BCA Assessment Report

Richmond Centre of Excellence

Project:	Richmond Centre of Excellence
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Document Control

Revision	Date	Description	
113050C-BCA-CoE-r2	29.03.2021	Preliminary BCA Assessment Report	
113050C-BCA-CoE-r3	06.04.2021	Preliminary BCA Assessment Report – updated to reflect Architects comments	
113050C-BCA-CoE-r4	28.04.2021	BCA Assessment Report – Schematic Design	
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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed school development at Richmond Centre of Excellence, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 3 'Matters for Further Consideration' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report at Detailed Design stage and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	Description	BCA Provision
Performance Solutions Required		
1.	Block F – fire separation of SOUs will consist of two smaller SOUs into a 4-bed SOU divided by a wall with 60 min FRL	C1.1, Spec C1.1 Clause 5.1 CP2
2.	Class 3 Block F – each SOU exits onto a verandah with egress to open space available at each end. Distance between true exits to open space at either end is greater than 45m, being up to 65m.	D1.5 DP4 & EP2.2
3.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements. Applies to Block A/B/C/D/E/F.	No DtS Provisions – FP1.4 Performance Provisions Only
Further Information Required – Refer Annexure D		
1.	Await battery system capacity to determine fire rating	C2.12
2.	Mechanical services design to confirm which buildings require automatic shutdown for air-handling systems	E2.2
3.	Bushfire Report to be provided and implemented into the future design	NSW G5.2

Annexure D to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA.

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at Richmond Centre of Excellence in Agricultural Education. The development is for the construction and operation of a new Centre of Excellence (CoE) in Agricultural Education on leased land (11.37 Hectares) within the Western Sydney University (Hawkesbury Campus) site, Richmond. The CoE will provide new agricultural / STEM teaching facilities with general learning and administration spaces to be utilised by rural, regional, metropolitan and international students.

The school development consists of the following single storey buildings:

- Block A Administration
- Block B/C/D Learning
- Block E Dining/Conference Hall
- Block F Accommodation
- Block G&H Farming

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019 Amendment One (BCA2019) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4. Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

(a) the structural adequacy or design of the building;

(b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

(c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the National Construction Code – Plumbing Code of Australia Volume 3

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010); (Note: Refer to separate Access Report prepared by BCA Logic);

(c) Demolition Standards not referred to by the BCA;

(d) Work Health and Safety Act 2011;

(e) Requirements of Australian Standards unless specifically referred to;

(f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and

(g) Conditions of Development Consent issued by the Local Consent Authority.

1.5. Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1. Rise in Storeys (Clause C1.2)

All the buildings have a rise in storeys of one.

2.2. Classification (Clause A6.0)

The buildings have been classified as follows.

Table 1. Building Classification

Class	Level	Description
5	Block A	Administration
9b	Block B/C/D	School Learning
9b	Block E	Dining/Conference
3	Block F	Accommodation
7b	Block G & H	Farming / Storage
10b	School Site	Covered awnings to walkways

2.3. Effective Height (Clause A1.0)

The buildings are single storey.

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

The buildings are required to be of Type C Construction.

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

The building is subject to maximum floor area and volume limits of:-

Class 5/9b	Maximum Floor Area	3,000m^2
	Maximum Volume	18,000m^3
Class 7b	Maximum Floor Area	2,000m^2
	Maximum Volume	12,000m^3
Class 3	The Class 3 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specification C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 3 classifications.	

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) Block A/B/C form a single fire compartment.

(b) Block D&E form a single fire compartment.

(c) Block F is a single fire compartment.

(d) Block G and Block H are separate fire compartments.

Note: The various buildings on site will have the area between them protected for weather by free standing non-combustible class 10b covered walkways – as these covered walkways are to be constructed of independent self-supporting non-combustible constructed awnings, being class 10b, they are not deemed to be a fire source feature and enable each block to be treated as a separate building located greater than 3.0m apart from the adjacent buildings, to be considered as an independent stand-alone building where appropriate.

2.7. Exits

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

(a) Block A: Exit door either end of building.

(b) Block B: Practical Activities double door; GLS sliding doors to open space, Seminar room sliding door.

(c) Block C: Kitchen Prep swing door; Practical Activities double door & sliding door; GLS sliding doors to open space, Seminar room sliding door.

(d) Block D: Science Prep swing double door; Practical Activities BD.03 double door & opposite sliding door; Practical Activities BD.12 sliding door; Science Lab BD.10 swing door.

(e) Block E: 4 x exit doors to main Hall.

(f) Block F: Each 4-bed SOU egress less than 6m to verandah with egress either end of verandah to open space.

(g) Block G: Greenhouse double door.

(h) Block H: Agriculture Shed Workshop door. Animal space area has its own gates to open space.

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 6.

2.9. Location of Fire-source features

The fire source features for the subject development are:

Allotment Boundaries: The allotment boundaries are not close to buildings.

Separate Buildings: The buildings which are separate fire compartments are more than 3m apart for Type C construction. The area between them may be protected from weather by free standing non-combustible class 10b covered walkways – as these covered walkways are to be constructed of independent self-supporting non-combustible constructed awnings, being class 10b.

3 STATEMENT OF COMPLIANCE

3.1. General

Assessment of the Architectural design documentation against the Deemed-to Satisfy Provisions of the Building Code of Australia, 2019 (BCA) has revealed the following areas where compliance with the BCA may require further consideration and/or may involve assessment as Performance Based (Fire Engineered) *Performance Solutions*. Any *Performance Solutions* will be required to clearly indicate methodologies for achieving compliance with the relevant *Performance Requirements* at Detailed Design Stage.

Annexure D to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA.

Note: It is important that Annexure D is read in conjunction with the items below, as some matters may not have had sufficient information provided to allow a detailed assessment to be undertaken at Schematic Design stage. Further detailed assessment is required at Detailed Design Stage.

3.2. Dimensions and Tolerances

The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. BCA Logic's assessment of the plans and specifications has been undertaken to ensure the minimal dimensions have been met.

The designer and builder should ensure that the minimum dimensions are met onsite, and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical maters such as access for people with disabilities, stair and corridor widths and balustrade heights.

3.3. Performance Based Design – Performance Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters will need to be address in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover:

Table 2. Performance Solutions

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
1.	Block F – fire separation of SOUs will consist of two smaller SOUs into a 4-bed SOU divided by a wall with 60 min FRL	C1.1, Spec C1.1 Clause 5.1	CP2 & EP2.2
2.	Class 3 Block F – each SOU exits onto a verandah with egress to open space available at each end. Distance between true exits to open space at either end is greater than 45m, being up to 65m.	D1.5	DP4 & EP2.2
3.	The construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements. Applies to Block A/B/C/D/E/F	No DtS Provisions	FP1.4

3.4. Façade Construction – Non-Combustible

As the buildings are subject to the requirements of EFSG, the external façade is required to be *non-combustible,* therefore compliance with Clause C1.9(d)&(e) of BCA2019 will need to be achieved which states as follows:

(c) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses.

(d) The following materials, may be used wherever a *non-combustible* material is required:

(i) Plasterboard.

(ii) Perforated gypsum lath with a normal paper finish

(iii) Fibrous-plaster sheet.

(iv) Fibre-reinforced cement sheeting.

(v) 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.

(vi) *Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5.

(vii) Bonded laminated materials where—

(A) each lamina, including any core, is *non-combustible*; and

(B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and

(C) 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.

Further detailed review of facades as design progresses.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation by NBRS Architecture, dated 09/04/2021.

Sheet List			
Drawing No.	Drawing Name	Issue	Date
SD-0000	Cover Page	7	09/04/2021
SD-0001	Drawing List & Areas	7	09/04/2021
SD-0050	Concept	7	09/04/2021
SD-0053	Spatial Flow Diagram	6	09/04/2021
SD-0101	Climate Analysis	6	09/04/2021
SD-0102	Proposed Site Plan	13	09/04/2021
SD-0103	Proposed Roof Plan	3	09/04/2021
SD-0104	Demolition Plan	7	09/04/2021
SD-0105	Site Circulation Plan	2	09/04/2021
SD-0106	Site Security/ Fence Plan	4	09/04/2021
SD-0107	Fire Compartments	3	09/04/2021
SD-0108	DfMA Grid Diagram	6	09/04/2021
SD-1000	Ground Floor Plan Part 1	8	09/04/2021
SD-1001	Ground Floor Plan Part 2	8	09/04/2021
SD-1003	Ground Floor Plan Part 3	8	09/04/2021
SD-1010	Block A Plan	8	09/04/2021
SD-1011	Block B Plan	8	09/04/2021
SD-1012	Block C Plan	8	09/04/2021
SD-1013	Block D Plan	8	09/04/2021
SD-1014	Block E Plan	8	09/04/2021
SD-1015	Block F Plan	8	09/04/2021
SD-1016	Block G & H Plans, Roof Plans and RCPs	8	09/04/2021
SD-1017	Aboriginal Enterprise Plans	2	09/04/2021
SD-1018	Block C-D Walkways Plans	1	09/04/2021
SD-1019	Block E-F Walkways Plans	1	09/04/2021
SD-1020	Block A Roof Plan	2	09/04/2021
SD-1021	Block B Roof Plan	2	09/04/2021
SD-1022	Block C Roof Plan	2	09/04/2021
SD-1023	Block D Roof Plan	2	09/04/2021
SD-1024	Block E Roof Plan	2	09/04/2021
SD-1025	Block F Roof Plan	2	09/04/2021
SD-2000	Block A RCP	2	09/04/2021
SD-2001	Block B RCP	2	09/04/2021
SD-2002	Block C RCP	2	09/04/2021
SD-2003	Block D RCP	2	09/04/2021
SD-2004	Block E RCP	2	09/04/2021

Sheet List			
Drawing No.	Drawing Name	Issue	Date
SD-2005	Block F RCP	2	09/04/2021
SD-3000	Block A Elevations	3	09/04/2021
SD-3001	Block B Elevations	3	09/04/2021
SD-3002	Block C Elevations	3	09/04/2021
SD-3003	Block D Elevations	3	09/04/2021
SD-3004	Block E Elevations	3	09/04/2021
SD-3005	Block F Elevations	3	09/04/2021
SD-3006	Block G & H Elevations & Sections	3	09/04/2021
SD-4000	Block A & B Sections	3	09/04/2021
SD-4001	Block C & D Sections	3	09/04/2021
SD-4002	Block E & F Sections	3	09/04/2021
SD-5000	Typical Details		
SD-5020	Typical Wet Area Mounting Heights		
SD-6000	Typical External Stair Details		
SD-6001	Typical Internal Stair Details		
SD-6010	Typical External Ramp		
SD-6100	Typical Balustrades/Handrails		
SD-7000	Typical GLS	2	09/04/2021
SD-7001	Typical Science Lab	2	09/04/2021
SD-7002	Typical PAA	2	09/04/2021
SD-7003	Typical Accomodation	2	09/04/2021
SD-8000	CoE Colour Palette Board	2	09/04/2021
SD-8001	Exterior Finishes	5	09/04/2021
SD-8100	Window Schedule		
SD-8101	Window Schedule		
SD-8102	Window Elevations		
SD-8103	Window Elevations		
SD-8104	Window Elevations		
SD-8200	Door Schedule		
SD-8201	Door Elevations		
SD-8300	Wall Types Schedule		
SD-8500	Signage		
SD-10000	Render	2	26/02/2021
SD-10001	Render	2	26/02/2021
SD-10002	Render	2	26/02/2021

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Table 3. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire doors > Fire Rated rooms located: o EDB / Comms enclosures. o Block D Chemical Store o Block E Store Room	**BCA2019 C3.4** & Spec C3.4 AS1905.1: 2015
2.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 C3.16** (Construction joints) AS1530.4:2014 & AS4072.1-2005
3.	Lightweight construction > Fire Rating of Walls/ceiling located: o EDB / Comms enclosures. o Block D Chemical Store o Block F Class 3 SOUs o Block E Store Room	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** **EFSG** AS1530.4:2014 **Fire Engineering Report**
General		
4.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
5.	Warning & operational signs	**BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs))
Electrical Services		
6.	Automatic fire detection & alarm: > Clause 4 – AS 1670.1:2018 system throughout Block F > Clause 6 – Auto-shutdown of air-handling systems in Class 9b buildings	**BCA2019 E2.2**, Table E2.2a, NSW Table 2.2b **Spec E2.2a** - Clause 4 (Smoke detection system) **Spec E2.2a** – Clause 6 (Smoke detection for smoke control systems) **Spec E2.2a** - Clause 7 (BOWS) **Spec E2.2a** - Clause 8 (Monitoring) AS 1670.1:2018 & AS 1670.3:2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
7.	Emergency lighting	**BCA2019 E4.2 & E4.4** AS/NZS 2293.1:2018
8.	Exit signs	**BCA2019 E4.5, E4.6 & E4.8** AS/NZS 2293.1:2018
9.	System Monitoring – Block F	**BCA2019 Table E2.2a, Spec E2.2a** AS 1670.3:2018
Hydraulic Services		
10.	Fire hydrant systems > NSW Storz Couplings	**BCA2019 E1.3** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
11.	Hose reel systems – Block E	**BCA2019 E1.4** AS 2441:2005
Mechanical Services		
12.	Fire dampers	**BCA2019 C3.15** AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015
13.	Auto-shutdown of Air-handling System. (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: > non-ducted individual room units with a capacity of not more than 1000 L/s; or > miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	**BCA2019 E2.2, NSW Table E2.2b** AS 1668.1:2015 (Amdt 1)
14.	**Performance Solution** *Fire Engineering Report (FER) to be prepared. Allowing for: 1. DtS Departure from Clause C1.1 & Spec C1.1 2. DtS Departure from Clause D1.5 FER Requirements 1. TBA 2. TBA	
Performance Solutions		

Item	Essential Fire and Other Safety Measures		Standard of Performance	
	Description of Performance Solution	**DTS Provision**	**Performance Requirements**	**Method of meeting performance solutions**
15.	Block F – fire separation of SOUs will consist of two smaller SOUs into a 4-bed SOU divided by a wall with 60 min FRL	C1.1, Spec C1.1 Clause 5.1	CP2	
16.	Class 3 Block F – each SOU exits onto a verandah with egress to open space available at each end. Distance between true exits to open space at either end is greater than 45m, being up to 65m.	D1.5	DP4 & EP2.2	

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type C Construction

Table 4. Type C Construction

Item	Class 3	Class 5 / 9b	Class 7b / 8
External Walls - Less than 1.5m to a *fire- source feature* - 1.5 – less 3m from *fire- source feature* - 3m or more from a *fire- source feature*	90/90/90 -/-/- -/-/-	90/90/90 60/60/60 -/-/-	90/90/90 60/60/60 -/-/-
External Column not incorporated in an external wall - Less than 1.5m to a fire source feature - 1.5 – less 3m from fire source feature; - 3m or more from a fire source feature	90/-/- -/-/- -/-/-	90/-/- 60/-/- -/-/-	90/-/- 60/-/- -/-/-
Common Walls and Fire Walls	90/90/90	90/90/90	90/90/90
Internal walls bounding sole occupancy units	60/60/60	-/-/-	-/-/-
Internal walls bounding public corridors, hallways and the like	60/60/60	-/-/-	-/-/-
Internal walls bounding a stair if required to be fire rated	60/60/60	60/60/60	60/60/60

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

Spec C1.1 Clause 5.1(d):

> Internal walls in a **Class 2 or 3 building** required to be fire rated must extend to–

(i) to the underside of the floor next above if that floor has an *FRL* of at least 30/30/30 or a fire-protective covering on the underside of the floor; or

(ii) **the underside of a ceiling having a resistance to the incipient spread of fire to the roof 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;

ANNEXURE D DETAILED BCA 2019 ASSESSMENT

Annexure D – Detailed BCA 2019 Assessment

Outlined below is a detailed assessment of the design under the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) including the State variations where applicable.

All Deemed-to-Satisfy clauses that are applicable to the subject building have been referred to below, including a comment adjacent to each clause of the proposal's ability to satisfy each respective clause.

The abbreviations outlined below have been used in the following table.

N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA – Refer Annexure F	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there is not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, with further design development, compliance can readily be achievable. This item is to be read in conjunction with the BCA Specification included within Annexure F of this report.
FI	Further Information is necessary to determine the compliance potential of the building design.
PS	Performance Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

Deemed to Satisfy Clause Assessment

Table 5. Deemed to Satisfy Clause Assessment

Clause	Clause Requirements	Comment	Status
Section B: Structure			
Part B1 – Structural Provisions			
B1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
B1.1: Resistance to actions	The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions, where the most critical action has been determined in accordance with this Part	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.2: Determination of individual actions	The magnitude of actions must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.4: Determination of structural resistance of materials and forms of construction	The structural resistance of materials and forms of construction must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.5: Structural software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.6 Construction of buildings in flood hazard areas		Not applicable to Class 9b or 5	N/A

Section C: Fire Resistance			
Part C1 – Fire Resistance and Stability			
C1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C1.1: Type of construction required	The buildings are required to be of Type C Construction. Refer to Specification C1.1 requirements at the end of this Section.	The buildings are required to be of Type C Construction. Refer to Specification C1.1 requirements at the end of this Section.	CRA – Refer Annexure F
C1.2: Calculation of rise in storeys	The buildings have a rise in storeys of one (1).	The buildings have a rise in storeys of one (1).	Noted
C1.3: Buildings of multiple classification	Informational	Noted	Noted
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
C1.9: Non-combustible building elements	(d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses. (e) The following materials, may be used wherever a *non-combustible* material is required: (i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish. (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting. (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm	Buildings are Type C construction and Clause C1.9 is not applicable. However, EFSG requires non-combustible external walls for the school so compliance with C1.9(d)&(e) will be applied.	CRA – Refer Annexure F

Section C: Fire Resistance			
	thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) *Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5. (vii) Bonded laminated materials where— (A) each lamina, including any core, is *non-combustible*; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) 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.		
C1.10: Fire hazard properties	Fire hazard properties of internal linings, materials and assemblies must comply with C1.10 of the BCA and Specification C1.10, including floor, wall and ceiling linings, air-handling ductwork, lift cars, insulation, *sarking-type materials* and attachments, or be considered *non-combustible*.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
C1.14: Ancillary elements	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be *non-combustible* unless it is one of the following: (a) An ancillary element that is *non-combustible*. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing.	Buildings are Type C construction and Clause C1.9 is not applicable. However, EFSG requires non-combustible external walls for the school so compliance with C1.14 will be applied.	CRA – Refer Annexure F

Section C: Fire Resistance			
	(d) A grate or grille not more than 2 m² in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign. (h) A sign other than one provided under (a) or (g) that— (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and (iii) does not extend beyond one fire compartment; and (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that— (i) meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and (ii) serves a storey— (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an *exit*, where it would render the *exit* unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) A paint, lacquer or a similar finish.		

Section C: Fire Resistance			
	(m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).		
Part C2 – Compartment and Separation			
C2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C2.1: Application of Part	Informational	Noted	Noted
C2.2: General floor area and volume limitations	The size of *fire compartments* in the building must not exceed that specified in Table C2.2.	Complies	Complies
C2.12: Separation of equipment	Any of the following equipment located in the building must be separated from the remainder of the building: > lift motors and lift control panels; or > emergency generators used to sustain emergency equipment operating in the emergency mode; or > central smoke control plant; or > boilers; or > a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. Equipment need not be separated in if the equipment comprises: > smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or > stair pressurizing equipment installed in compliance with the relevant provisions of AS 1668.1:2015; or	Services have confirmed battery storage is provided – To be confirmed if capacity exceeds total voltage of 12 volts or more and a storage capacity of 200 kWh or more	FI

Section C: Fire Resistance			
	> a lift installation without a machine room; or > equipment otherwise adequately separated from the remainder of the building. Separation must be by construction having an *FRL* as required by Specification C1.1, but not less than *FRL* 120/120/120 with openings protected by self-closing fire doors having an *FRL* of not less than –/120/30.		
C2.13: Electricity supply system		MSB Room is an external room away from the main school buildings attached to a Garden Shed being a Class 10a building – therefore considered not applicable for fire rating under C2.13. EFSG requires MSR to be fire rated with 120min FRL as indicated by Electrical Engineer. Separation must be by construction having an *FRL* not less than *FRL* 120/120/120 with openings protected by self-closing fire doors having an *FRL* of not less than –/120/30.	CRA – Refer Annexure F
C2.14: Public corridors in Class 2 and 3 Buildings	Public corridors in Class 2 parts that exceed 40 m in length must be divided at intervals of not more than 40m with smoke-proof walls complying with Clause 2 of Specification C2.5.	Class 3 SOUs open onto an open verandah therefore Clause C2.14 is not applicable	N/A
Part C3 – Protection of Openings			
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C3.4: Acceptable methods of protection	Fire doors must comply with BCA Specification C3.4.	EFSG requires Comms Rooms and EDB Cupboards/Rooms to be fire rated with 60 min FRL and self-closing fire door -/60/30.	CRA – Refer Annexure F

Section C: Fire Resistance			
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	C3.11(g): In a Class 2/3 building where a path of travel to an *exit* does not provide a person seeking egress with a choice of travel in different directions to alternative *exit*s and is along an open balcony, landing or the like and passes an external wall of– (i) another sole-occupancy unit; or (ii) a room not within a sole-occupancy unit, then that external wall must– (i) be constructed of concrete or masonry, or be lined internally with a fire-protective covering; and (ii) have any doorway fitted with a self-closing, tight-fitting solid core door not less than 35 mm thick; and (iii) have any windows or other openings– (A) protected internally in accordance with C3.4; or (B) located at least 1.5 m above the floor of the balcony, landing or the like.	All SOUs egress onto the open verandah and can egress in opposite directions, therefore the external walls & openings of SOUs, and Laundry/Store do not require protection under C3.11(g).	N/A
C3.12: Openings in floors and ceilings for services	Where services pass through a floor which is required to achieve an *FRL* or a ceiling required to have a *resistance to the incipient spread of fire*, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C3.15.	To be detailed in Detailed Design stage. Compliance with C3.15 to be achieved.	CRA – Refer Annexure F
C3.15: Openings for service installations	Where services pass through an element which is required to achieve an *FRL* (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section C: Fire Resistance				
		Note: contractors should check with PCA to confirm compliance with their proposed fire stopping method.		
C3.16:	Construction joints	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4:2014 to achieve the required *FRL*.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
C3.17:	Columns protected with lightweight construction to achieve an FRL	A column protected by lightweight construction to achieve an *FRL* which passes through a building element that is required to have an *FRL* or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required *FRL* or resistance to the incipient spread of fire.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
Specification C1.1 – Fire-Resisting Construction				
2.0:	General Requirements	Informational	Noted	Noted
2.1:	Exposure to fire-source features	A building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the *fire-source feature*, or vertical projection of the feature, is not obstructed by another part of the building that– (iv) has an *FRL* of not less than 30/–/–; and (v) is neither transparent nor translucent.	Not applicable on this development	N/A
2.2:	Fire protection for a support of another part	Where a part of a building required to have an *FRL* depends upon direct vertical or lateral support from another part to maintain its *FRL*, that supporting part must have an *FRL* not less than that required by other provisions of this Specification; and if located within the same *fire compartment* as the part it supports have an FRL in respect of structural adequacy the greater of that	Block A/B/C/D/E do not require any FRLs for the superstructure, other than fire rated rooms under EFSG requirements. Block F is class 3 and SOUs are fire separated with fire rated ceiling.	N/A

Section C: Fire Resistance				
		required for the supporting part itself and for the part it supports.	However, this clause will not be applicable for Type C construction.	
2.4:	Attachments not to impair fire-resistance	The method of attaching or installing a finish, lining, ancillary element or service installation to a building element must not reduce the fire-resistance of that element to below that required.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
5.0:	Type C fire-resisting construction	Type C fire-resisting construction is applicable to the development.	Refer to part 3 clauses below for the relevant Type C Construction requirements appliable to the project.	CRA – Refer Annexure F
5.1:	Fire-resistance of building elements	The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report. > An external wall that is required to have an FRL need only be tested from the outside to satisfy the FRL requirement. > Internal walls in a Class 2 or 3 building required to be fire rated must extend to– (vi) to the underside of the floor next above if that floor has an *FRL* of at least 30/30/30 or a fire-protective covering on the underside of the floor; or (vii) the underside of a ceiling having a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes; or (viii) 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 (ix) 450 mm above the roof covering if it is combustible;	Block A/B/C/D/E do not require any FRLs for the superstructure, other than fire rated rooms under EFSG requirements. Block F is class 3 and SOUs are fire separated with fire rated ceiling. Internal walls require 60/60/60 and extend to the underside of a ceiling having a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes. Block F – fire separation of SOUs will consist of two smaller SOUs into a 4-bed SOU divided by wall with 60 min FRL – Performance Solution. Block G&H do not require any FRLs for the superstructure, other than fire rated rooms under EFSG requirements. EFSG requirements: • Comms, EDB rooms require 60 min FRL • Chemical Store rooms require 60 min FRL • Block E Hall Store rooms require 60 min FRL	**PS** **Refer Part 3.3 of Report**

Section C: Fire Resistance				
Specification C1.10 – Fire Hazard Properties				
1.	Scope	Informational	Noted	-
2.	Application	Informational	Noted	Noted
3.	Floor linings and floor coverings	A floor lining or floor covering must have– (a) a *critical radiant flux* not less than that listed in Table 2; and (b) in a building not protected by a sprinkler system complying with Specification E1.5, a maximum smoke development rate of 750 percent-minutes; and (c) a *group number* complying with Clause 6(b), for any portion of the floor covering that is continued more than 150 mm up a wall.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
4.	Wall and ceiling linings	(a) A wall or ceiling lining system must comply with the *group number* specified in Table 3 and for buildings not fitted with a sprinkler system complying with Specification E1.5 have– (i) a *smoke growth rate index* not more than 100; or (ii) an *average specific extinction area* less than 250 m2/kg. (b) A *group number* of a wall or ceiling lining and the *smoke growth rate index* or *average specific extinction area* must be determined in accordance with AS 5637.1:2015.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
5.	Air-handling ductwork	Rigid and flexible ductwork must comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
6.	Lift cars		Not applicable	N/A

Section C: Fire Resistance				
7.	Other materials	Materials and assemblies not included in Clauses 3, 4, 5 or 6 must not exceed the indices set out in Table 4.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
Specification C3.4 – Fire Doors, Smoke Doors, Fire Window and Shutters				
1.	Scope	Informational	Noted	Noted
2.	Fire doors	Fire doorsets must comply with AS 1905.1:2015 and not fail by radiation through any glazed part during the period specified for integrity in the required *FRL*.	To be detailed in Detailed Design stage. EFSG requirements: • Comms, EDB rooms require 60 min FRL • Chemical Store rooms require 60 min FRL • Block E Hall Store rooms require 60 min FRL • Rooms require self-closing fire doors FRL -/60/30	CRA – Refer Annexure F

Section D: Access and Egress				
Part D1 – Provision for Escape				
D1.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
D1.1:	Application of Part	The Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a *sole-occupancy unit* in a Class 2 or 3 building or a Class 4 part of a building.		Noted
D1.2:	Number of exits required	Class 9b– Not less than 2 *exits* must be provided from any storey which accommodates more than 50 persons. Without passing through another *sole-occupancy unit*, every occupant of a storey or part of a storey must have	Class 9b – Any storey with a population over 50 persons requires two exits. • Block B/C/D/E have two exits for all parts of the storey. • Block A requires 2 exits for travel distance.	Complies

Section D: Access and Egress			
	access to an *exit* or at least 2 *exits*, if 2 or more are required.	• Block F has two exits being either end of the verandah. • Block G/H – one exit each	
D1.4: Exit travel distances	Class 3 Building — > The entrance doorway of each *sole-occupancy unit* must be not more than – ○ 6 m from an *exit* or from a point from which travel in different directions to 2 *exits* is available; or ○ 20 m from a single *exit* serving the storey at the level of egress to a road or open space; and > No point on the floor of a room which is not in a *sole-occupancy unit* must be more than 20 m from an *exit* or from a point at which travel in different directions to 2 *exits* is available. Class 5/7/9 — No point on a floor must be more than 20 m from an *exit*, or a point from which travel in different directions to 2 *exits* is available, in which case the maximum distance to one of those *exits* must not exceed 40 m.	Travel distance complies	Complies
D1.5: Distance between alternative exits	*Exits* that are required as alternative means of egress must be– (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 *exits* is readily available from all points on the floor including lift lobby areas; and (b) not less than 9 m apart; and (c) not more than—	Class 5&9b buildings comply. Class 3 Block F – each SOU exits onto a verandah with egress to open space available at each end. Distance between true exits to open space at either end is greater than 45m, being up to 65m – Performance Solution.	**PS** **Refer Part 3.3 of Report**

Section D: Access and Egress			
	(i) in a Class 2 or 3 building — 45 m apart; or (ii) in a Class 9a health-care building, if such required *exit* serves a patient care area — 45 m apart; or (iii) in all other cases — 60 m apart; and (d) located so that alternative paths of travel do not converge such that they become less than 6 m apart. Note: the distance between *exits* must be measured through the point at which travel two *exits* is available.		
D1.6: Dimensions of exits and paths of travel to exits	In a required *exit* or path of travel to an *exit*– > the unobstructed height throughout *exits* and paths of travel to *exits* must not be less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and > the unobstructed width of each *exit* or path of travel to an *exit*, except for doorways must be not less than 1m; > the unobstructed width of doorways must be not less than 750 mm, unless providing access for people with disabilities in which case the unobstructed width must be not less than 850 mm. > the required width of a stairway or ramp must be measured clear of all obstructions such as handrails. > the unobstructed width of a required *exit* must not diminish in the direction of travel to a road or open space.	Aggregate *exit* widths where storey accommodates more than 100 persons: Block B/C/D – sufficient exits provided for population Block E Hall – 450 population. 6m aggregate exit width complies.	CRA – Refer Annexure F

Section D: Access and Egress			
D1.10: Discharge from exits	*Exits* must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the *exit*. If a required *exit* leads to open space, the path of travel to the road must have an unobstructed width of not less than 1m. If an *exit* discharges to open space that is at a different level that the public road to which it is connected, the path of travel to the road must be by a ramp or other incline not steeper than 1:8, or a BCA compliant stairway. The discharge points of alternative *exits* must be as far apart as practical.	All buildings will have a path of travel to a road – either the parking area connected to Maintenance Lane or parking area connected to Vines Drive. Stairways and ramps will be detailed in Detailed Design stage.	CRA – Refer Annexure F
D1.13: Number of persons accommodated	Informational– The number of persons accommodated in a storey, room or mezzanine must be determined within consideration to the purpose for which it is used and the layout of the floor area by– (a) calculating the sum of the numbers obtained by dividing the floor area of each part of the storey by the number of square metres per person listed in BCA Table D1.13 according to the use of that part, excluding spaces set aside for— (i) lifts, stairways, ramps and escalators, corridors, hallways, lobbies and the like; and (ii) service ducts and the like, sanitary compartments or other ancillary uses; or (b) reference to the seating capacity in an assembly building or room; or (c) any other suitable means of assessing its capacity.	Based on floor area and Table D1.13, or other suitable means to assess capacity, the population numbers are as follows: **Monday to Friday:** School is primarily Y7-12 with 325 Full-time Students, 25 Staff and 100 visitors (includes 62 on Accommodation Wing). Total = 450 Maximum **Saturday/Sunday:** Up to 150 persons for conference in Block E (includes accommodation noting the dining/conference hall is used by the accommodation people for breakfast, lunch and dinner). Block E Hall: Approx 450m2 usable floor area = allows up to maximin 450 persons when used as a Hall. Block F: Each SOU can hold 4 people. Up to 60 students on Accommodation Wing as advised by the School. Block G&H: Assume 1-5 students in buildings at a time.	Noted

Section D: Access and Egress			
D1.14: Measurement of distances	Informational – The nearest part of an *exit* means in the case of— (a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access to them; and (b) a non-fire-isolated stairway, the nearest part of the nearest riser; and (c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and (d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a *horizontal exit*, the nearest part of the doorway.	Noted	Noted
D1.15: Method of Measurement	Informational	Noted	Noted
Part D2 – Construction of Exits			
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
D2.1: Application of Part	Informational– Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17(e), D2.21 and D2.24, the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a *sole-occupancy unit* in a Class 3 building.	Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17(e), D2.21 and D2.24, the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a *sole-occupancy unit* in a Class 3 building.	Noted
D2.7: Installations in exits and paths of travel	> Gas or other fuel services must not be installed in a required *exit*. > Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in corridors/hallways/lobbies or the like must be enclosed with *non-combustible*	EDB & Comms rooms will be fire rated under EFSG. They will require compliance with D2.7 with smoke seals to doors. Service penetrations will be fire sealed which will satisfy smoke sealing.	CRA – Refer Annexure F

Section D: Access and Egress			
	construction or a fire protective covering with doorways suitably sealed against smoke spread.		
D2.10: Pedestrian ramps	> A ramp serving as a required *exit* must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1:2009; or (ii) in any other case, have a gradient not steeper than 1:8. > The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
D2.13: Goings and risers	Stairways must comply with the following: > Stairways must have not more than 18 and not less than 2 risers in each flight; > Goings must be between 250 mm and 355 mm; > Risers must be between 115 mm high and 190 mm high; > The slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; > The goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

<table>
<tr><th colspan="4">Section D: Access and Egress</th></tr>
<tr><td></td><td>

Risers must not contain any openings that would permit a 125 mm sphere to pass through.
Treads must be of solid construction (not mesh or perforated) if the stairway is more than 10 m high or connects more than 3 storeys.
In a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°
In the case of a required stairway, no winders in lieu of a landing
Treads must have a surface or nosing strip with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 4586-2013 Slip resistance classification of new pedestrian surface materials.

</td><td></td><td></td></tr>
<tr><td>D2.14: Landings</td><td>Landings must be not less than 750 mm long and have either a surface with a slip-resistance classification complying with Table D2.14 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
<table>
<tr><th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr>
<tr><th>Dry</th><th>Wet</th></tr>
<tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr>
</table>
</td><td>To be detailed in Detailed Design stage.</td><td>CRA – Refer Annexure F</td></tr>
</table>

Section D: Access and Egress			
	<table><tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr></table>		
D2.15: Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless– (a) in a building required to be accessible, the doorway– (i) opens to a road or open space; and (ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1:2009; or (b) in other cases– (i) the doorway opens to a road or open space, external stair landing or external balcony; and (ii) the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
D2.16: Barriers to prevent falls	Balustrades must be provided to stairs and balconies, driveway ramps etc where there is a fall of more than 1m. Balustrades must comply with the following: <u>Balustrade minimum heights</u> > 865 mm above stair nosings; > 865 mm above landings to a stair where the barrier is provided along the inside edge of the landing and does not exceed 500 mm in length; and > 1 m in all other locations. <u>Balustrade openings</u>	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	> A 125 mm sphere must not be able to pass through any opening and for stairways, the 125 mm is measured above the nosing line of the stair treads. Climbability – other than fire-isolated stairs For floors more than 4m above the surface beneath, the balustrade must not incorporate any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that could facilitate climbing.		
D2.17: Handrails	Handrails to stairways must: > be located along at least one side of the ramp or flight (a flight being 2 or more risers); and > located along each side if the total width of the stairway or ramp is 2m or more; and > be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and > be continuous between stair flight landings and have no obstruction that will break a hand-hold. > be constructed to comply with clause 12 of AS 1428.1:2009 (including handrails to the fire stairs). > Handrails in common areas (other than fire stairs) must also accord with D3.3.	To be detailed in Detailed Design stage. It has been advised the school will cater for primary school aged children on day trips or camps therefore **compliance with D2.17(a)(iii) is required with lower handrail to each stair at a height between 665mm to 750mm**.	CRA – Refer Annexure F
D2.19: Doorways and doors	> Sliding doors serving as *exit* doors must be openable manually under a force of not more than 110N. > *Exit* doors that are power operated must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source and if leading to road or open space, open automatically if there is a power failure or on the	To be detailed in Detailed Design stage. Potentially the Reception entry Door (east façade) will be power operated.	CRA – Refer Annexure F

Section D: Access and Egress			
	activation of a fire or smoke alarm anywhere in the *fire compartment* served by the door. > A power operated door in a path of travel to a required *exit* must be able to be opened manually under a force of not more than 110 N if there is a malfunction of the power source.		
D2.20: Swinging doors	A swinging door in a required *exit* must swing in the direction of egress unless– > it serves a building or part with a floor area not more than 200 m2, 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; or > it serves a sanitary compartment or airlock (in which case it may swing in either direction).	Exit doors will swing in the direction of egress. Doors in a path of travel to a required *exit* within a building may swing in either direction. Block H: Being Class 7 building less than 200m2 the exit door can swing inwards.	CRA – Refer Annexure F
D2.21: Operation of latch	All doors in a required *exit* or forming part of a required *exit* AND doors in a path of travel to a required *exit* must be readily openable without a key from the side that faces a person seeking egress, by– (iii) a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3 – (A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and (B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm; or (iv) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor.	To be detailed in Detailed Design stage. Compliance is required for doors to Class 3 SOUs and other common rooms in Block F. Block E requires panic bars to the 4 x exit doors. Block G&H: Being Class 7 building less than 200m2 the exit door does not need to comply with D2.21.	CRA – Refer Annexure F

Section D: Access and Egress			
	(v) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (aa) not less than 500 mm from an internal corner; and (bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that – (i) serves only or is within a *sole-occupancy unit* in a Class 2 building; or (ii) serves a *sole-occupancy unit* in a Class 5, 6, 7 or 8 building with a floor area not more than 200m2; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building and is readily openable when unlocked. Class 9b (other than school, early childhood centre or religious) for storey or room accommodating >100 persons:		

Section D: Access and Egress			
	All doors in a required *exit* or forming part of a required *exit* AND doors in a path of travel to a required *exit* must be readily openable– (i) without a key from the side that faces a person seeking egress; and (ii) by a single hand pushing action on a single device such as a panic bar located between 900mm and 1.2 m from the floor; and (iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf; and (iv) where the door is a door in a path of travel providing re-entry to the building from a balcony terrace or the like, it may be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public, so the door can yield to pressure.		
Part D3 – Access for People with A Disability			
Refer to separate Access Report by BCA Logic: 113050-Access-CoE-r1			Noted

Section E: Services and Equipment			
Part E1 – Fire Fighting Equipment			
E1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E1.3: Fire hydrants	As the building has a floor area greater than 500 m2, a fire hydrant system complying with AS 2419.1:2005 must be provided to serve the building.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section E: Services and Equipment			
E1.4: Fire hose reels	A fire hose reel system complying with BCA clause E1.4 and AS 2441:2005 must be provided to the building (excluding Classes 2, 3, 4, 5, 8 and 9c and excluding classrooms and associated corridors in a school). All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m. Fire hose reels must be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors, except— (v) doorways in walls referred to in C2.5(a)(v) in a Class 9a building and C2.5(b)(iv) in a Class 9c building, separating ancillary use areas of high potential fire hazard; and (vi) doorways in walls referred to in C2.12 or C2.13 separating equipment or electrical supply systems; and (vii) doorway openings to shafts referred to in C3.13.	To be detailed in Detailed Design stage. Only Block E requires FHRs. Store room being fire rated can be served by FHR without passing through the fire door.	CRA – Refer Annexure F
E1.6: Portable fire extinguishers	Portable fire extinguishers must be provided in accordance with clause E1.6 & Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444:2001. For the Class 3 parts, portable fire extinguishers must be– (i) an ABE type fire extinguisher; and (ii) a minimum size of 2.5 kg; and (iii) distributed outside a *sole-occupancy unit*— (A) to serve only the storey at which they are located; and (B) so that the travel distance from the entrance doorway of any *sole-occupancy*	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section E: Services and Equipment				
		unit to the nearest fire extinguisher is not more than 10 m.		
E1.9:	Fire precautions during construction	Informational– > During construction, not less than one portable fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required / temporary *exit*;	Builder to comply with.	Noted
E1.10:	Provision for special hazards		Not applicable to this development	N/A
Part E2 – Smoke Hazard Management				
E2.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E2.1:	Application of Part	Informational	Noted	Noted
E2.2:	General requirements (including Tables E2.2a and E2.2b)	**Class 3 parts** Class 3 parts must be provided with an automatic smoke detection and alarm system complying with BCA Specification E2.2a. Note: Smoke alarms in sole occupancy units are now required to be interconnected. **NSW Table E2.2b for Class 9b buildings** Auto shutdown for Class 9b: > (NSW Table E2.2b) - Any air-handling system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: o non-ducted individual room units with a capacity of not more than 1000 L/s; or	Class 3 Block F: Requires a smoke detection & alarm system to Clause 4&7 of Spec E2.2a. Mechanical services design to confirm which buildings require automatic shutdown for air-handling systems. And confirm the buildings which will have split-systems for individual rooms have capacity not more than 1000L/s to avoid auto shutdown. To be detailed in Detailed Design stage. NSW Table E2.2b – Class 9b fire compartment size: This Table doesn't apply to school classrooms. Block D&E includes Hall but is less than 2000m2.	FI

Section E: Services and Equipment				
		○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.		
E2.3:	Provisions for special hazards		Not applicable to this development	N/A
Specification E2.2a – Smoke Detection and Alarm System				
1.	Scope	Informational	Noted	Noted
2.	Type of system	A required automatic smoke detection and alarm system must be provided in accordance with the following: (a) Class 2 buildings and Class 4 parts of a building— (i) a smoke alarm system complying with Clause 3; or (ii) a smoke detection system complying with Clause 4; or (iii) a combination of a smoke alarm system and a smoke detection system complying with Clause 5. (b) Class 3 buildings— (i) with a Class 3 part located more than 2 storeys above ground level — a smoke detection system complying with Clause 4; or (ii) **which accommodate more than 20 residents and are the residential part of a school, accommodation for the aged, children or people with a disability — a smoke detection system complying with Clause 4**;	Class 3 Block F: Requires a smoke detection & alarm system to Clause 4&7 of Spec E2.2a	CRA – Refer Annexure F
4.	Smoke detection system	(a) All Class 2 - 9 buildings— (i) A smoke detection system must—	Class 3 Block F: Requires a smoke detection & alarm system to Clause 4&7 of Spec E2.2a	CRA – Refer Annexure F

Section E: Services and Equipment			
	(A) subject to (b) and (c), comply with AS 1670.1; and (B) activate a building occupant warning system in accordance with Clause 7. (ii) In kitchens and other areas where the use of the area is likely to result in smoke detectors causing spurious signals— (A) any other detector deemed suitable in accordance with AS 1670.1 may be installed provided that smoke detectors are installed elsewhere in the sole-occupancy unit in accordance with the requirements for alarms in Clause 3(b)(i) and Clause 3(b)(ii); or (B) an alarm acknowledgement facility may be installed, except where the kitchen or other area is in a building protected with a sprinkler system complying with Specification E1.5 (other than a FPAA101D or FPAA101H system), the detectors need not be installed in the kitchen or other areas likely to result in spurious signals. (b) Class 2 or 3 buildings or Class 4 parts of a building — In a Class 2 or 3 building or Class 4 part of a building provided with a smoke detection system, the following applies: (i) Smoke detectors must be installed— (A) within each sole-occupancy unit, in accordance with the requirements for alarms in Clause 3(b)(i) and Clause 3(b)(ii); and (B) subject to (ii), in public corridors and other internal public spaces.		

Section E: Services and Equipment			
	(ii) In a Class 2 or 3 building or Class 4 part of a building protected with a sprinkler system complying with Specification E1.5 (other than a FPAA101D or FPAA101H system), smoke detectors are not required in public corridors and other internal public spaces.		
6. Smoke detection for smoke control system	(a) Smoke detectors required to activate air pressurisation systems for fire-isolated exits and zone pressurisation systems must— (i) be installed in accordance with AS 1670.1; and (ii) have additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3 m. (b) Smoke detectors required to activate— (i) automatic shutdown of air-handling systems in accordance with Table E2.2b; or (ii) a smoke exhaust system in accordance with Specification E2.2b, must— (iii) be spaced— (A) not more than 20 m apart and not more than 10 m from any wall, bulkhead or smoke curtain; and (B) in enclosed malls and walkways in a Class 6 building not more than 15 m apart and not more than 7.5 m from any wall, bulkhead or curtain; and (iv) have a sensitivity—	To be detailed in Detailed Design stage. Note: If a school building has automatic shutdown of air-handling systems only it is not required to activate a BOWS.	CRA – Refer Annexure F

Section E: Services and Equipment			
	(A) in accordance with AS 1670.1 in areas other than a multi- storey walkway and mall in a Class 6 building; and (B) not exceeding 0.5% smoke obscuration per metre with compensation for external airborne contamination as necessary, in a multi- storey walkway and mall in a Class 6 building. (c) Smoke detectors provided to activate a smoke control system must— (i) (A) form part of a building fire or smoke detection system complying with AS 1670.1; or (B) be a separate dedicated system incorporating control and indicating equipment complying with AS 1670.1; and (ii) activate a building occupant warning system complying with Clause 7, except that smoke detectors provided solely to initiate automatic shutdown of air-handling systems in accordance with (b)(i) need not activate a building occupant warning system.		
7. Building occupant warning system	Subject to E4.9, a building occupant warning system provided as part of a smoke hazard management system must comply with clause 3.22 of AS 1670.1 to sound through all occupied areas except— (a) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke alarm system in accordance with Clause 3(b)(iii)— (i) the sound pressure level need not be measured within a sole-occupancy unit if a level of not less	Class 3 Block F: Requires a smoke detection & alarm system to Clause 4&7 of Spec E2.2a Note: If a school building has automatic shutdown of air-handling systems only it is not required to activate a BOWS.	CRA – Refer Annexure F

Section E: Services and Equipment			
	than 85 dB(A) is provided at the door providing access to the sole-occupancy unit; and (ii) the inbuilt sounders of the smoke alarms may be used to wholly or partially meet the requirements; and (b) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke detection system in accordance with Clause 4(b), the sound pressure level from a building occupant warning system need not be measured within a sole-occupancy unit if a level of not less than 100 dB(A) is provided at the door providing access to the sole-occupancy unit; and (c) in a Class 3 building used as a residential care building, the system— (i) must be arranged to provide a warning for occupants; and (ii) in areas used by residents, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of residents; and (d) in a Class 9a health-care building, in a patient care area, the system— (i) must be arranged to provide a warning for occupants; and (ii) in a ward area, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of the patients; and (e) in a Class 9c building, the system— (i) must be arranged to provide a warning for occupants; and		

Section E: Services and Equipment			
	(ii) must notify staff caring for the residents of the building; and (iii) in areas used by residents, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of residents.		
8. System Monitoring	The following installations must be connected to a fire alarm monitoring system connected to a fire station or fire station dispatch centre in accordance with AS 1670.3: (a) A smoke detection system in a Class 3 building provided in accordance with Clause 2(b)(i) or Clause 2 (b)(ii). (b) A smoke detection system in a Class 9a health-care building, if the building accommodates more than 20 patients. (c) A smoke detection system in a Class 9c building. (d) Smoke detection in accordance with Clause 6 provided to activate— (i) a smoke exhaust system in accordance Specification E2.2b; or (ii) smoke-and-heat vents in accordance with Specification E2.2c. (e) An automatic fire detection and alarm system required by Table E2.2a for large isolated buildings subject to C2.3.	Class 3 Block F: Requires a smoke detection & alarm system to Clause 8 of Spec E2.2a and AS 1670.3.	CRA – Refer Annexure F
Part E4 – Visibility In An Emergency, Exit Signs And Warning Systems			
E4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted

Section E: Services and Equipment			
E4.2: Emergency lighting requirements	An emergency lighting system must be installed throughout the building in accordance with Clause E4.2 of the BCA and AS/NZS 2293.1:2018.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
E4.3: Measurement of distance	Informational	Noted	Noted
E4.4: Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1:2018.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
E4.5: Exit signs	*Exits* signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
E4.6: Direction signs	Where an *exit* is not readily apparent, directional signage is to be installed indicating the direction of egress.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
E4.7: Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Noted	Noted
E4.8: Design and operation of exit signs	*Exit* signs must comply with AS/NZS 2293.1:2018 and be clearly visible at all times when the building is occupied.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
E4.9: Emergency warning and intercom systems		Not applicable	N/A

Section F: Health and Amenity			
Part F1 – Damp and Weatherproofing			
F1.0: Deemed-to-Satisfy Provisions	*Performance Requirement* FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this *Performance Requirement* in respect	Architect to provide Performance Solution Report	PS Required

Section F: Health and Amenity				
		of external walls. The assessment contained within this report does not include an assessment against Performance Provision FP1.4.		
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS/NZS 3500.3:2018.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS 4654 Parts 1 and 2:2012.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.6:	Sarking	*Sarking-type materials* used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2:2017.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.7:	Water proofing of wet areas in buildings	Wet areas must be constructed in accordance with AS 3740:2010 and F1.7 of the BCA.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.9:	Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.10:	Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870:2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions).	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F1.11:	Provision of floor wastes		Not applicable for single storey building. Note however floor waste will be required in shower rooms in Block F.	N/A

Section F: Health and Amenity			
F1.13: Glazed Assemblies	Glazed assemblies are to comply with AS 2047:2014 and AS 1288:2006.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
Part F2 – Sanitary and Other Facilities			
F2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F2.1: Facilities in residential buildings (including Table F2.1)	Class 3 building: • Provide a shower and closet pan and washbasin for each 10 residents. • Facilities for employees must be in accordance with F2.3.	Block F: Each 4 bed SOU has a shower, toilet and washbasin. Staff have their own separate sanitary facilities.	Complies
F2.2: Calculation of number of occupants and facilities	Informational – (a) The number of persons accommodated must be calculated according to D1.13 if it cannot be more accurately determined by other means (b) Unless the premises are used predominantly by one sex, sanitary facilities must be provided on the basis of equal numbers of males and females (c) In calculating the number of sanitary facilities to be provided under F2.1 and F2.3, a unisex facility required for people with a disability may be counted once for each sex (d) For the purpose of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary towels	Noted	Noted
F2.3: Facilities in Class 3 to 9 buildings (including Table F2.3)	(a) Except where permitted by (b), (c), (f), F2.4(a) and F2.4(b), separate sanitary facilities for males and females must be provided for Class 3, 5, 6, 7, 8 or 9 buildings in accordance with Table F2.3.	Total student and staff population will determine sanitary facilities:	Complies

<table>
<tr><th colspan="4">Section F: Health and Amenity</th></tr>
<tr><td></td><td>(b) If not more than 10 people are employed, a unisex facility may be provided instead of separate facilities for each sex.
(c) If the majority of employees are one sex, not more than 2 employees of the other sex may share toilet facilities if the facilities are separated by means of walls, partitions and doors to afford privacy.
(d) Employees and the public may share the same facilities in a Class 6 and 9b building (other than a school or early childhood centre) provided the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public.
(e) Adequate means of disposal of sanitary towels must be provided in sanitary facilities for use by females.</td><td>• Students: 325 full time students and 60 students in accommodation.
• Block B&E have 7 x Male and & x Female Pans and 2 x Unisex accessible – satisfies F2.3.
• Staff: 27 full-time staff
• Block A Staff: Administration is provided with 1 x Unisex accessible and 1 Male and 1 x Female ambulant toilet. Staff population of 40 is based on these facilities – satisfactory.

Block G&H: Sanitary facilities not required for farming buildings, however a single toilet is provided for students to avoid travelling back up to the main school.</td><td></td></tr>
<tr><td></td><td colspan="2">Example of sanitary facilities for Staff & Student Populations:
Note: Male student sanitary facilities will be toilet pans only – urinal numbers will be provided as pans.
<table><tr><td>STUDENTS 385</td><td>Pans</td><td>Urinals</td><td>Washbasin</td></tr><tr><td>Male – 193</td><td>4</td><td>3</td><td>5</td></tr><tr><td>Female - 193</td><td>7</td><td>-</td><td>5</td></tr><tr><td>STAFF 40</td><td>Pans</td><td>Urinals</td><td>Washbasin</td></tr><tr><td>Male – 20</td><td>1</td><td>1</td><td>1</td></tr><tr><td>Female - 20</td><td>2</td><td>-</td><td>1</td></tr></table></td><td></td></tr>
<tr><td>F2.4: Accessible sanitary facilities (including Table F2.4)</td><td></td><td>Refer separate Access Report</td><td>Noted</td></tr>
</table>

Section F: Health and Amenity				
F2.5:	Construction of sanitary compartments	(a) Other than in an early childhood centre, sanitary compartments must have doors and partitions that separate adjacent compartments and extend— (i) from floor level to the ceiling in the case of a unisex facility; or (ii) to a height of not less than 1.5 m above the floor if primary school children are the principal users; or (iii) 1.8 m above the floor in all other cases. (b) The door to a fully enclosed sanitary compartment must— (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway.	Student Sanitary Facilities – as unisex they need to be full height walls and doors.	CRA – Refer Annexure F
F2.6:	Interpretation: urinals and washbasins	Informational– (a) A urinal may be— (i) an individual stall or wall-hung urinal; or (ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— (i) an individual basin; or (ii) a part of a hand washing trough served by a single water tap.	Closet pans will be provided in lieu of urinals for Males.	Noted
Part F3 – Room Sizes				

Section F: Health and Amenity				
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F3.1:	Height of rooms and other spaces	The height of rooms and other spaces must be not less than— (a) in a Class 3 building— (i) a kitchen, laundry, or the like — 2.1 m; and (ii) a corridor, passageway or the like — 2.1 m; and (iii) a habitable room excluding a kitchen — 2.4 m; and (iv) in a room or space with a sloping ceiling or projections below the ceiling line (v) within— (A) a habitable room— (aa) in an attic — a height of not less than 2.2 m for not less than two thirds of the floor area of the room or space; and (bb) in other rooms — a height of not less than 2.4 m for not less than two thirds of the floor area of the room or space; and (B) a non-habitable room — a height of not less than 2.1 m for not less than two thirds of the floor area of the room or space; and (aa) when calculating the floor area of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and (b) in a Class 5, 6, 7 or 8 building— (i) except as allowed in (ii) and (f) — 2.4 m; and	Block A/B/C/D – show FCL at 2700mm. Block E complies with over 2700mm. Block F: Class 3: • WC/Shower show FCL 2150mm. • SOU areas show FCL above 2600mm, except for the ceiling height above the bed against the external wall alcove, which has 2150mm ceiling height. This will comply with F3.1(a)(iv)(A)(bb) as the room has 2.4m for over 2/3 of the floor area of the room. Block G/H comply with FCL 2700mm.	CRA – Refer Annexure F

Section F: Health and Amenity			
	(ii) a corridor, passageway, or the like — 2.1 m; and (d) in a Class 9b building— (i) a school classroom or other assembly building or part that accommodates not more than 100 persons — 2.4 m; and (ii) a theatre, public hall or other assembly building or part that accommodates more than 100 persons — 2.7 m; and (iii) a corridor— (A) that serves an assembly building or part that accommodates not more than 100 persons — 2.4 m; or (B) that serves an assembly building or part that accommodates more than 100 persons — 2.7 m; and (iv) the number of persons accommodated must be calculated according to D1.13; and (f) in any building— (i) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and (ii) a commercial kitchen — 2.4 m; and (iii) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like. (iv) A required accessible adult change facility – 2.4m		
Part F4 – Light and Ventilation			

Section F: Health and Amenity				
F4.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F4.1:	Provision of natural light	Class 3 Natural light must be provided to all bedrooms and dormitories. Class 9b schools Natural light must be provided to all general purpose classrooms in primary or secondary schools	Compliance can be readily achieved. Not applicable to Block G&H.	CRA – Refer Annexure F
F4.2:	Methods and extent of natural lighting	(a) Natural light must be provided by: (i) Windows: (A) with an aggregate light transmitting area of not less than 10% the floor area of the room; and (B) that 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 (ii) Rooflights, that: (A) have an aggregate light transmitting area of not less than 3% the floor area of the room; or (iii) a proportional combination of windows and roof lights required by (i) and (ii).	Compliance can be readily achieved.	CRA – Refer Annexure F
F4.3:	Natural light borrowed from adjoining room		Not applicable for this development	N/A
F4.4:	Artificial Lighting	Lighting to all areas is to comply with AS/NZS 1680.0:2009.	Electrical designer to certify.	CRA – Refer Annexure F

Section F: Health and Amenity			
F4.5: Ventilation of rooms	All rooms to be provided with Clause F4.6 compliant natural ventilation **OR** a mechanical ventilation or air-conditioning system complying with AS 1668.2:2012.	Mechanical designer to certify. Block E: Assume natural ventilation will be achieved via aggregate of all openings/doors.	CRA – Refer Annexure F
F4.6: Natural ventilation	(a) Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened— (i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— (A) a suitably sized court, or space open to the sky; or (B) an open verandah, carport, or the like; or (C) an adjoining room in accordance with F4.7.	Block F Class 3 SOUs: Compliance can be readily achieved.	CRA – Refer Annexure F
F4.7: Ventilation borrowed from adjoining room		Not applicable for this development	N/A
F4.8: Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a – > kitchen or pantry > public dining room or restaurant > dormitory in a Class 3 building > room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) > workplace normally occupied by more than one person.	Block A Admin complies Class 3 complies. Student toilets comply on outside of buildings. Block H: Complies	Complies

Section F: Health and Amenity			
F4.9: Airlocks		Not applicable as compliance with F4.8 is achieved.	N/A
F4.12: Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1:2015 and AS 1668.2:2012 where: > any cooking apparatus has: o a total maximum electrical power input exceeding 8 kW; or o a total gas power input exceeding 29 MJ/h; or > the total maximum power input to more than one apparatus exceeds: o 0.5 kW electrical power; or o 1.8 MJ gas, Per m2 of floor area of the room or enclosure.	Mechanical designer to address Canteen kitchen.	CRA – Refer Annexure F
Part F5 – Sound Transmission and Insulation			
F5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F5.1: Application of Part	Informational– The Deemed-to-Satisfy Provisions of this Part apply to Class 2 and 3 buildings and Class 9c buildings.	Applies Block F Class 3.	Noted
F5.2: Determination of airborne sound insulation ratings	A form of construction required to have an airborne sound insulation rating must— (a) have the required value for weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term (R_w + Ctr) determined in accordance with AS/NZS ISO 717.1 using results from laboratory measurements; or	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section F: Health and Amenity				
		(b) comply with Specification F5.2.		
F5.3:	Determination of impact sound insulation ratings	(a) A floor in a building required to have an impact sound insulation rating must— (i) have the required value for weighted normalised impact sound pressure level with spectrum adaptation term ($L_{n,w}$ + CI) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or (ii) comply with Specification F5.2. (b) A wall in a building required to have an impact sound insulation rating must be of discontinuous construction; and (c) For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and (i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
F5.4:	Sound insulation rating of floors	A floor in a Class 2/3 building must achieve an $R_w + C_{tr}$ (airborne) not less than 50, and an $L_{n,w}+C_I$ (impact) not more than 62, if separating: > SOU's; or > An SOU from a plant room, lift shaft, public corridor, public lobby or parts of a different classification.	Not applicable	N/A
F5.5:	Sound insulation rating of walls	(a) A wall in a Class 2 building must: (i) have an $R_w + C_{tr}$ (airborne) not less than 50 if it separates *sole-occupancy units*; and	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section F: Health and Amenity			
	(ii) have an R_w (airborne) not less than 50 if it separates a sole occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and (iii) be of discontinuous construction in accordance with F5.3(b) if it separates: (A) a bathroom, sanitary compartment, laundry or kitchen in one *sole-occupancy unit* from a habitable room (other than a kitchen) in an adjoining unit; or (B) a *sole-occupancy unit* from a plant room or lift shaft. (b) Where a wall required to have sound insulation has a floor above, the wall must continue to: (i) the underside of the floor above; or (ii) a ceiling that provides the sound insulation required for the wall. (c) Where a wall required to have sound insulation has a roof above, the wall must continue to: (i) the underside of the roof above; or (ii) a ceiling that provides the sound insulation required for the wall. (d) Doorways in walls separating the Class 2 *sole-occupancy units* from a stairway, public corridor, public lobby or the like must be provided with a door assembly that has an R_w not less than 30.	Fire rated ceiling to achieve the same sound insulation of the separating walls - $R_w + C_{tr}$ (airborne) not less than 50.	
F5.6: Sound insulation rating of services	(a) If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one *sole-occupancy unit*, the duct or pipe must be separated from the rooms of any sole occupancy unit by	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section F: Health and Amenity			
	construction with an $R_w + C_{tr}$ (airborne) not less than— (i) 40 if the adjacent room is a habitable room (other than a kitchen); or (ii) 25 if the adjacent room is a kitchen or non-habitable room. (b) If a storm water pipe passes through a *sole-occupancy unit* it must be separated in accordance with (a)(i) and (ii).		
F5.7: Sound isolation of pumps	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump.	Assumed Not applicable	N/A
Specification F5.2 – Sound Insulation for Building Elements			
1. Scope	Informational	Noted	Noted
2. Construction Deemed-to-Satisfy	Information only	-	Noted
Specification F5.5 – Impact Sound – Test of Equivalence			
1. Scope	Noted		-
2. Construction to be Tested	Information only	-	Noted
3. Method	Information only	-	Noted

Section G: Ancillary Provisions
Part G1 – Minor Structures and Components

Section G: Ancillary Provisions				
G1.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G1.1:	Swimming pools		Not applicable	N/A
G1.2:	Refrigerated chambers, strong-rooms and vaults	(a) A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must have— (i) a door which is capable of being opened by hand from inside without a key; and (ii) internal lighting controlled only by a switch which is located adjacent to the entrance doorway inside the chamber, strongroom or vault; and (iii) an indicator lamp positioned outside the chamber, strongroom or vault which is illuminated when the interior lights required by (a)(ii) are switched on; and (iv) an alarm that is— (A) located outside but controllable only from within the chamber, strongroom or vault; and (B) able to achieve a sound pressure level outside the chamber, strongroom or vault of 90 dB(A) when measured 3 m from the sounding device. (b) A door required by (a)(i) in a refrigerated or cooling chamber must have a doorway with a clear width of not less than 600 mm and a clear height not less than 1.5 m.	If required Canteen kitchen cool room to comply.	CRA – Refer Annexure F
Part G2 – Boilers, Pressure Vessels, Heating Appliances, Fireplaces, Chimneys and Flues				

Section G: Ancillary Provisions			
G2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G2.2: Installation of Appliances		Services confirm no Boilers or pressure vessels proposed	N/A
Part G5 – Construction in Bushfire Prone Areas			
G5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G5.1: Application of Part	Informational	Noted	Noted
NSW G5.2: Protection	In a designated bushfire prone area, a Class 2 building, a Class 3 building, a Class 4 part of a building or a Class 9 building that is a special fire protection purpose or a Class 10a building or deck associated with such a building or part, must comply with the following— (a) AS 3959 except— (i) as amended by Planning for Bush Fire Protection; and (ii) for Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). Buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level; or (b) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or (c) the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural	Bushfire Consultant has provided a Bushfire Assessment Report for the development – Refer to report by Bushfire Planning Australia, Reference: 2017 Richmond CoE, dated 14.04.2021. All recommendations within the report to be detailed in the architectural package.	CRA – Refer Annexure F

Section G: Ancillary Provisions			
	Fires Act 1997 for the purposes of integrated development.		
Part G6 – Occupiable Outdoor Areas			
G6.1: Application of part		Not applicable for single storey buildings	N/A

Section H: Special Use Buildings			
Part H1 – Class 9b Buildings			
NSW H1.1: Application of Part	Informational	Block E Hall has no stage	N/A
H1.4: Seating Area		Block E Hall has no stage/seating area	N/A
H1.7: Aisle Lights in Theatres		Block E Hall has no stage/seating area	N/A

Section J: Energy Efficiency (Class 3, 5, 9)			
Part J0 – Energy Efficiency			
J0.1: Application of Section J	Informational	Noted	Noted
Part J1 – Building Fabric			
J1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
J1.1: Application of Part	The provisions of Part J1 apply to building elements forming part of the *envelope* of the building.	Block A/B/C/D/E/F require compliance with Section J. Block G&H are not considered a conditioned space therefore do not form an 'envelope' under Section J.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)			
J1.2: Thermal construction general	Where required insulation is to comply with AS/NZS 4859.1:2018 and be installed in accordance with this clause. The required Total R-Value and Total System U-Value, must be determined in accordance with Clause J1.2 (e).	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J1.3: Roof and ceiling construction	(a) A roof or ceiling must achieve a Total R-Value greater than or equal to— (i) in climate zones 1, 2, 3, 4 and 5, R3.7 for a downward direction of heat flow; and (ii) in climate zone 6, R3.2 for a downward direction of heat flow; and (iii) in climate zone 7, R3.7 for an upward direction of heat flow; and (iv) in climate zone 8, R4.8 for an upward direction of heat flow. (b) In climate zones 1, 2, 3, 4, 5, 6 and 7, the solar absorptance of the upper surface of a roof must be not more than 0.45.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J1.4: Roof lights	Any roof lights must have – (a) a total area of not more than 5% of the floor area of the room & space served; and (b) transparent and translucent elements with performance of – (i) Total system SHGC, in accordance with table J1.4, and (ii) Total system U-value, not more than U3.9	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J1.5: Walls	(a) The Total System U-Value of wall-glazing construction must not be greater than—	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)			
	(i) for a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, U2.0; and (ii) for a Class 3 or 9c building or a Class 9a ward area— (A) in climate zones 1, 3, 4, 6 or 7, U1.1; or (B) in climate zones 2 or 5, U2.0; or (C) in climate zone 8, U0.9. (b) The Total System U-Value of display glazing must not be greater than U5.8. (c) The Total System U-Value of wall-glazing construction must be calculated in accordance with Specification J1.5a. (d) Wall components of a wall-glazing construction must achieve a minimum Total R-Value of— (i) where the wall is less than 80% of the area of the wall-glazing construction, R1.0; or (ii) where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J1.5a. (e) The solar admittance of externally facing wall-glazing construction must not be greater than— (i) for a Class 2 common area, a Class5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, the values specified in Table J1.5b; and (ii) for a Class 3 or 9c building or a Class 9a ward area, the values specified in Table J1.5c. (f) The solar admittance of a wall-glazing construction must be calculated in accordance with Specification J1.5a.		

Section J: Energy Efficiency (Class 3, 5, 9)			
	(g) The Total system SHGC of display glazing must not be greater than 0.81 divided by the applicable shading factor specified in Clause 7 of Specification J1.5a.		
J1.6: Floors	(a) A floor must achieve the Total R-Value specified in Table J1.6. (b) A floor must be insulated around the vertical edge of its perimeter with insulation having an R-Value greater than or equal to 1.0 when the floor— (i) is a concrete slab-on-ground in climate zone 8; or (ii) has an in-slab or in-screed heating or cooling system, except where used solely in a bathroom, amenity area or the like. (c) Insulation required by (b) for a concrete slab-on-ground must— (i) be water resistant; and (ii) be continuous from the adjacent finished ground level— (A) to a depth not less than 300 mm; or (B) for the full depth of the vertical edge of the concrete slab-on-ground.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
Part J2 – Glazing			
J2.0: Deemed-to-Satisfy Provisions	Part J2 has deliberately been left blank from the BCA2019		Noted
Part J3 – Building Sealing			
J3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted

Section J: Energy Efficiency (Class 3, 5, 9)			
J3.1: Application of Part	The requirements of this Part apply to elements forming the *envelope* of the building other than: > a building in a climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; or > a permanent building opening necessary for the safe operation of a gas appliance; > a building or space where mechanical ventilation required by Part F4 provides sufficient pressurisation to prevent infiltration; > parts of building that cannot be fully enclosed.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J3.2: Chimneys and flues	The chimney or flue of an open solid-fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J3.3: Roof lights	Roof lights serving conditioned spaces, or habitable rooms in climate zone 4-8, must be sealed or be capable of being sealed and must be constructed with– (i) an imperforate ceiling diffuser or the like installed at the ceiling or lining level; or (ii) a weatherproof seal; or (iii) a shutter system readily operated either manually, mechanically or electronically by the occupant.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J3.4: Windows and doors	(a) A door, openable window or the like must be sealed— (i) when forming part of the *envelope*; or (ii) in climate zones 4, 5, 6, 7 or 8. (b) The above does not apply to:	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)			
	(i) a window complying with AS 2047; or (ii) a fire door or smoke door; or (iii) roller shutter door, roller shutter grille or other security device or device installed only for out-of-hours security. (c) A seal to restrict air infiltration— (i) for the bottom edge of a door, must be a draft protection device; and (ii) for the other edges of a door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like. (d) An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than– (i) where the conditioned space has a floor area of not more than 50m2; or (ii) where a café, restaurant, open front shop or the like has– (A) a 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (B) at all other entrances to the café, restaurant, open from shop of the like, self-closing doors		
J3.5: Exhaust fans	The exhaust fans serving conditioned spaces or habitable room in climate 4 - 8, must be fitted with a sealing device, such as a self-closing damper of the like.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
J3.6: Construction of ceilings, walls and floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air leakage by being enclosed by internal lining systems that	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)			
	are close fitting at ceiling, wall and floor junctions; or are sealed by expanding architraves, skirting, cornices; or expanding foam, rubber compressible strip, caulking or the like.		
J3.7: Evaporative Coolers	The evaporative cooler must be fitted with a self-closing damper or like when serving heated space OR in climate zones 4 - 8.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F
Part J4			
J4.0:	This part has deliberately been left blank in the BCA2019		N/A
Part J5 – Air Conditioning and Ventilation Systems			
J5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
J5.1: Application of Part	Informational	Noted	Noted
J5.2: Air-conditioning systems	Clause contains requirements for air conditioning system control.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.3: Mechanical ventilation system control	Clause contains requirements for mechanical ventilation system control.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.4: Fan systems	Clause contains requirements for fans, ductwork and duct components.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.5: Ductwork Insulation	Clause contains requirements for ductwork insulation.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.6: Ductwork Sealing	Ductwork in an air-conditioning system with a capacity of 3000 L/s or greater, not located within the only or last room served by the system, must be sealed against air	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)				
		loss in accordance with the duct sealing requirements of AS 4254.1 and AS 4254.2 for the static pressure in the system.		
J5.7:	Pump Systems	Clause contains requirements for pumps and pipework that form part of air-conditioning systems.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.8:	Pipework Insulation	Clause contains requirements for pipework insulation.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.9:	Space Heating	Clause contains requirements for space heating.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.10:	Refrigerant Chillers	Clause contains requirements for air-conditioning system refrigerant chillers.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.11:	Unitary Air-Conditioning Equipment	Clause contains requirements for unitary air-conditioning equipment.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
J5.12:	Heat Rejection Equipment	Clause contains requirements for heat rejection equipment.	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure F
Part J6 – Artificial Lighting and Power				
J6.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
J6.1:	Application of Part	Informational	Noted	Noted
J6.2:	Artificial lighting	Artificial lighting must comply with BCA Clause J6.2.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
J6.3:	Interior artificial lighting and power control	Lighting switches and control devices must comply with BCA Clause J6.3.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F

Section J: Energy Efficiency (Class 3, 5, 9)				
J6.4:	Interior decorative and display lighting	Lighting falling under this clause is to be separately switched from other lighting, be under a manual switch and controlled with a time switch.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
J6.5:	Exterior artificial lighting	Exterior lighting attached to or directed at the façade of the building must be controlled by daylight sensors or time switches in accordance with the specific requirements of this clause.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
J6.6:	Boiling water and chilled water storage units	The power supply to a fixed boiling water or chilled water storage unit must be controlled by a time switch in accordance with BCA Specification J6.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
J6.7:	Lifts	Lifts must be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; it also must achieve energy control requirements that comply to Clause J6.7 (b) and (c).	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
J6.8:	Escalators and moving walkways	Escalators and moving walkways must have the ability to slow to between 0.2 m/s and 0.05 m/s when unused for more than 15 minutes.	Design certification to be provided by the electrical designer.	CRA – Refer Annexure F
Part J7 – Heated Water Supply				
J7.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
J7.2:	Heated water supply system	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.		CRA – Refer Annexure F
Part J8 – Facilities for Energy Monitoring				

Section J: Energy Efficiency (Class 3, 5, 9)				
J8.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
J8.1:	Application of Part	Informational	Noted	Noted
J8.3:	Facilities for energy monitoring	> A building with a floor area of more than 500m^2 must have an energy meter configured to record the time-of-use consumption of gas and electricity. > A building with a floor area of more than 2,500m^2 must have the energy meters configured to enable individual time-of-use energy consumption data recording, in accordance with (c), of the energy consumption of –: o air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and o artificial lighting; and o appliance power; and o central hot water supply; and o internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and o other ancillary plant. > Energy meters required by (b) must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed and reviewed. > The provisions of (b) do not apply to a Class 2 building with a floor area of more than 2500 m^2 where the total area of the common areas is less than 500 m^2.	To be detailed in Detailed Design stage.	CRA – Refer Annexure F

ANNEXURE E DEFINITIONS

Annexure E - Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

(a) the exterior of the building; or

(b) a non-conditioned space including—

(i) the floor of a rooftop plant room, lift-machine room or the like; and

(ii) the floor above a carpark or warehouse; and

(iii) the common wall with a carpark, warehouse or the like.

Exit

Exit means –

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

(i) An internal or external stairway.

(ii) A ramp.

(iii) A fire-isolated passageway.

(iv) A doorway opening to a road or open space.

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

Fire compartment

Fire compartment means –

(a) the total space of a building; or

(b) when referred to in—

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

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

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

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

Fire-source feature

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

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

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

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Loadbearing

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

Non-combustible

Non-combustible means—

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

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

Occupiable outdoor area

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

(a) that is open to the sky; and

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

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

Open space

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

Performance Requirement

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

Performance Solution

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

Sarking-type material

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

Smoke developed index

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

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

(a) a dwelling; or

(b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

(c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or

(d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 5 of Specification C1.1 of BCA2019 for a building of Type C Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. EFSG requires external walls of all school buildings to be non-combustible, therefore compliance with C1.9 of BCA2019 will be achieved. In addition, any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
6. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12 and C3.15 and Specification C3.15 of BCA2019.
7. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
8. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.
9. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause 2.4 of Specification C1.1 of BCA2019.
10. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
11. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019.
12. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 45m apart in the residential portion (Block F) or 60m, in accordance with Clause D1.5 of BCA2019, or addressed with a Performance Solution.
13. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
14. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
15. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
16. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.

17. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
18. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
19. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
20. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
21. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019.
22. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
23. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
24. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
25. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
26. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
27. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
28. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
29. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
30. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
31. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
32. Natural light will be provided in accordance with Clause F4.1 & F4.2 of BCA2019.
33. Natural ventilation will be provided in accordance with Clause F4.5 & F4.6 of BCA2019.
34. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
35. Boliers and pressure vessels shall be installed in accordance with Specification G2.2 of BCA2019.
36. The building is within a bushfire prone area therefore will be in accordance with Part G5, and NSW Part G5.1 & G5.2 of BCA2019.
37. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
38. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
39. Glazing will be in accordance with Part J1 of BCA2019.
40. Building sealing will be in accordance with Part J3 of BCA2019.
41. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

42. Class 9b Buildings: A smoke detection and alarm system will be installed throughout the building in accordance with NSW Table E2.2b and Clause 6 of Specification E2.2a of BCA2019 for buildings required to have auto-shutdown of air handling systems.
43. Block F: A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a and Specification E2.2a of BCA2019.
44. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
45. Exit signage will be installed in accordance with Clause E4.5, E4.7 and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
46. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
47. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
48. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

Hydraulic Services Design Certification:

49. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
50. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
51. Block E Hall: Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
52. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
53. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

Mechanical Services Design Certification:

54. Class 9b Buildings: In accordance with NSW Table E2.2b of BCA2019, buildings are required to have auto-shutdown of air handling systems unless they are exempt systems under NSW Table E2.2b.
55. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
56. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2019, and AS 1668.1:2015 and AS 1668.2:2012.
57. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
58. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

59. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:
    - Dead and Live Loads – AS/NZS 1170.1:2002

- Wind Loads – AS/NZS 1170.2:2011
- Earthquake actions – AS 1170.4:2007
- Masonry – AS 3700:2018
- Concrete Construction – AS 3600:2018
- Steel Construction AS 4100:1998
- Aluminium Construction – AS/NZS 1664.1 or 2:1997
- Timber Construction – AS 1720.1:2010

60. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 5 for a building of Type C Construction.
61. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.

Acoustic Services Design Certification:

62. Block F: The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2019.