BCA LOGIC

Building Regulation, BCA,
Fire, Access and Energy Consultants

To:	Catholic Education
Project:	Santa Sophia School
Report:	BCA Assessment Report
Reference No:	110181-BCA-r3
Date:	11 April 2019
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DOCUMENT CONTROL

Revision	Date	Description		
110181-BCA-r1	21.03.19	Preliminary BCA Assessment Report		
110181-BCA-r2	04.04.19	BCA Assessment Report – Test of Adequacy		
110181-BCA-r3	11.04.19	BCA Assessment Report – Updated to reference BCA2019		
		Prepared by	Checked by	Approved by
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INTRODUCTION

Overview

This BCA & Access Report has been prepared by BCA Logic Pty Ltd on behalf of the Catholic Education Diocese of Parramatta c/TSA Management Pty Ltd (the Applicant).

It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 18_9772) for the new Santa Sophia Catholic College on the corner of Fontana Drive and the future road 'B', between Red Gables Road and Fontana Drive, in Box Hill North (the site).

The new school will cater for approximately 1,920 primary and secondary school students, inclusive of a 60 student Catholic Early Learning Centre. The school will have 130 full-time equivalent staff.

The proposal seeks consent for approximately 15,000sqm of floor space across a part five and part six storey building. The building will present as three main hubs connected by terraced courtyards and garden spaces.

The school will include:

Catholic Early learning centre for 60 students;

General Learning Spaces for years Kindergarten to 12;

Community Hub – knowledge centre and cafe;

Creative Hub – art and applied science;

Performance Hub – multipurpose hall and music, dance and drama spaces;

Professional Hub – administrative space;

Research Hub – science and fitness;

Associated site landscaping and open space including a fence and sporting facilities;

Bus drop off from Fontana Drive;

Pick-up and drop-off zone from future road 'B';

Pedestrian access points from Red Gables Road north, Fontana Drive and future road 'B';

Staff parking for 110 vehicles provided off site in an adjacent location;

Short term parking for pick up and drop off for Catholic Early Learning Centre from Red Gables Road; and

Digital and non-digital signage to the school.

The purpose of this BCA & Access Report is to is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2016 Amendment One, 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 2016. 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.

The architectural design documentation as referred to in this report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure B) with that Code.

Detailed design at CC stage will involve assessment of Performance Based (Fire Engineered) Performance Solutions as noted in Part 5.3 of this Report. Any Performance Solutions will be required to clearly indicate methodologies for achieving compliance with the relevant Performance Requirements. Fire Engineering Letter of Intent has been provided by Holmes Fire, Project 137979.01 Version A, dated 29 March 2019. This Letter confirms the proposed Performance Solutions can be utilised to demonstrate compliance with the Performance Requirements of the BCA without major changes to the current architectural design.

Response to SEARs

The BCA & Access Report is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD 18_9772. This table identifies the relevant SEARs requirement/s and corresponding reference/s within this report.

Table 1 – SEARs and Relevant Reference

SEARs Item	Report Reference
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: • Accessibility Report	BCA & Access Report by BCA Logic 110181-BCA-r3

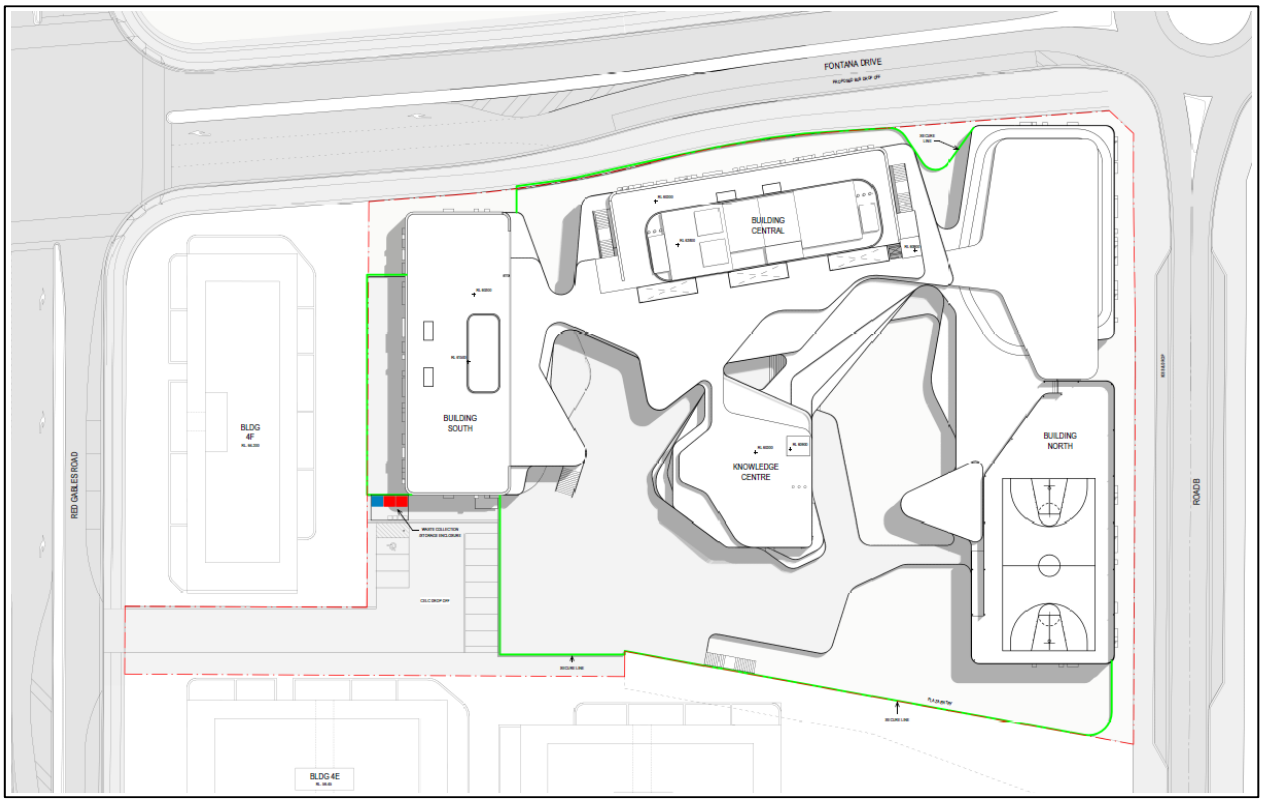
1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at a new development area known as The Gables Town Centre. The site will be bounded by Fontana Drive to the west and a public road to the north. The eastern and southern allotment boundary will be shared with residential development with a portion shared with access from Red Gables Road to a private road and parking at Level 01 to serve the Child Care Centre.

The project development consists of:

- Level 00: Class 9b school and multi-purpose hall and Class 5 office administration with access to site from Fontana Road to the west and public road to the north.
- Level 01: Class 9b school and child care centre and Class 5 staff facilities with access to site from Fontana Road to the south-west and child care parking to the east.
- Level 02 – Level 05: Class 9b school



Site Map: Fontana Road to the west, public road to the north and child care parking to the south which is accessed from Red Gables Road.

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 (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 2019.

BCA2019 will come into force on 1 May 2019 and will be applicable to this building as application for Construction Certificate will be after 1 May 2019.

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) Demolition Standards not referred to by the BCA;

(c) Work Healthy and Safety Act 2011;

(d) 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

(e) 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)

The building has a rise in storeys of 6.

2.2 Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
5	Part Level 00 & 01	Staff offices and facilities
9b	Part Level 00 & 01, Level 02 to 05	School, Child Care Centre and multi-purpose hall

Note: Multi-purpose Hall is not deemed an entertainment venue under the EP&A Regulations as it is not considered an 'indoor sports stadium'. The Hall has a flat floor used for sport and other school/community uses but it does not have fixed tiered seating associated with a sports stadium.

2.3 Effective Height (clause A1.0)

The building has an effective height of less than 25 metres. (56.30 – 35.30 = 21m).

Level 6 roof only contains plant rooms or open plant areas therefore is excluded from the definition of effective height.

The BCA2019 definition is as follows:

"*Effective height means the vertical distance between the floor of the lowest storey included in a calculation of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).*"

2.4 Type of Construction Required (Table C1.1)

The building is required to be of Type A 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	8,000m^2
	Maximum Volume	48,000m^3

2.6 Fire Compartments

The following fire compartments have been assessed as follows:

(a) The BCA definition of floor area for fire compartments requires external areas which contribute to the fire load to be included in the calculation of the total floor area of a fire compartment. As such, external areas for play or recreation are going to contain equipment or furniture which contributes to the fire load.

(b) Essentially the provision of fire compartments is provided across each storey as Type A Construction requires floors to have an FRL 120/120/120, which in turn creates horizontal fire separation to create separate fire compartments. With the external floor areas being considered part of the fire compartment, the total internal floor area and external floor area

are calculated to determine the fire compartment floor area per storey. One exception would be the external open space areas on Level 00.

(c) However, if storeys are connected with internal non-fire isolated stairs then each storey is not fire separated horizontally into separate fire compartments and the connected storeys become one combined fire compartment. This will create fire compartments over multiple storeys which will exceed 8,000m^2 floor area.

(d) Fire Engineering Strategy will be adopted to address the size of fire compartments greater than 8000m^2.

(e) Level 00 & 01: The school areas and office administration areas (excluding Hall & Knowledge Centre) are connected by internal voids and internal non-fire isolated stair therefore are considered one fire compartment, including outdoor play areas on Level 01, which totals over 8000m^2.

(f) Level 01-04: These storeys are connected via the non-fire isolated stair in the Knowledge Centre therefore the four storeys form one fire compartment greater than 8000m^2.

(g) Level 05 and Multi-Purpose Hall noted below are considered to comply with the fire compartment size for Class 9b buildings under C2.2.

(h) Level 05 complies with BCA C2.2 as a separate fire compartment less than 8000m^2 as the top storey of the school achieves horizontal floor fire separation from the storeys below.

(i) Multi-Purpose Hall complies with BCA C2.2 as a separate fire compartment less than 8000m^2. It is considered a separate fire compartment over Level 00 & 01 as the Hall is not connected to the other buildings other than a small balcony and is more than 6m from the Office Administration building. Level 00 & 01 are connected via the main hall area over two storeys and may be considered one fire compartment less than 2000m^2.

2.7 Exits

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

(a) Level 00: Staff administration, multi-purpose hall and school parts will have egress direct to open space and the road. A fire -isolated stair/passageway serves the BOH areas.

(b) Level 01: Child care centre can egress direct to open space and egress to Fontana Drive or via private road to Red Gables Road.

(c) Level 01: Knowledge centre can egress direct to open space then via private road to Red Gables Road.

(d) Level 01: Science area can egress via the southern elevation exit sliding doors and reach open space toward the private road or via Stair 2 to Level 00.

(e) Level 01: Staff facilities and music/performance area can egress via external Stair 3 and Stair 4 or internal non-fire isolated stair to Level 00.

(f) Level 01: Stair 02 (large external stair) is a required exit for Level 01.

(g) Level 01: Stair 01 discharge can egress via open space to the private road to Red Gables Road.

(h) Level 01: Stair 06 discharge can egress via open space to the private road to Red Gables Road.

(i) Level 01: Stair 05 discharge can egress via open space and the external stair down to Fontana Road.

(j) Level 02-05: Egress is via the required external exit stairs.

(k) Level 01-04: Knowledge Centre has an internal non-fire isolated stair.

(l) Level 06 Roof – Stair 4 and 5 serve the plant room level.

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:

North: The far boundary of Fontana Drive.

South: Level 00 it is allotment boundary and Level 01 it is the allotment boundary and the far boundary of the private road as the allotment boundary.

East: The far boundary of a public road.

West: Level 01 is the allotment boundary.

A fire-source feature is defined in Part A1.0 – Schedule 3 of the BCA as–

(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.

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–

(i) has an FRL of not less than 30/–/–; and

(ii) is neither transparent nor translucent.

3 ESSENTIAL FIRE SAFETY MEASURES

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

Table 2. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	**BCA2019 C3.13** (Openings in Shafts) **BCA2019 Spec C3.4** AS1905.1:2015 (Amdt 1)
2.	Construction Joints	**BCA2019 C1.1, Spec C1.1** **BCA2019 C3.16** AS1530.4:2014 & AS4072.1-2005
3.	Fire doors	**BCA2019 C2.13** (Electricity Supply Systems) **BCA2019 C3.4** (Methods of Protection) **BCA2019 C3.8** (Openings in Fire Isolated Exits) Specification C3.4, AS1905.1:2015 (Amdt 1) **BCA2019 C3.10** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15, Spec C3.15** AS1530.4:2014 & AS4072.1-2005
5.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** AS1530.4:2014
General		
6.	Portable fire extinguishers	**BCA2019 E1.6** AS2444–2001
General – Egress		
7.	Automatic fail safe devices • Auto open Sliding Exit doors • Break Glass release	**BCA2019 D2.19 & D2.21** AS1670.1:2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
8.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
9.	Warning & operational signs	**BCA2019 D2.23** (Signs on Fire Doors) **BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs)) **BCA2019 E3.3** (Lift Signs),
Lifts		
10.	Stretcher Lifts including • Fire Service Controls • Recall Operation • Drive control switch	**BCA2019 E3.2** **BCA2019 E3.7** (Fire Service Controls) **BCA2019 E3.9** (Fire Service Recall Operation Switch) **BCA2019 E3.10** (Lift Car Fire Service drive control switch) **BCA2019 Spec E3.1** AS1735.11-1986 (Fire rated landing doors)
Electrical Services		
11.	Automatic fire detection & alarm:	**BCA2019 E2.2, E4.9, Table E2.2a, NSW Table E2.2b,** **Spec E2.2a** – Clause 6 (Smoke Control) **Spec E2.2a** – Clause 7 (BOWS) AS1670.1:2018 AS1670.4:2018 (EWIS)
12.	Emergency lighting	**BCA2019 E4.2, E4.4, Spec E4.8** AS/NZS2293.1:2018
13.	Exit signs	**BCA2019 E4.5, E4.6, E4.8, Spec E4.8** AS/NZS2293.1:2018
14.	Smoke detectors & heat detectors 1. Auto-shutdown of Air-handling System (Class 9b).	**BCA2019 E2.2, NSW Table E2.2b,** Spec E2.2a Clause 5 AS1670.1:2018 & AS/NZS1668.1:2015 (Amdt 1)
15.	Emergency Warning & Intercom Systems	**BCA2019 E4.9** AS1670.4:2018 (EWIS)
16.	System Monitoring • Sprinkler System	**BCA2019 E1.5,Spec E1.5** AS1670.3-2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
Hydraulic Services		
17.	Automatic fire suppression systems • General Sprinklers	**BCA2019 E1.5 & Spec E1.5** **BCA2019 E2.2, Table E2.2a** AS2118.1:2017
18.	Fire hydrant systems • NSW Storz Couplings	**BCA2019 E1.3** AS2419.1–2005 (Amdt 1) FRNSW Technical Sheet D15/45534.V6 issued 11.04.17, 'Compatible Hose Connections'
Mechanical Services		
19.	Fire dampers	**BCA2019 C3.15, Spec C3.15** AS/NZS1668.1:2015 (Amdt 1), AS1682.1:2015 & AS1682.2:2015
20.	Mechanical air handling systems Auto-shutdown of Air-handling System. • Class 9b building	**BCA2016 E2.2, NSW Table E2.2b** **Spec E2.2a Clause 6** AS/NZS1668.1:2015 (Amdt 1) & AS1670.1-2018
Notes: BCA Clause E2.2 (An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must— (i) (be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1; and for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS/NZS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard.		
21.	**Performance Solutions** Fire Engineering Letter of Intent has been provided by Holmes Fire, Project 137979.01 Version A, dated 29 March 2019.	

4 FIRE RESISTANCE LEVELS

The following fire resistance levels (FRL's) are required for the various structural elements of the building, 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 A Construction

Table 3. Type A Construction

Item	Class 5 or 9b
Loadbearing External Walls (including columns and other building elements incorporated therein) • Less than 1.5m to a fire source feature • 1.5 – less than 3m from a fire source feature; • 3m or more from a fire source feature	 120/120/120 120/90/90 120/60/30
Non-Loadbearing External Walls • Less than 1.5m to a fire source feature • 1.5 – less than 3m from a fire source feature; • 3m or more from a fire source feature	 -/120/120 -/90/90 -/-/-
External Columns • Loadbearing • Non-loadbearing	 120/-/- -/-/-
Common Walls & Fire Walls	120/120/120
Stair and Lift Shafts required to be fire-resisting • Loadbearing • Non-loadbearing	 120/120/120 -/120/120
Internal walls bounding sole occupancy units • Loadbearing • Non-loadbearing	 120/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: • Loadbearing • Non-loadbearing	 120/-/- -/-/-
Ventilating, pipe, garbage and like shafts: • Loadbearing • Non-loadbearing	 120/90/90 -/90/90
Other loadbearing internal walls, beams trusses and columns	120/-/-

Item	Class 5 or 9b
Floors	120/120/120
Roofs[1]	120/60/30

N.B.[1] The roof need not comply with any FRL's due to the sprinkler protection of the entire building.

5 STATEMENT OF COMPLIANCE

5.1 General

The architectural design documentation as referred to in this report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure B) with that Code.

Detailed design at CC stage will involve assessment of Performance Based (Fire Engineered) Performance Solutions as noted in Part 5.3 of this Report. Any Performance Solutions will be required to clearly indicate methodologies for achieving compliance with the relevant Performance Requirements. Fire Engineering Letter of Intent has been provided by Holmes Fire, Project 137979.01 Version A, dated 29 March 2019. This Letter confirms the proposed Performance Solutions can be utilised to demonstrate compliance with the Performance Requirements of the BCA without major changes to the current architectural design.

Annexure B to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA. Part 5 of this Report also identifies further areas of design which will evolve with the detailed design and require further assessment by the Fire Engineer and design team. It is important that both Part 5 and Annexure B are read in conjunction during detailed CC design, as some matters may not have had sufficient information provided at DA stage to allow a detailed assessment to be undertaken.

5.2 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.

5.3 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:

Fire Engineering Letter of Intent has been provided by Holmes Fire, Project 137979.01 Version A, dated 29 March 2019. This Letter confirms the proposed Performance Solutions can be utilised to demonstrate compliance with the Performance Requirements of the BCA without major changes to the current architectural design.

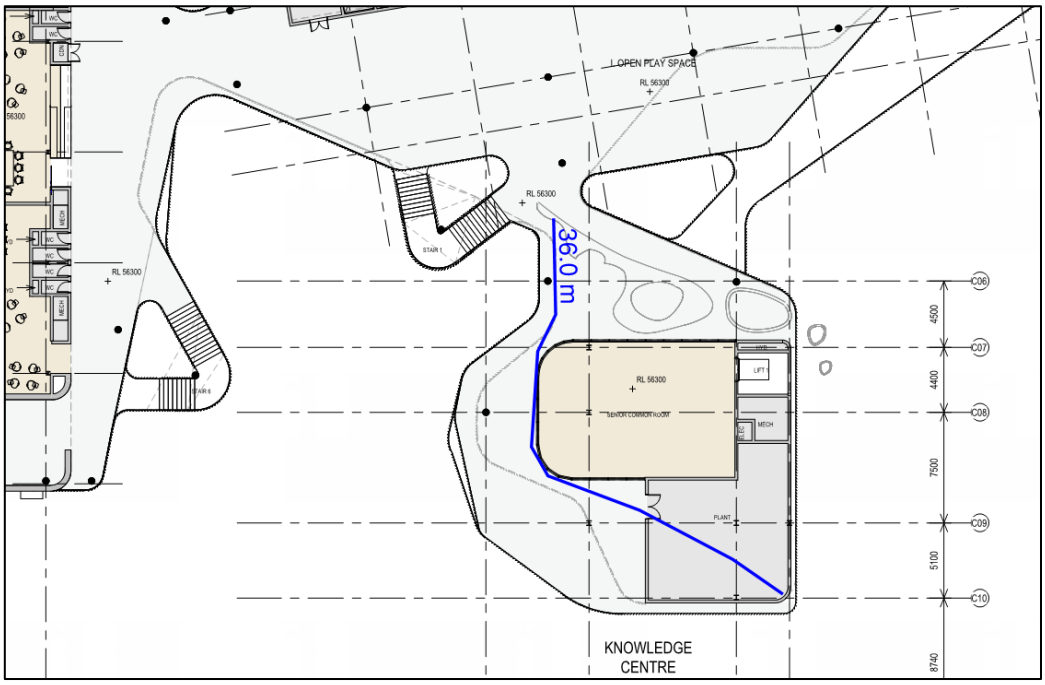
Table 4. Performance Solutions

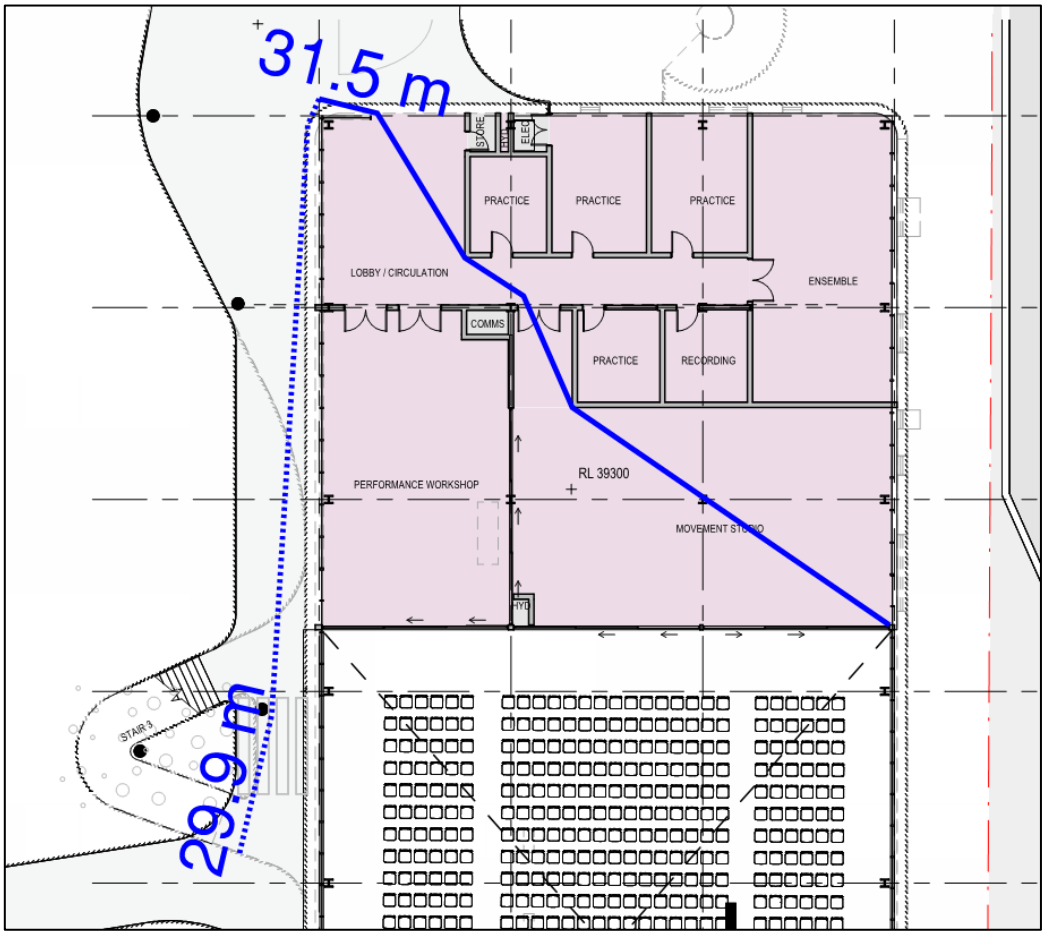
Item	Description of Performance Solution	DTS Provision
1.	Class 9b & 5 structural FRLs will be rationalised down to 90 minutes.	C1.1, Spec C1.1 Clause 3.1, C2.8, C2.9, D2.12
2.	Level 4: External columns which support the external roof area adjoining fitness area will be rationalised to have no FRL. Level 5: External columns which support the external roof area will be rationalised to have no FRL.	C1.1, Spec C1.1 Clause 3.1
3.	Rationalise the building into fire compartments within the limits of 8,000m^2 floor area.	C2.2

Item	Description of Performance Solution	DTS Provision
4.	Level 00: Building Central – exits which discharge to central courtyard open space have to pass briefly under the floor above to reach the road	D1.2
5.	Knowledge Centre: Non-fire isolated stair connects 4 storeys in a sprinkler protected building	D1.3
6.	Travel distances which do not conform with DTS provisions	D1.4 & D1.5
7.	External stairs in lieu of fire-isolated stairs, where less than 6m to a building, may be rationalised to reduce the level of radiant heat protection provided by the external walls and openings. Some external stairs in lieu of fire-isolated stairs discharge into a covered area in lieu of open space.	D1.8
8.	Classrooms and lower levels have sliding exit doors which do not satisfy opening directly to open space	D2.19
9.	Delete provision of fire hose reels throughout the building	E1.4
10.	Sprinkler alarm valves shall be located in the fire pump room in lieu of a room with direct egress to open space.	E1.5 & Spec E1.5

5.4 Travel Distance Issues

- L5: Plant room: Travel distance up to 36m to a point of choice but less than 40m to Stair 1.
- L1: Movement Studio up to 32m to a point of choice and up to 62m to open space.
- Confirm with Fire Engineer.



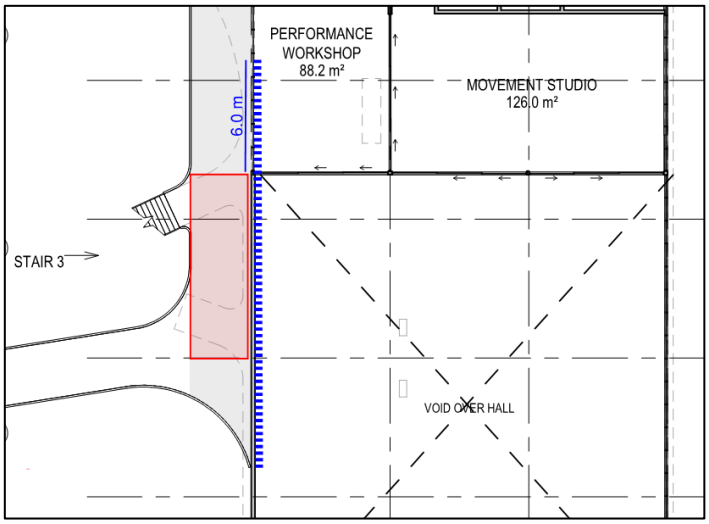


5.5 External stairways in lieu of fire-isolated exits – BCA D1.8

- Stair 1/3/4/5/6 are external stairs in lieu of a fire-isolated stair. Full Clause D1.8 is provided below.
- To avoid protection of external walls under D1.8 the stair must be 6m or more from the external wall. The stair is not just the flights and landings, it includes the circulation space required for persons to use the stair. As shown in Stair 3 below, the red shaded area is the 2m egress path required to use the 2m stair for occupants egressing down the stair.

Stair 3:

- Stair 03: Level 01 – As the balcony forms part of the stair egress path to open space (bridge), any external wall with 6m of the egress path (the Performance Workshop and Hall Walls) shall be FRL 60/60/60. Hall external wall requires 60/60/60 for the length of the wall to the end of the balcony to protect egress path to open space. Any windows will be fixed closed and protected with internal wall-wetting sprinklers in accordance with C3.4 & AS2118.1-2017.
- Stair 3: Level 02 & 03 – The current design has the 2m egress path along the main balcony setback 6m or more from the external wall – complies.



Level 01: 6m of Performance Workshop wall requires 60/60/60 and along Hall as shown.

Stair 1:

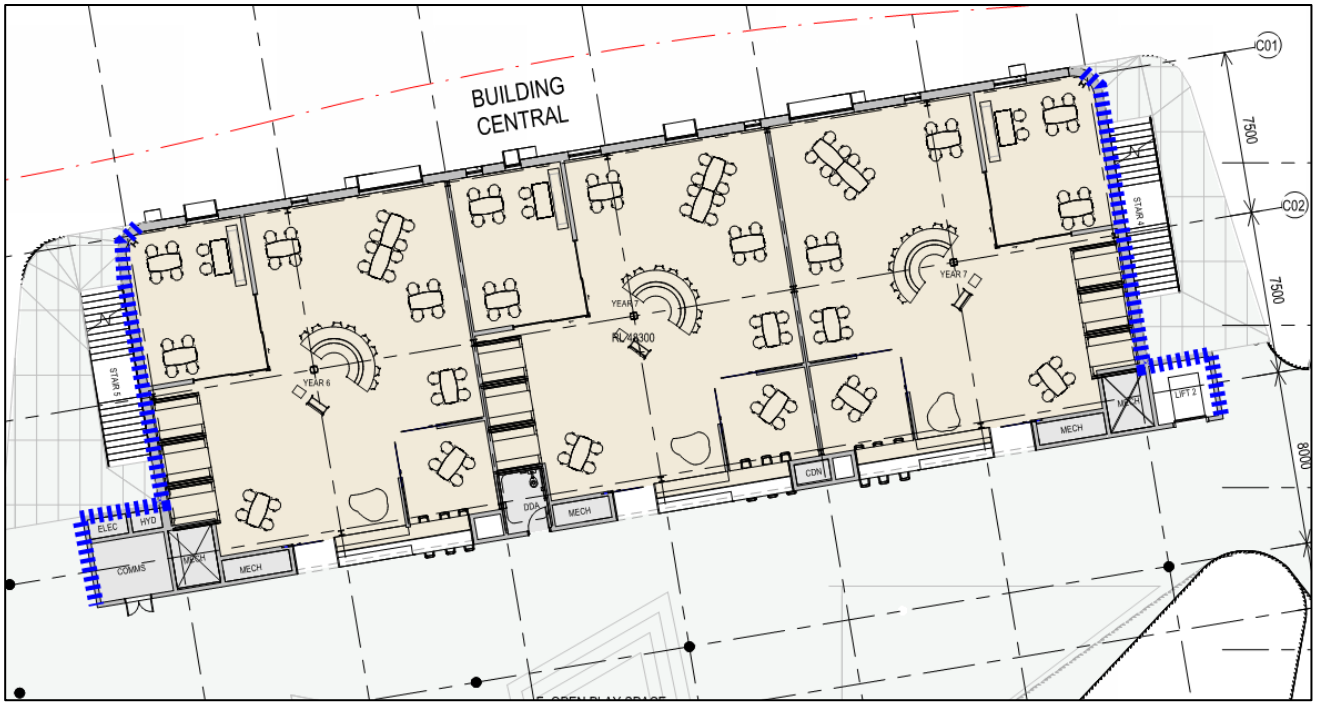
- Stair 1: Level 02-05 the stair is 6m or more from the external wall of a building.
- Stair 1: Level 01 – the stair discharges into a covered area which is not open space. Stair is within 6m of external walls (Dry Lab) – to be addressed as a Performance Solution.
- Stair 1: Level 01 – the stair requires protection from Level 00 below as the floor below the stair is a glass roof – to be addressed as a Performance Solution.
- Architect has confirmed design for 2m egress path will be designed to be 6m from the Reading Hub external walls to avoid the reading hub requiring protection.

Stair 6:

- Level 02-05: The stair and landing egress path are within 6m of the classroom external walls. Subject to further review with the Fire Engineer on stair design and proposed rationalisation of omitting protection of openings within 6m.
- Level 1: Final flight after curved mid landing which is parallel to the CELC is more than 6m from the external walls. Upper flight is within 6m of external wall and will be assessed as above.

Stair 4&5:

- Stair 4&5: Level 02 -05: Blue line shows the external walls required to have an FRL not less than 60/60/60. It is noted lift shafts will be 90/90/90. Refer Diagram below.
- Stair 4 Level 00&01: External wall within 6m of stair requires 60/60/60. This includes Engineering room external walls on Level 00 which are within 6m of egress path to the road. Plant room under the stair on Level 00 shall be fire rated rooms (60/60/60) including a fire rated roof and -/60/30 fire doors if they are not already required to be fire-rated to a higher FRL under another BCA Clause.
- Stair 5: Level 01 does not discharge to open space and has openings within 3m of the exit (Electrical & Comms cupboard, DDA toilet). To be addressed as a Performance Solution.



Level 02 -05: Blue lines show external wall protection 60/60/60.

D1.8 External stairways or ramps in lieu of fire-isolated exits

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

(i) non-combustible throughout; and

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

(b) For the purposes of this clause—

(i) exposure under (a)(ii), is measured in accordance with Clause 2.1 of Specification C1.1, as if the exit was a building element and the external wall of the building was a fire-source feature to the exit, except that the FRL required in Clause 2.1(a)(i) must not be less than 60/60/60; and

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

(iii) openings in an external wall and openings under (c) and (d), are determined in accordance with C3.1.

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

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

(A) an FRL of not less than 60/60/60; and

(B) no openings less than 3 m from the exit (except a doorway serving the exit protected by a –/60/30 fire door in accordance with C3.8(a)); and

(C) any opening 3 m or more but less than 6 m from the exit, protected in accordance with C3.4 and if wall wetting sprinklers are used, they are located internally.

(ii) The exit must be protected from—

(A) any part of the external wall of the building having an FRL of less than 60/60/60; and

(B) any openings in the external wall, by the construction of a wall, roof, floor or other shielding element as appropriate in accordance with (d).

(d) The wall, roof, floor or other shielding element required by (c)(ii) must—

(i) have an FRL of not less than 60/60/60; and

(ii) have no openings less than 3 m from the external wall of the building (except a doorway serving the exit protected by a –/60/30 fire door in accordance with C3.8(a)); and

(iii) have any opening 3 m or more but less than 6 m from any part of the external wall of the building protected in accordance with C3.4 and if wall wetting sprinklers are used, they are located on the side exposed to the external wall.

ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation.

BVN Architecture, Project 1803009.000, dated 05.04.19, for Test of Adequacy Submission.

ANNEXURE B - 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	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there was not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, subject to noting the requirements of each clause, compliance can be readily achieved.
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	Comment	Status
SECTION B: STRUCTURE		
PART B1 – STRUCTURAL PROVISIONS		
B1.0: Deemed-to-Satisfy Provisions	Informational	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 C
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 C
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, Architect and Manufacturers to certify at CC stage.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
B1.6 Construction of buildings in flood hazard areas	Not applicable	N/A
SECTION C: FIRE RESISTANCE		
PART C1 – FIRE RESISTANCE AND STABILITY		
C1.0: Deemed-to-Satisfy Provisions	Informational	Noted
C1.1: Type of construction required	The building is required to be of Type A Construction. Refer to Specification C1.1 requirements at the end of this Section. Class 5 & 9b structural elements are to be rationalised to achieve 90minutes in lieu of 120 minutes.	**PS** **Refer Part 5.3 Report**
C1.2: Calculation of rise in storeys	The building has a rise in storeys of six (6).	Noted
C1.3: Buildings of multiple classification	Informational	Noted
C1.4: Mixed Types of construction	Not applicable	N/A
C1.5: Two Storey Class 2, 3 or 9c buildings	Not applicable	N/A
C1.6: Class 4 Parts of building	Not applicable	N/A
C1.7: Open spectator stands and indoor sports stadium	Not applicable	N/A

SECTION C: FIRE RESISTANCE		
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8. If fire rated board is proposed to protect Universal Columns (UC), when the board is not in continuous contact with the column, the space between the board and the column shall be filled solid to a height up to 1.2m.	CRA – Refer Annexure C
C1.9: Non-combustible building elements	(a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible: (i)External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (ii)The flooring and floor framing of lift pits. (iii)Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in— (i)a building required to be of Type A construction; and (ii)a building required to be of Type B construction, subject to C2.10, in— (A)a Class 2, 3 or 9 building; and (B)a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (c)A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (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 thickness and where the Spread-of-Flame Index of the product is not greater than 0.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	(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.	CRA – Refer Annexure C
C1.11: Performance of external walls in fire	Not applicable	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.	Noted
C1.13: Fire-protected timber: Concession	Not applicable	N/A
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. (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.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	(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 (ii)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. (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
C2.1: Application of Part	Not applicable	N/A
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. Fire engineering strategy to address fire compartment size below 8000m^2. Refer to Part 2.6 for further details.	**PS** **Refer Part 5.3 Report**
C2.5: Class 9a and 9c Buildings	Not applicable	N/A
C2.6: Vertical separation of openings in external walls	Not applicable – building will be sprinkler protected to AS 2118.1.	N/A
C2.7: Separation by fire walls	Not applicable – none proposed at this stage of design	N/A
C2.8: Separation of classifications in the same storey	Where a storey has different classifications located alongside one another: • each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; Class 5 & 9b use have the same 120/120/120 FRL. Class 5 & 9b structural elements are to be rationalised to achieve 90minutes in lieu of 120 minutes.	**PS** **Refer Part 5.3 Report**
C2.9: Separation of classifications in different storeys	Floors separating storeys of different classifications must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey. Class 5 & 9b structural elements are to be rationalised to achieve 90minutes in lieu of 120 minutes.	**PS** **Refer Part 5.3 Report**

SECTION C: FIRE RESISTANCE		
	Note: Determination of Floor FRL's must also consider compliance with D2.12 whereby roof as open space must have an FRL not less than 120/120/120.	
C2.10: Separation of lift shafts	Passenger lifts must be separated from the remainder of the building by enclosure in a fire rated shaft achieving an FRL prescribed by Table 3 of Specification C1.1.	CRA – Refer Annexure C
C2.11: Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	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/NZS 1668.1; or • a lift installation without a machine room; or • equipment otherwise adequately separated from the remainder of the building. Separation must be by construction having an FRL as required by Specification 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. Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.	CRA – Refer Annexure C
C2.13: Electricity supply system	• Any electrical substation located within the building must be separated from the remainder of the building by construction having an FRL of not less than 120/120/120, and doorways protected with self-closing fire doors having an FRL of not less than –/120/30. • A main switchboard which sustains emergency equipment operating in the emergency mode must be fire separated from any other part of the building by construction having an FRL of not less than 120/120/120 and have the doorway fitted with self-	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	closing fire door having an FRL of not less than –/120/30. • Any electrical conductors located within the building that supply a substation or main switchboard for emergency equipment must comply with BCA clause C2.13. • Emergency equipment switchgear must be separated from non-emergency equipment switchgear by metal partitions designed to minimize the spread of a fault from the non-emergency equipment switchgear. Emergency equipment includes but is not limited to the following: – fire hydrant booster pumps; – sprinkler pumps; – hose reel pumps; – air-handling systems designed to exhaust and control the spread of smoke; – emergency lifts; – control and indicating equipment; and – sound systems and intercom systems for emergency purposes.	
C2.14: Public corridors in Class 2 and 3 Buildings	Not applicable	N/A
PART C3 – PROTECTION OF OPENINGS		
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted
C3.1: Application of Part	(a) The Deemed-to-Satisfy Provisions of this Part do not apply to– (i) Control joints, weep holes and the like in external walls of masonry construction and joints between panels in external walls of pre-cast concrete panel construction if, in all cases they are not larger than necessary for the purpose; and (ii) Non-combustible ventilators for subfloor or cavity ventilation, if each does not exceed 45 000 mm^2 in face area and is spaced not less than 2 m from any other ventilator in the same wall; and (iii) Openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like; and (iv) In a carpark–	Noted

SECTION C: FIRE RESISTANCE		
	(A) Service penetrations through; and (B) Openings formed by a vehicle ramp in, A floor other than a floor that separates a part not used as a carpark, providing the connected floors comply as a single fire compartment for the purposes of all other requirements of the Deemed-to-Satisfy Provisions of Sections C, D and E. (b) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings in building elements required to be fire-resisting (including doorways, windows including any associated fanlight), infill panels and fixed or openable glazed areas that do not have the required FRL. (c) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings, other than those covered under (a)(iii), between building elements such as columns, beams and the like, in the plane formed at the construction edge or perimeter of the building, are deemed to be openings in an external wall.	
C3.2: Protection of openings in external walls	Not applicable – no openings within 3m of allotment boundary or 6m to a fire-source feature being the far boundary of a public road.	N/A
C3.3: Separation of external walls and associated openings in different fire compartments	Not applicable – no fire walls proposed at this stage of design	N/A
C3.4: Acceptable methods of protection	Where protection is required, openings must be protected as follows: <u>Doorways:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing; or (ii) –/60/30 fire doors that are self-closing. <u>Windows:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (ii) –60/– fire windows that are automatically closing or permanently fixed in the closed position; or (iii) –/60/– automatic closing fire shutters. <u>Other openings:</u> (i) Excluding voids – internal or external wall-wetting sprinklers; or	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	(ii) Construction having an FRL not less than –/60/– Fire doors, fire windows and fire shutters must comply with BCA Specification C3.4.	
C3.5: Doorways in fire walls	Not applicable	N/A
C3.6: Sliding fire doors	Not applicable	N/A
C3.7: Protection of doorways in horizontal exits	Not applicable	N/A
C3.8: Openings in fire-isolated exits	Doorways that open to fire-isolated stairways, fire-isolated passageways or fire-isolated ramps, and are not doorways opening to a road or open space, must be protected by –/60/30 fire doors that are self-closing, or automatic-closing in accordance with (ii) and (iii) of Clause C3.8.	CRA – Refer Annexure C
C3.9: Service penetrations in fire-isolated exits	The fire isolated exits are not to be penetrated by any services **other** than: • electrical wiring associated with: – a lighting, detection, or pressurization system serving the exit; or – a security, surveillance or management system serving the exit; or – an intercommunication system or an audible or visual alarm system in accordance with D2.22; or – the monitoring of hydrant or sprinkler isolating valves. • ducting associated with a pressurisation system if it; (i) is constructed of material having an FRL of not less than –/120/60 where it passes through any other part of the building; and (ii) does not open into any other part of the building; or • water supply pipes for fire services.	CRA – Refer Annexure C
C3.10: Openings in fire-isolated lift shafts	• Lift landing doors are required to be fire doors with an FRL of -/60/- that comply with AS 1735.11-1986, and be set to remain closed except when discharging or receiving, passengers, goods or vehicles.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	• Panels in the wall of the lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm^2 in area.	
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	Not applicable	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.	CRA – Refer Annexure C
C3.13: Openings in shafts	Openings in shafts must be protected by: a) if it is in a sanitary compartment – a door or panel which together with its frame, is non-combustible or has an FRL of not less than –/30/30; or b) a self-closing –/60/30 fire door or hopper; or c) an access panel having an FRL of not less than –/60/30; or d) if the shaft is a garbage shaft – a door or hopper of non-combustible construction.	CRA – Refer Annexure C
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. Note: contractors should check with PCA to confirm compliance with their proposed fire stopping method.	CRA – Refer Annexure C
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 to achieve the required FRL.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
SPECIFICATION C.1.1 – FIRE-RESISTING CONSTRUCTION		
2.0: General Requirements	Informational	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– (i) has an FRL of not less than 30/–/–; and	Noted

SECTION C: FIRE RESISTANCE			
		(ii) is neither transparent nor translucent.	
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 required for the supporting part itself and for the part it supports.	CRA – Refer Annexure C
2.3:	Lintels	A lintel must have the FRL required for the part of the building in which it is situated unless it does not contribute to the support of a fire door, fire window or fire shutter and meets the requirements of Spec C1.1 clause 2.3 (a) & (b).	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
2.5:	General concessions	Structures on roofs — Level 6 - A non-combustible structure situated on a roof need not comply with the other provisions of this Specification if it only contains— (i) lift motor equipment; or (ii) one or more of the following: (A) Hot water or other water tanks. (B) Ventilating ductwork, ventilating fans and their motors. (C) Air-conditioning chillers. (D) Window cleaning equipment. (E) Other service units that are non-combustible and do not contain flammable or combustible liquids or gases.	CRA – Refer Annexure C
2.6:	Mezzanine floors: Concession	Not applicable	N/A
2.7:	Enclosure of shafts	Fire-isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction having an FRL required for the walls of a non-load-bearing shaft in the same building, as per specification C1.1. This fire rating is required in two directions. The above does not apply to shafts extending beyond the roof covering, other than fire-isolated stairway, nor does it apply to the bottom of non-combustible shafts laid directly on the ground. Therefore, the top of a fire-isolated stairway must always have a fire-resistant top to enclose the shaft.	CRA – Refer Annexure C
2.8:	Carparks in Class 2 and 3 Buildings	Not applicable	N/A

SECTION C: FIRE RESISTANCE		
2.9: Residential Aged Care building: Concession	Not applicable	N/A
3.0: Type A fire-resisting construction	Noted	-
3.1: 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. • External walls, common walls and the flooring and floor framing of lift pits must be non-combustible. (Note: Refer BCA2019 C1.9 - insulation used must be non-combustible and sarking can be deemed non-combustible under C1.9(e)(vi)) • Internal walls required to be fire rated must extend to– (i) to the underside of the floor next above; or (ii) the underside of a roof complying with Table 3; or (iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the non-combustible roof covering 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) a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes. • Load bearing internal walls (including those part of a loadbearing shaft) and fire walls must be of concrete or masonry. • Non-loadbearing internal walls required to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction. (Note: Refer C1.9 - This includes non-combustible insulation.) • The FRLs specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5m of a window and are exposed through that window to a fire-source feature. • It should also be noted that if Dincel material is to be used as an element where the BCA requires such element to be non-combustible, this material will need to be the subject of a Fire Engineering Assessment at the CC stage Class 5 & 9b structural elements are to be rationalised to achieve 90minutes in lieu of 120 minutes.	**PS** **Refer Part 5.3 Report**

SECTION C: FIRE RESISTANCE			
		Level 4: External columns which support the external roof area adjoining fitness will be rationalised to have no FRL. Level 5: External columns which support the external roof area will be rationalised to have no FRL.	
3.2:	Concessions for floors	A floor need not comply with Table 3 if— (a) it is laid directly on the ground; or (b) in a Class 2, 3, 5 or 9 building, the space below is not a *storey*, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or (c) it is a timber *stage* floor in a Class 9b building laid over a floor having the *required* FRL and the space below the *stage* is not used as a dressing room, store room, or the like; or (d) it is within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building; or (e) it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the *required* FRL.	Noted
3.3:	Floor Loading of Class 5 and 9b buildings: Concession	If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa— (a) the floor next above (including floor beams) may have an FRL of 90/90/90; or (b) the roof, if that is next above (including roof beams) may have an FRL of 90/60/30.	Noted
3.4:	Roof superimposed on concrete slab: Concession	Not applicable	N/A
3.5:	Roof: Concession	A roof need not comply with Table 3 if its covering is non-combustible and the building— a) has a sprinkler system complying with Specification E1.5 and AS 2118.1 installed throughout;	Noted
3.6:	Roof lights	Not applicable	N/A
3.7:	Internal columns and walls: Concession	For a building with an *effective height* of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the *storey* immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and *internal walls* other than *fire walls* and *shaft* walls may have— (a) in a Class 2 or 3 building: FRL 60/60/60; or (b) in a Class 5, 6, 7, 8 or 9 building— (i) with *rise in storeys* exceeding 3: FRL 60/60/60 (ii) with *rise in storeys* not exceeding 3: no FRL.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
3.8: Open spectator stands and indoor sports stadiums concession	Not applicable	N/A
3.9: Carparks	Not applicable	N/A
3.10: Class 2 and 3 buildings Concession	Not applicable	N/A
SPECIFICATION C1.10 – FIRE HAZARD PROPERTIES		
1. Scope	Informational	-
2. Application	Informational	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.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
5. Air-handling ductwork	Rigid and flexible ductwork must comply with the *fire hazard properties* set out in AS 4254 Parts 1 and 2.	CRA – Refer Annexure C
6. Lift cars	Materials used as— a) floor linings and floor coverings must have a *critical radiant flux* not less than 2.2; and b) wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with AS 5637.1.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
SPECIFICATION C3.4 – FIRE DOORS, SMOKE DOORS, FIRE WINDOWS AND SHUTTERS		
1. Scope	Noted	-

SECTION C: FIRE RESISTANCE			
2.	Fire doors	Fire doorsets must comply with AS1905.1 and not fail by radiation through any glazed part during the period specified for integrity in the required FRL.	CRA – Refer Annexure C
3.	Smoke doors	Not applicable	N/A
4.	Fire shutters	Not applicable	N/A
5.	Fire windows	Not applicable	N/A
SPECIFICATION C3.15 – PENETRATION OF WALLS, FLOORS AND CEILINGS BY SERVICES			
1.	Scope	Noted	-
2.	Application	To be assessed at CC stage.	Noted
3.	Metal pipe system		
4.	Pipes penetrating sanitary compartments		
5.	Wires and cables		
6.	Electrical switches and outlets		
7.	Fire-stopping		

SECTION D: ACCESS AND EGRESS			
PART D1 – PROVISION FOR ESCAPE			
D1.0:	Deemed-to-Satisfy Provisions	Informational	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	General: Without passing through another sole-occupancy unit, every occupant of a storey or part of a storey must have access to an exit or at least 2 exits, if 2 or more are required. Class 9b: In addition to any horizontal exit, not less than 2 exits must be provided from: • every storey of a child care centre • every storey in a school with a rise in storeys of 2 or more • any storey that accommodates more than 50 persons, calculated under D1.13. • All parts of the building which are Class 9b shall have access to at least 2 exits. • Level 00: Classrooms and school areas have access to two exits. Admin building will be provided with two exits. • Level 1-5: Classrooms egress from the room to the external areas at which a point of choice to two exits is available.	**PS** **Refer Part 5.3 Report**

SECTION D: ACCESS AND EGRESS		
	• Level 06 rooftop plant has access to 2 exits being Stair 4&5. • Level 00: Building Central – Ground floor exits which discharge to central courtyard which is open space then have to pass briefly under the floor above to reach the road. This is a technical non-compliance as open space is not maintained all the way to the road, therefore if open space is not maintained it doesn't satisfy the definition of 'exit'. To be addressed as a Performance Solution.	
D1.3: When fire-isolated stairways and ramps are required	Upper Levels: Exit stairways which are required to be fire-isolated under this clause will be provided as external stairs in lieu of a fire-isolated stair under D1.8. Level 00: A fire-isolated stair/passageway serves the BOH and fire pump room. Refer to D1.12 for non-required stairs. Knowledge Centre: Non-fire isolated stair connects four in lieu of 3 storeys in a sprinkler protected Class 9b building. To be addressed as a Performance Solution.	**PS** **Refer Part 5.3 Report**
D1.4: Exit travel distances	Class 5 & 9b— 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. The following preliminary assessment is provided: • Level 00: Multi-purpose Hall and administration can be designed to achieve compliance with travel distances. Current administration layout has compliant travel distances. • Level 00: Manual Arts/ Visual Arts can be designed to achieve compliance with travel distances. • Level 00: Food Tech / Hospitality can be designed to achieve compliance with travel distances. • Level 00: BOH plant rooms can be designed to achieve compliance with travel distances. • Level 01: CELC – western outdoor area – southern part requires an exit to the parking area near the waste store area to avoid having to egress back through the building with excessive travel distance to a point of choice. • Level 01: CELC – western outdoor area – northern part requires an egress gate in secure fence line to Fontana Rd to avoid having to egress back through the building with excessive travel distance to a point of choice. Compliance is readily achieved. • Level 01: CELC building and Knowledge Centre can be designed to achieve compliance with access to two exits and compliant travel distances. • Level 1 Administration complies with 20m to a POC and 40m to an exit.	**FI** **Refer Part 5 of Report** **PS** **Refer Part 5.3 Report**

SECTION D: ACCESS AND EGRESS		
	• Level 01: Science is up to 23m to a point of choice and up to 42m to an exit or open space. • Level 01: Movement Studio: Up to 32m to a point of choice and 62m to an exit (open space). • Level 02: Building North – eastern classroom- up to 30m to a point of choice with less than 40m to an exit (Stair 3). • Level 03: Building North – eastern classroom- up to 26m to a point of choice with less than 40m to an exit (Stair 3). • Level 02&03: Building North plant room – up to 24m to a point of choice and up to 54m to an exit (Stair 3) • Level 02-04: Stair 7 is not considered a required exit as it does not discharge down to the road, only a circulation stair under D1.12. • Level 02-04: Knowledge Centre – egress via the internal non-fire isolated stair (stair 11) or via Stair 1. Travel distance can readily comply with 20m to a POC and 40m to an exit • Level 02-05: General classrooms – egress is measured out of the classroom to a point of choice to two alternative exits across the podium levels. • Level 02: Year 4 southern room up to 25m to a point of choice with less than 40m to an exit. • Level 02: Year 1 western room up to 45m to an exit (Satir 5). • Level 02: Year 3 southern room up to 25m to a point of choice with less than 40m to an exit (Stair 3). • Level 02-03: Plant room (adjacent Stair 7) is over 40m (up to 47m) to an exit being Stair 3, depending on the location of plant room door. Confirm door location with architect. If two doors are provided could bring travel distance below 40m. • Level 03: Same Performance Solutions as Level 02 as the storeys are similar. • Level 04: Year 10 northern room up to 45m to an exit (Satir 5). • Level 04: Outdoor area behind fitness room (Gridline N05) is up to 45m to an exit. • Level 05: SW corner is up to 24m to a point of choice with less than 40m to an exit (Stair 06). • Level 05 Building South: NW corner is up 25m to a point of choice but less than 40m to an exit (Stair 5). • Refer Part 5 for travel distance issues which shall be confirmed by Fire Engineer. • Level 05: Senior Common Room can be designed with doors to achieve 20m point of choice. Architect to confirm door locations to comply with 20m POC.	
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	**PS** **Refer Part 5.3 Report**

SECTION D: ACCESS AND EGRESS		
	(b) not less than 9 m apart; and (c) not more than— (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. The following assessment is provided: • Level 00 & 01: Further design is required to clarify exit doors on lower levels to ensure compliance with alternative exits not less than 9m apart. Any distance between exits greater than 60m can generally be addressed via a Performance Solution. • Level 01-05: Exits are less than 60m between required alternative exits, except as noted below. • Level 4: Up to 63m between Stair 3&4. • Stair 7 is not considered a required exit, only a circulation stair.	
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. <u>Aggregate exit widths where storey accommodates more than 100 persons:</u> Architect/Client to confirm the maximum populations for each Level to ensure satisfactory provision of exits for each storey as calculated below.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	• Level 02 & 03: Client advised that it is approximately 630 (students and staff) on a regular storey such as Level 02 or 03. These storeys will have the greatest population. • 6m aggregate exit width allows up to 680 persons. • Stair 1/3/4/5/6 each provide 1.5m exit width. With the current design of stair width and the inclusion of balustrades and handrails both sides, the stairs will have a minimum 1.5m exit width. • Stair 11 provides 1m exit width. • This provides a total 8.5m aggregate exit width which is satisfactory to cater for the proposed population. • Level 04 has less classrooms but has the sporting areas. With 8.5m exit width it can cater for up to 980 persons which is considered satisfactory as not all school students will be on the sporting fields at one time. Client to confirm maximum population numbers at peak times for sporting fields. • Level 05 has 6m exit width which can cater for up to 680 persons. Client to confirm maximum population numbers at peak times for Level 05. • Level 01: Sufficient exits can be provided to cater for population of specific buildings including the CELC. Majority of population can egress direct to open space and the road. Stair 02 & 04 are required exit stairs down to Level 00. • Level 00: Sufficient exits can be provided to cater for population of specific buildings including the multi-purpose hall. All egress is direct to open space and the road other than BOH area has a fire-isolated passageway/stair.	
D1.7: Travel via fire-isolated exits	• A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from – (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. • D1.7 (b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— (i) to a road or open space; The following assessment is provided: • A fire-isolated passageway to serve the Level 00 BOH and access to fire pump room. Fire stair discharges past windows to Food Tech room – to be addressed with C3.4 internal wall-wetting sprinklers as per AS2118.1-2017.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
D1.8: External stairways or ramps in lieu of fire-isolated exits	Stair 1, 3, 4, 5, 6: These stairs are external stairs in lieu of fire-isolated stairs. Stair 1/3/5/6: These stairs discharge on Level 01 and have direct egress to a road via the CELC parking area. This is compliant as Level 01 has direct egress via open space to a road. Stair 4: This stair discharges on Level 00 and has direct egress to a road, being the northern road or eastern road. External stairs in lieu of fire-isolated stairs will be designed, where possible, to comply with DtS requirements of D1.8. Refer to Part 5.6 for further information on Performance Solutions which may include calculation to rationalise and reduce the level of radiant heat protection to stairs. Level 1: Stair 5 and Stair 1 discharge into covered areas in lieu of open space – to be addressed as a Performance Solution.	**PS** **Refer Part 5.3 Report**
D1.9: Travel by non-fire-isolated stairways or ramps	• A non-fire-isolated stairway serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. • In a Class 5 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80m. • In a Class 5 or 9b building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than – (i) 20 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or (ii) 40 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions. The following assessment is provided: • Stair 2 is a non-fire isolated exit stair. It complies with this Clause. • Knowledge Centre: Stair 11 Internal non-fire isolated stair connects 4 storeys and discharges at Level 01. Discharge at Level 01 can be readily within 20m of an exit door to open space. Discharge at Level 01 is satisfactory as it is a level at which egress to a road is provided – to	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	the private road leading to Red Gables Road. Total travel distance will need to be assessed however it would appear to be less than 80m from any point of Level 04 down stair to Level 01 open space.	
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	CRA – Refer Annexure C
D1.11: Horizontal exits	Not applicable	N/A
D1.12: Non-required stairways, ramps or escalators	An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp— (a) must not be used between storeys in— (i) a patient care area in a Class 9a health-care building; or (ii) a resident use area in a Class 9c building; and (b) may connect any number of storeys if it is— (i) in an open spectator stand or indoor sports stadium; or (ii) in a carpark or an atrium; or (iii) outside a building; or (iv) in a Class 5 or 6 building that is sprinklered throughout, where the escalator, walkway, stairway or ramp complies with Specification D1.12; and (c) except where permitted in (b) must not connect more than— (i) 3 storeys if each of those storeys is provided with a sprinkler system complying with Specification E1.5 throughout; or (ii) 2 storeys, provided that in each case, those storeys must be consecutive, and one of those storeys is situated at a level at which there is direct egress to a road or open space; and	Complies

SECTION D: ACCESS AND EGRESS		
	(d) except where permitted in (b) or (c), must not connect, directly or indirectly, more than 2 storeys at any level in a Class 5, 6, 7, 8 or 9 building and those storeys must be consecutive. Stair 7 & 9 are both non-required stairs which are outside a building and can connect any number of storeys - complies with D1.12(b)(iii).	
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, the population numbers are as follows: • Client advised total population for upper levels in relation to staff and students. • Class 5 areas: 1 person / 10m^2 • Specialist Teaching Areas: Population to be advised by the Client based on proposed school use. • Child care centre: Population to be advised by the Client based on max allowed under legislation. • MP Hall: 1 person / 1m^2 = 630 persons	Noted
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	Noted

SECTION D: ACCESS AND EGRESS		
	(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.	
D1.15: Method of Measurement	Informational	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Informational – (a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100 m^2; or (ii) all but one point of egress from a plant room, a lift machine room or a Class 8 electricity network substation with a floor area of not more than 200 m^2. (b) A ladder permitted under (a)— (i) may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) for a plant room or a Class 8 electricity network substation, must comply with AS 1657.	CRA – Refer Annexure C
D1.17: Access to lift pits	Access to the lift pit is assumed to be through the bottom landing doors as the pit is assumed to be less than 3m deep.	CRA – Refer Annexure C
PART D2 – CONSTRUCTION OF EXITS		
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted
D2.1: Application of Part	Informational–	Noted
D2.2: Fire-isolated stairways and ramps	The fire isolated stairways must be constructed of non-combustible materials and constructed so that if there is local failure it will not cause structural damage to or impair the fire-resistance of the shaft.	CRA – Refer Annexure C
D2.3: Non-fire-isolated stairways and ramps	Required stairs and ramps (including landings and any supporting building elements) must be constructed according to D2.2, or only of- (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that—	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	(i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue". . D1.8 external stairs in lieu of a fire-isolated stair shall comply with this clause.	
D2.4: Separation of rising and descending stair flights	Not applicable	N/A
D2.5: Open access ramps and balconies	Not applicable	N/A
D2.6: Smoke lobbies	Not applicable	N/A
D2.7: Installations in exits and paths of travel	• Access to service shafts and services other than to fire-fighting or detection equipment must not be provided from a fire-isolated stairway or fire-isolated passageway. • 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 construction or a fire protective covering with doorways suitably sealed against smoke spread. • Electrical wiring may be installed in a fire-isolated exit if the wiring is associated with: – a lighting, detection, or pressurization system serving the exit; or – a security, surveillance or management system serving the exit; or – an intercommunication system or an audible or visual alarm system in accordance with D2.22; or – the monitoring of hydrant or sprinkler isolating valves.	CRA – Refer Annexure C
D2.8: Enclosure of space under stairs and ramps	The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space. The space below a required non-fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door. The following assessment is provided: • Stair 2 – the stair will have an FRL to match the floor of a Class 9b building (120/120/120) to separate storeys.	
D2.9: Width of stairways and ramps	Informational– A *required* stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m. Stair 2 is only required to be counted as a 2m exit therefore central handrail not required.	Noted
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; 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.	CRA – Refer Annexure C
D2.11: Fire-isolated passageways	The enclosing construction of a fire isolated passageway must have an FRL not less than that required for the fire isolated stair.	CRA – Refer Annexure C
D2.12: Roof as open space	Roof of buildings on upper levels to achieve an FRL of 120/120/120 as egress is required across then to exits. Class 5 & 9b structural elements are to be rationalised to achieve 90 minutes in lieu of 120 minutes therefore roof as open space will also be reduced to 90/90/90.	**PS** **Refer Part 5.3 Report**
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–	CRA – Refer Annexure C

<table>
<tr><th colspan="3">SECTION D: ACCESS AND EGRESS</th></tr>
<tr><td></td><td>(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.
• 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></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.
<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>
<tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr>
</table></td><td>CRA – Refer Annexure C</td></tr>
<tr><td>D2.15: Thresholds</td><td>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–</td><td>CRA – Refer Annexure C</td></tr>
</table>

SECTION D: ACCESS AND EGRESS		
	(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; 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.	
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 – fire-isolated stairs</u> • maximum openings of 300 mm; or • where rails are used– – a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like; and – the opening between rails must not be more than 460 mm <u>Balustrade openings – other than fire-isolated stairs</u> • 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. <u>Climbability – other than fire-isolated stairs</u> 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.	CRA – Refer Annexure C
D2.17: Handrails	Handrails to stairways must:	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS

- 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 (including handrails to the fire stairs).
- Handrails in common areas (other than fire stairs) must also accord with D3.3.
- Class 9b primary school:
  - One handrail fixed at a height not less than 865mm nor greater than 1000mm, and
  - Have second handrail fixed at a height between 665mm and 750mm.
  - When measured above the nosing line of the stair
  - This will apply to all storeys where primary school children may be required to access the school

<u>Clause 12 of AS 1428.1-2009</u>

A required exit (fire isolated or non-fire isolated) serving an area required to be accessible must be fitted with handrails in accordance with Clause 12 of AS1428.1.

The handrail shall follow the angle of the nosings and be consistent height through the stair flight and any landings with no vertical sections at the landing. Compliance can be achieved via offset risers at the bottom of the flight in accordance with Figure 28 in AS1428.1-2009 or with larger landings to accommodate required handrail extensions.

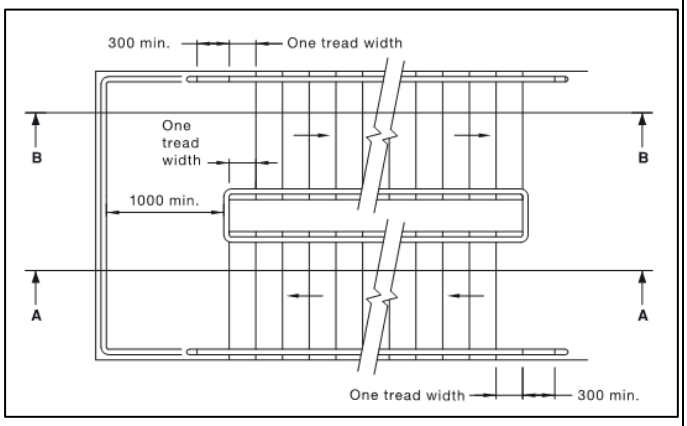


Figure 28 in AS1428.1-2009

SECTION D: ACCESS AND EGRESS		
D2.18: Fixed platforms, walkways stairways and ladders	Plant areas may be accessed via stairs and ladders compliant with AS 1657-2013.	CRA – Refer Annexure C
D2.19: Doorways and doors	• Sliding doors serving as exit doors must open directly to open space or the road, and 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 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. The following assessment is provided: • Level 02-05: General classrooms are provided with sliding exit doors. Each classroom opens directly to external floor areas which are covered by floor or roof above and do not technically satisfy open space as it is not open to the sky at the exit door. To be addressed as a Performance Solution. • All other doors forming part of a required exit and serving as a required exit can readily comply. • Hall Lobby: Two sets of sliding doors can be 9m apart as alternative exits. Sliding doors are allowed as an exit as they open direct to open space and if power operated, they open automatically before a fire alarm is activated (as per normal automatic door) and will open automatically on fire alarm/sprinkler activation as required by D2.19. In both scenarios the need for a panic bar is not required as per D2.21.	**PS** **Refer Part 5.3 Report**
D2.20: Swinging doors	Swinging doors in a required exit must not encroach– (i) at any part of its swing by more than 500 mm on the required 1m width of the exit and (ii) when fully open, by more than 100 mm on the required 1m exit width; and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door. 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 m^2, 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	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	• it serves a sanitary compartment or airlock (in which case it may swing in either direction).	
D2.21: Operation of latch	Class 5 & 9b School & Child Care Centre 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– (i) 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 (ii) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. (iii) 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) 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. • Classroom Sliding exit doors and sliding doors in a path of travel to an exit will require compliance with this clause - single hand downward action lever handle to open doors. Class 9b Hall (NSW D2.21(c))	CRA – Refer Annexure C

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	Hall Level 00: 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. Note: Level 01 arts rooms above the Hall are assumed to be school classrooms for music/dance and can comply with single hand downward action lever handles as per other school classrooms.	
D2.22: Re-entry from fire-isolated exits	Not applicable	N/A
D2.23: Signs on doors	Signage in accordance with this clause is to be located on all fire and smoke doors stating “Fire Safety Door, Do Not Obstruct, Do Not Keep Open” and the discharge door from the fire isolated stairways are to state “Fire Safety Door – Do Not Obstruct” in capital letters not less than 20mm in height. Note: Fire signage in accordance with clause 183 of the Environmental Planning and Assessment Regulation 2000 is also required.	CRA – Refer Annexure C
D2.24: Protection of openable windows	Note: Child care Centre is single storey so this clause is not applicable to windows. b) Where the lowest level of the window opening is less than 1.7m above the floor, a window opening covered by (a) must comply with the following: (i) The openable portion of the window must be protected with– A. a device to restrict the window opening; or B. a screen with secure fittings. (ii) A device or screen required by (i) must– A. not permit a 125 mm sphere to pass through the window opening or screen; and	CRA – Refer Annexure C

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	B. resist an outward horizontal action of 250 N against the– aa. window restrained by a device; or bb. screen protecting the opening; and C. have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. c) A barrier with a height not less than 865 mm above the floor is required to an openable window– (i) in addition to window protection, when a child resistant release mechanism is required by (b)(ii)(C); and (ii) where the floor below the window is 4m or more above the surface beneath if the window is not covered by (a). d) A barrier covered by (c) except for (e) must not– (i) permit a 125 mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.	
D2.25: Timber stairways: concession	None proposed, however it may be applicable if proposed later in the design.	Noted
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
D3.0: Deemed-to-Satisfy Provisions	Informational	Noted
D3.1: General building access requirements	Access complying with AS 1428.1-2009 must be provided from the principal pedestrian entrance(s): Class 5 & 9b • to and within all areas normally used by the occupants. The following assessment is provided: • Access will be provided to all classroom and learning rooms throughout the school. Lift 02 provides access from pedestrian entry on Level 00 and Level 01 to all upper storeys. Lift 1 serves Level 00 up to the Knowledge Centre levels and Level 5. • Staff Administration - Level 00&01: Access will be provided throughout Class 5 staff administration and facilities areas. Lift (2) is provided adjacent to the Admin building which is considered satisfactory to access Level 01 administration. • Access will be provided throughout Multi-purpose hall which are normally used by the occupants. • Access is not required to rooms or areas which are exempt under D3.4	CRA – Refer Annexure C

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D3.2: Access to buildings	• Access complying with AS 1428.1-2009 must be provided to the building from the main points of pedestrian entry at the allotment boundary. • Another accessible building connected by a pedestrian link • Compliant access must be provided through the main pedestrian entrance and not less than 50% of all pedestrian entrances; and • In a building with a total floor area of more than 500m^2, a pedestrian entrance which is not accessible must not be located more than 50m from an accessible pedestrian entrance. • Where a doorway on an accessway has multiple leaves, (except an automatic opening door) one of those leaves must have a clear opening width of not less than 850 mm. The following assessment is provided: • Level 00&01: Accessways from the public road /allotment boundary to the site are to be determined. • Level 00&01: Further detailed design will reveal the principal pedestrian entrance for each building, and any additional entrance should generally be accessible. If another entrance is not accessible it must be not more than 50m from the accessible entrance. • Level 02-05: Each classroom and each level of the Knowledge Centre requires a dedicated accessible entrance.	CRA – Refer Annexure C
D3.3: Parts of buildings to be accessible	• Walkways and ramps must comply with clause 10 of AS 1428.1-2009. • Non-fire-isolated stairways must comply with Clause 11 of AS 1428.1-2009. • D1.8 external stairs in lieu of fire-isolated stairs – to be constructed as non-fire isolated stairs and shall comply with Clause 11 of AS 1428.1-2009. • Fire-isolated stairways must comply with clause 11 (f) & (g) of AS 1428.1-2009. • Accessways must have passing spaces (1800 mm x 2000 mm) complying with AS 1428.1-2009 at maximum 20 m intervals on those parts of an accessway where a direct line of sight is not available. • Accessways must have turning spaces (1540 mm x 2070 mm) within 2m of the end of the accessway and at maximum 20 m intervals along the accessway. Note: Turning spaces must be provided clear of fixtures and fittings such as skirtings,	FI CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	general purpose outlets (GPOs), fire extinguishers etc. • An intersection of accessways satisfies the spatial requirements for a passing and turning space. Note: The Access to Premises Standards to not provide the concessions provided in sub-cluses (g) and (h) in this clause, hence compliance with the Access to Premises Standards will require the floor covering in the accessible areas to strictly comply with Clause 7.4.1(a) of AS1428.1-2009. The following assessment is provided: • Classrooms are provided with sliding entry doors. Detailed design will need to ensure compliance with level threshold or threshold ramps in accordance with AS 1428.1. Threshold shall not have any sliding channels greater than 13mm in width and doors shall be openable with a force which does not exceed 20 N (Newtons). • All Classrooms with sliding entry doors shall have 530mm latchside clearance on both sides for a front on approach. Current design the sliding doors do not have 530mm latchside clearance as occupants enter the rooms as the doorway is in a rebate. • Level 01 Science – main sliding door entries do not have 530mm latchside clearance internal side of doors. Lab sliding doors do not have 530mm latchside clearance. • CELC – both Gallery rooms must have accessway to both external play areas and sliding doors must have 530mm latchside clearance both sides of doors. • Hall – student change rooms shall have accessible doorways into the rooms for general access into the room. Showers do not have to be accessible as Accessible bathroom is provided. • Level 00 – Visual art & Engineering etc – large sliding doors are unlikely to be accessible due to their size and weight. Recommend accessible swing door into each room and large sliding doors do not require to eb accessible. • Level 00 – Food Tech & Hospitality shall have 530mm latchside clearance both sides of sliding doors. • Each classroom has an internal room with sliding doors/wall panels. These doors will be accessible from outside the room and can be openable by students or teachers. However, they may require a performance solution as the doors will not have compliant circulation space from inside the room when they are closed.	
D3.4: Exemptions	Informational – The following areas are not required to be accessible:	Noted

SECTION D: ACCESS AND EGRESS		
	• an area where access would be inappropriate because of the particular purpose for which the area is used. • an area that would pose a health or safety risk for people with a disability. • any path of travel providing access only to an exempted area. The following areas in the building are considered to not be accessible due to the specific uses of the room or space: 1. Level 00 & 01 BOH & plant areas 2. Service rooms/cupboards on all levels. 3. Rooftop plant and other plant rooms.	
D3.5: Accessible car parking	One accessible parking space is provided at CELC parking. To comply with AS/NZS 2890.6-2009.	CRA – Refer Annexure C
D3.6: Signage	• Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access, or deafness as appropriate, must identify each: – sanitary facility; and – any space with a hearing augmentation system; and – identify each door required by E4.5 to be provided with an exit sign and state “Exit” and “Level” and either: (aa) the floor level number; or (bb) a floor level descriptor; or (cc) a combination of (aa) and (bb) • Signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within a room containing a hearing augmentation system identifying – – the type of hearing augmentation; and – the area covered within the room; and – if receivers are being used and where the receivers can be obtained. • Signage to accessible sanitary facilities must identify if the facility is suitable for left or right handed use; and • Signage to identify an ambulant accessible facility in accordance with AS 1428.1 must be located on the door of the facility.	CRA – Refer Annexure C

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	• Where a pedestrian entrance is not accessible, directional signage incorporating the international symbol of access, in accordance with AS 1428.1 must be provided to direct a person to the location of the nearest accessible pedestrian entrance; • Where a bank of facilities is not provided with an accessible unisex sanitary facility, directional signage incorporating the international symbol of access in accordance with AS 1428.1 must be places at the location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex facility.	
D3.7: Hearing augmentation	Hearing Augmentation is required if an inbuilt amplification system is installed in the MPH and the classrooms. Hearing Augmentation to comply with this clause.	CRA – Refer Annexure C
D3.8: Tactile indicators	a) For a building required to be accessible, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment that they are approaching— (i) a stairway, other than a fire-isolated stairway; and (ii) an escalator; and (iii) a passenger conveyor or moving walk; and (iv) a ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp; and (v) in the absence of a suitable barrier— (A) an overhead obstruction less than 2 m above floor level, other than a doorway; and (B) an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D3.4, if there is no kerb or kerb ramp at that point, except for areas exempted by D3.4. (b) b) Tactile ground surface indicators required by (a) must comply with sections 1 and 2 of AS/NZS 1428.4.1.	CRA – Refer Annexure C
D3.9: Wheelchair seating spaces in Class 9b assembly buildings	No fixed seating provided.	N/A
D3.10: Swimming pools	Not applicable	N/A
D3.11: Ramps	On an accessway a series of connected ramps must not have a combined vertical rise of 3.6m and a landing for a	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS			
		step ramp must no overlap a landing for another step ramp or ramp	
D3.12:	Glazing on an Accessway	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	CRA – Refer Annexure C
SPECIFICATION D3.6 – BRAILLE AND TACTILE SIGNS			
1.	Scope	Noted	-
2.	Location of Braille and Tactile Sign	To be assessed at CC stage	CRA – Refer Annexure C
3.	Braille and Tactile Sign Specification		
4.	Luminance contrast		
5.	Lighting		
6.	Braille		

SECTION E: SERVICES AND EQUIPMENT			
PART E1 – FIRE FIGHTING EQUIPMENT			
E1.0:	Deemed-to-Satisfy Provisions	Informational	Noted
E1.3:	Fire hydrants	As the building has a floor area greater than 500 m^2, a fire hydrant system complying with AS 2419.1-2005 must be provided to serve the building. The following assessment is provided: • Hydrant booster assembly location is facing Road B close to the main entrance to the school - which is satisfactory. The booster location must comply with the following: – be within 8m of a hardstand for fire brigade appliance; – be within sight of the main entry; – BCA2019 E1.3(b)(i)(B) allows a building with sprinkler system to not require protection to the booster • Hydrant pump room location is via egress to open space via a fire-isolated exit – complies.	CRA – Refer Annexure C
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 Class 5 and classrooms and associated corridors in a primary or secondary school). FHRs to be omitted from the entire development.	**PS** **Refer Part 5.3 Report**
E1.5:	Sprinklers	The building will be provided with a sprinkler system complying with Specification E1.5 installed throughout as per Table E2.2a. Sprinkler alarm valves shall be located in the fire pump room in lieu of a room with direct egress to open space.	**PS** **Refer Part 5.3 Report**

SECTION E: SERVICES AND EQUIPMENT			
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. Additional fire extinguishers are required in the Class 5 admin building with a fire compartment floor area over the two storeys greater than 500m2.	CRA – Refer Annexure C
E1.8:	Fire control centres	Not applicable	N/A
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; and • After the building has reach an effective height of 12m, the required fire hydrants and fire hose reels must be operational on all floor / roof covered storeys, except for the 2 uppermost storeys; and all required booster connections must be installed.	Noted
E1.10:	Provision for special hazards	Not applicable	N/A
PART E1.5 – FIRE SPRINKLER SYSTEMS			
1.	Scope	Noted	-
2.	Adoption of AS2118	BCA2019 – AS2118.1-2017 is applicable	CRA
3.	Separation of sprinklered and non-sprinklered areas	Not applicable	N/A
4.	Protection of openings	Not applicable	N/A
5.	Fast response sprinklers	To be assessed at CC stage	CRA
6.	Sprinkler valve enclosures	Sprinkler alarm valves shall be located in the fire pump room in lieu of a room with direct egress to open space.	**PS**
7.	Water supply	To be assessed at CC stage	CRA
8.	Building occupant warning system	To be assessed at CC stage	CRA
9.	Connection to Other Systems	To be assessed at CC stage	CRA
10.	Anti-tamper Devices	To be assessed at CC stage	CRA
11.	Sprinkler Systems in Carparks	Not applicable	N/A
12.	Class 9c Aged Care Buildings	Not applicable	N/A
13.	Sprinkler systems in lift installations	To be assessed at CC stage	CRA
PART E2 – SMOKE HAZARD MANAGEMENT			
E2.0:	Deemed-to-Satisfy Provisions	Informational	Noted
E2.1:	Application of Part	Informational	Noted

SECTION E: SERVICES AND EQUIPMENT		
E2.2: General requirements (including Tables E2.2a and E2.2b)	**General smoke hazard management requirements** Clause E2.2(b)&(c): An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment (such as lobby air supply) must— (i) be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 4.10 of AS/NZS 1668.1; and for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment. Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. • Mechanical consultant to advise whether compliance with Clause E2.2(b)&(c) is required due to the design of the mechanical ventilation system – to be determined at CC stage. **Whole Building – Class 5 & 9b** Sprinkler system in accordance with Specification E1.5 is provided to satisfy Table E2.2a. **Class 9b NSW Table E2.2b** • All Class 9b Building: • Automatic shutdown of air-handling systems in accordance with NSW Table E2.2b(a). • Hall - Any proposed temporary/removable stage will be less than 50m^2, therefore compliance with NSW Table E2.2b(c) is not required. • Other Assembly Buildings: • Generally, a Class 9b with a fire compartment floor area greater than 2000m^2 requires smoke exhaust. The Multi-purpose Hall will be used for a variety of uses (more than just a sports hall) and needs to be part of a fire compartment less than 2000m^2 to avoid smoke exhaust under this clause. The total floor area of Level 00 & 01 is less than 2000m^2 therefore the MPH building can be considered a separate fire compartment less than 2000m^2. The MPH external	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		• walls are more than 6m separation between the Administration building. • Note subclause (b) excludes school classrooms from the requirement for smoke exhaust.	
E2.3:	Provisions for special hazards	Not applicable	N/A
SPECIFICATION E2.2a – SMOKE DETECTION AND ALARM SYSTEM			
1.	Scope	Noted	-
2.	Type of system	Not applicable	N/A
3.	Smoke alarm system	Not applicable	N/A
4.	Smoke detection system	Not applicable	N/A
5.	Smoke Alarm & smoke detection system	Not applicable	N/A
6.	Smoke detection for smoke control system	Smoke detection to activate automatic shutdown of air-handling systems in Class 9b.	CRA
7.	Building occupant warning system	BOW to be provided throughout Building.	CRA
8.	System Monitoring	Not applicable	N/A
PART E3 – LIFT INSTALLATIONS			
E3.0:	Deemed-to-Satisfy Provisions	Informational	Noted
E3.1:	Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1	CRA – Refer Annexure C
E3.2:	Stretcher facility in lifts	A stretcher facility must be provided to passenger lifts installed to serve any storey above an effective height of 12 m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.	CRA – Refer Annexure C
E3.3:	Warning against use of lifts in fire	Warning signs indicating “DO NOT USE LIFTS IF THERE IS A FIRE” shall be displayed near every call button for a passenger lift or group of lifts throughout a building as per E3.3.	CRA – Refer Annexure C
E3.4:	Emergency lifts	Not applicable	N/A
E3.5:	Landings	Access and egress to and from lift-well landings must comply with the Deemed-to-Satisfy Provisions of Section D.	CRA – Refer Annexure C
E3.6:	Passenger lifts	In an accessible building, every passenger lift must be one of the types specified in Table E3.6a, have accessible features in accordance with Table E3.6b, and not rely on a constant pressure device for its operation if the lift car is fully enclosed.	CRA – Refer Annexure C
E3.7:	Fire service controls	The lifts serving any storey above an effective height of 12 m must be provided with:	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		a) A fire service recall control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the *storey*. b) A lift car fire service drive control switch complying with E3.10 for every lift.	
E3.8:	Aged care buildings	Not applicable	N/A
E3.9:	Fire service recall switch	The fire service control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	CRA – Refer Annexure C
E3.10:	Lift car service drive control switch	The lift car service drive control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.	CRA – Refer Annexure C
SPECIFICATION E3.1 – LIFT INSTALLATIONS			
1.	Scope	Noted	-
2.	Lift cars exposed	To be assessed at CC stage	CRA
3.	Lift car emergency lighting	To be assessed at CC stage	CRA
4.	Cooling of lift shaft	To be assessed at CC stage	CRA
5.	Lift foyer access	To be assessed at CC stage	CRA
6.	Emergency access doors in a single enclosed lift shaft	Not applicable	N/A
PART E4 – VISIBILITY IN AN EMERGENCY, EXIT SIGNS AND WARNING SYSTEMS			
E4.0:	Deemed-to-Satisfy Provisions	Informational	Noted
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.	CRA – Refer Annexure C
E4.3:	Measurement of distance	Informational	Noted
E4.4:	Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1-2018	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
E4.6:	Direction signs	Where an exit is not readily apparent, directional signage is to be installed indicating the direction of egress.	CRA – Refer Annexure C
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	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.	CRA – Refer Annexure C
E4.9:	Emergency warning and intercom systems	An Emergency warning and intercom system complying where applicable with AS 1670.4-2018 must be installed within all the buildings.	CRA – Refer Annexure C

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 of external walls.	Noted
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS3500.3-2003.	CRA – Refer Annexure C
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS4654 Parts 1 and 2-2012.	CRA – Refer Annexure C
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	CRA – Refer Annexure C
F1.6:	Sarking	Sarking-type materials used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2-1994.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
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).	CRA – Refer Annexure C
F1.11:	Provision of floor wastes	Not applicable	N/A
F1.12:	Sub-floor ventilation	Not applicable	N/A
F1.13:	Glazed Assemblies	Glazed assemblies are to comply with AS2047 and AS1288.	CRA – Refer Annexure C
PART F2 – SANITARY AND OTHER FACILITIES			
F2.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F2.1:	Facilities in residential buildings (including Table F2.1)	Not applicable	N/A
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	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
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. (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. (h) A class 9b early childhood centre must be provided with: (i) a kitchen or food preparation area with a kitchen sink, separate hand washing facilities, space for a refrigerator and space for cooking facilities, with – (A) the facilities protected by a door or gate with child proof latches to prevent unsupervised access to the facilities by children younger than 5 years old; and (B) the ability to facilitate supervision of children from the facilities if the early childhood centre accommodates children younger than 2 years old; and (ii) one bath, shower or shower-bath; and (iii) if the centre accommodates children younger than 3 years old – (A) a laundry facility comprising a washtub and space in the same room for a washing machine; and (B) a bench type baby bath, which is within 1 m of the nappy change bench; and (C) a nappy changing bench which – (aa) is within 1 m of separate adult hand washing facilities and bench type baby bath; and (bb) must be not less than 0.9 m^2 in area and a height of not less than 850 mm, but not more than 900 mm above the finished floor level; and (cc) must have a space not less than 800 mm hight, 500 mm wide and 800 mm deep for the storage of steps; and (dd) is positioned to permit a staff member changing a nappy to have visibility of the play area at all times.	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		(i) Class 9b theatres and sporting venues must be provided with one shower for each 10 participants or part therof. (j) Not less than one washbasin must be provided where closet pans or urinals are provided. <u>School</u> – toilet numbers to be assessed on an overall school population and toilets will be provided throughout the levels to achieve the total number of sanitary facilities. Max: 1920 students & 200 staff. Student population of 1950 requires: ▪ Male: 12 x pans; 11 x urinals; 15 x washbasins ▪ Female: 23 x pans; 15 x washbasins Staff population of 130 requires: ▪ Male: 4 x pans; 3 x urinals; 3 x washbasins ▪ Female: 5 x pans; 3 x washbasins ▪ Staff toilets on Level 1 of the Staff Building will require separate Male & Female rooms for the sanitary facilities. <u>Hall</u> – the Hall will be used by school and public after school hours. The Hall is nominated as similar to a Public Hall and estimated to have a population of 600 based on 600m^2 of open floor area. When in school use the toilets in the Hall and school toilets throughout the school can be used for student population. When in public use the public can use toilets in the Hall and the toilets in Central Building opposite and external toilets of Admin building. These toilets have been designed to have public access after school hours associated with the use of the Hall. Hall population of 600 requires: ▪ Male: 2 x pans; 6 x urinals; 3 x washbasins ▪ Female: 7 x pans; 3 x washbasins <u>Childcare</u> – Sanitary facilities will be provided as required for the population.	
F2.4:	Accessible sanitary facilities (including Table F2.4)	Unisex accessible toilets and ambulant toilets will be provided on each storey in accordance with this clause.	CRA – Refer Annexure C
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	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		(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. Early childhood centre In an early childhood centre, facilities for use by children must have each sanitary compartment screened by a partition which, except for the doorway, is opaque for a height of at least 900 mm but not more than 1200 mm above the floor level.	
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.	Noted
F2.8:	Waste Management	Not applicable	N/A
F2.9:	Accessible adult change facilities	Not applicable	N/A
PART F3 – ROOM SIZES			
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted
F3.1:	Height of rooms and other spaces	The height of rooms and other spaces must be not less than— (b) in a Class 5 building— (i) except as allowed in (ii) and (f) — 2.4 m; and (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—	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY		
	(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.	
PART F4 – LIGHT AND VENTILATION		
F4.0: Deemed-to-Satisfy Provisions	Informational	Noted
F4.1: Provision of natural light	Class 9b schools Natural light must be provided to all general purpose classrooms in primary or secondary schools. This excludes Visual art, Trade workshops etc. Only applies to Level 02-05 classrooms. Class 9b early childhood centre Natural light must be provided to all playrooms or the like for the use of children in an early childhood centre.	CRA – Refer Annexure C
F4.2: Methods and extent of natural lighting	• 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). • In a Class 9b early childhood centre, the sills of 50% of windows in children's rooms must be located not more than 500 mm above the floor level. • F4.2(b): A required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must be not less than a horizontal distance from that boundary or wall that is the greater of – – 1m; and – 50% of the square root of the exterior height of the wall in which the window is located, measured from its sill. The following assessment is provided: • Level 02-05: General purpose classrooms – architect has confirmed 10% natural light will be achieved for all classrooms. • Level 02-05: Building Central – open voids have been provided directly adjoining the building façade to allow natural light to serve down to all levels. The voids are measured in accordance	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		with F4.2(b) so the depth of the voids are calculated so the glazing on Level 2 is not less than a horizontal distance from the far edge of the void which is 50% of the square root of the exterior height of the wall in which the window is located, measured from its sill. (Height of wall is 16m from door sill: 16 sq root /2 = 2m depth to void).	
F4.3:	Natural light borrowed from adjoining room	Assumed not required	N/A
F4.4:	Artificial Lighting	Lighting to the all areas is to comply with AS 1680.0.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
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.	CRA – Refer Annexure C
F4.7:	Ventilation borrowed from adjoining room	Assumed not required	N/A
F4.8:	Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a – • kitchen or pantry • 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.	CRA – Refer Annexure C
F4.9:	Airlocks	If sanitary compartments are prohibited from opening directly to another room: Class 5 & 9 • access must be by an airlock, hallway or other room with a floor area of not less than 1.1m^2 and fitted with self-closing doors at all access doorways; or • the sanitary compartments must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.	CRA – Refer Annexure C
F4.11:	Carparks	Not applicable	N/A
F4.12:	Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2 where: • any cooking apparatus has:	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY		
	– a total maximum electrical power input exceeding 8 kW; or – a total gas power input exceeding 29 MJ/h; or • the total maximum power input to more than one apparatus exceeds: – 0.5 kW electrical power; or – 1.8 MJ gas, Per m^2 of floor area of the room or enclosure.	
PART F6 – CONDENSATION MANAGEMENT		
F6.0: Deemed-to-satisfy provisions	Informational	Noted
F6.1: Application of Part	Not applicable	N/A

Table 6. Section G – Ancillary Provisions

SECTION G: ANCILLARY PROVISIONS		
PART G1 – MINOR STRUCTURES AND COMPONENTS		
G1.0: Deemed-to-Satisfy Provisions	Informational	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.	CRA – Refer Annexure C
G1.3: Outdoor play spaces	The outdoor play space must be enclosed on all sides with a barrier which complies with AS 1926.1-2007 to restrict the children from exiting the premises.	CRA – Refer Annexure C

SECTION G: ANCILLARY PROVISIONS		
	The above requirements do not apply to a wall, including doors and windows, which form part of the Class 9b early childhood centre.	
NSW G1.101: Provision for cleaning windows	A safe manner for cleaning of windows located 3 or more storeys above ground level must be provided, and compliance is achieved where: • the windows can be cleaned wholly from within the building; or • via a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.	CRA – Refer Annexure C
PART G2 – BOILERS, PRESSURE VESSELS, HEATING APPLIANCES, FIREPLACES, CHIMNEYS AND FLUES		
G2.0: Deemed-to-Satisfy Provisions	Not applicable	N/A
PART G3 – ATRIUM CONSTRUCTION		
G3.1: Atriums Affected by the Part	Knowledge Centre: Voids between Level 01 & 02 and Level 03 & 04 are not deemed an atrium connecting more than 3 levels in a sprinkler protected building.	N/A

SECTION H: SPECIAL USE BUILDINGS		
PART H1 – CLASS 9b BUILDINGS		
NSW H1.1: Application of Part	Multi-purpose Hall is not an entertainment venue as it is not deemed an 'indoor sports stadium'. Part H1 does not apply to the MPH as the proposed stage is less than 50m^2 and is a temporary stage which is rolled out when required and does not have an associated rigging loft.	N/A
H1.2: Separation	Not applicable	N/A
H1.3: Proscenium Wall Construction	Not applicable	N/A
H1.4: Seating Area	Hall - Not applicable – no seating area provided as temporary chairs are used. Knowledge Centre – applicable to the Auditorium seating area on Level 3. Detailed design can readily achieve compliance.	CRA – Refer Annexure C
H1.5: Exits from Theatre Stages	Not applicable	N/A
H1.6: Access to Platforms and Lofts	Not applicable	N/A
H1.7: Aisle Lights in Theatres	Knowledge Centre – applicable to the Auditorium seating area on Level 3. Detailed design can readily achieve compliance.	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 5, 9)		
PART J0 – ENERGY EFFICIENCY		
J0.1: Application of Section J	Informational	Noted

SECTION J: ENERGY EFFICIENCY (Class 5, 9)			
J0.2:	Heating & cooling loads of SOU's to Class 2 & 4 parts	Not applicable	NA
J0.3:	Ceiling fans	Not applicable	NA
PART J1 – BUILDING FABRIC			
J1.0:	Deemed-to-Satisfy Provisions	Informational	Noted
J1.1:	Application of Part	The provisions of Part J1 apply to building elements forming part of the *envelope* of the building.	CRA – Refer Annexure C
J1.2:	Thermal construction general	Where required insulation is to comply with AS4859.1 and be installed in accordance with this clause.	CRA – Refer Annexure C
J1.3:	Roof and ceiling construction	a) Roof and ceiling construction must achieve the Total R-Value specified in BCA Table J1.3a for the direction of heat flow. b) For compliance with Table J1.3a, roof and ceiling construction is deemed to have the thermal properties listed in Specification J1.3. c) Where, for operational or safety reasons associated with exhaust fans, flues or recessed down lights, the area of required ceiling insulation is reduced, the loss of insulation must be compensated for by increasing the R-Value of the insulation in the remainder of the ceiling in accordance with Table J1.3b. d) A roof that: (i) is required to achieve a minimum Total R-Value; and (ii) has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see Specification J1.3 Figure 2(c) and (f)), must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.	CRA – Refer Annexure C
J1.4:	Roof lights	Any roof lights, including any associated shaft and diffuser, must comply with the requirements of BCA Clause J1.4.	CRA – Refer Annexure C
J1.5:	Walls	a) Each part of an external wall that is part of the *envelope* must satisfy one of the options in Table J1.5a except for: (i) opaque non-glazed openings in external walls such as doors, vents, penetrations, shutters and the like; and (ii) glazing. b) Any wall other than an external wall that is part of the *envelope* must achieve the Total R-Value in Table J1.5b. c) A wall that: (i) is required to achieve a minimum Total R-Value; and	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 5, 9)		
	(ii) has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and (iii) does not have a wall lining or has a wall lining fixed directly to the same metal frame, must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the external cladding and the metal frame. d) For compliance with Table J1.5a and Table J1.5b, wall construction is deemed to have the thermal properties listed in Specification J1.5.	
J1.6: Floors	a) A floor that is part of the *envelope* of a building, including a floor above or below a carpark or plant room: (i) must achieve the Total R-Value specified in Table J1.6; and (ii) with an in-slab heating or cooling system, must be insulated around the vertical edge of its perimeter with insulation having an R-Value of not less than 1.0. b) The minimum Total R-Value required in (a) may be reduced by R0.5 provided R0.75 is added to the Total R-Value required for the roof and ceiling construction. c) A concrete slab-on-ground with an in-slab heating or cooling system must have insulation installed around the vertical edge of its perimeter. d) Insulation required by (c) must– (i) have an R-Value of not less than 1.0; and (ii) be water resistant; and (iii) be continuous from the adjacent finished ground level– A. to a depth of not less than 300 mm; or B. for the full depth of the vertical edge of the concrete slab-on-ground. e) Floor construction is deemed to have the thermal properties listed in Specification J1.6.	CRA – Refer Annexure C
PART J2 – GLAZING		
J2.0: Deemed-to-Satisfy Provisions	Informational	Noted
J2.1: Application of Part	This part applies to all glazing located in the *envelope* of the building.	Noted
J2.4: Glazing	Glazing to comply with this clause, it is noted that this assessment does not include an assessment with the glazing calculator.	CRA – Refer Annexure C
J2.5: Shading	Shading where required by Clause J2.4, must comply with BCA Clause J2.5.	CRA – Refer Annexure C
PART J3 – BUILDING SEALING		
J3.0: Deemed-to-Satisfy Provisions	Informational	Noted

SECTION J: ENERGY EFFICIENCY (Class 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; • a permanent building opening necessary for the safe operation of a gas appliance; • a building or part where mechanical ventilation required by part f4 provides sufficient pressurization to prevent infiltration; • parts of buildings that cannot be fully enclosed.	Noted
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.	CRA – Refer Annexure C
J3.3:	Roof lights	Roof lights 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.	CRA – Refer Annexure C
J3.4:	External windows and doors	• A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of: – the *envelope* of a conditioned space; or – the external fabric of a habitable room or public area. • The above does not apply to: – a window complying with AS 2047; or – a fire door or smoke door; or – a roller shutter door, roller shutter grille or other security device. • For the bottom edge of external swing doors, the seal must be a draft protection device and may otherwise be a foam or rubber compression strip, fibrous seal or the like. • 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 50m^2; 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.	CRA – Refer Annexure C

SECTION J: ENERGY EFFICIENCY (Class 5, 9)			
J3.5:	Exhaust fans	The exhaust fans to the sanitary facilities and any other miscellaneous exhaust fans to other conditioned spaces, are to be pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA – Refer Annexure C
J3.6:	Construction of roofs, 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 are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	CRA – Refer Annexure C
J3.7:	Evaporative Coolers	Where provided an evaporative cooler is to be fitted with a self-closing damper in accordance with this clause.	CRA – Refer Annexure C
PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS			
J5.0:	Deemed-to-Satisfy Provisions	Informational	Noted
J5.2:	Air-conditioning systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.3:	Mechanical ventilation systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
J5.4:	Miscellaneous exhaust systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA – Refer Annexure C
PART J6 – ARTIFICIAL LIGHTING AND POWER			
J6.0:	Deemed-to-Satisfy Provisions	Informational	Noted
J6.1:	Application of Part	Applies to all buildings except a Class 8 electricity network substation.	Noted
J6.2:	Artificial lighting	Artificial lighting must comply with J6.2(b) and J6.2(c), relevant to maximum permitted illumination power loads. Design certification to be provided by the electrical designer.	CRA – Refer Annexure C
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 C
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 C
J6.5:	Artificial lighting around the perimeter of a building	Artificial lighting around the perimeter of a building must be controlled by 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 C
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 C
PART J7 – HEATED WATER SUPPLY			
J7.0:	Deemed-to-Satisfy Provisions	Informational	Noted

SECTION J: ENERGY EFFICIENCY (Class 5, 9)			
J7.2:	Heated water supply system	The hot water supply systems must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	CRA – Refer Annexure C
J7.3:	Swimming pool heating and pumping	Not applicable	N/A
J7.4:	Spa pool heating and pumping	Not applicable	N/A
PART J8 – FACILITIES FOR ENERGY MONITORING			
J8.0:	Deemed-to-Satisfy Provisions	Informational	Noted
J8.1	Application of Part	Informational	Noted
J8.3	Facilities for energy monitoring	• A building with a floor area of more than 500m^2 must have an energy monitoring facility to record the consumption of gas and electricity. • A building with a floor area of more than 2,500m^2 must have the facility to record, individually the energy consumption of: – air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and – artificial lighting; and – appliance power; and – central hot water supply; and – internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and – other ancillary plant.	CRA – Refer Annexure C

ANNEXURE C - 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:

To be further defined and finalised to this development with next BCA Report assessment for Construction Certificate stage.