GROUPDLA

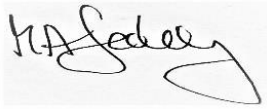
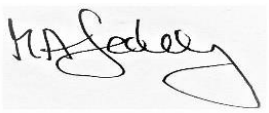
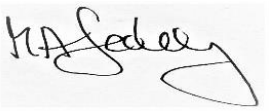
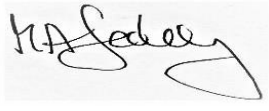
Building Code of Australia 2022 Report

Report for BCA Compliance

PROJECT NAME: **Lismore South Public School – Flood Recovery Rebuild**
PROJECT NUMBER: **GDL240132**
DATE: **04/06/2025 (Rev F)**

TABLE OF CONTENTS

REVISION HISTORY

Revision	Date	Details	Authorised	
			Name/Position	Signature
A	03/06/2024	Concept Design	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
B	27/06/2024	Concept Design – 100%	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
C	05/12/2024	Schematic Design	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
D	17/12/2024	REF	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	

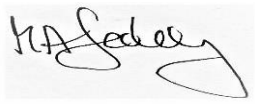
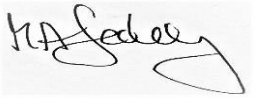
Revision	Date	Details	Authorised	
			Name/Position	Signature
E	20/02/2025	REF Updated	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
F	04/06/2025	REF	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	

Table 1 – Revision History

1.0 EXECUTIVE SUMMARY

This BCA Assessment Report has been prepared to support a Review of Environmental Factors (REF) for the rebuild of Lismore South Public School (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.

The activity will be carried out at Lismore South Public School (LSPS) located 69-79 Kyogle Street, South Lismore (the site).

The purpose of this report is to supplement the REF submission to demonstrate that compliance is readily achieved with the National Construction Code, Volume 1, Class 2-9 Buildings, Building Code of Australia 2022 ("BCA").

Compliance with the BCA will be achieved by a combination of Deemed to Satisfy and Performance Solutions and will be assessed further as the design progresses towards the crown certification of building works. Refer to Section 5 and 6 of this report which details departures from the DTS to be addressed by performance solutions.

2.0 INTRODUCTION

The subject BCA review has been limited to an assessment of the REF – architectural drawings against BCA 2022. The design is yet to be developed to the extent that a complete BCA assessment can be concluded and therefore this report is preliminary only.

The report is prepared based on a review of the documentation listed in Table 4 and the information provided by the client and is intended for their use only.

2.1 Reporting Team

The information contained within this report was prepared by Mike Gooley, Registered Certifier – Unrestricted (BDC0143) and reviewed by Justin Jones - Gardiner, Registered Certifier - Unrestricted (BDC0204) from Group DLA.

2.2 Current Legislation

The applicable legislation governing the BCA version for buildings is the Environmental Planning and Assessment Act 1979.

Whilst we await final confirmation on the building approval mechanism, it is understood at this stage that the project will follow a Crown Approval pathway (State Government Project or University). The provisions of Section 6.28 of the Environmental Planning and Assessment Act (Crown Building Work), require that the building work be carried out in accordance with the Building Code of Australia (BCA). The application of compliance with the particular version of the BCA is the date on which tenders were issued for the building works.

The BCA is now updated every three (3) years, the next updated will be BCA 2025 which is anticipated to come into force on the 1st of May 2025.

2.3 Fire Brigade

As per BCA 2022 Clause A2G2(4) all Performance Solutions are required to undertake a Performance Based Design Brief (PBDB) process, NSW Fire Brigades have advised (https://www.fire.nsw.gov.au/page.php?id=9154) that they will only provide their stakeholder input via a Fire Engineering Brief Questionnaire (FEBQ) process prepared and lodged by the engaged Fire Safety Engineer. This applies to all projects irrespective of the approval process, Crown, REF, CDC or Construction Certificate projects, if there are any Performance Solutions affecting fire safety all need to undertake this stakeholder engagement with NSW Fire Brigade which the Fire Safety Engineering will lodge.

Construction Certificates - the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021 (EP&A Reg 2021), Section 27 (previously Clause 144 of the Old Regulation), requires buildings the subject of Construction Certificate approval to have the Fire Engineering Report to be referred to Fire Brigade within seven (7) days of lodgement of the CC application on the NSW Government e-Planning Portal in certain cases.

Section 27 of the EP&A 2021 Regs defines which fire engineering reports need to be referred, and generally relates to Category 2 Fire Safety Provisions (defined in the Act) and/or for cladding performance solutions[1], and the floor area of a fire compartment in general terms exceeds 2000 m^2 or the floor area of the building exceeds 6000 m^2,the Section 27 referral to the FRNSW is to be assessed and lodged by the engaged Registered Certifier assessing the Construction Certificate**.**

[1]***Category 2 fire safety provision means the following provisions of the Building Code of Australia, namely, CP9, EP1.3, EP1.4, EP1.6, EP2.2 and EP3.2 in Volume One of that Code.***

It is common practice to adopt this Construction Certificate process on Crown projects under a voluntary submission, however this is up to the discretion of the Crown Authority if this subsequent Fire Engineer Report

referral and Inspection of Fire Brigades will be adopted on a project by project. (Note: there is no option for the FEBQ process, but voluntary for the Report lodgement and request for inspection on completion which can only be made if the report is lodged initially.)

Under recent changes to the legislation and Fire brigade advice, for Section 27 referrals of the Fire Engineering Report the fire brigade is required to respond within 10 days advising whether or not they will be proceeding with a review and providing the Initial Fire Safety Report. If so, they have not more than 28 days from the initial lodgement to provide their report or the Certifier can choose to invoke the provisions of Clause 144(6A)(c) and issue the Construction Certificate after 28 days of officially lodging the Clause 144 application; further consultation is required on this issue with the engaged Certifier as in almost all cases the Certifier will await comments and adopt any recommendations made by NSW Fire & Rescue which may have programme implications to be planned for.

2.4 Limitations

This report does not constitute or include, nor imply or audit any assessment of the following:

- This assessment is limited to the developed documentation at the date of this report and as referenced within the “Documentation Assessed” section of the Report.
- Preparation of performance provisions of the BCA are excluded.
- This report does not include assessment of the documentation against the provisions of the Disability Discrimination Act 1992 or (Access to Premises Buildings) Standards 2010.
- Any roof top plant or the like has been assessed (assumed) as open to the sky. Covered areas to roof tops may constitute an extra storey thus BCA requirement for the entire building may change.
- Travel distances have been assessed on an open plan basis with an allowance made for travel around pending fixed structures. No consideration has been given to any future fixed structures and accordingly, further assessment will be required in the event of floor plan or fixture amendments if and when these are provided formally.
- This report excludes any form of Certification Work as defined in the regulations,and is for BCA Compliance purposes only.
- Generally, the assessment does not include a detailed assessment of Australian Standards.
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning, Liquor Licensing Act 1997 and the like; and
- Demolition Standards not referred to by the BCA.
- Work Healthy and Safety Act 2011 (Safety in Design).
- The National Construction Code – Plumbing Code of Australia Volume 3.
- BCA Report lists Clauses and Specifications are based on the Draft version of BCA 2022, should changes occur in the issued/adopted version then any changes are excluded and the actual clause in the BCA will supersede anything listed in the Report.
- The capacity of design of any Electrical, Fire, Hydraulic or Mechanical Services.
- Structural and services drawings have not been reviewed, nor any consideration given to the structural capacity (or inherent FRL’s) of the building.

3.0 BUILDING DESCRIPTION

3.1 Site Description

The site, located at 69-79 Kyogle Street, South Lismore, consists of two separate land parcels situated on either side of Wilson Street. The proposed activity will be undertaken on the eastern parcel, where most of the school's existing structures are located. The western parcel contains sports fields and temporary learning facilities. Figure 1 outlines the school's boundary, covering approximately 2.5 hectares. Due to flood damage, the existing buildings on the eastern parcel are currently unused, and students are temporarily using facilities on the sports field and oval, located on the western side of Wilson Street, adjacent to the primary school.

Figure 1 – Aerial image of site (Source: Nearmap)

Proposed Activity Description

The proposed activity comprises the rebuild of the LSPS on the eastern parcel of the existing site, in South Lismore, and will be delivered in a single stage. The western parcel is out of the scope of the activity. Any works required on the western parcel (such as removal of demountable classrooms) will be subject to separate approval (if required).

A detailed description of the proposal is as follows:

1. Retention of the existing play equipment, Building K and covered outdoor learning area (COLA) on the western parcel.
2. Bulk earthworks, comprising fill and excavation and other site preparation works on the eastern parcel.
3. Construction of a new building on the eastern parcel for LSPS including:
    a. A one storey building (with undercroft areas below) fronting Kyogle Street containing a general learning space (GLS) hub, hall, library, support hub, administration, and pre-school.
    b. Undercroft outdoor learning areas as well as amenities and storage located on ground level.
4. Landscaping and public domain works, including tree planting, a games court in the southeast corner and an outdoor playing area adjacent to the preschool.
5. A car park on the eastern side of the site, with access from Kyogle Street.
6. Waste collection area access from Kyogle Street.
7. Multiple entrance points, including:
    a. Primary and secondary entries distributed on site frontages.
    b. Vehicular access point to provide access to waste collection/delivery areas and car parking.
8. Ancillary public domain mitigation measures.

Figure 2 below shows the scope of works.

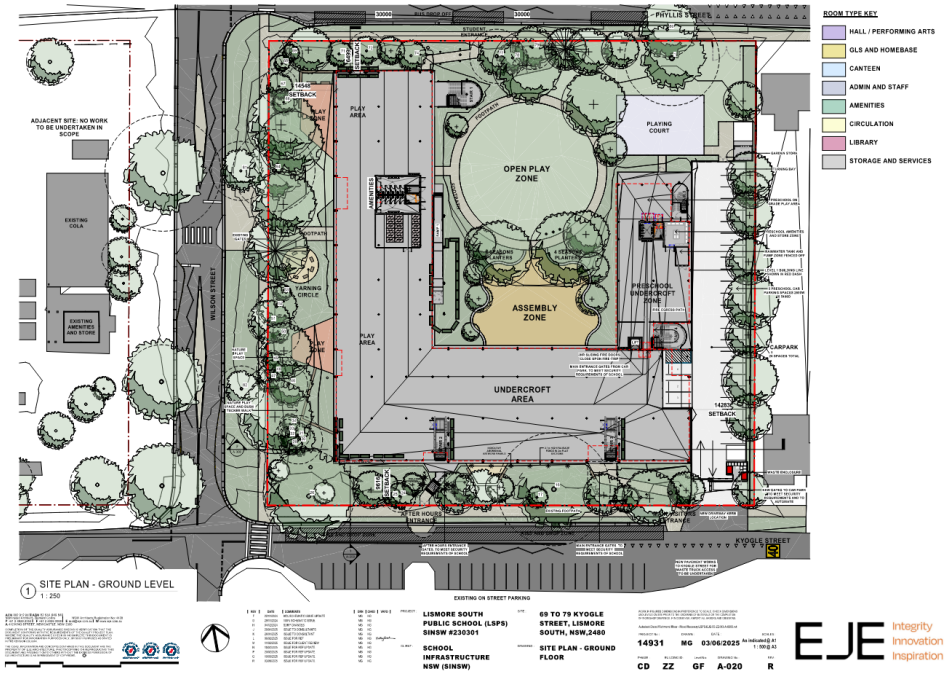


Figure 2 – Proposed site plan (Source: EJE Architecture)

3.2 Building Description

BCA Class	Level	Description/Use Proposed
Class 9b	Ground Floor	Education purposes (ancillary areas)
Class 5	Level 1	Offices (school administration)
Class 9b	Level 1	Education purposes (classrooms, Multi-purpose Hall & Library)
Class 9b	Ground and Level 1	Early Childhood Centre (pre-school)
Class 10a	Ground – ancillary structures	Covered Awnings, Waste Bin Room & Garden Store

Table 2 – Building Class (or part)

Characteristic	Primary School Building	Early Childhood Centre Building
BCA Classifications:	Class 5 and 9b	Class 9b
Type of Construction:	Type B	Type B
Floor Area of Whole Building:	Approx. 14,000m^2	Approx.. 900m^2
Volume of Whole Building:	49,000m^3	2,500m^3
Max Fire Compartment Size (Floor Area):	6,000m^2	5,500m^2
Max Fire Compartment Size (Volume):	21,000m^3	33,000m^3
Fire Compartments:	single fire compartment	Single fire compartment
Rise in Storeys:	2	2
Levels Contained:	2	2
BCA Effective Height:	Less than 25m (i.e. 4.35m)	Less than 25m (i.e. 4.35m)
Climate Zone:	2	2
Importance Level (BCA Table B1D3a):	3	3

Table 3 – Building Characteristic

- The child-care centre has been assessed as a separate building for the purposes of compliance with Section C, D and E of the BCA. This will require a firewall from the ground floor level to the underside of the roof.
- Fire compartment – the total area of all floors within the fire compartment measured within the finished internal surface of the bounding construction, and if there is no bounding construction, includes an area which has a use which contributes to the fire load.

Note: "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)."

3.3 Documentation Assessed

This report is based upon architectural drawings prepared by EJE dated 15 November 2024:

Description	Drawing No.	Revision
Coversheet	A-000	H
Existing Site Plan	A-010	F
Site Analysis	A-011	F
Site Analysis – Built Environment	A-012	F
Site Analysis – Opportunities and Constraints	A-013	F
Site Demolition Plan	A-014	K
Site Plan – Ground Floor	A-020	R
Site Plan – Level 1	A-021	G
Site Plan – Roof Level	A-022	G
Perspective Views	A-041	D
Artistic Render	A-043	D
Artistic Render	A-044	F
Artistic Render	A-045	E
Artistic Render	A-046	F
Artistic Render	A-047	F
Artistic Render	A-048	F
Sunlight Diagrams	A-050	B
Sunlight Diagrams	A-051	H
Signage Plan	A-052	A
Ground Floor Plan	A-100	R

Description	Drawing No.	Revision
Level 1 Plan	A-101	Q
Roof Plan	A-102	Q
Elevations – Flood Levels	A-200	J
Elevations – Sheet 1	A-201	J
Elevations – Sheet 2	A-202	J
Overall Site Sections	A-300	H
Sections – Sheet 1	A-301	J

Table 4 – Documentation Assessed

3.4 Assumptions

Assumptions made in the preparation of the report are identified below;

1. A total population of up to 230 students with 28 staff is proposed throughout the school campus. The early childhood centre will cater for 20 children with 5 staff.
2. Importance Level: Guide to the BCA indicates importance level 3 apply to buildings and facilities with a primary school, a secondary school or day care facilities with a capacity greater than 250.
3. The external balconies and walkways are open circulation areas with sterile finishes. Consequently, the use of these areas does not contribute to the fire load for the purposes of assessment under Part C3 of the BCA.
4. Disabled Access, Section J energy Efficiency are excluded from this report, and details relating to these elements are located in others reports / documentation.
5. The multi-purpose hall shall be used for normal school activities and will not be accessible to the public for community events. As such, the requirements of EWIS will not apply to this building.

4.0 BCA COMPLIANCE DISCUSSION & DESIGN CONSIDERATIONS

The following assessment will provide an overview of the compliance with the BCA and identify items that will be assessed further as the design progresses towards the crown certification of building works.

Section B – Structure

1. Structural Engineer to review and provide compliant design in accordance with Part B, Part C and Clauses D3D4 of BCA 2022, and all listed / referenced Australian Standards.

2. Structural Engineer is to outline and provide to the Consultant Team (Façade designer, Architect and Services Consultants) the calculated expected Earthquake actions and expected forces expected on non-structural components to be designed for, from Section 8 of AS 1170.4-2007 as referenced in BCA 2022.

3. Services Consultants to provide confirmation of compliance of non-structural elements in accordance with Sections 8 of AS1170.4-2007 or alternatively Structural Engineer to provide specific design statement referencing non-structural elements as outlined in Section 8 of AS1170.4-2007 Note: This may require input from Structural engineer as per Item 2 above.

4. Architect to provide confirmation of compliance of non-structural elements in accordance with Sections 8 of AS1170.4-2007 or alternatively Structural Engineer to provide specific design statement referencing non-structural elements as outlined in Section 8 of AS1170.4-2007. Note: This may require input from Structural engineer as per Item 2 above.

Section C – Fire Resistance

5. Structural Engineer and Architect to review and provide compliant design with respect to required FRL's for a Type B, 5 & 9b structure (Primary School Building) and Type B, 9b structure (Early Childhood Centre), including all loadbearing structures which provide direct vertical or lateral support to those elements with a required FRL.

   Consideration may be given to the rationalisation of FRL requirements by way of a performance solution from a fire engineer at the crown certificate stage.

6. Amalgamated Lots (BCA Clauses C2D2, C4D3, Spec. 5, D2D3, D2D15, E1D2)

The proposed buildings are built over multiple allotments due to not being amalgamated under the parent allotment. This creates technical non-compliances with the BCA:

- FRL requirements as the building's is within 3m from the boundary;
- Protection of Openings within 3m from the boundary;
- Egress routes require occupants to cross lot boundaries;
- Shared Services across lot boundaries.

A performance solution by a fire engineer will address the location of buildings across multiply allotments.

Type B, 9b structure

(1) In a building *required* to be of **Type B construction**—

(a) each building element listed in Tables S5C21a to S5C21f, and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and

(b) if a stair *shaft* supports any floor or a structural part of it—

(i) the floor or part must have an FRL of 60/–/– or more; or

(ii) the junction of the stair *shaft* must be constructed so that the floor or part will be free to sag or fall in a fire without causing structural damage to the shaft; and

(c) any *internal wall* which is *required* to have an FRL with respect to *integrity* and *insulation*, except a wall that bounds a *sole-occupancy unit* in the topmost (or only) *storey* and there is only one unit in that *storey*, must extend to—

(i) the underside of the floor next above if that floor has an FRL of at least 30/30/30; or

(ii) the underside of a ceiling having a *resistance to the incipient spread of fire* to the space above itself of not less than 60 minutes; or

(iii) the underside of the roof covering if it is *non-combustible* and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or

(iv) 450 mm above the roof covering if it is *combustible*; and

(d) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—

(i) concrete; or

(ii) masonry; or

(iii) subject to (2), *fire-protected timber*; or

(iv) any combination of (i) to (iii); and

(e) in a Class 5, 6, 7, 8 or 9 building, in the *storey* immediately below the roof, internal columns and *internal walls* other than *fire walls* and *shaft* walls, need not comply with Tables S5C21a to S5C21f; and

(f) in a Class 2 or 3 building, except where within the one *sole-occupancy units*, or a Class 9a *health-care building* or a **Class 9b building**, a floor separating *storeys* or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, must—

(i) 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

(ii) **have an FRL of at least 30/30/30**; or

(iii) have a *fire-protective covering* on the underside of the floor, including beams incorporated in it, if the floor is *combustible* or of metal; and

(g) in a Class 9c building a floor above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, and any column supporting the floor must—

(i) 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

(ii) **have an FRL of at least 30/30/30**; or

(iii) have a *fire-protective covering* on the underside of the floor, including beams incorporated in it, if the floor is *combustible* or of metal.

(2) For the purposes of (1)(d)(iii), *fire-protected timber* may be used, provided that—

(a) the building is—

(i) a separate building; or

(ii) a part of a building—

(A) which only occupies part of a *storey*, and is separated from the remaining part by a fire wall; or

(B) which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and

(b) the building has an effective height of not more than 25 m; and

(c) the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification 17; and

(d) any insulation installed in the cavity of the timber building element required to have an FRL is non-combustible-; and

(e) *cavity* barriers are provided in accordance with Specification 9.

(3) For the purposes of Table S5C21a and Table S5C21b, *external wall* includes any column and other building element incorporated within it or other external building element.

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 18m	90/30/–	120/30/–	180/60/–	240/60/–
18m 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
Loadbearing Column – less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
Loadbearing column – 18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
Non-loadbearing column	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C21c: 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 S5C21d: 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	180/180/180	240/240/240
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 S5C21e: 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 corridors*, public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*	–/60/60	–/–/–	–/–/–	–/–/–

Table S5C21f: Type B construction: FRL of other building elements not covered by Tables S5C21a to S5C21e

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	–/–/–	–/–/–	–/–/–	–/–/–

7. General Floor area and Volume limitations (BCA Clause C3D3):

(1) The size of any *fire compartment* or *atrium* in a Class 5, 6, 7, 8 or 9 building must not exceed the relevant maximum *floor area* nor the relevant maximum *volume* set out in Table C3D3 and C3D6 except as permitted in C3D4.

(2) A part of a building which contains only heating, ventilating, or lift equipment, water tanks, or similar service units is not counted in the *floor area* or *volume* of a *fire compartment* or *atrium* if it is situated at the top of the building.

(3) In a building containing an *atrium*, the part of the *atrium* well bounded by the perimeter of the openings in the floors and extending from the level of the first floor above the *atrium* floor to the roof covering is not counted in the *volume* of the *atrium* for the purposes of this clause.

Table C3D3: maximum size of fire compartments or atria:

Classification	Type A construction	Type B construction	Type C construction
5, 9b or 9c	Max *floor area* - 8 000 m^2	Max *floor area* - 5 500 m^2	Max *floor area* - 3 000 m^2
	Max volume - 48 000 m^3	Max volume - 33 000 m^3	Max volume – 18 000 m^3
6, 7, 8 or 9a (except for patient care areas)	Max *floor area* - 5 000 m^2	Max *floor area* - 3 500 m^2	Max *floor area* - 2 000 m^2
	Max volume - 30 000 m^3	Max volume - 21 000 m^3	Max volume - 12 000 m^3

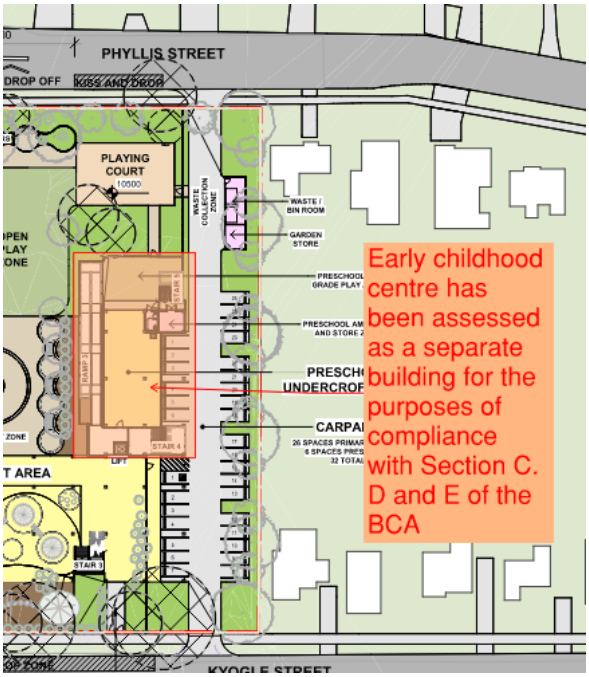
The development contains a rise in storeys of 2 as a Class 9b building and is therefore required to be of Type B Construction. Due to the undercroft space being considered a storey the combined total floor area of the primary school building is approximately 6,000m^2 (7,000m^2 with the inclusion of the ECC). This exceeds the Type B maximum floor area limitation of 5,500m^2).

A performance solution is proposed to be documentation at the crown certificate stage by a fire engineer.

8. Lift Shaft – should the lift shaft/s be designed to be non-loadbearing; the Structural engineer is to provide the required Earthquake information to the consultant designing the lift shafts to meet the requirements of Section 8 of AS 1170.4-2007 as referenced in BCA 2022.

9. Architect / Façade Consultant is to provide a Detailed statement outlining each part/element contained in the makeup of the external wall system and any other elements required to be non-combustible in accordance with C2D10 (external walls) & C2D14 (Ancillary Elements). Current fire test reports required to be provided in accordance with AS1530.1 for each element required to be non-combustible in accordance with C2D10 & C2D14.

10. Early Childhood Centre – Separate Building:



BCA Clause C3D6:

(2) In a building containing a Class 9b *early childhood centre*, (a) unless the Class 9b *early childhood centre* is the only use in the building, the Class 9b *early childhood centre* must be separated from the remainder of the building by walls and/or floors with an FRL not less than that *required* for a *fire wall; and*

(b) Each storey within the Class 9b early childhood centre must contain not less than 2 fire compartments.

Exemptions:

C3D6 (2) does not apply to a Class 9b early childcare centre –

(a) Wholly within a storey that provides direct egress to a road or open space; or

(b) With a rise in storeys of not more than 2, where the Class 9b early childhood centre is the only use in the building.

Assessment:

The early childhood centre is separated from the primary school by a firewall through all storeys and has been assessed as a separate building for the purposes of compliance with Section C, D and E of the BCA 2022.

The exemption can be applied as the early childhood centre is a separated 2 storey building.

11. Separation by fire walls (BCA Clause C3D8):

A part of a building separated from the remainder of the building by a fire wall may be treated as a separate building for the purposes of the Deemed-to-Satisfy Provisions of Section C, D and E if it is constructed in accordance with (1) and the following:

(a) The fire wall extends through all storeys and spaces in the nature of storeys that are common to that part and any adjoining part of the building.
(b) The fire wall is carried through to the underside of the roof covering.
(c) Openings between the building must be protected by a fire doors that achieve the same FRL as the fire wall and automatic close upon fire trip within either building.

The architectural drawings detail a firewall at gridline 4 through each storey to the underside of the roof covering. A sliding fire door (FRL -/120/30) will be held in the open position during the normal use of the building. The operation of the door being designed to close automatically upon fire trip within either building in accordance with BCA Clause C4D7.

The firewall within level 1 extends around the lift shaft and does not extend vertical through each storey to the underside of the roof covering. Rafter purlins are likely to cross the top of firewall rather than being supported each side of the fire wall. Compliance will not be achieved with the DtS provisions of the BCA.

This departure from the DtS provisions being addressed via a performance solution from a fire engineer.

12. Sliding Fire Doors (BCA Clause C4D7):

(1) If a doorway in a *fire wall* is fitted with a sliding fire door which is open when the building is in use—

(a) it must be held open with an electromagnetic device, which when de-activated in accordance with (2) and (3), allows the door to be fully closed in not less than 20 seconds and not more than 30 seconds after release; and

(b) in the event of power failure to the door — the door must fail safe in the closed position in accordance with (a); and

(c) an audible warning device must be located near the doorway and a red flashing warning light of adequate intensity on each side of the doorway must be activated in accordance with (2) and (3); and

(d) signs must be installed on each side of the doorway located directly over the opening stating, in capital letters not less than 50 mm high in a colour contrasting with the background:

WARNING — SLIDING FIRE DOOR

(2) The electromagnetic device *required* by (1)(a) must be de-activated and the warning system activated by heat or smoke detectors, as appropriate, installed in accordance with AS 1905.1 and the relevant provisions of AS 1670.1

Where any other *required* suitable fire alarm system, including a sprinkler system (other than a FPAA101D system) complying with Specification 17, is installed in the building, activation in either *fire compartment* separated by the *fire wall* must also de-activate the electromagnetic device and activate the warning system.

The architectural drawings detail a sliding fire door along gridline 4 within each storey to separate the early childhood centre building from the primary school building. The sliding fire door to achieve an FRL -/120/30 with the operations of the door being designed to comply with these provisions.

Section D – Access & Egress

1. Number of Exits Required (BCA Clause D2D3):

- The BCA prescribes that not less than 2 require exits must be provided from each storey in a Class 9b – Primary/secondary School building. Compliance will be achieved with these provisions of the BCA.

- Class 9b early childhood centre which form part of a storey must be served by 2 required exits, in addition to any horizontal exit.

2. Travel Distance to Exits and between Alternative Exits (BCA Clause D2D5 & D2D6):

- Travel distances on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m; and

- Travel distances between alternative exits must be at least 9.0m apart and not exceed a distance of 60m in all other classes, uniformly distributed with access to 2 exits if required and not converge so they become less than 6m apart.

Assessment of Travel Distances - Primary School:

- Travel distance to Point of choice to alternative exits exceed 20.0m (i.e. measured up to 30.0m).
- Travel distances to required exits > 40.0m (i.e. measured up to 55.0m).
- Travel distance between alternative exits > 60.0m apart (i.e. measured up to 75m apart).

The extended travel distances will be address by a performance solution from a fire engineer.

3. Widths of exits and path of travel to exits (BCA Clause D2D8):

D2D8	**Width of exits and paths of travel to exits**
	If the *storey*, *mezzanine* or *open spectator stand* accommodates more than 200 persons, the aggregate unobstructed width of each *required exit* or path of travel to an *exit*, except for doorways, must be not less than— (a) 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12; or (b) in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200. In an *open spectator stand* which accommodates more than 2000 persons, the aggregate unobstructed width of each *required exit* or path of travel to an *exit*, except for doorways, must be not less than 17 m plus a width (in metres) equal to the number in excess of 2000 divided by 600 In a *required exit* or path of travel to an *exit*, **the unobstructed width of a doorway** must be not less than— (i) where the doorway referred to in (i) is fitted with two leaves and one leaf is secured in the closed position in accordance with D3D26(3)(e), the other leaf must permit an unobstructed opening not less than 800 mm wide; or **(ii)** the unobstructed width of each *exit* provided to comply with D2D8(1), (2), (3) or (4), **minus 250 mm;**

Building	Level	Population	Aggregate Exit Widths Required	Aggregate Exit Widths (Design)	Compliance Comments (Y/N)
Primary School	Level 1	260	2.5m	8.0m	Yes
Early Childhood Centre	Level 1	60	2.0m	4.0m	Yes
The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space.					

4. Travel by non-fire-isolated stairways or ramps (BCA Clause D2D14):

A non-*fire-isolated stairway* or non-*fire-isolated ramp* serving as a *required exit* must provide a continuous means of travel by its own *flights* and landings from every *storey* served to the level at which egress to a road or *open space* is provided. a. 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 80 m.**	The non-fire-isolated stairways and ramps are capable of compliance with these provisions.

b. In a Class 5 to 8 or 9b building, a *required* non-*fire-isolated stairway* or non-*fire-isolated ramp* must discharge at a point not more than— ➢ 20 m from a doorway providing egress to a road or *open space* or from a *fire-isolated passageway* leading to a road or *open space*; or ➢ 40 m from one of 2 such doorways or passageways if travel to each of them from the non-*fire-isolated stairway* or non-*fire-isolated ramp* is in opposite or approximately opposite directions.	

5. Horizontal Exits (BCA Clause D2D16):

Horizontal Exits must not be counted as required exits in a Class 9b early childhood centre and primary school.

The early childhood centre and the primary school have been assessed as separate buildings for the purpose of compliance with Section C, D and E of BCA 2022. The sliding fire doors are required to automatically close upon fire trip in either building. These doorways have not been assessed as required exits.

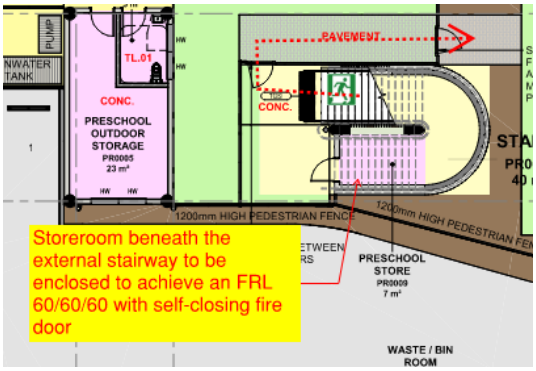
6. Egress from primary schools (BCA Clause D2D23):

(1) Every part of a Class 9b primary school must be wholly within a storey that provides direct egress to a road or open space. (2) The requirements of (1) do not apply to a building with a rise in storeys of not more than 4 used only as a school.	The required exits that serve the primary school building will comply with these provisions.

7. Installations in exits and paths of travel (BCA Clause D3D8):

(1) Services or equipment enclosed in accordance with these provisions may be installed in a *required exit*, or in any corridor, hallway, lobby or the like leading to a *required exit*, where that service or equipment comprises— (a) electricity meters, distribution boards or ducts; or (b) central telecommunications distribution boards or equipment; or (c) electrical motors or other motors serving equipment in the building. (2) An enclosure for the purposes of (1) must be— (a) *non-combustible* construction; or (b) a *fire-protective covering* with doorways or openings suitably sealed against smoke spreading from the enclosure.	EDB cupboards along the path of travel to required exits being suitable enclosed to comply with these provisions. Architectural drawings to detail compliance with these provisions.

8. Enclosure of space under stairs and ramps (BCA Clause 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.	 Architectural drawings to detail the fire separation of storerooms/enclosures underneath the required exit stairways to comply with these provisions.

9. Protection of openable windows (BCA Clause 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 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 (c) A barrier *required* by (3) to an openable window in—*fire-isolated stairways*, *fire-isolated ramps* and other areas used primarily for emergency purposes, excluding external stairways and external ramps; and	Architectural drawings to detail openable windows within the early childhood centre and method of achieving compliance with these provisions.

10. Access for People with Disabilities (Part D4 of BCA):

Buildings and parts of buildings must be accessible as required by this clause, unless exempted by D4D5.	Refer to Access Consultants Report in regards to compliance with this part of the BCA .

Section E –Services & Equipment

11. Fire Services and Mechanical Consultants to provide compliant design in accordance with Part E, for the purposes of the building design at this stage the following fire services are anticipated/expected:

- Fire Hydrant system to BCA Clause E1D2 and AS 2419.1-2021;

  A fire hydrant booster assembly is required to be within sight of the pedestrian entrance to the building and adjacent to the property boundary and the vehicle access for the fire brigade. The fire hydrant system for the new building being designed to comply with the requirements of AS 2419.1-2021. The fire hydrant booster is proposed to be located along the street frontage within 10m of the building. Compliance will not be achieved with the requirements of AS 2419.1-2021.

  A performance solution will be documented from a fire engineer.

- Fire Hose Reels to BCA Clause E1D3 and AS 2441;

- Class 9b – classrooms or class 5 offices – FHR are not required to serve classrooms and associated corridors in a primary school and Class 5 (administration offices);
- Fire Hose Reels are required to serve the Multi-purpose Hall and Library areas of the Primary School Building together with the Class 7a (carparking) undercroft area;
- Fire Hose Reels are required to serve each storey of the Class 9b – Early Childhood Centre.

Provision has not been made for a FHR within each storey of the early childhood centre. Consideration may be given to a performance solution from a fire engineer.

- Where sprinklers are required: Class 9b buildings (BCA Clause E1D11);

(1) In a Class 9b building, other than an *early childhood centre*, see Part I1. (2) In a Class 9b *early childhood centre* and any other class of building containing a Class 9b *early childhood centre* part, sprinklers are required throughout the whole building, including any part of another class.	Exemptions: E1D11 (2) does not apply to a Class 9b early childhood centre – (a). wholly within a storey that provides direct egress to a road or open space; or (b) with a rise in storeys of not more than 2, where the Class 9b early childhood centre is the only use in the building. The child-care Centre being assessed as a separate building for the purposes of compliance with Section C, D and E of the BCA. This will require a firewall from the ground floor level to the underside of the roof. The use within this building must be associated with the early childhood centre.

	A fire suppression system is to be provided to the Early Childcare portion of the development in lieu of the entire development as required by Clause E1D4 and E1D11. A performance solution will be documented from a fire engineer.

The services consultants to provide advice in relation to whether the services will require separation for each building. Refer to Appendix B – markup architectural drawings which include details of vertical firewall through the building so the child-care building can be assessed as a separate building for the purposes of compliance with Section C. D and E of the BCA.

- Portable Fire Extinguishers to BCA Clause E1D14 and AS 2444.

Smoke Hazard Management:

- A building containing a Class 9b early childhood centre must be provided with an automatic smoke detection and alarm system complying with BCA Clause E2D20 and Specification 20.
- The Fire Brigade Panel (FBP/FIP) is proposed to be located within Level 1 office of the school in lieu of being located at the ground floor entrance. This is considered to be a technical non-compliance due to the raised construction of the main school building resulting in the FIP not being located at the designated building entrance point. A performance solution will be documented by a fire engineer at the crown certificate stage.
- Smoke detection system that is provided to satisfy the requirements for automatic shutdown of air-handling system in accordance with NSW E2D16 and S20C6 of the BCA.

a. Exit Signs and Emergency Lighting to BCA Part E4 and AS 2293.1-2005.

Section F – Health and Amenity

11. Weatherproofing of External Walls

As the materials that can be used as external walls under the DTS provisions are limited, and the proposed design is expected to contain other external wall material/cladding a Performance Solution to BCA Clause F3P1 is to be provided as part of the Crown Certificate Application to the Certifier.

12. Damp and Weatherproofing

There are new requirements that a roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane in accordance with AS 4654.1 and AS 4651.2.

This is a new requirement coming into effect as of 1 May 2022 and careful design consideration will need to be applied in the areas of the balconies and the like in this development. This may be applicable for the proposed trafficable rooftop area of the design.

There may be conflict with the accessible provisions of Part D4 of the BCA which will need to be comment on further by the access consultant, as this Standard may require hobs at the thresholds to the rooftop, see Figure 9 below. There is relief available as the Standard does allow for a gutter system at the threshold of the door sill, which is to be fitted with an AS1428.1-2009 approved grate, in lieu of a hob (Ref: AS 4654.2). However, such detail should only be determined in accordance with the hydraulic engineer and the access consultant. Note that the accessible Standard contains restrictions on heights differences between abutting surfaces, such as the flooring and door sill, and a review of Section 7 of AS 1428.1-2009

(note the designer will need to review the 2021 version of this standard as this will be applicable at the time of the Construction Certificate) should be considered as part of the threshold designs.

Figure 9 below also illustrates the membrane termination heights which are given in Table A1 of Appendix of the Waterproofing Standard. Note that the heights are related to the determined wind class from AS 4055-2012 and should only be determined by the appropriate project engineer, i.e., structural, hydraulic or façade engineer.

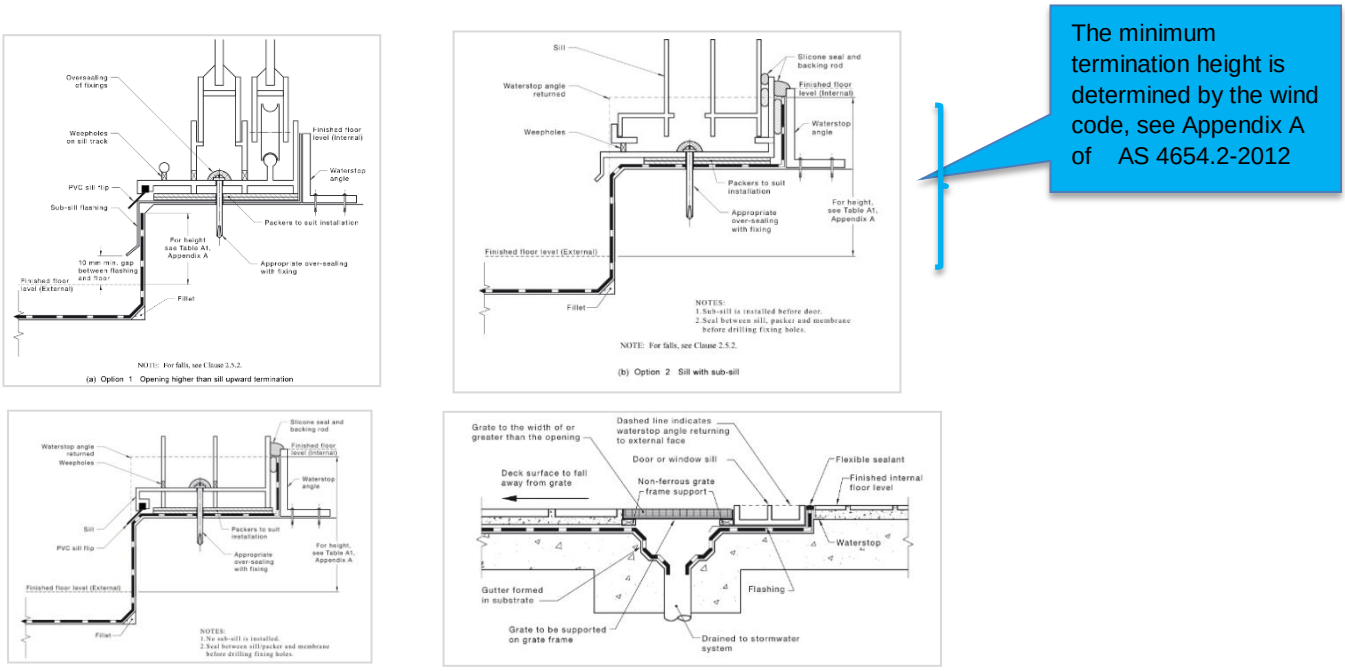


Figure 3 - Various waterproofing options at threshold and outlets.

Doors and windows onto external waterproof areas are required to comply with either of the 4 options above. Consideration must be given to access for people with disabilities which requires 5mm tolerance in difference with floor levels at door thresholds. Therefore – Clause 2.8.3 from AS 4654.2 requires grates to be provided as per figure 2.9 in front of doorways along the balconies within each storey.

The architectural and Hydraulic details will be further developed to achieve compliance with these provisions of the BCA.

13. Occupant Numbers and Assessment of Sanitary Facilities (BCA Clause F4D4):

A total population of up to 230 students with 28 staff is proposed throughout the school campus. Based on this population the below minimum number of sanitary facilities will be required:

Sanitary Facilities required based upon Design Occupancy

Student – Sanitary Facilities

	Population	Pans	Urinals	Washbasins
Male	115	3	3	4
Female	115	8		3
	Unisex Accessible		1 per Bank	

Staff – Sanitary Facilities

	Population	Pans	Urinals	Washbasins
Male	14	1	1	1
Female	14	1	N/A	1
	Unisex Accessible		1 per Bank	

Based upon the occupant density within the school campus the number of additional sanitary facilities will comply with the provisions of the BCA. The NCC requires separate sanitary facilities once the number of employees exceed 10 persons.

Notes:

1. Each urinal for males can be substituted with a water closet.
2. An accessible unisex facility required for people with a disability may be counted once for each sex. This concession means that for each wash basin and closet pan counted above, you may deduct for each accessible unisex facility provided.
3. Ambulant facilities must be provided with the block of sanitary facilities in accordance with BCA and AS 2419.1-2009.
4. If not more than 10 people are employed, a unisex facility may be provided instead of separate facilities for each sex.

14. Early Childhood Centre:

A Class 9b early childhood centre must be provided with—

(a) a kitchen or food preparation area with a kitchen sink, separate hand washing facilities, space for a refrigerator and space for cooking facilities, with—

(i) the facilities protected by a door or gate with child proof latches to prevent unsupervised access to the facilities by children younger than 5 years old; and

(ii) the ability to facilitate supervision of children from the facilities if the early childhood centre accommodates children younger than 2 years old; and

(b) one bath, shower or shower-bath; and

(c) if the centre accommodates children younger than 3 years old—

(i) a laundry facility comprising a washtub and space in the same room for a washing machine; and

(ii) a bench type baby bath, which is within 1 m of the nappy change bench; and

(iii) a nappy changing bench which—

(A) is within 1 m of separate adult hand washing facilities and bench type baby bath; and

(B) must be not less than 0.9 m^2 in area and at a height of not less than 850 mm, but not more than 900 mm above the finished floor level; and

(C) must have a space not less than 800 mm high, 500 mm wide and 800 mm deep for the storage of steps; and

(D) is positioned to permit a staff member changing a nappy to have visibility of the play area at all times.

Table F4D4g: Sanitary facilities in Class 9b buildings – early childhood centres

User group	Closet pans		Washbasins	
	Design occupancy	Number	Design occupancy	Number
Children	1 - 30	2	1 - 30	2
	>30	Add 1 per 15	>30	Add 1 per 15

Table Notes:

- Urinals are not required for a Class 9b early childhood centre.
- Facilities for use by children must be –
  - Junior pans; and
  - Washbasins with a rim height not exceeding 600mm; and
  - Accessible from both indoor and outdoor areas.

Architectural drawings being suitable detailed to provide sufficient provisions for sanitary facilities within the early childhood centre as the design progresses towards the crown certification of building works.

15. Provision of Natural Light to Classrooms (BCA Clause F6D2):

Natural light must be provided in a Class 9b building – to all general purpose classrooms in primary and secondary schools and all playrooms or the like for the use of children in an early childhood centre. Method and extent of natural lights must be provided by windows that comply with the following:

a. Have an aggregate light transmitting area measured exclusive of framing members, glazed bars or other obstructions of not less than 10% of the floor area of the room; and
b. Are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like.

Review of architectural drawings indicates compliance will be readily achieved with these provisions of the BCA.

Part G5 – Construction in Bushfire Prone Areas

16. The Deemed-to-Satisfy provisions apply in a designated bushfire prone area to a building located in an area subject to a Bushfire Attack Level (BAL) not exceeding BAL – 12.5, determined with AS 3959 that is a Class 9b – primary or secondary school.

The Lismore South Public School (Masterplan Report, Revision 1.0) by Blackash Bushfire Consulting has indicated the site is not affected by bushfire prone land according to Council's

mapping. The site is also not located in a bushfire risk or asset protection zone. The application of Part G5 and specification 43 will not apply in this case.

Section J – Energy Efficiency

17. ESD Consultant to review project and provide compliance statement/report for Section J.

Note: this is expected to include a review of the detailed design sections and detail of external walls for thermal break and make-up of the façade elements in the review, and not a high-level report outlining the required values only, this is due to the detailed assessment nature for Section J of external walls and roofs in BCA 2022.

The recommendations from the ESD Consultants/Section J Report being incorporated into the architectural and services design documentation.

5.0 PERFORMANCE SOLUTIONS

The following are Performance Solutions proposed or expected as a result of our assessment of the listed documentation:

Fire Engineering Performance Solutions

A Performance-based design brief (PBDB) has been prepared by E-Lab Consulting with stakeholders consultation, including comments from Fire & Rescue NSW. The following measures are proposed to be justified via Performance Solutions for the proposed building / works as follows:

Item	Query or DTS Non- Compliance	BCA Clause	BCA Performance Requirements
1.	Amalgamated Lots: The proposed buildings are built over multiple allotments due to not being amalgamated under the parent allotment. This creates technical non-compliances with the BCA: FRL requirements as the building's is within 3m from the boundary; Protection of Openings within 3m from the boundary; Egress routes require occupants to cross lot boundaries; Shared Services across lot boundaries.	C2D2, C4D3, Spec. 5, D2D3, D2D15, E1D2	C1P1, C1P2, D1P4, E1P3, E2P2
2.	Oversized Fire Compartment: The development contains a rise in storeys of 2 as a Class 9b building and is therefore required to be of Type B Construction. Due to the undercroft space being considered a storey the combined total floor area of the primary school building is approximately 6,000m^2 (7,000m^2 with the inclusion of the ECC). This exceeds the Type B maximum floor area limitation of 5,500m^2).	C3D3, Spec. 5	C1P1, C1P2
3.	Rationalisation of FRL requirements: It is proposed to rationalise the FRL requirements of the loadbearing elements.	C2D2, S5C21a & S5C21c	C1P1, C1P2
4.	Fire Walls between Buildings: The firewall within level 1 extends around the lift shaft and does not extend vertical through each storey to the underside of the roof covering. Rafter purlins are likely to cross the top of firewall rather than being supported each side of the fire wall. Compliance will not be achieved with the DtS provisions of the BCA.	C3D6, C3D8	C1P1, C1P2
5.	Permit the Use of External Combustible Signage:	C2D10, C2D14	C1P2

Item	Query or DTS Non- Compliance	BCA Clause	BCA Performance Requirements
	It is proposed to permit external signage to be made from combustible materials such as acrylic, PVC or polycarbonate fitted to external walls.		
6.	<u>Permit the use of PIR insulation within the external walls of the canteen.</u> This is a departure as the BCA 2022 requires all elements of an external wall to be non-combustible.	C2D10	C1P2, E2P2
7.	<u>Extended Travel Distances</u>: ➢ Travel distance to Point of choice to alternative exits exceed 20.0m (i.e. measured up to 30.0m). ➢ Travel distances to required exits > 40.0m (i.e. measured up to 55.0m). ➢ Travel distance between alternative exits > 60.0m apart (i.e. measured up to 75m apart).	D2D5 & D2D6	D1P2 & E2P2
8.	<u>Reduced Widths:</u> Due to the geometry of storeroom, pumproom and rooftop plantrooms, the width will be 800mm in lieu of 1.0m.	D2D8	D1P4, D1P6, E2P2
9.	<u>Canteen Door Latch Operation.</u> A fly-screen door and the exit door from the canteen results in an exit that cannot be operated via a single hand downward or pushing action on a single device as per BCA Clause D3D26.	D3D26	D1P2, D1P4.
10.	<u>Separation of Buildings:</u> A fire suppression system is to be provided to the Early Childcare portion of the development in lieu of the entire development as required by Clause E1D4 and E1D11.	E1D4, E1D11	E1P4
11.	<u>Omission of Fire Hose Reels;</u> It is proposed to omit Fire Hose Reel coverage from the development.	E1D3	E1P1
12.	<u>Location of Fire Hydrant Booster:</u> The fire hydrant booster is proposed to be located along the street frontage within 10m of the building. Compliance will not be achieved with the requirements of AS 2419.1-2021.	E1D2	E1P3

Item	Query or DTS Non- Compliance	BCA Clause	BCA Performance Requirements
13.	Fire Brigade Panel Location: The Fire Brigade Panel (FBP/FIP) is proposed to be located within Level 1 office of the school in lieu of being located at the ground floor entrance. This is considered to be a technical non-compliance due to the raised construction of the main school building resulting in the FIP not being located at the designated building entrance point.	E2D3, NSW E2D16, Spec. 20	E1P6

The list of performance solutions above will be suitable address at the crown certification stage by the documentation of a performance solution report by an accredited fire engineer.

Disabled Access Performance Solutions

Disabled Access consultant is to advise if any Performance Solutions are proposed for any Disabled Access matters for the building – see separate Access consultant's report for details.

Accessibility - Performance Solution:

Item	Query or DTS Non- Compliance	BCA Clause	BCA Performance Requirements
1.	The provisions of the BCA allow for a maximum combined vertical rise of 3.6m for ramps. The architectural drawings detail a change in levels is 3.95m due to flooding constraints.	D4D12	D1P1, D1P2

A performance solution from an Accessibility Consultant at the crown certification stage will address this particular departure from the DtS provisions.

Section J Energy Efficiency

It is expected that a Verification Method approach is proposed for the building based off the design, if that is the case then the Provision of the Section J report will be required to meet the requirements of the relevant Verification Clause of Section J and be provided as part of the Construction Certificate/Crown Certificate/Complying Development Certificate Application to the Certifier.

See Section J Consultants report for requirements relating to the design of the building and services requirements, which may differ from the BCA clauses contained in this report.

Weatherproofing of External Walls

As the materials that can be used as external walls under the DTS provisions (BCA Clause F3D5) are limited, and the proposed design is expected to contain other external wall material/cladding a Performance Solution to BCA Clause F3P1 is to be provided as part of the Construction Certificate/Crown Certificate/Complying Development Certificate Application to the Certifier.

Note: Design team is to establish which consultant will be preparing this Report, and the required PBDB for it as well, this is not as simple as a Design Statement but involves the preparation of a Performance Solution Report.

6.0 MITIGATION MEASURES

Further BCA Documentation at Detailed Design/Crown Certificate Stage:

The following items will be assessed further as the design progresses towards the crown certification of building works. In order for Group DLA to confirm the design complies with the BCA, the following items listed in the table below are required to be clarified, submitted, illustrated, etc. as the case may be:

1.1 Additional Information required for further assessment at Design Development

Item No.	Item	Comment	BCA Clause
A.	Fire Safety – Performance Solutions: Refer to PBDB from E-Lab Consulting which detail the brief for the preparation of performance solution.	Incorporate recommendations into architectural and services design.	Section 4 of this report.
B.	Fire-rating of Building Elements: Structural steel columns incorporated within the external walls together with external columns to the fire-source feature must achieve the required FRL's.	Architect/structural engineer to detail compliance with the provisions of the BCA.	Tables S5C21a to S5C21f
C.	Fire-Rating of Building Elements: Architectural elevations reflect structural cross bracing (galvanised metal) between loadbearing columns within the undercroft area.	Further advise from the structural engineer weather these structural cross bracing provide lateral support to the structure and will require an FRL to comply with Specification 5.	Tables S5C21a to S5C21f
D.	External Walls – Non-combustible Construction: The elements that make up an external wall must be tested and certified as non-combustible (i.e., wall assembly, insulation, sarking and attachments).	Further details being provided at crown certificate stage.	C2D10
E.	Early Childhood Building: The early childhood centre is separated from the primary school by a firewall through all storeys and has been assessed as a separate building for the purposes of compliance with Section C, D and E of the BCA 2022. The exemption can be applied subject to the use of spaces are associated with the early childhood centre.	Architectural drawings to suitable detail a firewall to separate the primary school building from the early childhood centre.	D2D3, E1D11 & E1D3.

Item No.	Item	Comment	BCA Clause
F.	Firewalls between Buildings: The architectural drawings detail a firewall at gridline 4 that extends vertically through each storey to the underside of the roof covering. A sliding fire door (FRL -/120/30) will be held in the open position during the normal use of the building. The operation of the door being designed to comply with BCA Clause C4D7.	The architectural drawings detail a sliding fire door along gridline 4 within each storey to separate the early childhood centre building from the primary school building. The sliding fire door to achieve an FRL -/120/30 with the operations of the door being designed to close automatically upon fire trip.	C4D7,
G.	Sanitary Facilities: Sanitary facilities to serve the early childhood centre being provided as per item 12 on Page 23 of this report.	Architectural drawings being suitable updated to provide sanitary facilities.	F4D4
H.	Damp and Weatherproofing: There are new requirements that a roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane in accordance with AS 4654.1.	Architectural, hydraulic services and structural design to detail the waterproof membrane in accordance with AS 4654.1 and AS 4651.2	F1D5

The list above is not an exhaustive list, however, reflects BCA items to be incorporated into the design as the development progresses into detailed design application for a crown certificate.

Evaluation of Environmental Impacts

Compliance with the BCA will be achieved by a combination of Deemed to Satisfy and Performance Solutions and will be assessed further as the design progresses towards the crown certification of building works.

Performance solution Reports as identified within this report will be prepared and verified by appropriate qualified persons prior to the preparation and issue of crown certification of building work.

7.0 ESSENTIAL FIRE SAFETY MEASURES (EFSM)

Below is a list of essential fire safety services that are required/expected to be installed / designed for the building, and the relevant standards of performance for each measure to be designed/constructed to. This table may be required to be updated as the design develops.

Fire Safety Measure	Standard of Performance	BCA 2022 Clause/Specification(s)
Access panels, doors & hoppers to fire resisting shafts	AS 1530.4 – 2014	C4D14
Automatic fail-safe devices	--	C4D4, D3D24, D3D26, D3D27, Specification 12
Automatic fire detection & alarm systems	AS 1670.1 – 2018	Part E2, Specification 20, G3D8
Automatic Sprinkler System	AS 2118.1-2017	E1D4, E1D11
Emergency lighting	AS 2293.1 – 2018	E4D2, E4D4, E4D8
Exit signs	AS 2293.1 – 2018	E4D5, E4D6, NSWWE4D6, E4D8, Spec 25
Fire doors	AS 1905.1 – 2015	C4D7, Spec 12
Fire Doors – Lift Landing Doors	AS 1735.11-1986	C4D11
Fire hose reel systems	AS 2441 – 2005	E1D3
Fire hydrant systems	AS 2419.1 – 2021	E1D2, Spec 18
Fire seals (protecting openings in fire resisting components of the building)	AS 4072.1 – 2005 AS 1530.4 – 2014	C4D15, C4D16, Spec 13
Lightweight construction	--	C2D9, Spec 6
Mechanical air handling systems • Auto shutdown	AS 1668.1 – 2015 AS 1668.2 –2012	E2D4, E2D3, E2D4, Spec 19, Spec 21
Portable fire extinguishers	AS 2444 – 2001	E1D14
Fire Blankets	AS 2444-2001	E1D14
Sliding Fire Door	AS 1905.1-2015, AS 1670.1-2018	C4D7
Warning and operational signs	--	C4D7, E3D4, D3D28 & Spec 17
Fire Safety Schedule being updated to reference a Fire Engineering Report and any additional fire safety measures to be installed within the building at the crown certificate stage.		

Table 5 – Essential Fire Safety Measures (EFSM)

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