BCA LOGIC

Building Regulation, BCA,
Fire, Access and Energy Consultants

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Project:	Warakirri College
Report:	BCA Assessment Report
Reference No:	110810-BCA-r2
Date:	22 October 2019
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DOCUMENT CONTROL

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Grade A1, No. BPB 2417</td></tr>
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1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at 6a Watsford Road, Campbelltown. The proposed development incorporates the construction of new school facilities, including learning spaces, student and staff facilities, an indoor sport/recreation area and basement carparking associated with Warakirri College. Direct vehicular access is provided off Watsford Road.

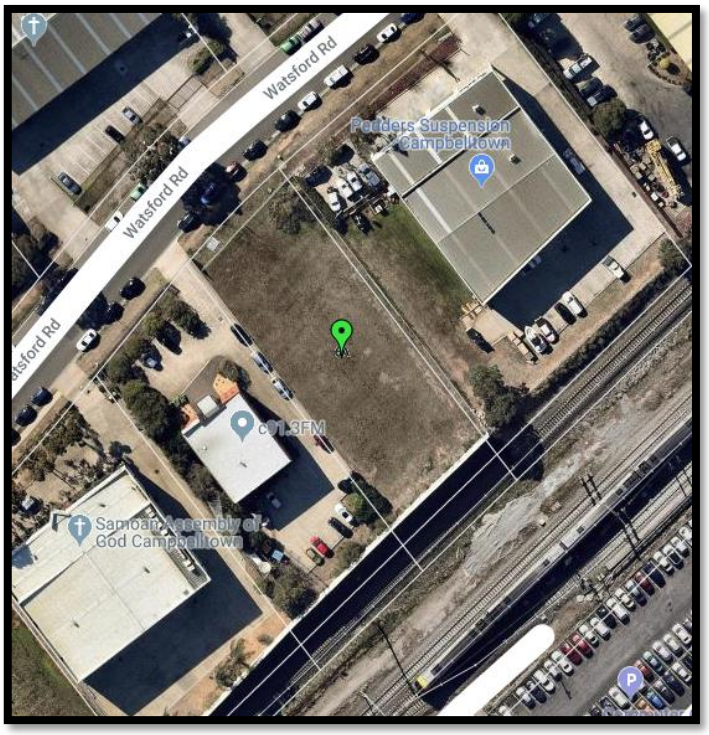


Image courtesy Nearmap

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 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4 Limitations

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

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

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

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

This report does not include, or imply compliance with:

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

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 under separate report cover 110810-Access-r1);

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

(d) Work Health and Safety Act 2011;

(e) 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

(f) 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 three (3).

Note: there may be some conjecture around the exact rise in storeys, however based on the approximate 2.93m wall height at the base of the carpark access ramp in the relatively short wall length of the access ramp section this would technically constitute a storey required to be included in the calculation of the rise in storeys for the purposes of BCA C1.2(b)(ii).

2.2 Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
7a & 9b	Lower Ground	Carparking, Indoor Sport/Recreation
5 & 9b	Ground	Office/Administration, Learning Spaces
5 & 9b	First Floor	Learning Spaces

2.3 Effective Height (Clause A1.0)

The building has an effective height of less than 12 metres (First Floor RL 64.75 - Lower Ground RL 58.15 = 6.6m).

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	Maximum Floor Area	8 000m^2
	Maximum Volume	48 000m^3
Class 9b	Maximum Floor Area	8 000m^2
	Maximum Volume	48 000m^3
Class 7a	Maximum Floor Area	5 000m^2
	Maximum Volume	30 000m^3

2.6 Fire Compartments

The following fire compartments have been assumed:

1. The basement level forms its own fire compartment.
2. The ground and first floor levels combined form their own fire compartment.

2.7 Exits

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

(a) The internal required non-fire-isolated stairs at first floor level.

(b) The external sliding/swinging doors leading to open space at ground floor level.

(c) The external required non-fire-isolated stairs at lower ground floor level.

2.8 Climate Zone (Clause A1.0)

The building is located within Climate Zone 5.

2.9 Location of Fire-source features

The fire source features for the subject development are:

North-east: The property boundary.

South-east: The property boundary.

North-west: The property boundary.

South-west: The far boundary of Watsford Road.

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 (Fire Resistant Doorsets)
2.	Construction Joints	**BCA2019 C1.1, Spec C1.1** **BCA2019 C3.16** AS1530.4:2014 & AS4072.1-2005
3.	Fire doors	**BCA2019 C3.10** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2019 C3.13** (Opening in Shafts) AS1905.1: 2015
4.	Fire seals protecting openings in fire resisting components of the building	**BCA2019 C3.15** (Openings for service installations) **BCA2019 C3.16** (Construction joints) **BCA2019 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
5.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8**
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 D2.21** (Operation of Latches) AS 1670.1:2018 (Fire)
8.	Operation of Door latches • Failsafe	**D2.21** (Operation of Latch) AS1670.1:2018

Item	Essential Fire and Other Safety Measures	Standard of Performance
	• Manuel Push Button Control	
9.	Path of travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
10.	Required Automatic Doors	**D2.19** (Doorways and Doors)
11.	Swing of Exit Doors	**D2.20** (Swinging Doors)
Lifts		
12.	Access to Lift Pits	**BCA2019 D1.17** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
Electrical Services		
13.	Automatic fail-safe devices • Auto open Sliding Exit doors • Break Glass release	**BCA2019 D2.21** (Operation of Latches) AS1670.1:2018 (Fire)
14.	Automatic fire detection including auto-shutdown of air-handling system in any Class 9b building >1,000L/s	**BCA2019 E2.2**, NSW Table E2.2a, Table 2.2b, **Spec E2.2a** **Spec E2.2a** – Clause 6 (Smoke detection for smoke control systems)
15.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1 –2018
16.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1 –2018 AS/NZS1668.1:2015
Hydraulic Services		
17.	Fire hydrant systems • NSW Storz Couplings	**BCA2019 E1.3** AS2419.1–2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
18.	Hose reel systems	**BCA2019 E1.4** AS2441–2005

Item	Essential Fire and Other Safety Measures	Standard of Performance
Mechanical Services		
19.	Fire dampers	**BCA2019 E2.2, Spec E2.2a, Spec E2.2b** **BCA2019 C3.15** AS/NZS1668.1:2015, AS1682.1:2015 & AS1682.2:2015
20.	Mechanical air handling systems 1. Mechanical ventilation to carpark. 2. Auto-shutdown of Air-handling System. • Any Class 9b building >1,000L/s	**BCA2019 E2.2, Table E2.2a, Table E2.2b** **Spec E2.2a, Spec E2.2b** AS/NZS 1668.1:2015 **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.

Notes:

(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.

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.

A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS/NZS 1668.1 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.

Class 7a buildings

A Class 7a building including a basement provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that fans with metal blades for operation at normal temperatures may be used, and the electrical power and control cabling need not be fire rated.

Class 9b buildings

Item	Essential Fire and Other Safety Measures	Standard of Performance
A Class 9b building or part used as an assembly building must be provided with an automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000L/s and miscellaneous exhaust air systems in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of smoke detectors installed complying with Clause 6 of Specification E2.2a.		

4 FIRE RESISTANCE LEVELS

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

Type A Construction

Table 3. Type A Construction

Item	Class 5, 7a & 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/-/-
Floors	120/120/120
Roofs	120/60/30

5 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation is capable of complying (as outlined in Annexure B) with that Code, subject to ongoing design development to CC stage, and those items and Performance Solutions identified in 5.2 and 5.3 below.

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

5.1 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.

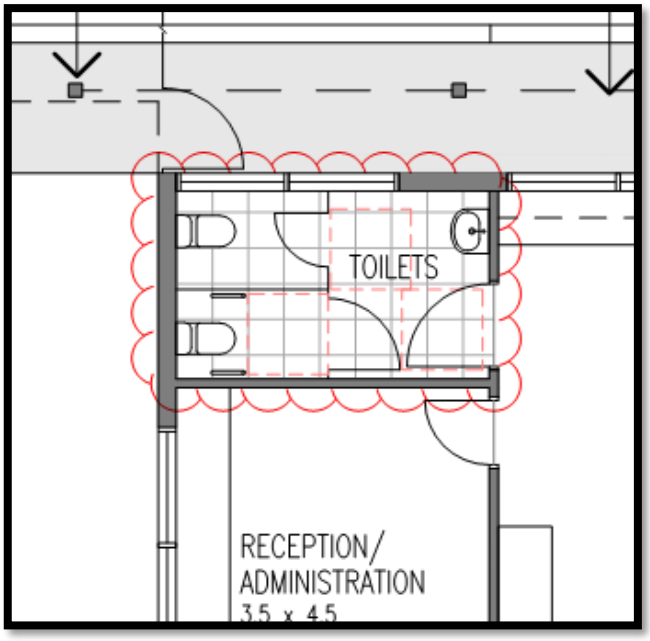
5.2 Items to be Addressed

An assessment of the architectural design documentation has identified the following areas requiring revision to ensure compliance with the Deemed-to-Satisfy Provisions is achieved.

5.2.1 Provide separate sanitary facilities for use by males and females. This can be achieved in two ways:

a. Separate male/female ambulant sanitary compartments can be provided, with a closet pan and washbasin for separate use by males/females (noting that an area reserved for one sex cannot be crossed to access a sanitary compartment reserved for another sex, and the area shown with the washbasin below is required to be allocated to a sex); or

b. An accessible unisex sanitary compartment may be provided in this area in lieu of separate male/female sanitary facilities, which is permitted to be considered as a unisex sanitary compartment as per BCA F2.2(c).



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:

Table 4. Performance Solutions

Item	Description of Performance Solution	DTS Provision
1.	Where Type A Construction is required - To permit there to be no spandrel separation between openings in different floor levels to the full height glazed entry façade.	C2.6
2.	To permit a travel distance to a point of choice of up to 26m and/or 30m to the nearest exit at first floor level.	D1.4
3.	To permit the northern-eastern required non-fire-isolated stair to discharge at a point greater than 20m to a doorway providing egress to a road or open space (note this is required due to the deemed convergence of the paths of travel from the stairways from first floor level to the front door as per D1.5(d)).	D1.9
4.	To demonstrate that the construction of the roof and external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only

ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation.

Table 5. Architectural Plans

Architectural Plans Prepared by Koturic+Co.			
Drawing Number	**Revision**	**Date**	**Title**
A-01	D	April 2019	Site Plan
A-02	D	April 2019	Lower Ground Floor Plan
A-03	D	April 2019	Ground Floor Plan
A-04	D	April 2019	First Floor Plan
A-05	C	April 2019	Roof Plan
A-06	C	April 2019	Elevations
A-07	C	April 2019	Sections

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 6. 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 due to the Class 9b building portion at the top floor of the building having a rise in storeys of three (3). Refer to the requirements of Specification C1.1 at the end of this Section.	CRA – Refer Annexure C
C1.2: Calculation of rise in storeys	The building has a rise in storeys of three (3), noting that the basement level is required to be included in the calculation of rise in storeys due to the exposed external wall at the access ramp which based upon more recent legal interpretations is required to be measured as an average across its lowest point. Note there may be some conjecture around the exact rise in storeys, however based on the approximate 2.93m wall height at the base of the carpark access ramp in the relatively short wall length of the access ramp section this would technically constitute a storey required to be included in the calculation of the rise in storeys for the	Noted

SECTION C: FIRE RESISTANCE		
	purposes of BCA C1.2(b)(ii). This shall be considered by the engaged PCA in their assessment of the proposal.	
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
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	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) … (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	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5. (vii) Bonded laminated materials where— (A) each lamina, including any core, is non-combustible; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively. This clause also prohibits the use of in situ formwork containing combustible elements including PVC lined formwork products where the PVC lining remains in place for the life of the building. Where the use of such products is proposed – in all instances the material must be the subject of a site-specific Performance Assessment Report.	
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
C1.13: 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.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	(h) A sign other than one provided under (a) or (g) that— (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and (iii) does not extend beyond one fire compartment; and (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that— (i) meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and (ii) serves a storey— (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an exit, where it would render the exit unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) A paint, lacquer or a similar finish. (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	Informational.	Noted
C2.2: General floor area and volume limitations	The size of fire compartments in the building do not exceed that specified in Table C2.2.	Complies
C2.3: Large isolated buildings	Not applicable.	N/A
C2.4: Requirements for open spaces and vehicular access	Not applicable.	N/A
C2.5: Class 9a and 9c Buildings	Not applicable.	N/A
C2.6: Vertical separation of openings in external walls	As noted in Clause C1.2 above the building is considered a rise in storeys of three (3) and Type A Construction would then be applicable: - Where the vertical projection of an opening in an external wall falls no further than 450 mm outside an opening in the storey next below, the openings must be provided with vertical separation complying with Clause C2.6, that is: • They must be protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab, or	**PS – Refer Part 5.3 of Report**

SECTION C: FIRE RESISTANCE		
	• They must be provided with a 1.1m horizontal projection (FRL 60/60/60) also extending at least 450mm either side of the openings. The above does not apply to openings within the same stairway. For the purposes of this clause, opening means that part of the external wall of a building that does not have an FRL of 60/60/60 or greater. **It is identified on the Western Elevation that no spandrel separation is provided to the full height glazed entry façade therefore constituting a technical non-compliance with the requirements of this Clause. Either spandrel separation would be required in accordance with the requirements of this Clause, or a Fire Engineered Performance Solution to permit the deletion of spandrel separation between openings in the external wall.** **Moreover, the exact spandrel separation between the carpark ramp opening, and the windows in the ground floor level above, are unclear. Spandrel separation would similarly be required between these openings in the external wall in accordance with the requirements of this Clause. To be considered further at CC stage.**	
C2.7: Separation by fire walls	Not applicable.	N/A
C2.8: Separation of classifications in the same storey	Not applicable.	N/A
C2.9: Separation of classifications in different storeys	Not applicable.	N/A
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 as required for Type A Construction.	CRA – Refer Annexure C
C2.11: Stairways and lifts in one shaft	Stairways and lifts are not shown to be in the same shaft.	Complies
C2.12: Separation of equipment	Not applicable.	N/A
C2.13: Electricity supply system	Not applicable.	N/A
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	Informational. It should be noted that the openings in the vertical plane formed between building elements (columns) at the construction edge of the perimeter verandah do not constitute openings requiring protection.	Noted

SECTION C: FIRE RESISTANCE		
C3.2: Protection of openings in external walls	Openings are of sufficient distance from a fire source feature to not require protection under this Clause.	Complies
C3.3: Separation of external walls and associated openings in different fire compartments	Openings between different fire compartments are not exposed to require protection under this Clause.	Complies
C3.4: Acceptable methods of protection	Not applicable.	N/A
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	Not applicable.	N/A
C3.9: Service penetrations in fire-isolated exits	Not applicable.	N/A
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. 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.	CRA – Refer Annexure C
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	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	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.	
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 C1.1 – FIRE-RESISTING CONSTRUCTION		
2.0: General Requirements	Informational.	Noted
2.1: Exposure to fire-source features	Informational.	Noted
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	Not applicable.	N/A
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 — 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.	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE			
		(E) Other service units that are non-combustible and do not contain flammable or combustible liquids or gases.	
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 stair and lift shafts and the bottom of non-combustible shafts laid directly on the ground.	CRA – Refer Annexure C
2.8:	Carparks in Class 2 and 3 Buildings	Not applicable.	N/A
2.9:	Residential Aged Care building: Concession	Not applicable.	N/A
3.0:	Type A fire-resisting construction	Informational.	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: insulation and sarking used must be non-combustible) • 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,	CRA – Refer Annexure C

SECTION C: FIRE RESISTANCE		
	pipe, garbage or similar shaft wall must be of non-combustible construction. **Note:** This includes non-combustible insulation. When an insulation material is not certified as non-combustible, this material will need to be the subject of a Fire Engineering Assessment at the CC stage. • 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 • The loadbearing external columns supporting the roof shall achieve an FRL of not less than 120/-/-.	
3.2: Concessions for floors	A floor need not comply with Table 3 if it is laid directly on the ground.	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) … b) has a rise in storeys of 3 or less; or c) … d) has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.	CRA – Refer Annexure C
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) … (b) in a Class 5, 6, 7, 8 or 9 building— (i) … (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.	Noted
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

SECTION D: ACCESS AND EGRESS
PART D1 – PROVISION FOR ESCAPE

SECTION D: ACCESS AND EGRESS		
D1.0: Deemed-to-Satisfy Provisions	Informational.	Noted
D1.1: Application of Part	Informational.	Noted
D1.2: Number of exits required	Not less than 2 exits are provided from the basement where a rise of greater than 1.5m is required, and not less than two exits for the upper levels in the school having a rise in storeys of 2 or more.	Complies
D1.3: When fire-isolated stairways and ramps are required	Not applicable.	N/A
D1.4: Exit travel distances	**At first floor level the travel distance to a point of choice is measured up to 26m to a point of choice, and/or 30m to the nearest exit from the farthest corner of Learning Space 5 thus constituting a departure from the requirements of this Clause. A Fire Engineered Performance Solution would be required to permit the extension in egress travel distance.** The travel distance at ground floor and basement level are within the limitations of this Clause.	**PS – Refer Part 5.3 of Report**
D1.5: Distance between alternative exits	Alternative means of egress are not less than 9m and not more than 60m apart. It is identified under this Clause that there is the potential for the convergence of the alternative paths of travel from the first floor stairs at their internal discharge and path of travel to the front of the building. To address this it is proposed to provide a Performance Solution under D1.9 to permit the internal north-eastern required non-fire-isolated stair to discharge more than 20m from a doorway providing egress to a road or open space so as to not be reliant on the front doorway for egress and therefore these pathways would not converge within 6m of one another.	Complies
D1.6: Dimensions of exits and paths of travel to exits	Exits throughout are generally shown to be in accordance with the requirements of this Clause, including to the levels accommodating more than 100 persons as calculated under BCA D1.13 where the aggregate egress widths are greater than 1500mm where required, or greater than the width required for the number of persons within each respective part. It is also identified that there is the potential for a non-compliance at lower ground level where the two egress stairs provided would not provide the aggregate egress width if more than 200 persons were to be accommodated (e.g. if there was a school assembly whereby all students and staff were within the sport/recreational area at a given time). Special consideration should be given to consider the potential number of persons in this space at a given time to ensure that the aggregate egress widths require by this Clause are achieved. Currently, the aggregate egress width between the two stairs equates to 2000mm,	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	which would cater for up to, however not greater than, 200 persons.	
D1.7: Travel via fire-isolated exits	Not applicable.	N/A
D1.8: External stairways or ramps in lieu of fire-isolated exits	Not applicable.	N/A
D1.9: Travel by non-fire-isolated stairways or ramps	The required non-fire-isolated stairs provide a continuous means of travel by their own flights and landings from every storey served to the level at which egress to a road or open space is provided. No point on the floor to a point of egress to a road or open space by way of the required non-fire-isolated stairways exceeds 80m, and the stairways do not discharge greater than 40m from one of two doorways providing egress which are in opposite directions. **However, as discussed under D1.5 the path of travel to the front doorway via the required non-fire-isolated stairs from first floor level do converge within 6m of one another at ground level. It is therefore proposed to provide a Performance Solution under this Clause to permit the north-eastern stairway to discharge at a point greater than 20m from a doorway providing egress to a road or open space so as to not be required to converge.**	**PS – Refer Part 5.3 of Report**
D1.10: Discharge from exits	Exits are not able to be blocked at the point of discharge. Based on the site levels the gradient of the path of travel to the road will not be steeper than 1:20.	Complies
D1.11: Horizontal exits	Not applicable.	N/A
D1.12: Non-required stairways, ramps or escalators	Not applicable.	N/A
D1.13: Number of persons accommodated	The building's occupancy number has been calculated as the following: **First Floor:** The occupancy number has been calculated based on the seating spaces on this level, thus 134 persons. **Ground Floor:** The occupancy number has been calculated based on the seating spaces and the equivalent standing spaces at tables in the laboratory, thus 88 persons. For the Function Room and External Terrace, it has been assumed that these are ancillary uses for the already calculated building occupants and would not contribute to an increase in the occupancy number. **Lower Ground:** It has been assumed that the indoor sport/recreational are is an ancillary use to the other areas of the building and their occupants, the same as the carpark, and	**FI** Noted

SECTION D: ACCESS AND EGRESS		
	therefore these spaces would not contribute to an increase in the building population. If the indoor sport/recreational area is to contribute to a building population increase then we would need to be advised for consideration. TOTAL = 222 persons (based on assumptions) The architect shall confirm these assumptions are generally in line with the building proposal.	
D1.14: Measurement of distances	Informational.	Noted
D1.15: Method of Measurement	Informational.	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Informational.	Noted
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	Not applicable.	N/A
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— (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".	CRA – Refer Annexure C
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

SECTION D: ACCESS AND EGRESS		
D2.7: Installations in exits and paths of travel	Gas or other fuel services must not be installed in a required exit. Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in corridors/hallways/lobbies or the like must be enclosed with non-combustible construction or a fire protective covering with doorways suitably sealed against smoke spread.	CRA – Refer Annexure C
D2.8: Enclosure of space under stairs and ramps	The space below a required non fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door.	CRA – Refer Annexure C
D2.9: Width of stairways and ramps	Informational.	Noted
D2.10: Pedestrian ramps	Not applicable.	N/A
D2.11: Fire-isolated passageways	Not applicable.	N/A
D2.12: Roof as open space	The roof of the lower ground level is to achieve an FRL of 120/120/120 and have no unprotected openings or penetrations as the exits discharge onto it.	CRA – Refer Annexure C
D2.13: Goings and risers	Stairways must comply with the following: • stairways must have not more than 18 and not less than 2 risers in each flight; • goings must be between 250 mm and 355 mm; • risers must be between 115 mm high and 190 mm high; • the slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; • the goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm. • Risers must not contain any openings that would permit a 125 mm sphere to pass through. • each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosings;	CRA – Refer Annexure C

<table>
<tr><th colspan="3">SECTION D: ACCESS AND EGRESS</th></tr>
<tr><td></td><td>

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–

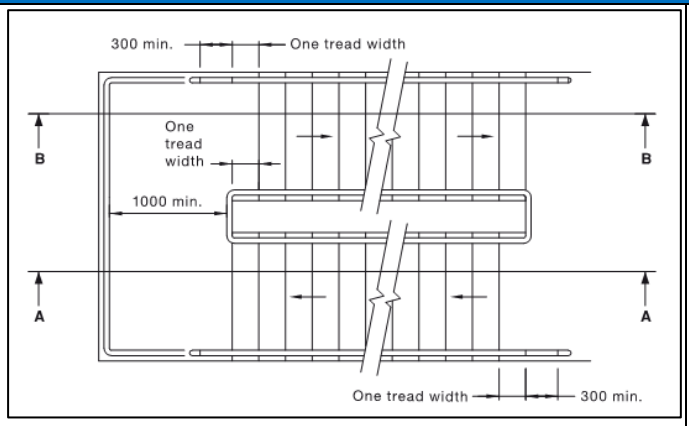
(i) opens to a road or open space; and
(ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or

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.

</td><td>CRA – Refer Annexure C</td></tr>
</table>

SECTION D: ACCESS AND EGRESS		
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 – 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: • 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.	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	 *Figure 28 in AS1428.1-2009*	
D2.18: Fixed platforms, walkways stairways and ladders	Not applicable.	N/A
D2.19: Doorways and doors	The sliding main entrance door serving as a required exit shall be able to be opened manually under a force of not more than 110 N and failsafe open upon power failure and in fire mode.	CRA – Refer Annexure C
D2.20: Swinging doors	The swinging doors serving as required exits swing in the direction of egress.	Complies
D2.21: Operation of latch	All doors in a required exit or forming part of a required exit AND doors in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by– (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	CRA – Refer Annexure C

SECTION D: ACCESS AND EGRESS		
	(bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that – (i) serves only or is within a sole-occupancy unit in a Class 2 building; or (ii) serves a sole-occupancy unit in a Class 5, 6, 7 or 8 building with a floor area not more than 200m^2; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building and is readily openable when unlocked.	
D2.22: Re-entry from fire-isolated exits	Not applicable.	N/A
D2.23: Signs on doors	Not applicable.	N/A
D2.24: Protection of openable windows	A barrier with a height not less than 865 mm above the floor is required to an openable window where the floor below the window is 4m or more above the surface beneath. A barrier must not permit a 125 mm sphere to pass through it; and have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.	CRA – Refer Annexure C
D2.25: Timber stairways: concession	Not applicable.	N/A
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
D3.0: Deemed-to-Satisfy Provisions	Refer separate Access assessment report 110810-Access-r1.	Noted

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.	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. All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m.	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
E1.5:	Sprinklers	Not applicable.	N/A
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.	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.	Noted
E1.10:	Provision for special hazards	Not applicable.	N/A
PART E2 – SMOKE HAZARD MANAGEMENT			
E2.0:	Deemed-to-Satisfy Provisions	Informational.	Noted
E2.1:	Application of Part	Informational.	Noted
E2.2:	General requirements (including Tables E2.2a and E2.2b)	**General smoke hazard management requirements** 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. 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. A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS1668.1 systems that are provided for zone pressurisation and automatic air pressurisation for fire-isolated exits. **Class 7a buildings** A Class 7a building including a basement provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that fans with metal blades for operation at normal	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		temperatures may be used, and the electrical power and control cabling need not be fire rated. **Class 9b buildings** A Class 9b building or part used as an assembly building must be provided with an automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000L/s and miscellaneous exhaust air systems in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of smoke detectors installed complying with Clause 6 of Specification E2.2a.	
E2.3:	Provisions for special hazards	Not applicable.	N/A
SPECIFICATION E2.2a – SMOKE DETECTION AND ALARM SYSTEM			
1.	Scope	Informational.	Noted
2.	Type of system	The Class 5 and 9b part require a smoke detection system complying with Clause 6 as per NSW Table E2.2b.	CRA – Refer Annexure C
3.	Smoke alarm system	Not applicable.	N/A
4.	Smoke detection system	Not applicable.	N/A
5.	Combined smoke alarm and smoke detection system	Not applicable.	N/A
6.	Smoke detection for smoke control system	The Class 5 and 9b part require a smoke detection system complying with this Clause as per NSW Table E2.2b, and Clause 4.	CRA – Refer Annexure C
7.	Building occupant warning system	Not applicable.	N/A
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	Not applicable.	N/A
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	CRA – Refer Annexure C

SECTION E: SERVICES AND EQUIPMENT			
		a constant pressure device for its operation if the lift car is fully enclosed.	
E3.7:	Fire service controls	Not applicable.	N/A
E3.8:	Aged care buildings	Not applicable.	N/A
E3.9:	Fire service recall switch	Not applicable.	N/A
E3.10:	Lift car service drive control switch	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 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 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	Not applicable.	N/A
E4.8:	Design and operation of exit signs	Exit signs must comply with AS 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	Not applicable.	N/A

SECTION F: HEALTH AND AMENITY			
PART F1 – DAMP AND WEATHERPROOFING			
F1.0:	Deemed-to-Satisfy Provisions	**Performance Requirement FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls. The assessment contained within this report does not include an assessment against Performance Provision FP1.4.**	**PS – Refer Part 5.3 of Report**
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

SECTION F: HEALTH AND AMENITY			
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 – the number of occupants has been calculated in accordance with D1.13 to be up to a total 550 persons.	Noted
F2.3:	Facilities in Class 3 to 9 buildings (including Table F2.3)	The sanitary facilities proposed in the building will cater for the below building populations, assuming that the Ground Floor toilets to the Staff Executive area are for use by staff only, and therefore the remaining facilities for use by students. The unisex accessible sanitary compartments have been counted once for each sex for both students and staff where this is not specifically prohibited by F2.2(c). Other than an accessible unisex sanitary facility, separate facilities shall be provided for staff and students. **It is noted that the Ground Floor Staff Executive areas are required to be allocated to a sex. Either separate male/female staff sanitary compartments would be required, or an accessible unisex sanitary compartment could be provided in lieu of the separate facilities, and counted once for each sex as a unisex sanitary facility as permitted by F2.2(c). For the purposes of determining the number of persons these sanitary facilities will cater for, the Staff Executive facilities have been considered as separate male/female compartments, pending this clarification in the design at CC stage to separate the sanitary compartments and to provide an additional handbasin (if separate facilities are provided and not a unisex sanitary facility).**	**FI**

SECTION F: HEALTH AND AMENITY			
		It is important that the client consider the distribution of the sanitary facilities carefully and advise of/allocate the staff/student use and distribution on plans to permit a more accurate assessment. At this stage, the below shall be construed as a guide only pending this clarification around the sanitary facility distributions. <u>Male Employees</u> CP x 3 = up to 60 UR x 0 = up to 10* HB x 3 = up to 90 *Note as permitted by F2.6(a)(iii) a closet pan may be used in place of a urinal. In considering 1 closet pans as a urinal the best population number that can be achieved is up to 20 male employees. <u>Female Employees</u> CP x 3 = up to 35 HB x 3 = up to 90 <u>Total Employees</u> As per the above the sanitary facilities will cater for up to **40 staff***, where sanitary facilities are required to be provided on the basis of equal numbers of male and females. <u>Male Students</u> 6 CP = up to 400 0 UR = up to 0* 6 HB = up to 325 *Note as permitted by F2.6(a)(iii) a closet pan may be used in place of a urinal. In considering 3 closet pans as urinals the best population number that can be achieved is up to 150. <u>Female Students</u> 6 CP = up to 150 6 HB = up to 325 <u>Total Students</u> As per the above the sanitary facilities will cater for up to **300 students***, where sanitary facilities are required to be provided on the basis of equal numbers of male and females.	
F2.4:	Accessible sanitary facilities (including Table F2.4)	Refer separate Access assessment report 110810-Access-r1.	Noted
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—	CRA – Refer Annexure C

SECTION F: HEALTH AND AMENITY			
		(i) from floor level to the ceiling in the case of a unisex facility; or (ii) to a height of not less than 1.5 m above the floor if primary school children are the principal users; or (iii) 1.8 m above the floor in all other cases. b) The door to a fully enclosed sanitary compartment must— (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway.	
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	In the Class 9b building accommodating more than 100 persons, the height of rooms and other spaces must be not less than 2.7m in height to classrooms, corridors etc. and 2.1m to sanitary compartments, storerooms and the like. The Class 7a carpark shall be not less than 2.4m ceiling heights. Compliance is shown around these requirements in the sectional drawings provided.	CRA – Refer Annexure C
PART F4 – LIGHT AND VENTILATION			
F4.0:	Deemed-to-Satisfy Provisions	Informational.	Noted
F4.1:	Provision of natural light	Natural light must be provided to all general-purpose classrooms in Class 9b school buildings, and natural light may not be borrowed under F4.3. Based on a review of the floor plans compliance is readily achievable to the general-purpose classrooms via the window openings in the external walls.	CRA – Refer Annexure C
F4.2:	Methods and extent of natural lighting	As above.	CRA – Refer Annexure C
F4.3:	Natural light borrowed from adjoining room	Not applicable.	N/A

SECTION F: HEALTH AND AMENITY			
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	Ventilation may be 'borrowed' from adjoining rooms in some instances in accordance with this clause.	CRA – Refer Annexure C
F4.8:	Restriction on position of water closets and urinals	Sanitary compartments do not open directly into a room or space restricted by this Clause where these are all off separate hallways.	Complies
F4.9:	Airlocks	Sanitary compartments are to be provided with mechanical exhaust ventilation where natural ventilation is not provided.	CRA – Refer Annexure C
F4.11:	Carparks	Every storey of the carpark must have: • a system of mechanical ventilation complying with AS1668.2-2012; or • a system of natural ventilation complying with Section 4 of AS 1668.4-2012.	CRA – Refer Annexure C
F4.12:	Kitchen local exhaust ventilation	Not applicable.	N/A

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:

Architectural Design Certification:

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
6. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C2.6 of BCA2019, unless varied by any Fire Engineered Performance Solution. It is noted that no spandrel separation is required in the stairway or to a void.
7. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
8. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
9. The lift doors will be -/60/- fire doors complying with AS1735.11 in accordance Clause C3.10 of BCA2019.
10. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.
11. A lintel will 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 it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, in accordance with Specification C1.1 Clause 2.3 BCA2019.
12. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause 2.4 of Specification C1.1 of BCA2019.
13. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2019.
14. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019, except as varied by any Fire Engineered Performance Solution.
15. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
16. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
17. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.

18. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
19. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
20. If enclosed, the enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60 and have a self-closing -/60/30 fire door, in accordance with Clause D2.8 of BCA2019.
21. New pedestrian ramps will comply with AS1428.1-2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
22. The roof of the building where the exit discharges will have an FRL of 120/120/120 and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D2.12 of BCA2019.
23. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
24. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 where the edge ledge to a flight below.
25. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
26. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
27. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 of BCA2019.
28. The openable portion of a window 4 meters or more above the ground below will eb provided with a barrier with a height not less than 865mm above the floor and in accordance with Clause D2.24.
29. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019, and with AS1428.1-2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.
30. Accessible carparking will be in accordance with Clause D3.5, and Table D3.5 of BCA2019.
31. Braille and tactile signage will in accordance with Clause D3.6, and Specification D3.6 of BCA2019.
32. Hearing augmentation system will be provided in accordance with Clause D3.7 of BCA2019.
33. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2019 and AS1428.4.1-2009.
34. 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, will be clearly marked in accordance with AS1428.1-2009 and Clause D3.12 of BCA2019.
35. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.

36. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2.
37. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
38. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
39. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS3740.
40. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
41. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS1288 / AS2047.
42. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
43. Accessible sanitary facilities will be provided in the building in accordance with Clause F2.4, Table F2.4 (a) of BCA2019 and AS1428.1-2009.
44. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
45. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
46. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
47. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
48. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
49. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.
50. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.
51. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.

Electrical Services Design Certification:

52. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
53. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS2293.1.
54. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS2293.1.
55. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0.

Hydraulic Services Design Certification:

56. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and ASNZS3500.3
57. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS2419.1 as required.
58. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS2441.
59. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS2444.

Mechanical Services Design Certification:

60. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS/NZS 1668.1.

61. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS1668.2.

62. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019 and where not naturally ventilated it will be mechanically ventilated in accordance with AS1668.2 as applicable.

Structural Engineers Design Certification:

63. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:

- Dead and Live Loads – AS1170.1
- Wind Loads – AS1170.2
- Earthquake actions – AS1170.4
- Masonry – AS3700
- Concrete Construction – AS3600
- Steel Construction AS4100
- Aluminium Construction – AS/NZS1664.1 or 2
- ABCB Standard for Construction of Buildings in Flood Hazard Areas.

64. The FRL's of the structural elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.

65. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.

66. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.

67. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

68. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3.2 of BCA2019 and will be capable of accommodating a stretcher with a patient lying horizontally by proving a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.

69. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.

70. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.

71. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.

72. The lifts will comply with AS1735.12 in accordance with Clause E3.6 of BCA2019.

73. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

NSW Specification Design Certificate:

74. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10, NSW Clause C1.10, Specification C1.10 and NSW Specification C1.10 of BCA2019.

75. The discharge points of exits will be in accordance with Clause D1.10, and NSW Clause D1.10(f) of BCA2019.

76. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6, and NSW Clause D1.6(f)(vi)&(j) of BCA2019.

77. Stair geometry to the new stairways will be in accordance with Clause D2.13, and NSW Clause D2.13(a)(ix)(x)(xi) of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a nosing strip with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.

78. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15, and NSW Clause D2.15(d)&(e) of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 where the edge leads to a flight below.

79. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, NSW Clause D2.16 & NSW Table D2.16a 1 and D2.17 of BCA2019.

80. The doorways and doors will be in accordance with Clause D2.19, NSW Clause D2.19(b)(v) and D2.20 of BCA2019.

81. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 and NSW Clause D2.21(c)&(d) of BCA2019.

82. A smoke detection and alarm systems will be installed throughout the building in accordance with Table E2.2a, NSW Table E2.2a and NSW Specification E2.2a of BCA2019.

83. Exit signage will be installed in accordance with Clause E4.5, NSW Clause E4.6, E4.7, and E4.8 of BCA2019 and AS2293.1.

84. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5(b) of BCA2019 and AS1668.2.