be of Type A construction must meet the relevant FRL of walls as prescribed by Specification 5.

   The documentation reveals the lift shaft is proposed to be constructed of 200mm concrete, which should meet the required 120/120/120 Fire Resistance Level (FRL). Detailed drawings to be provided prior to issue of CDVC.

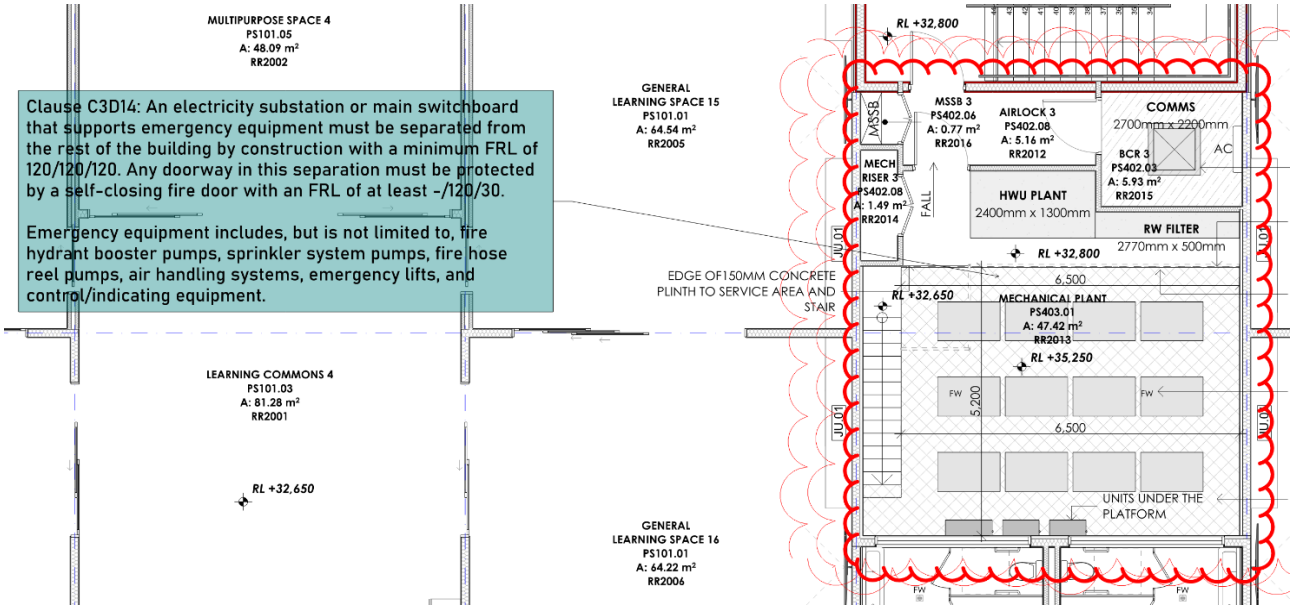
9. **Separation of equipment (C3D13) –** Equipment comprising of lift motors, lift control panels, emergency generators, central smoke control plant, boilers or any battery or batteries installed in the building that have a voltage of 12 volts or more and a storage capacity of 200kWh or more must be constructed with an FRL in accordance with Tables S5C21a - S5C21g of Specification 5 in the BCA but not less than 120/120/120.

   Architect to note, details to be provided prior to the issue of CDVC.

10. **Electricity Supply System (C3D14) –** An electricity substation or main switchboard located within the

building which sustains emergency equipment operating in emergency mode must be separated from any other part of the building by construction not less than 120/120/120 and have any doorway in that construction protected with a self-closing fire door having an FRL not les than -/120/30.

The documentation reveals Mechanical Services Switchboard (MSSB) and mechanical plant to be installed along with a concrete plinth for a communications rack. Details to be provided prior to issue of CDVC. Mechanical Consultant to confirm if an essential service as fire rating may be required.



11. **Openings in floors and ceilings for services (C4D13) –**
    1. Where a service passes through—
        a) a floor that is required to have an FRL with respect to integrity and insulation; or
        b) a ceiling required to have a resistance to the incipient spread of fire, the service must be installed in accordance with (2).

    2. A service must be protected—
        a) in a building of Type A construction, by a shaft complying with Specification 5; or
        b) in a building of Type B or C construction, by a shaft that will not reduce the fire performance of the building elements it penetrates; or
        c) in accordance with C4D15.

    3. Where a service passes through a floor which is required to be protected by a fire-protective covering, the penetration must not reduce the fire performance of the covering.

Provide a penetrations schedule including all relevant details and test reports for any services passing through fire rated walls, floors and ceilings prior to issue of the CDVC.

12. **Openings for service installations (C4D15)** - Electrical, plumbing, mechanical ventilation, air- conditioning or other service penetrations that are required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, must be fire sealed, fire rated or otherwise comply with listed standards.

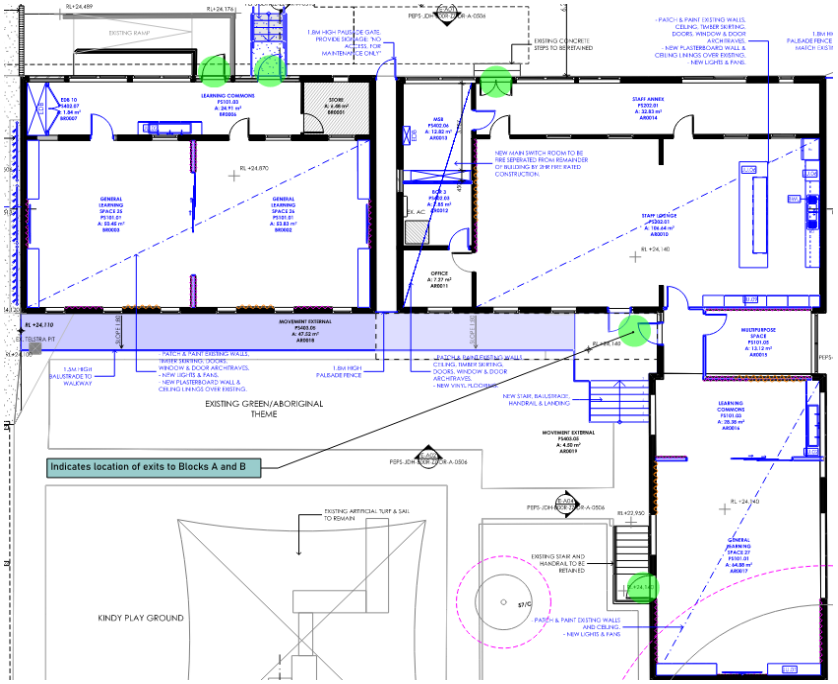
Provide a penetrations schedule including all relevant details and test reports for any services passing through fire rated walls, floors and ceilings prior to issue of the CDVC.

Section D – Access and Egress

1. **Number of exits required (D2D3) -** Each storey in a class 9b school must be provided with at least two exits, where there is a rise in storeys of 2 or more. In addition, any storey or mezzanine that accommodates more than 50 persons, calculated under D2D18 must be provided with not less than 2 exits.

The design of the 'R Block' Building has been shown to contain at least 2 exits by means of a fire isolated service stair and three external stairs.

In addition, existing Blocks A, B and G are also proposed to incorporate a minimum of 2 exits given that the storey proposes to accommodate more than 50 persons in compliance with D2D3(4a)(vi)



2. **Exit travel distances (D2D5) -** The maximum distance of travel to an exit to floors is to be 40 metres, and to a point of choice is to be 20 metres.

The following Exit Travel Distances from the proposed 'R Block' Building were shown to not comply with the minimum distance of 20m to a Point of Choice per the table below:

Floor Level	Location	Max Distance Measured (m)	Requirement to POC (m)
Ground Floor	General Learning Space (SLU1)	**22**	20
First Floor	General Learning Space (GLS1)	**21**	20
	General Learning Space (GLS11)	**22**	20
Second Floor	General Learning Space (GLS13)	**21**	20
	General Learning Space (GLS23)	**22**	20

3. **Distance between alternative exits (D2D6) -** The distance between alternate exits is not to exceed 60 metres, alternative exits not to be less than 9m apart and alternative paths of travel not to converge such that they become less than 6m apart.

The design provided shows the distance between alternative exits does not exceed 60m, nor converge to less than 6m apart, therefore complies.

4. **Width of exits and paths of travel to exits (D2D8) -** The unobstructed path of travel to an exit not to be less than 1m. Minimum egress width must be provided based on anticipated number of occupants as calculated in accordance with table D2D18 of the BCA.

The floor plan generally complies with a minimum clear path of travel of 1m throughout the rooms / spaces in the R Block. The aggregate unobstructed width of exits was measured to be 6m (i.e. 2m each external stair), accommodating for up to 680 occupants per storey (Levels 1 and 2), subject to amenities assessment under F4D4.

5. **Width of doorways in exits or paths of travel to exits (D2D9) -** In a required exit or path of travel to an

exit, the unobstructed width of a doorway must be not less than—
(a) the unobstructed width of each exit provided to comply with D2D8, minus 250 mm; or
(b) in any other case except where it opens to a sanitary compartment or bathroom — 750 mm wide.

The floor plans and door schedules reveal the width of doorways in exits or paths of travel to exits were at least 750mm wide, therefore complies.

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

The exit width is not shown to diminish in the direction of travel, therefore complies.

7. **Determination and measurement of exits and paths of travel to exits (D2D11) –**
For the purposes of D2D7 to D2D10 the following apply:
(a) The required width of a stairway or ramp in a required exit or path of travel to an exit must—
(i) be measured clear of all obstructions such as handrails, projecting parts of barriers and the like and
(ii) extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosing's of the treads or the floor surface of the ramp or landing.
(b) To determine the aggregate unobstructed width, the number of persons accommodated must be calculated according to D2D18.

Refer comments under D2D18 regarding population count.

8. **Travel via Fire Isolated Exits (D2D12) –**
(1) A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from—
a) a public corridor, public lobby or the like; or
b) a sole-occupancy unit occupying all of a storey; or
c) a sanitary compartment, airlock or the like.

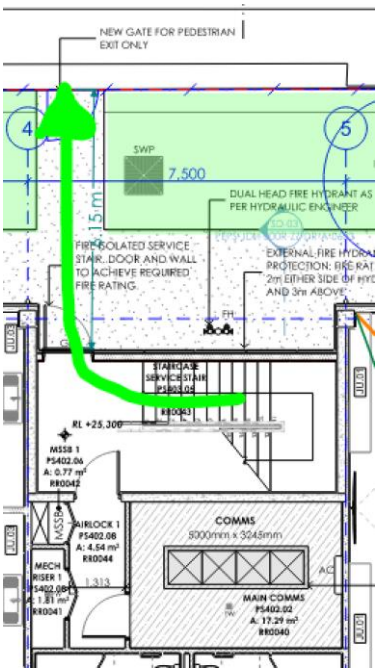
(2) Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire isolated passageway -
a) to a road or open space; or
b) to a point—
i. in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least ⅔ of its perimeter; and
ii. from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or
c) into a covered area that—
i. adjoins a road or open space; and
ii. is open for at least ⅓ of its perimeter; and
iii. has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and
iv. provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.

(3) Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, the following applies:
a) That part of the wall must have—
i. an FRL of not less than 60/60/60; and
ii. any openings protected internally in accordance with C4D5; and
b) The protection required by (a) must extend for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.

The 'R Block' includes a fire-isolated stair shaft discharging at ground level along a proposed

pathway on the Northern Boundary. The external walls of the fire exit are located within 6m and requires an FRL as the path of travel from the point of discharge necessitates passing within 6m of any part of the external wall.

Please note the inconsistency between the door schedule and plans, with the plans advising a fire isolated service stair door and wall to achieve the required FRL, whereas the door schedule depicts a glazed external door.



9. **External stairways or ramps in lieu of fire-isolated exits (D2D13) –**

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

a) non-combustible throughout; and

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

(2)For the purposes of this clause—

a) exposure under (1)(b), is measured in accordance with S5C2, as if the exit was a building element and the external wall of the building was a fire-source feature to the exit, except that the FRL required in S5C2(1)(a) must not be less than 60/60/60; and

b) the plane formed at the construction edge or perimeter of an unenclosed building or part such as an open-deck carpark, open spectator stands or the like, is deemed to be an external wall; and

c) openings in an external wall and openings under (3) and (4), are determined in accordance with C4D2.

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

a) The part of the external wall of the building to which the exit is exposed must have—

i. an FRL of not less than 60/60/60; and

ii. no openings less than 3 m from the exit (except a doorway serving the exit protected by a –/60/30 fire door in accordance with C4D9(1)); and

iii. any opening 3 m or more but less than 6 m from the exit, protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located internally.

b) The exit must be protected by construction of a wall, roof, floor or other shielding element as appropriate in accordance with (4) from—

i. any part of the external wall of the building having an FRL of less than 60/60/60; and

ii. any openings in the external wall.

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

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

The design of the 'R Block' incorporates external stairs that are located at a distance to the external wall of more than 6m.

10. **Travel by non-fire-isolated stairways or ramps (D2D14) -** In a Class 5, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80m***.***

The distance of travel via the non-fire-isolated stairways to open space is not more than 80m, therefore complies.

11. **Discharge from exits (D2D15) -** an exit must not be blocked at the point of discharge. Where exits lead to open space, the path of travel to the road must have the minimum width of the required exits and the path of travel must be by way of ramp not exceeding 1:14 where required by Part D3 of BCA or in any other case, ramp not steeper than 1:8 or compliant stairway.

Specific gates within the school premises will need to be openable without the use of a key to all egressing occupants at all times. Provide a Management Plan to accompany the relevant Construction Documentation at CDVC Stage.

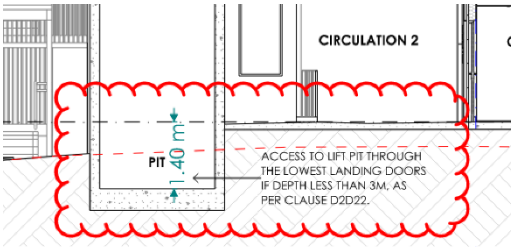
12. **Number of Persons Accommodated (D2D18) -** Please refer to the table and comment provided below:

D2D18 – Number of Persons Accommodated Calculations			
	Approx Total Floor Area (m^2)	Area Per Person per D2D18	No. of occupants permitted
New General Learning Spaces (Incl. SLUs)	1,777	2/m^2	**889**
New Learning Commons (Incl. SLUs)	736	2/m^2	**368**
New Multipurpose Spaces (Incl. SLUs)	155	1/m^2	**155**
Ground Floor Office / Administrative Spaces (Incl. Circulation Spaces and Sick Bay)	365	10/m^2	**37**
Max population permitted in R Building			**1449**

The calculation of occupancy for the proposed 'R Building' indicates that, based on the size of the Ground Floor and Levels 1 and 2, the facility can accommodate up to 1,449 occupants. The total aggregate egress widths provided throughout the building are adequate for this number. Additionally, the amenities assessment (refer to Clause F4D4) confirms that the proposed amenities can support up to 1,650 students and 120 staff, distributed evenly.

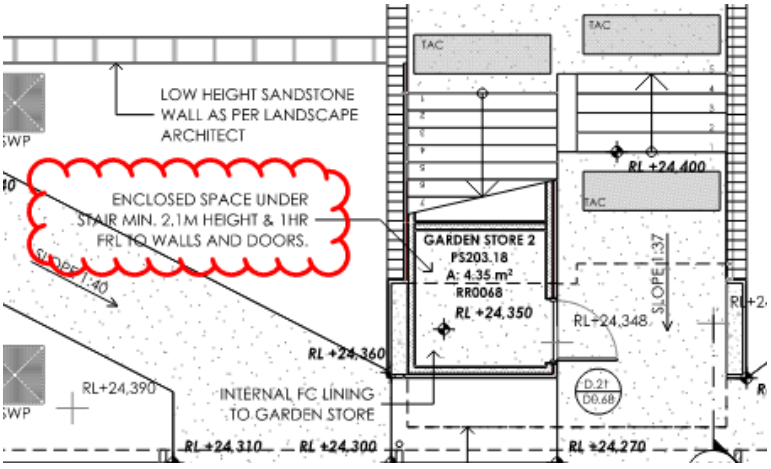
13. **Access to lift pits (D2D22) -** Where the pit depth is not more than 3m, access to lift pits must be through the lowest landing doors. Where pit depth exceeds 3m, an access doorway complying with the requirements of this Clause must be provided.

The pit depth is shown to be less than 3m. Access to lift pits must be provided through the lowest landing doors. Structural Engineer, Architect, and Lift designer to note and design accordingly prior to issue of CDVC.



14. **Enclosure of space under stairs and ramps (D3D9)** –
(1) Fire-isolated stairways and ramps — If the space below a required fire-isolated stairway or fire-isolated ramp is within the fire-isolated shaft, it must not be enclosed to form a cupboard or similar enclosed space.
(2) Non-fire-isolated stairways and ramps — The space below a required non-fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless—
(a) the enclosing walls and ceilings have an FRL of not less than 60/60/60; and
(b) any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door.

The plans show enclosed spaces beneath external stairs 1, 2, and 3. The enclosing walls and ceilings must achieve an FRL of at least 60/60/60. Plans provided are annotated to demonstrate the proposed enclosed spaces will achieve a minimum 1-hour fire rating to walls and a 1 hr rating to the fire door.



15. **Pedestrian ramps (D3D11)** –
(1) A fire-isolated ramp may be substituted for a fire-isolated stairway if the construction enclosing the ramp, and the width and ceiling height comply with the requirements for a fire-isolated stairway.
(2) A ramp serving as a required exit must—
(a) where the ramp is also serving as an accessible ramp under Part D4, be in accordance with AS 1428.1; or
(b) in any other case, have a gradient not steeper than 1:8.
(3) The floor surface of a ramp must have a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586.

The ramps serving as a required exit and for accessibility purposes are not shown to contain a gradient steeper than 1:8 – Access Consultant to review the construction details and gradients of the ramp to ensure design compliance with the requirements of AS1428.1-2009, and to ensure floor surfaces of the ramps will comply with the required slip resistance classifications detailed under D3D15. Refer to Philip Chun Access Report for further details.

16. **Goings and risers (D3D14) –** (1) A stairway must have—
(a) not more than 18 and not less than 2 risers in each flight; and
(b) going (G), riser (R) and quantity (2R + G) in accordance with Table D3D14, except as permitted by (2) and (3); and
(c) constant goings and risers throughout each flight, except as permitted by (2) and (3), and the dimensions of goings (G) and risers (R) in accordance with (1)(b) are considered constant if the variation between—
i. adjacent risers, or between adjacent goings, is no greater than 5 mm; and
ii. the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm; and
(d) risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and
(e) treads which have—
i. a surface with a slip-resistance classification not less than that listed in Table D3D15 when tested

in accordance with AS 4586; or

ii. a nosing strip with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; and

(f) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 storeys; and

(g) in a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°;and

(h) in the case of a required stairway, no winders in lieu of a landing;

Stairway location	Riser (R)		Going (G)		Quantity (2R + G)	
	Min	Max	Min	Max	Min	Max
Public	190	115	250	355	700	550

The design of the external stairs and internal fire-isolated stairs appears to comply. Detailed drawings to be provided prior to the issue of CDVC. Refer to comments in Clause D3D23 regarding stair construction serving the mechanical plant room.

17. **Landings (D3D15)** - In a stairway—

(a) landings having a maximum gradient of 1:50 may be used in any building to limit the number of risers in each flight and each landing must—

i. be not less than 750 mm long, and where this involves a change in direction, the length is measured 500 mm from the inside edge of the landing; and

ii. have—

(A) a surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586;

(B) or a strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586, where the edge leads to a flight below; and

The design of the fire-isolated and external stairs includes landings measuring at least 750mm in length, therefore complies. Additionally, the external stair landings are a minimum of 2m, which will help maintain the required egress widths along the path of travel. Refer to comments in Clause D3D23 regarding stair construction serving the mechanical plant room.

18. **Barriers to prevent falls (D3D17) –**

(1) 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.

(2) The requirements of (1) do not apply to—

a. the perimeter of a stage, rigging loft, loading dock or the like; or
b. areas referred to in D2D23; or
c. a retaining wall, unless the retaining wall forms part of, or is directly associated with a delineated path of access to a building from the road, or a delineated path of access between buildings; or
d. a barrier provided to an openable window covered by D3D29.

(3) A barrier required by (1) must be constructed in accordance with D3D18, D3D19, D3D20, and, if a wire barrier is used, D3D21.

The design of the stairways and walkways where there is a trafficable surface of 1m or more above the surface beneath is shown to be provided with a continuous barrier to prevent falls, therefore complies.

19. **Height of Barriers (D3D18) –**

(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—

i. 1 m; or

ii. 700 mm where the horizontal projection extends not less than 1 m outwards from the top of the barrier; or

iii. in a Class 9b building used as an entertainment venue, the height prescribed for guardrails in NSW I4D1 or NSW I5D9.

d) In a Class 9b building used as an entertainment venue, for stairways and ramps and the floor of any access path, balcony, landing or the like—

i. 1 m when provided inside the building; and

ii. 1200 mm when provided externally to the building.

e) 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

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.

The design of the external stairways features a barrier-like screen to prevent falls. Detailed drawings and structural design certificate to be provided prior to the issue of CDVC.

Openings in barriers (D3D19) –

(1) Except where allowed by (2), openings in a required barrier must not allow a 125 mm sphere to pass through.

(2) In a fire-isolated stairway, fire-isolated ramp or other area used primarily for emergency purposes, openings in a required barrier—

a. must not allow a 300 mm sphere to pass through; or

b. where rails are used—

i. a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like; and

ii. the opening between rails must not be more than 460 mm.

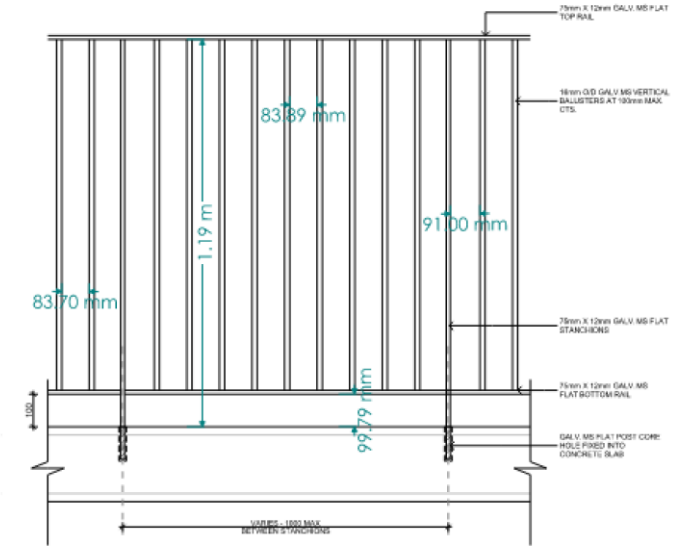
(4) The requirements of (2) do not apply to external stairways, external ramps, or fire-isolated stairways or fire-isolated ramps serving Class 9b early childhood centres.

(5) For a barrier provided under (1), the maximum 125 mm barrier opening for a stairway, such as a non-fire-isolated stairway, is measured above the nosing line of the stair treads.

(6) Where a required barrier is fixed to the vertical face forming an edge of a landing, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm.

(7) For the purposes of (6), the opening is measured horizontally from the edge of the trafficable surface to the nearest internal face of the barrier.

The design of the external stairways features barrier-like enclosures to prevent falls (per above comments). Elevation drawings show openings less than 125mm, ensuring compliance. Similarly, barriers along the external corridors from the classrooms also have openings no larger than 125mm. A review of the Typical Balustrade Elevation Details confirms compliance with the requirements of this clause.



TYPICAL BALUSTRADE ELEVATION DETAIL - BAL1
SCALE1:10

BAL 1: TYPICAL BALUSTRADE DETAIL TO ALL GROUND FLOOR RAMPS AND WALKWAYS

20. **Barrier Climbability (D3D20) –**

(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—
- a. Fire-isolated stairways, fire-isolated ramps, and other areas used primarily for emergency purposes, other than—
  - i. external stairways; and
  - ii. external ramps; and
- b. Class 7 (other than carparks) and Class 8 buildings.

Current plans appear to comply.

21. **Handrails (D3D22) –**

(1) Except for handrails referred to in D3D23, and subject to (2), handrails must—
- a. be located along at least one side of the ramp or flight; and
- b. be located along each side if the total width of the stairway or ramp is 2 m or more; and
- c. in a Class 9b building used as a primary school —
  - i. have one handrail fixed at a height of not less than 865 mm; and
  - ii. in addition to (i), have a handrail—
    - A. fixed at a height between 665 mm and 750 mm in a primary school; and
    - B. with a cross-sectional dimension not less than 16 mm and not greater than 45 mm as measured in any direction across its centre, fixed at a height between 450 mm and 700 mm in a Class 9b early childhood centre; and
- d. in any other case, be fixed at a height of not less than 865 mm; and
- e. be continuous between stair flight landings and have no obstruction on or above them that will tend to break a handhold; and
- f. in a required exit serving an area required to be accessible, be designed and constructed to comply with clause 12 of AS 1428.1, except that clause 12(d) does not apply to a handrail required by (1)(c)(ii).

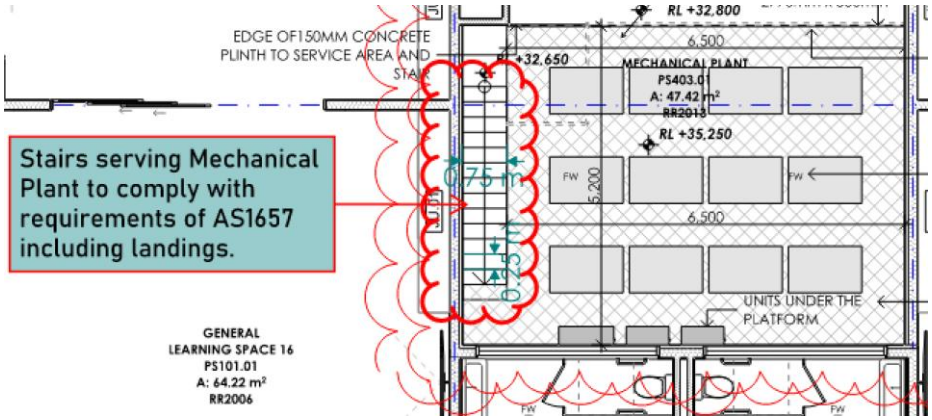
(2) The height required by (1)(c) and (d) is measured above the nosing's of stair treads and the floor surface of the ramp, landing or the like.
(4) Handrails required to assist people with a disability must be provided in accordance with D4D4.

Current plans appear to comply. Detailed drawings to be provided prior to the issue of CDVC. Refer also to Philip Chun's Access Report.

Please note: Typical stair and balustrade section details have been provided for Balcony 1. Please be advised, handrails are not to be installed along the external walkways of Balconies 1 and 2, as the floor height exceeds 4m above the surface below. Installing the handrails per the requirements of this Clause would result in a technical non-compliance with Clause D3D20 concerning climbable elements, as handrails in primary schools must be fixed at a height between 665 mm and 750 mm.

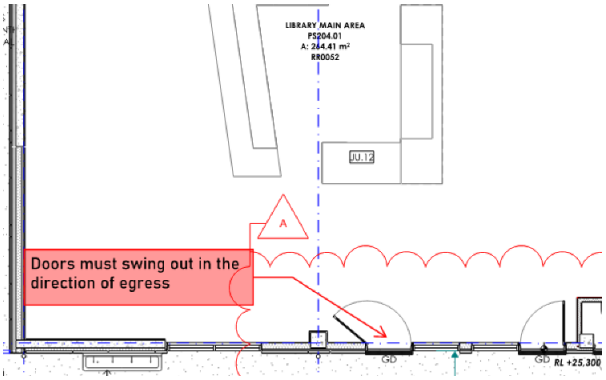
22. **Fixed platforms, walkways, stairways and ladders (D3D23) -** A fixed platform, walkway, stairway, ladder and any going and riser, landing, handrail or barrier attached thereto may comply with AS 1657 in lieu of Clauses D3D14 - D3D15 and D3D17 - D3D22 if it only serves—
a. machinery rooms, boiler houses, lift-machine rooms, plant-rooms, and the like; or
b. non-habitable rooms, such as attics, storerooms and the like that are not used on a frequent or daily basis in the internal parts of a sole-occupancy unit in a Class 2 building or Class 4 part of a building.

The stairs to the mechanical plant room appear to comply with AS1657 standards. The proposed stair width is 750mm, and the goings are 250mm, both of which meet the minimum prescribed dimensions for stairway geometry under AS1657. The architect is to confirm that AS1657-compliant stairs will be installed, including compliant landings as per AS1657 requirements.



23. **Swinging doors (D3D25) -** A swinging door in a required exit or forming part of a required exit must swing in the direction of egress unless it serves a building or part with a floor area not more than 200m2, it is the only required exit from the building or part, and it is fitted with a device for holding it in the open position.

The swinging doors to the R Block Library/Main area does not swing out in the direction of egress to the southern external walkway. All other swinging doors throughout Block R are shown to comply the requirements of this clause.



24. **Operation of latch (D3D26) -** All doors in an exit, forming part of the exit or in the path of travel to the exit must be openable without a key from the egress side by a single hand downward action or single hand push action installed in accordance with this part of the BCA. Such doors serving a storey or room accommodating more than 100 persons in a Class 9b part of the building, must be provided with panic bars and swing in the direction of egress (BCA NSW Clause D3D26).

Compliance readily achievable. Refer also to Philip Chun's Access Report.

25. **Protection of openable windows (D3D29) –**

(1) A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in—

a) a bedroom in a Class 2 or 3 building or Class 4 part of a building; or
b) a Class 9b early childhood centre.

(2) Where the lowest level of the window opening is less than 1.7 m above the floor, a window opening covered by (1) must comply with the following:

a) The openable portion of the window must be protected with—
    i. a device capable of restricting the window opening; or
    ii. a screen with secure fittings.
b) A device or screen required by (a) must—
    i. not permit a 125 mm sphere to pass through the window opening or screen; and
    ii. resist an outward horizontal action of 250 N against the—
        A. window restrained by a device; or
        B. screen protecting the opening; and
    iii. have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.

(3) A barrier with a height not less than 865 mm above the floor is required to an openable window—

a) in addition to window protection, when a child resistant release mechanism is required by (2)(b)(iii); and
b) where the floor below the window is 4 m or more above the surface beneath if the window is not covered by (1).

(4) A barrier covered by (3) except for (5) must not—

a) permit a 125 mm sphere to pass through it; and
b) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.

Architect to note. Detailed design drawings to be provided prior to issue of CDVC.

Part D4 Access for people with a disability

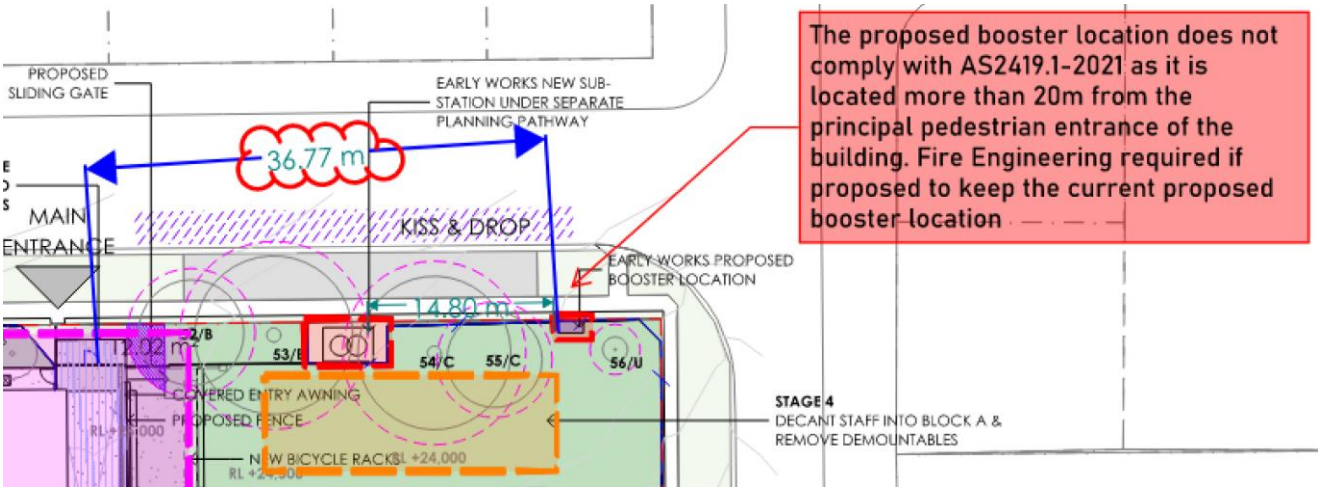
Please be advised, Part D4 has not been included within the contents of this report. A separate Access Report for the proposed subject works has been prepared by an Access Consultant from Philip Chun Accessibility Pty Ltd. Please refer to the comments contained within the Philip Chun Access Report.

Section E – Services and Equipment

1. **Fire Hydrants (E1D2) -** Buildings with a floor area >500m2 must be served with fire hydrants complying with the requirements of this clause and AS 2419.1-2021. Internal fire hydrants must be located within 4m of the required exit (i.e. external stairways or doors leading to open space). In addition, the external fire hydrant pump room must comply with the requirements of AS2419.1-2021.

Non-Compliance – The Booster Assembly is located more than 20m from the principal pedestrian entrance of the building, contrary to the requirements of AS2419.1-2021. Fire Services Consultant to be engaged to review for compliance and determine feasibility of fire engineered performance solution to retain the proposed booster location.

In addition, the Booster Assembly is shown to be located more than 10m from the Substation, complying with AS2419.1-2021. Fire Services consultant to confirm compliance with the hydrant coverage requirements and locations subject to AS2419.1-2021.



2. **Fire Hose-reels (E1D3) -** Fire hose-reels must provide full coverage to the building in accordance with AS2444-2005. Fire hose-reels are to be located within 4m of an exit or adjacent to an internal fire hydrant (Note - Fire hose-reels are not required to be provided in classrooms and associated corridors in a primary or secondary school nor in office spaces). However, Fire Hose Reels may be installed to provide coverage to other rooms within the 9b component which includes the Library Main Area and ancillary rooms.

   Hydraulic Consultant to note. Single line diagram confirming fire hose reel coverage is sufficient throughout and a design certificate is to be provided prior to issue of CDVC.

   Please note the following EFSG Requirements: EFSG requirements typically mandate fire-rated storerooms. Per Subclause (6) under E1D3 of the BCA, fire hoses cannot pass through doorways with fire or smoke doors, which may warrant FHRs to be installed in any proposed storage room. Architect and Services Consultant to confirm applicability of this requirement.

3. **Portable Fire Extinguishers (E1D14) -** Fire extinguishers must be provided to all locations which are deemed a potential risk to the occupants of the building, i.e. areas such as main switchboards and to cover Class A fire risks in classrooms and associated corridors in primary and secondary schools not provided with fire hose reels.

   Details of fire extinguisher locations to be provided at CDVC Stage to demonstrate compliance.

4. **Buildings not more than 25m in effective height: Class 5, 6, 7b, 8 and 9b buildings (E2D9) –** The subject 'R Building' comprises of more than 2 stories and contains a Class 9b component. Therefore, the following building must be provided with —

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

   Mechanical Consultant to note requirements of this clause and provide any of the abovementioned systems in consultation with the Fire Services Consultant. Design certificate to be provided at CDVC stage.

5. **Class 9b – assembly buildings: all (NSW E2D16) -** The following provisions apply to all Class 9b assembly buildings: A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of—

(i) smoke detectors installed complying with S20C6; and

a. any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.

Mechanical Consultant to note requirements of this clause and provide any of the abovementioned systems in consultation with the Fire Services Consultant. Design certificate to be provided at CDVC stage.

Part E3 Lift Installations

Part E3 has not been assessed in this report. Detailed lift construction drawings and specifications are required at the CDVC stage for compliance.

6. **Exit and emergency lighting (E4D2 – E4D8)** – Emergency lighting and exit signage must be installed in accordance with AS2293.1-2018 to all buildings on the site.

Electrical consultant to provide details and specifications at CDVC Stage.

Section F – Health and Amenity

1. **Stormwater drainage (F1D3)** - Stormwater drainage must be designed and constructed in accordance with AS/NZS 3500.3.

Hydraulic services consultant to provide stormwater drainage drawings and ensure compliance with the requirements of this clause and relevant Australian Standards are met. Documents are to accompany the application at CDVC Stage.

2. **Waterproofing of wet areas in buildings (F2D2)** - In a Class 5 and 9b building, building elements in wet areas must be water resistant or waterproof in accordance with Specification 26 and comply with AS 3740.

Waterproofing details to accompany the construction documents at CDVC Stage

3. **Wall Cladding (F3D5)** – (1) External wall cladding must comply with one or a combination of the following:

(a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700.
(b) Autoclaved aerated concrete: AS 5146.3.
(c) Metal wall cladding: AS 1562.1.

Details of the external wall construction and cladding to be provided.

4. **Facilities in Class 3 to 9 buildings (F4D4) -** The following sanitary facilities are required to be provided to the buildings:

(a) Staff and students must not use the same facilities, hence separate staff facilities are required. (note this includes separate Unisex accessible sanitary facilities for staff and students, unless a performance solution is supported by School Infrastructure).
(b) One of the cubicles in each of the male and female staff and student sanitary facility banks are required to be ambulant cubicles in accordance with BCA F2D5 and AS1428.1-2009.
(c) Unisex accessible sanitary facilities to be provided in accordance with BCA F2D5 and AS1428.1-2009.
(d) Building occupants are to be assessed based on 50% male and 50% females or as specified by the client.
(e) Facilities are to be provided on this basis according to F2 of the Building Code of Australia.

Attached below is a review of the plans detailing the student amenities provided, along with the number of staff and students that can be accommodated based on the amenities assessment.

Ground Floor No. of Sanitary Facilities provided on the floor plate – Class 9b School				
	Pans	Urinals	Basins	
Male Students	8	6	11	
Allowable Population Male Students	600	600	700	600

Female Students	14	-	11	
Allowable Population Female Students	600	-	625	600
Maximum Population				**1200 students**

Ground Floor No. of Sanitary Facilities provided on the floor plate – Class 9b School				
	Pans	Urinals	Basins	
Male Staff	3	3	6	
Allowable Population Male Staff	60	75	180	60
Female Staff	6	-	6	
Allowable Population Female Staff	80	-	180	80
Maximum Population				**120 staff**

First Floor No. of Sanitary Facilities provided on the floor plate – Class 9b School				
	Pans	Urinals	Basins	
Male Students	4	3	4	
Allowable Population Male Students	200	200	175	175
Female Students	8	-	4	
Allowable Population Female Students	350	-	175	175
Maximum Population				**350 students**

Second Floor No. of Sanitary Facilities provided on the floor plate – Class 9b School				
	Pans	Urinals	Basins	
Male Students	2	1	2	
Allowable Population Male Students	75	50	50	50
Female Students	3	-	3	
Allowable Population Female Students	50	-	100	50
Maximum Population				**100 students**

5. **Accessible unisex sanitary compartments (F4D6) -** Where required by F4D5(a), the minimum number of accessible unisex sanitary compartments for class 9b buildings is as follows:
   (a) For Class 5, 6, 7, 8 or 9 buildings, where F4D4 requires closet pans—
      (i) 1 on every storey containing sanitary compartments; and
      (ii) 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.

   Accessible unisex sanitary compartments have been provided to all storeys containing sanitary facilities, therefore complies. Refer to Philip Chun's Access Report for further comments.

6. **Construction of sanitary facilities (F4D8)** - Doors to fully enclosed sanitary compartments are to open outwards or slide or have 1.2 metres clear space between door and closet plan or be readily removable from the outside of the sanitary compartment**.**

   Detailed drawings to be provided prior to the issue of CDVC.

7. **Room Sizes (F5D2)** - In a Class 9b building:
   (a) a school classroom or other assembly building or part that accommodates not more than 100 persons — 2.4 m; and

(b) a theatre, public hall or other assembly building or part that accommodates more than 100 persons — 2.7 m
(c) A bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, storeroom, garage, car parking area, or the like requires a minimum height of 2.1 m.
(d) Above a stairway, ramp, landing or the like requires a minimum height of 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.

The internal elevations and section drawings provided showing the classrooms, sanitary facilities and staff spaces demonstrates compliance with this clause.

8. **Light and Mechanical ventilation (Part F6) -** The following light and ventilation provisions will apply to the buildings:
   1. In a Class 9b building all general-purpose classrooms in primary or secondary schools is required to be provided with natural light. Required natural light must be provided by the following:
      a. windows, excluding roof lights, that — have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or roof lights, that—
      b. have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 3% of the floor area of the room; and are open to the sky; or
      c. a proportional combination of windows and roof lights required by (i) and (ii).
   2. Artificial lighting must comply with Clause F6D5 of the BCA and AS/NZS 1680.0
   3. The building is required to be provided with mechanical ventilation under AS1668.2-2012 if sufficient natural ventilation is not provided (openings for natural ventilation need to be 5% of the floor area they serve).

Details to be provided prior to issue of CDVC.

9. **Restriction on location of sanitary compartments (F6D9) -** A sanitary compartment must not open directly into—
   (a) a room used for public assembly (which is not an early childhood centre, primary school or open spectator stand); or
   (b) a workplace normally occupied by more than one person.

The location of sanitary compartments provided on the Architectural drawings is shown to comply with the requirements of this clause.

10. **Airlocks (F6D10) -** If a sanitary compartment is prohibited under F6D9 from opening directly to another room—
    b) in a Class 5, 6, 7, 8 or 9 building (which is not an early childhood centre, primary school or open spectator stand)—
       (i) access must be by an airlock, hallway or other room with a floor area of not less than 1.1 m2 and fitted with self-closing doors at all access doorways; or
       (ii) The sanitary compartment must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.

The location of Airlocks for Sanitary Compartments are shown to comply with the requirements of this clause.

Section J – Energy Efficiency

1. The building must be designed in accordance with the requirements of Part J of the BCA 2022 in terms of Energy Efficiency. The architectural drawings must note compliance with J1, J2 and J3. The services drawings particularly the electrical, hydraulic and mechanical drawings must include compliance with Parts J4, J5, J6, J7 & J8 of BCA. ***Section J Consultants report is required prior to the issue of the CDVC where changes have been made that affect the compliance of the building with respect to Section J.***

5.0 Mitigation Measures

Table 1 Mitigation Measures

Table 1 – Mitigation Measures			
Mitigation Name	**When is Mitigation Measure to be complied with**	**Mitigation Measure**	**Reason for Mitigation Measure**
NCC Compliance (BCA 2022)	Mitigation measure to be complied with throughout the design and construction phases of the development	All building work must comply with the Building Code of Australia (BCA) 2022, Volume 1, and relevant Australian Standards. If compliance with the deemed-to-satisfy provisions is not achievable, a schedule of performance solutions must be provided to address the Performance Requirements in the BCA, using one or more of the available Assessment Methods.	To achieve BCA compliance is essential to ensure occupant safety, meet minimum standards of occupant amenity, and promote energy efficiency in buildings. BCA compliance is required to fulfill the minimum legislative requirements.

6.0 Evaluation of Environmental Impacts

Based on the identification of potential issues and an assessment of the nature and extent of the impacts of the proposed activity, the following has been determined:

1. The extent and nature of the potential impacts are low and therefore, will not have significant impact on the locality, community and/or the environment.
2. Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.
3. Adherence to the relevant BCA Parts and Clauses of BCA Volume 1 2022 (the abovementioned clauses in assessment) are not considered to be a significant impact to the environment under section 5.7 of the EP&A Act.

Conclusion

7.0 Conclusion

We have assessed the drawings with respect to the Building Code of Australia 2022. We are confident that the design is generally capable of meeting the Deemed-to-Satisfy Requirements and Performance Requirements of the Building Code of Australia 2022. Areas of the design are still being developed but are to be addressed prior to issue of a CDVC.

5.0 Appendix A – Specification 5

TYPE A CONSTRUCTION

Table S5C11a: Type A 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 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5m to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3m or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A 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 1.5m	-/90/90	-/120/120	-/180/180	-/240/240
1.5m to less than 3m	-/60/60	-/90/90	-/180/120	-/240/180
3m or more	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11c: Type A Construction: FRL of external columns not incorporated in an external wall.				
Column 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	90/-/-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-/-/-	-/-/-	-/-/-	-/-/-

Table S5C11d: Type A 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 S5C11e: Type A 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	180/180/180	240/240/240
Bounding public corridors, public lobbies and the like	90/90/90	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy units	90/90/90	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge or hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A 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 corridors, public lobbies and the like	-/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units	-/60/60	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge or hot products of combustion	-/90/90	-/90/90	-/120/120	-/120/120

Table S5C11g: Type A Construction: FRL of other building elements not covered by Tables S5C11a - f				
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, internal beams, trusses and columns	90/-/-	120/-/-	180/-/-	240/-/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

5.0 Appendix A – Specification 5

TYPE C CONSTRUCTION

Table S5C24a: Type C Construction: FRL of 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 1.5m	90/90/90	90/90/90	90/90/90	90/90/90
1.5m to less than 3m	-/-/-	60/60/60	60/60/60	60/60/60
3m or more	-/-/-	-/-/-	-/-/-	-/-/-
Table S5C24b: Type C Construction: FRL of external columns not incorporated into 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
Less than 1.5m	90/-/-	90/-/-	90/-/-	90/-/-
1.5m to less than 3m	-/-/-	60/-/-	60/-/-	60/-/-
3m or more	-/-/-	-/-/-	-/-/-	-/-/-
Table S5C24c: Type C 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	90/90/90	90/90/90	90/90/90
Table S5C24d: Type C Construction: FRL of 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
Bounding public corridors, public lobbies and the like	60/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units	60/60/60	-/-/-	-/-/-	-/-/-
Bounding a stair if required to be rated	60/60/60	60/60/60	60/60/60	60/60/60
Table S5C24e: Type C Construction: FRL of roof				
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
Roofs	-/-/-	-/-/-	-/-/-	-/-/-