BCA Assessment Report

St Pauls Anglican Church Carlingford

Project:	St Pauls Anglican Church Carlingford
Reference No:	115035-BCA-r1
Date:	7 December 2021
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Document Control

Revision	Date	Description	
115035-BCA-r1	7 December 2021	BCA Assessment Report	
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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed additional office and administration centre at St Pauls Anglican Church Carlingford, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

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

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

Item	Description	Compliance Provision
Performance Solutions Required		
1.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only
Building Code of Australia Compliance Matters		
1.	Clause 94 considerations	EP&A Regulation 2000
2.	Occupant access and egress	Section D
3.	Façade construction – non combustible	C1.9
4.	Protection of openings in external walls	C3.2
5.	Separation of different fire compartments	C3.3

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

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at the St Pauls Anglican Church Carlingford. The existing church, which was renovated in March 2021, proposes a new extension to the administration and office area. The proposal includes the demolition of a single storey brick dwelling and the addition of a new portion off the western elevation to bring the administration and church functions under the one roof. The proposed extension is 2 storeys with office uses on the lower level and function rooms above.

Figure 1 - St Paul's Anglican Church Carlingford (photo curtesy of Google Maps).

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 not been assessed under this cover, including the deemed to satisfy provision of Part D3 and F2.4 of BCA2019);

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

(d) Work Health and Safety Act 2011;

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

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

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

1.5. Design Documentation

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

2 BUILDING DESCRIPTION

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

2.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of two (2).

2.2. Classification (Clause A6.0)

The extension to the building, along with the existing building has been classified as follows.

Table 1. Building Classification

Level	*Existing*	Proposed	Classification
Level 1 (Ground)	*Church*		*Class 9b*
		Office	**Class 5**
		Seminar rooms	**Class 9b**
	Storage	**Storage**	**Class 7b**
Level 2	*Church*		*Class 9b*
		Multi-purpose and Seminar rooms	**Class 9b**

2.3. Effective Height (Clause A1.0)

The building is proposed to have an *effective height* of 2.97m (RL 115.03-112.06).

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

The building is required to be of Type B 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	5,500 m^2
	Maximum Volume	33,000 m^3

The existing building and the proposed addition will have the estimated total floor area and volume as per below calculation by Stanton Dahl Architects which is within the above permitted limits of BCA Table C2.2:

Floor Areas

Existing Building

Store	109.51m2
Ground Floor Admin and Hall	310.57m2
First Floor Auditorium	617.94m2
First Floor Halls and Amenities	567.82m2
TOTAL	1605.84m2

Proposed Building

Ground Floor	677.28m2
First Floor	827.59m2
TOTAL	1504.87m2

TOTAL COMBINED AREA – 3110.71m2

The estimated existing volume is 6364.87 and new volume is 4843.53

TOTAL COMBINED VOLUME = 11208m3

Figure 2 Combined floor area and volume calculation (note that this calculation includes the Class 7b storage area on Level 1, hence this area would be less than shown).

2.6. Fire Compartments

The following *fire compartments* have been assumed:

(a) The storage rooms on level 1 are considered a fire compartment.

(b) The remainder of the building is considered a single fire compartment.

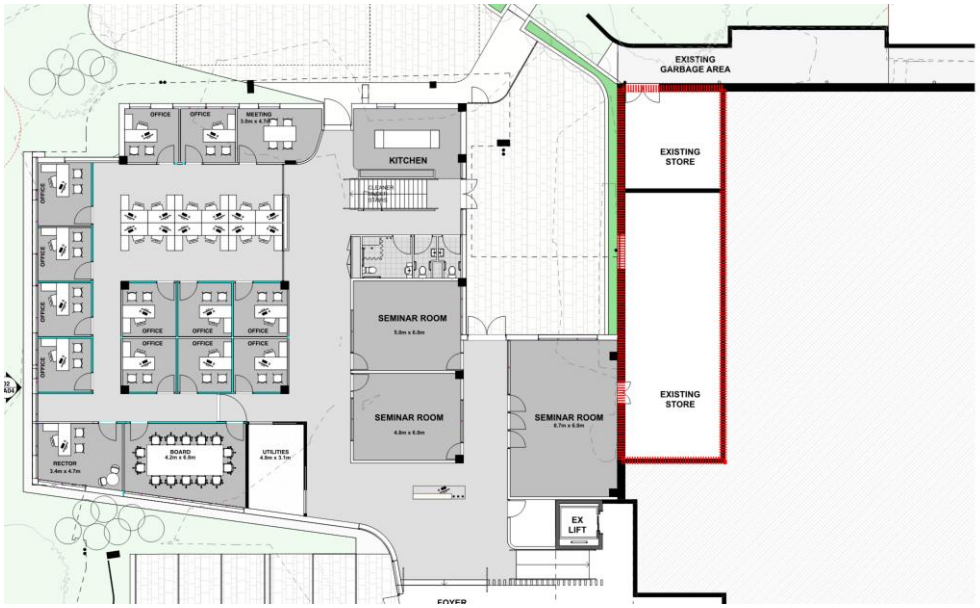


Figure 3 - Storage area as fire compartment

2.7. Exits

The following points in the proposed office/administration extension of the building only have been considered as the exits:

(a) Level 1 – each exit/ entry lobby door

(b) Level 2 – the first riser of each non-fire-isolated stairway.

Figure 4 - Level 1 proposed exits (as defined in Schedule 3 of the BCA2019) (the exit signs represent the exit, not the actual exit sign placement and locations – appropriately qualified designer to specify actual exit signage locations)

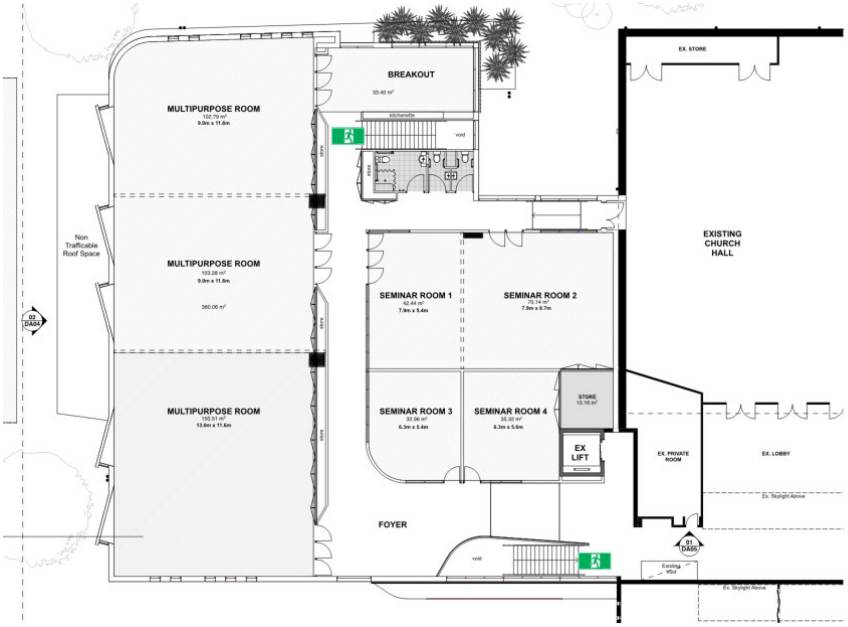


Figure 5 - Level 2 proposed exits (as defined in Schedule 3 of the BCA2019) (the exit signs represent the exit, not the actual exit sign placement and locations – appropriately qualified designer to specify actual exit signage locations)

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: The far boundary of Trigg Ave - > 6m distant

South: The far boundary of Mosely St - > 6m distant

East: The far boundary of Vickery Ave - > 6m distant

West: The side property boundary - 2m distant **(protection required)**

In accordance with Clause 2.1 of Specification C1.1, a part of 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–

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

(b) is neither transparent nor translucent.

3 MATTERS FOR FURTHER CONSIDERATION

3.1. General

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

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

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

3.2. Dimensions and Tolerances

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

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

3.3. Performance Based Design – Performance Solutions

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

3.4. Environmental Planning and Assessment Regulation - Clause 94 Considerations

Clause 94 of the Environmental Planning and Assessment Regulation 2000 relates to a development application for an existing building involving rebuilding, alteration, enlargement or extension of a building. It is assumed that previous building works (by others) which were completed on 09.03.2021, in addition to the proposed works, would represent over 50% the total volume of the building. Therefore, the measures contained in the existing building must be adequate to protect persons using the building, and to facilitate their egress from the building, in the event of fire, or to restrict the spread of fire from the building to other buildings nearby.

In determining a development application to which this Clause applies, a consent authority is to take into consideration whether it would be appropriate to require the existing building to be brought into total or partial conformity with the Building Code of Australia. As the previous building works were completed on 09.03.2021 to BCA2016, it has been assumed that the majority of existing measures would provide for an adequate level of protection to occupants as required by this Clause. It is noted that Clause 94 gives a level of discretion to the consent authority.

Accordingly, as rebuilding, alterations and extension (exceeding 50%) of the existing building are proposed (and require a Construction Certificate approval), the building is subject to Clause 94 as outlined above, whereby the recommended upgrade works detailed below would need to be taken into consideration. It should be noted that under Clause 94, the primary concern with existing buildings is that of structural adequacy and fire safety. However, this does not prevent Council from requiring the building to be upgraded in accordance with the full BCA. Therefore, in addition to the below items, and due to the public nature of

the building, it is likely that Council will recommend a full BCA Part D3 assessment be undertaken of both the existing building and the proposed additions.

As discussed above, the following items have been identified as requiring further works to ensure the intention of Clause 94 is met:

1. It was observed that the existing smoke detection and occupant warning system does not extend into all areas of the existing building, including the bathroom facilities, kitchen, cry room and the existing lower level of the building. A suitably qualified professional is required to assess the existing detection and occupant warning system to ensure it is accordance with AS1670.1-2015 as required by the OC dated 09.03.2021.
2. It is suggested that the existing cladding which is to remain shall have a suitably qualified practitioner test/assess the material against BCA Clause C1.9. The material is to be non-combustible for a building of Type B Construction.
3. All doors in a required *exit* must be readily openable without a key from the side that faces a person seeking egress. It is also a requirement by BCA Clause D2.19 that sliding doors serving as *exit* doors must be openable manually under a force of not more than 110N.
   (i) As such, the existing sliding doorways to the lower level hall (existing hall 3) which are designated as final exit doors are to have single hand downward action lever door hardware upgraded in accordance with BCA Clause D2.21 and it shall be confirmed that they operate in accordance with D2.19. It should be noted that a Class 9b building used for religious purposes is not required to have panic bars on doors forming part of a required exit.
   (ii) In conjunction with the above final exit doors, any doors in a path of travel cannot be locked from the side seeking egress. A suitably qualified practitioner will need to assess each door for compliance in accordance with D2.21.
4. The existing eastern external gates are required to provide a minimum of 4.95m egress clear width to the public road and comply with D1.6(g) and D2.21.
5. The existing egress route within the building requires persons in the lobby to enter the north hall and then out the exits which discharge to an undercover awning (each door from the lobby to the north hall may be locked, and the swing is to be reviewed by a suitably qualified practitioner (2-way swing is suggested)). The front entry door should be utilised as a mode of escape so occupants do not need to travel through the north hall should an eastern evacuation be required. Exit signage and a review of the door hardware and door swing and door size would also be required for this proposed exit.

The remainder of the report focuses on the new proposed works only.

3.5. Occupant Access and Egress – Section D

The distance between alternative exits is required by Clause D1.5 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

The building has no more than 2 storeys connected by a stairway, and therefore under the provisions of Clause D1.3 of the BCA, the building is permitted to have non fire isolated open stairways.

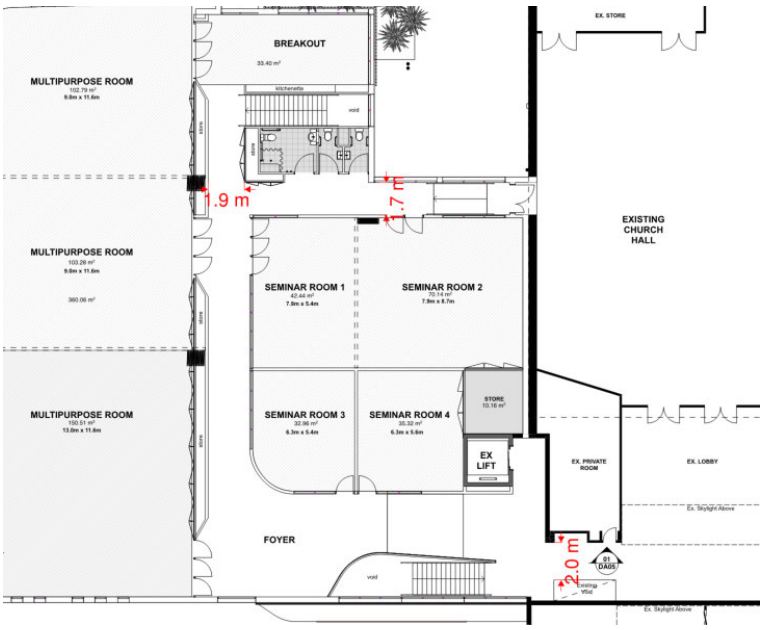
Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. It is noted that the existing fences to the eastern side of the property are required to be upgraded to comply with BCA Clause D1.6(g) and D2.21 (as discussed above in Section 3.4 for Clause 94 considerations).

Two alternatives which have been studied when considering the required egress width at St Pauls Anglican Carlingford:

1. According to the St Pauls Anglican Plan of Management dated August 2021, a maximum of 550 persons are permitted in the building at any one time. In this instance, it is therefore considered that 5m unobstructed aggregate width to level 2 would be required in accordance with BCA Clause D1.6(d)(i).
2. If BCA Clause D1.13 is applied to each of the existing and proposed seminar rooms, multipurpose rooms and halls, then level 2 would have a total of 1,273 occupants (taking into account 1 occupant per 1m^2 in accordance with D1.13 and only calculating the function rooms - not the foyers and circulation space). This would require 11m of unobstructed aggregate width and 10.75m clear exit width.

3.5.1. Aggregate unobstructed egress width

When considering the proposed addition only, adding the clear width of the non fire-isolated stairways would provide 1.7m & 1.6m plus an additional 1.7m which leads to the auditorium and an additional 2m which leads to the entry lobby. This would provide: 1.9 + 1.7+ 2 = 5.6m of unobstructed aggregate width from the proposed addition. The remaining egress travel is into the existing north hall and to the final exit.



3.5.2. Aggregate unobstructed exit width

The existing exits located in the North Hall provide a total of 4.95m clear unobstructed width. The total unobstructed exit width including the proposed stairs (1.7m + 1.6m) for level 2 is therefore 4.95m + 1.7m + 1.6m = 8.25m.

3.5.3. Population discussion and considerations

If the proposed multipurpose rooms in addition to the existing halls (north + south) on level 2 are all operating at full capacity, the number of persons would be 1,273 occupants (1 occupant per 1m^2 in accordance with D1.13 and only calculating the function rooms, not the foyers and circulation space). This would require 11m of clear aggregate width. If we consider three exits on level 2 (the two proposed stairs and the north hall), then a total required exit width would be 10.25m. In this case, the egress capacity within the building would be insufficient with a total of 8.25m clear exit width being provided for (4.95m + 1.7m + 1.6m). It is therefore noted that either:

- the overall egress widths be widened to provide an aggregate width of 11m and the exits to provide for a clear width of 10.25m; or,

- the number of occupants shall strictly be monitored by the building's operator to allow for 550 persons maximum within the building at any one time.

The client has indicated that limiting the number of persons on site is the preferred option. If this changes, further assessment and design development would be required to comply with the BCA.

3.6. Sanitary Facilities

3.6.1. Overall Church (existing and proposed)

When considering the Church as a whole and the existing and proposed facilities are considered together, it is therefore deemed that the number of facilities would be sufficient (refer to Table 1 below). The population is based on the St Pauls Anglican Carlingford Plan of Management dated August 2021, if there are any changes, then this section must be reviewed and updated accordingly. Note that there would be works required to the existing female ambulant facility as it currently does not comply with AS1428.1 (suitably qualified access consultant to confirm requirements).

Table 1 BCA Clause F2.3 (Table F2.3)

New and Proposed Church – Occupants						
Existing and Proposed Church (550 proposed persons β)						
	WC's		**Urinals**		**Basins**	
	Proposed	Patrons Served	Proposed	Patrons Served	Proposed	Patrons Served
Males (275 persons)	4 + 3*	3,300	3μ	600	3 + 3*	1,500
Females (275 persons)	5 + 3*	1,200	-	-	3 + 3*	1,500

* Each proposed unisex sanitary accessible toilet (USAT) room can be counted once for each sex as permitted by BCA Clause F2.2(c).

β Number of occupants determined from St Paul's Anglican Carlingford proposed plan of management August 2021.

μ WC's may be counted as urinals in accordance with F2.6(a)(iii) – it is noted, however, to be sufficient as is.

3.6.2. Proposed Office Portion

The level 1 office portion within the proposed building would provide for 20 male and 20 female occupants as per below table:

New and Proposed Church – Staff						
New and Proposed Administration Area (Class 5) (30 proposed persons β)						
	WC's		**Urinals**		**Basins**	
	Proposed	Patrons Served	Proposed	Patrons Served	Proposed	Patrons Served
Males (15 persons)	1*	20	1μ	25	1+1*	60
Females (15 persons)	1+1*	30	-	-	1+1*	40

This calculation considers the ground floor sanitary facilities within the new proposed building only. This total would allow for the proposed 30 staff members. The ambulant facilities are to be designated for male and female occupants.

* Each proposed unisex sanitary accessible toilet (USAT) room can be counted once for each sex as permitted by BCA Clause F2.2(c).

β Number of staff determined from St Paul's Anglican Carlingford proposed plan of management August 2021.

μ WC's may be counted as urinals in accordance with F2.6(a)(iii) – A single ambulant facility has been designated as the urinal to allow for up to 20 male staff.

3.6.3. Proposed Ministry Centre

When considering the proposed facilities when they are used for Church functions (Class 9b) – a population of 400 male and 400 female occupants would be provided for. In this case, the existing facilities in the existing building shall comply with, and if required, be upgraded to AS1428.1 & BCA Clause F2.4 (to be assessed by a suitably qualified access consultant).

New and Proposed Church						
New and Proposed office/ administration (Class 9b)						
	WC's		**Urinals**		**Basins**	
	Proposed	Patrons Served	Proposed	Patrons Served	Proposed	Patrons Served
Males (100 persons)	1+2*	1,300	2μ	400	2+2*	1,000
Females (100 persons)	1+2*	450	-	-	2+2*	1,000

This calculation considers the proposed sanitary facilities within the proposed building only. This total would allow for 400 male and 400 female occupants in this building. The ambulant facilities are to be designated for male and female occupants.

* Each proposed unisex sanitary accessible toilet (USAT) room can be counted once for each sex as permitted by BCA Clause F2.2(c).

β Number of staff determined from St Paul's Anglican Carlingford proposed plan of management August 2021.

μ WC's may be counted as urinals in accordance with F2.6(a)(iii) – 2 ambulant facilities have been designated as the urinal to allow for up to 400 male occupants.

3.7. Façade Construction – Non-Combustible

As the building is required to be of Type B Construction, the external façade is required to be *non-combustible* and comply with Clause C1.9 of BCA2019 which states as follows:

(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 l*oadbearing* 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.

(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.

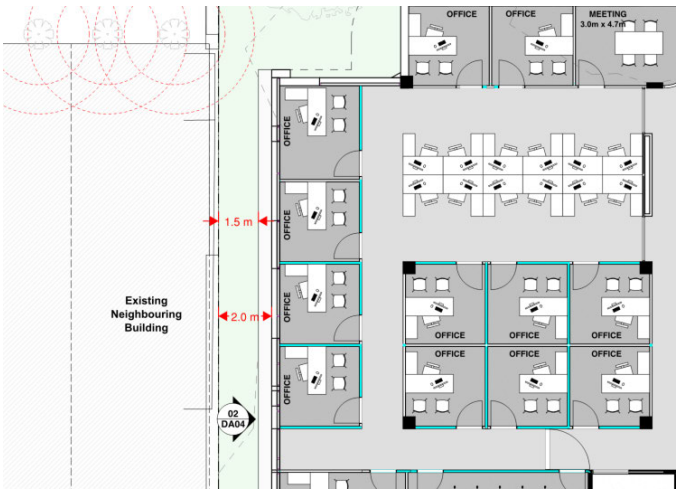
Currently the external façade construction has not been nominated on the plans. Further information is required to determine compliance for the external façade to each proposed external elevation.

The final selection of all external wall materials shall comply with the requirements of BCA Clause C1.9 and C1.14 to be non-combustible. AS1530.1 test reports shall be provided for all elements (other than where already deemed appropriate by C1.9(e)).

Note: Due to industry wide changes to Professional Indemnity Insurance which include exclusions to external combustible cladding, BCA Logic are not in a position to recommend, advocate for, or undertake performance-based solutions for any combustible wall elements including external claddings or the use of PVC lined formwork products and the like. A reference to the use of any of these products within this report is not to be taken as support for their use in the building. BCA Logic are not responsible for the selection of any materials and our report outlines compliance pathways and whether or not compliance is achieved only.

3.8. BCA Clause C3.2 - Protection of openings in external walls

The external wall to the western façade is required to have an FRL 90/60/30 in accordance with Table 4 of Specification C1.1. Therefore, openings along the western façade are required to be protected.



Protection shall be in accordance with BCA Clause C3.4 or alternatively, a suitably qualified fire engineer may be able to propose alternatives for compliance on a performance basis addressing BCA Performance Requirement CP2. The requirements of C3.4 are as follows:

(a) Where protection is required, doorways, windows and other openings must be protected as follows:

(i) Doorways—

(A) internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or

(B) –/60/30 fire doors that are self-closing or automatic closing.

(ii) Windows—

(A) internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or

(B) –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or

(C) –/60/– automatic closing fire shutters.

(iii) Other openings—

(A) excluding voids — internal or external wall-wetting sprinklers, as appropriate; or

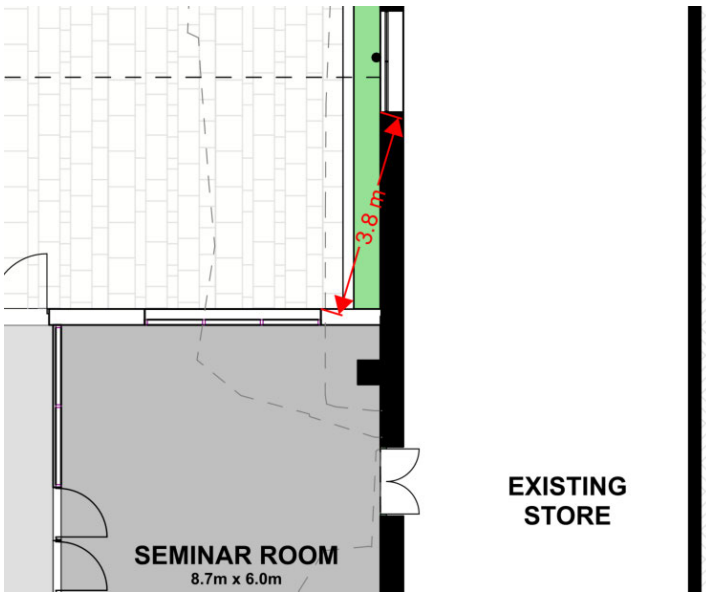
(B) construction having an FRL not less than –/60/–.

(b) Fire doors, fire windows and fire shutters must comply with Specification C3.4.

3.9. BCA Clause C3.3 - Separation of different fire compartments

The distance between parts of external walls and any openings within them in different fire compartments separated by a fire wall must not be less than that set out in Table C3.3, unless those parts of each wall have an FRL not less than 60/60/60 and openings protected in accordance with C3.4 (refer to Section 2.6 of this report for more details on the fire compartment locations).

In accordance with Table C3.3, the level 1 external walls which are at a 90º angle (between the storeroom compartment and the seminar room) require protection in accordance with C3.4. Alternatively, the window openings can be located over 4m from each other, thus avoiding this BCA compliance requirement



4 STATEMENT OF COMPLIANCE

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code when the items in Section 3 of this report have been addressed.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 2. Architectural Plans

Architectural Plans Prepared by Stanton Dahl Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA00	P04	15.11.21	Cover Sheet
DA01	P04	15.11.21	Site Plan
DA02	P04	15.11.21	Proposal Level 1
DA03	P04	15.11.21	Proposal Level 2
DA04	P04	15.11.21	Elevations
DA05	P04	15.11.21	Sections

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

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

Table 3. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Construction Joints	**BCA2019 C1.1, Spec C1.1** **BCA2019 C3.16** AS 1530.4:2014 & AS 4072.1:2005
2.	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
3.	Fire shutters	**TBC**
4.	Fire windows	**TBC**
5.	Lightweight construction	**BCA2019 C1.1, Spec. C1.1** **BCA2019 C1.8, Spec C1.8** **BCA2019 C2.7** (Fire Walls) **BCA2019 C2.12** (Separation of Equipment) **BCA2019 D2.8** (Enclosure of Space under Stairs and ramps)
General		
6.	Portable fire extinguishers	**BCA2019 E1.6** AS 2444–2001
General Egress		
7.	Automatic fail safe devices	**BCA2019 D2.21** (Operation of Latches) AS 1670.1:2018
8.	Operation of Door latches > Failsafe > Manual Push Button Control	**D2.21** (Operation of Latch) AS 1670.1:2018
9.	Warning & operational signs	**BCA2019 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs))
Electrical Services		

Item	Essential Fire and Other Safety Measures	Standard of Performance
10.	Automatic fire detection & alarm: > Clause 4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS @ 100dB(A) **Note:** if there is a SSISEP or EWIS applies different dB(A) i.e. At bedheads not SOU doors.	**BCA2019 E2.2**, NSW Table E2.2a, Table 2.2b, **BCA2019 Spec E2.2a** - Clause 4 (Smoke detection system) **BCA2019 Spec E2.2a** – Clause 6 (Smoke detection for smoke control systems) **BCA2019 Spec E2.2a** - Clause 7 (BOWS) AS 1670.1:2018 AS 1670.4:2018 (EWIS)
11.	Emergency lighting	**BCA2019 E4.2, E4.4** AS/NZS 2293.1:2018
12.	Exit signs	**BCA2019 E4.5** (Exit Signs) **BCA2019 E4.6** (Direction Signs) **BCA2019 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
Hydraulic Services		
13.	Fire hydrant systems	**BCA2019 E1.3** **BCA2019 C2.12 (Separation of Equipment)** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
14.	Hose reel systems	**BCA2019 E1.4** AS 2441:2005
15.	Wall-wetting sprinkler / drenchers	**TBC**
Mechanical Services		
16.	Auto-shutdown of Air-handling System.	**BCA2019 E2.2, Table E2.2a, Table E2.2b** **NSW Table E2.2a Specific Provisions** AS 1668.1:2015 (Amdt 1)

Notes:

Class 9b requirements

The building must be provided with automatic shutdown of any air-handling system (other than miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of—

(i) smoke detectors installed complying with Specification E2.2a; and

Item	Essential Fire and Other Safety Measures	Standard of Performance

(ii) any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5

Each fire compartment, having a floor area of more than 2000 m2 must be provided with—

(i) an automatic smoke exhaust system complying with Specification E2.2b; or

(ii) …

(iii) if the floor area of the fire compartment is not more than 5000 m2 and the building has a rise in storeys of not more than 2—

(A) an automatic smoke detection and alarm system complying with Specification E2.2a; or

(B) a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5.

NSW Table E2.2a Specific Provisions

Automatic shutdown:

A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of—

(i) smoke detectors installed complying with Clause 6 of Specification E2.2a; and

(ii) any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5.

Stages and backstage:

(i) For the purposes of this Table, where a stage is separated from the auditorium by a proscenium wall incorporating a proscenium opening, a backstage room or area that is not separated from the stage by construction having an FRL of not less than 60/60/60, is taken to form part of the stage.

(ii) A building or part of a building used as an assembly building which has a stage—

(A) with a floor area of more than 50 m2 and not more than 150 m2 must, over the stage, be provided with—

(aa) an automatic smoke exhaust system complying with Specification E2.2b (including Figure 2); or

(ab) roof mounted automatic smoke-and-heat vents complying with NSW H101.22, in a single storey building or the top storey of a multi storey building.

Additional fire safety requirements shall also be installed and maintained in the building where/if required by the project Fire Engineering Report (FER) (TBC)

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

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

Type B Construction

Table 4. Type B Construction

Item	Class 5 & 9b	Class 7b
Loadbearing External Walls		
- Less than 1.5m to a *fire-source feature*	120/120/120	240/240/240
- 1.5 – less 3m from *fire-source feature*	120/90/60	240/180/120
- 3 – less 9m from *a fire-source feature*	120/30/30	240/90/60
- 9 – less 18m from a *fire-source feature*	120/30/-	240/60/-
- 18m or more from a *fire-source feature*	-/-/-	-/-/-
Non-Loadbearing External Walls		
- Less than 1.5m to a *fire-source feature*	-/120/120	-/240/240
- 1.5 – less 3m from *fire-source feature*	-/90/60	-/180/120
- 3m or more from a *fire-source feature*	-/-/-	-/-/-
Loadbearing External Columns		
- Less than 18m	120/-/-	240/-/-
- 18m or more	-/-/-	-/-/-
Non-Loadbearing External Columns	-/-/-	-/-/-
Common Walls & Fire Walls	120/120/120	240/240/240
Stair and Lift Shafts required to be fire-resisting		
- Loadbearing Stair & Lift shaft	120/120/120	240/120/120
- Non-loadbearing Stair shaft only	-/120/120	-/120/120
Internal walls bounding sole occupancy units		
- Loadbearing	120/-/-	240/-/-
- Non-loadbearing	-/-/-	-/-/-

Item	Class 5 & 9b	Class 7b
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	 120/-/- -/-/-	 240/-/- -/-/-
Other loadbearing internal walls and columns	120/-/-	240/-/-
Roofs	-/-/-	-/-/-

In a Class 9b building, a floor separating storeys or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, must—

(a) be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or

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

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

ANNEXURE D DETAILED BCA 2019 ASSESSMENT

Annexure D – Detailed BCA 2019 Assessment

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

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

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

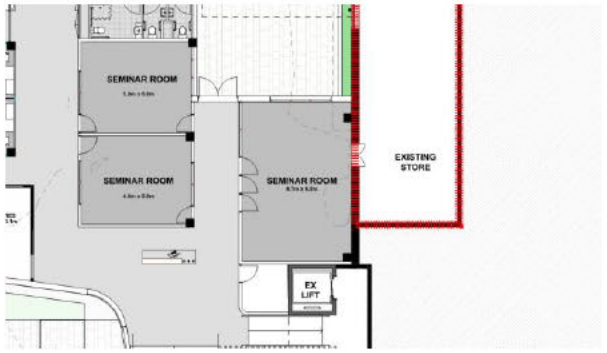
N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA – Refer Annexure F	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there is not enough information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

Deemed to Satisfy Clause Assessment

Table 5. Deemed to Satisfy Clause Assessment

Clause	Clause Requirements	Comment	Status
Section B: Structure			
Part B1 – Structural Provisions			
B1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
B1.1: Resistance to actions	The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions, where the most critical action has been determined in accordance with this Part	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.2: Determination of individual actions	The magnitude of actions must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.4: Determination of structural resistance of materials and forms of construction	The structural resistance of materials and forms of construction must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.5: Structural software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.6 Construction of buildings in flood hazard areas	A Class 2 or 3 building, Class 9a health care building, Class 9c aged-care building or Class 4 part of a building, in a flood hazard area (refer to Council maps) must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	Not applicable due to the Class and use of the building.	N/A

Section C: Fire Resistance				
Part C1 – Fire Resistance and Stability				
C1.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C1.1:	Type of construction required	The building is required to be of Type B Construction due to the rise in storeys of two (2). Refer to Specification C1.1 requirements at the end of this Section.	Refer to section 2.4 of this report for further information. Refer to **Specification C1.1** requirements at the end of this Section and **Annexure C** of this report for a summary of the FRLs required. The wall type plans are noted to be incomplete where not all FRLs are nominated for building elements and therefore a detailed review has not been able to be undertaken. The Structural Engineer shall certify compliance of the design of all loadbearing and other elements required to be fire-resisting at CC stage.	CRA – Refer Annexure F
C1.2:	Calculation of rise in storeys	The building has a rise in storeys of two (2).	Refer to section 2.3 of this report for further information.	Noted
C1.3:	Buildings of multiple classification	Informational	In a building of multiple classifications, the Type of construction required for the building is the most fire-resisting Type resulting from the application of Table C1.1 on the basis that the classification applying to the top storey applies to all storeys.	Noted
C1.4:	Mixed Types of construction	A building may be of mixed Types of construction where it is separated in accordance with C2.7 and the Type of construction is determined in accordance with C1.1 or C1.3.	It is proposed to have a fire wall on Level 1 which will separate the existing storage room from the proposed seminar room and administration office. Alternatively, a Performance Solution may be adopted if deemed feasible to rationalise the FRL requirement of the Class 7b portion.	Noted

Section C: Fire Resistance			
			
C1.5: Two Storey Class 2, 3 or 9c buildings	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
C1.6: Class 4 Parts of building	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
C1.7: Open spectator stands and indoor sports stadium	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.	Lightweight construction used in a fire-rated application is to comply with Specification C1.8. Compliance is readily achievable.	CRA – Refer Annexure F
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.	Further information is required to determine compliance for the external façade to each proposed external elevation. The final selection of all external wall materials shall comply with the requirements of BCA Clause C1.9 and C1.14 to be non-combustible. AS1530.1 test reports shall be provided for all elements (other than where already deemed appropriate by C1.9(e)).	CRA – Refer Annexure F

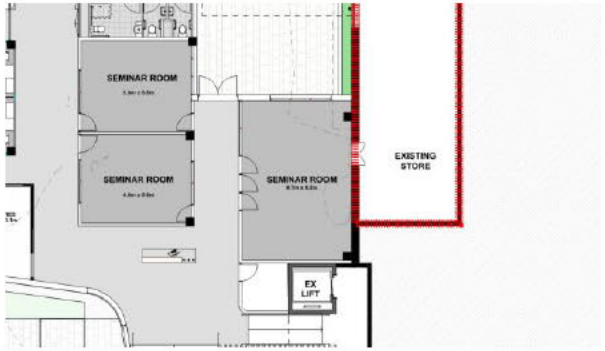
Section C: Fire Resistance			
	(iii) Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of *non-combustible* 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) 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		

Section C: Fire Resistance			
	thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) *Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5. (vii) Bonded laminated materials where— (A) each lamina, including any core, is *non-combustible*; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.		
C1.10: Fire hazard properties	Fire hazard properties of internal linings, materials and assemblies must comply with C1.10 of the BCA and Specification C1.10, including floor, wall and ceiling linings, air-handling ductwork, lift cars, insulation, *sarking-type materials* and attachments, or be considered *non-combustible*.	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. No detailed internal finishes specifications have been provided for assessment. Test reports of internal linings and materials shall be provided at the lodgement of the CC applications.	CRA – Refer Annexure F
C1.11: Performance of external walls in fire	Not applicable	Not applicable due to the type of construction.	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.	Noted.	Noted

Section C: Fire Resistance			
C1.13: Fire-protected timber: Concession	Not applicable	Not applicable due to the type of construction.	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. (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	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 items permitted by (a)-(m) of this Clause.	CRA – Refer Annexure F

Section C: Fire Resistance			
	(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. (a) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).		
Part C2 – Compartment and Separation			
C2.0: Deemed-to-Satisfy Provisions	Informational	Noted.	Noted
C2.1: Application of Part	Informational - C2.2, C2.3 and C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5 (other than an FPAA101D or FPAA101H system), an open-deck carpark or an open spectator stand.	Noted.	Noted
C2.2: General floor area and volume limitations	The size of *fire compartments* in the building must not exceed that specified in Table C2.2.	Refer to Section 2.5 of this report for further information. The following floor area and volume calculation by Stanton Dahl Architects shows compliance is readily achievable.	CRA – Refer Annexure F

Section C: Fire Resistance			
		Floor Areas Existing Building Store 109.51m2 Ground Floor Admin and Hall 310.57m2 First Floor Auditorium 617.94m2 First Floor Halls and Amenities 567.82m2 **TOTAL** 1605.84m2 Proposed Building Ground Floor 677.28m2 First Floor 827.59m2 **TOTAL** 1504.87m2 **TOTAL COMBINED AREA – 3110.71m2** The estimated existing volume is 6364.87 and new volume is 4843.53 **TOTAL COMBINED VOLUME = 11208m3**	
C2.3: Large isolated buildings	Not applicable	Not applicable due to the nature of the building.	N/A
C2.4: Requirements for open spaces and vehicular access	Not applicable	Not applicable due to the nature of the building.	N/A
C2.5: Class 9a and 9c Buildings	Not applicable	Not applicable due to the Class of the building.	N/A
C2.6: Vertical separation of openings in external walls	Not applicable	Not applicable as the building is Type B construction.	N/A
C2.7: Separation by fire walls	Not applicable	It is proposed to have a fire wall on Level 1 which will separate the existing storage room from the proposed	Noted

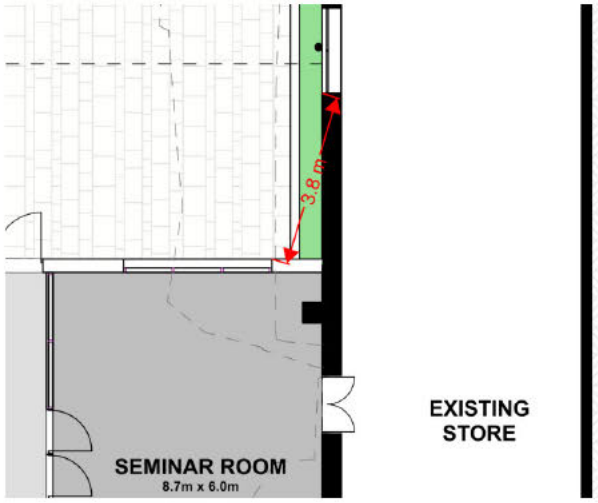
Section C: Fire Resistance			
		seminar room and administration office. Alternatively, a Performance Solution may be adopted if deemed feasible to rationalise the FRL requirement of the Class 7b portion. 	
C2.8: Separation of classifications in the same storey	Where a storey has different classifications 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; or > the parts must be separated in that storey by a *fire wall* having the higher *FRL* prescribed in Spec C1.1 Table 4; or	The Class 5 and 9b portions have the same FRL requirement, hence there is no need to fire separate between the offices and the function rooms. A fire wall is required between the storage and the level 1 seminar room as described above in Clause C2.7.	CRA – Refer Annexure F
C2.9: Separation of classifications in different storeys	Determination of Floor *FRL*'s must also consider compliance with C2.7 whereby the floor must have the same *FRL* as the fire wall of the *fire compartment* below.	Determination of Floor *FRL*'s must also consider compliance with C2.7 whereby the floor must have the same *FRL* as the fire wall of the *fire compartment* below.	Noted
C2.10: Separation of lift shafts	Not applicable.	The lift is not connecting more than 2 storeys.	N/A
C2.11: Stairways and lifts in one shaft	Not applicable.	As above.	N/A

Section C: Fire Resistance			
C2.12: Separation of equipment	Any of the following equipment located in the building must be separated from the remainder of the building: > lift motors and lift control panels; or > emergency generators used to sustain emergency equipment operating in the emergency mode; or > central smoke control plant; or > boilers; or > a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. Equipment need not be separated in if the equipment comprises: > smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or > stair pressurizing equipment installed in compliance with the relevant provisions of AS 1668.1:2015; or > 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.	The service engineers nor client have not indicated any equipment to be separated in accordance with this Clause.	CRA – Refer Annexure F
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	Any electrical supply system supporting emergency equipment will be required to comply with this Clause.	CRA – Refer Annexure F

Section C: Fire Resistance			
	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-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: o fire hydrant booster pumps; o sprinkler pumps; o hose reel pumps; o air-handling systems designed to exhaust and control the spread of smoke; o emergency lifts; o control and indicating equipment; and o sound systems and intercom systems for emergency purposes.	The service engineers nor client have not indicated any equipment to be separated in accordance with this Clause. Note: consideration should be given to the location of Electrical Substations on adjoining sites in regards to proximity to Fire Hydrant Boosters being within 10.0m.	

Section C: Fire Resistance			
	Note: Consideration should be given to the location of Electrical Substations on adjoining sites in regards to proximity to Fire Hydrant Boosters being within 10.0m		
C2.14: Public corridors in Class 2 and 3 Buildings	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
Part C3 – Protection of Openings			
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted.	Noted
C3.1: Application of Part	(b) 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 mm2 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– (A) Service penetrations through; and (B) Openings formed by a vehicle ramp in, (aa) A floor other than a floor that separates a part not used as a	Noted.	Noted

Section C: Fire Resistance			
	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. (c) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings in building elements required to be fire-resisting include doorways, windows (including any associated fanlight), infill panels and fixed or openable glazed areas that do not have the required FRL. (d) 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	Openings in an external wall that is required to have an *FRL* must be protected in accordance with C3.4 if the distance between the opening and the *fire-source feature* is: > less than 3 m from a side or rear boundary; or > less than 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or > less than 6 m from another building on the allotment that is not Class 10; and if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand.	The external wall to the western façade is required to have an FRL 90/60/30 in accordance with Specification C1.1 Table 4. Therefore, openings along the western façade are required to be protected in accordance with C3.4.	**DNC – Refer to Part 3 of this Report.**

Section C: Fire Resistance				
		Where wall-wetting sprinklers are used, they must be located externally.		
C3.3:	Separation of external walls and associated openings in different fire compartments	The distance between parts of external walls and any openings within them in different *fire compartments* separated by a *fire wall* must not be less than that set out in Table C3.3, unless— (a) those parts of each wall have an *FRL* not less than 60/60/60; and (b) any openings protected in accordance with C3.4. Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS **Angle between walls / Min. Distance** 0° (walls opposite) 6 m more than 0° to 45° 5 m more than 45° to 90° 4 m more than 90° to 135° 3 m more than 135° to less than 180° 2 m 180° or more Nil	The external walls at a 90° angle between the storeroom compartment and the seminar room require protection in accordance with C3.4. 	DNC – Refer to Part 3 of this Report.
C3.4:	Acceptable methods of protection	Where protection is required, openings must be protected as follows: Doorways: (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. Windows:	Noted.	Noted

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		(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 (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	Doorways in the fire walls must be protected by a self-closing fire door that achieves an *FRL* of not less than that required by Specification C1.1 for the *fire wall* except that each door must have an insulation level of at least 30.	Noted.	Noted
C3.6:	Sliding fire doors	Not applicable	There are no proposed sliding fire doors.	N/A
C3.7:	Protection of doorways in horizontal exits	Not applicable	No horizontal exits are required.	N/A
C3.8:	Openings in fire-isolated exits	Not applicable	There are no fire-isolated exits proposed in this building.	N/A
C3.9:	Service penetrations in fire-isolated exits	Not applicable	There are no fire-isolated exits proposed in this building.	N/A
C3.10:	Openings in fire-isolated lift shafts	Not applicable	The lift is existing and does not connect more than two (2) storeys.	N/A

Section C: Fire Resistance			
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	Not applicable	Not applicable due to the Class and use of the building.	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. Where a service passes through a floor which is required to be protected by a *fire-protective* covering, the penetration must not reduce the fire performance of the covering.	Noted. Refer to the requirements under Clause C3.15.	Noted
C3.13: Openings in shafts	Openings in shafts must be protected by: (c) 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 (d) a self-closing –/60/30 fire door or hopper; or (e) an access panel having an *FRL* of not less than –/60/30; or (a) if the shaft is a garbage shaft – a door or hopper of *non-combustible* construction.	All shafts must comply with this Clause. Alternatively, services may be sealed at the slab in accordance with C3.15.	Noted
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 the certifier to confirm compliance with their proposed fire stopping method.	Service penetrations are required to be sealed in accordance with BCA Clause C3.15 and where required, Specification C3.15. A 'service penetration specification' is recommended for each trade for the proposed works and is to set out: • each service type, • the method to seal the service through each fire rated substrate,	CRA – Refer Annexure F

Section C: Fire Resistance			
		• manufacturer for each sealing method, • Applicable AS1530.4 test reports. **Note:** contractors should check with the certifier to confirm compliance with their proposed fire stopping method. Refer to Annexure C for further details on elements that require an FRL.	
C3.16: Construction joints	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4:2014 to achieve the required *FRL*.	An AS1530.4 test report for the sealant is required. For slabs - Slab depth and width to be provided by the structural engineer. Construction tolerance may require further assessment at the time of sealing the construction joints.	CRA – Refer Annexure F
C3.17: Columns protected with lightweight construction to achieve an FRL	A column protected by lightweight construction to achieve an *FRL* which passes through a building element that is required to have an *FRL* or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required *FRL* or resistance to the incipient spread of fire.	The structural engineer shall certify compliance of the design of all loadbearing and other elements required to be fire-resisting at CC stage.	CRA – Refer Annexure F
Specification C1.1 – Fire-Resisting Construction			
2.0: General Requirements	Informational	Noted.	Noted
2.1: Exposure to fire-source features	A building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the *fire-source feature*, or vertical projection of the feature, is not obstructed by another part of the building that– (i) has an *FRL* of not less than 30/–/–; and (ii) is neither transparent nor translucent.	Noted.	Noted

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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.	The structural engineer shall certify compliance of the design of all loadbearing and other elements required to be fire-resisting at CC stage.	CRA – Refer Annexure F
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).	The structural engineer shall certify compliance of the design of all loadbearing and other elements required to be fire-resisting at CC stage.	CRA – Refer Annexure F
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.	The structural engineer shall certify compliance of the design of all loadbearing and other elements required to be fire-resisting at CC stage.	CRA – Refer Annexure F
2.5:	General concessions	Not applicable.	It is considered that no general concessions apply.	Noted
2.6:	Mezzanine floors: Concession	Not applicable.	It is considered that there are no mezzanines.	Noted
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.	Noted.	Noted

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2.8:	Carparks in Class 2 and 3 Buildings	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
2.9:	Residential Aged Care building: Concession	Not applicable	Not applicable due to the Class and use of the proposed works.	N/A
3.0:	Type A fire-resisting construction	Not applicable	Not applicable due to the required Type of Construction	-
4.0:	Type B fire-resisting construction	Type B fire-resisting construction is applicable to the development.	Refer to part 3 Clauses below for the relevant Type B Construction requirements appliable to the project.	-
4.1:	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*) > if a stair shaft supports any floor or a structural part of it— (iii) the floor or part must have an *FRL* of 60/–/– or more; or (iv) the junction of the stair shaft must be constructed so that the floor or part will be free to sag or fall in a fire without causing structural damage to the shaft; and > Internal walls required to be fire rated must extend to– (v) to the underside of the floor next above if that floor has an *FRL* of at least 30/30/30; or	Building elements that are required to be fire-resisting must comply with this Clause. 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 cladding 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 Structural Engineer shall certify compliance of the design for all loadbearing and other elements required to be fire-resisting at CC stage.	Noted

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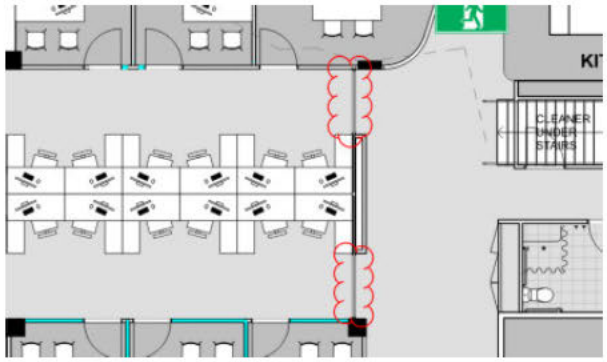
	(vi) the underside of a roof complying with Table 3; or (vii) the underside of a ceiling having a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes; or (viii) the underside of the roof covering if it is *non-combustible* and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other combustible building elements; or (ix) 450 mm above the roof covering if it is combustible; and > 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 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. > in a Class 9 building, in the storey immediately below the roof, internal columns and internal walls other than *fire walls* and shaft walls, need not comply with Table 4; and (i) lift, subject to C2.10, ventilating, pipe, garbage, and similar shafts which are not for the discharge of hot products of combustion and not loadbearing, must be of *non-combustible* construction in a Class 9 building.		
4.2: Carparks	Not applicable	There are no carpark works proposed.	N/A

Section C: Fire Resistance				
4.3:	Class 2 and 3 buildings: Concession	Not applicable	Not applicable due to the Class and use of the building	N/A
Specification C1.10 – Fire Hazard Properties				
1.	Scope	Informational	Noted.	-
2.	Application	Informational	Noted.	Noted
3.	Floor linings and floor coverings	A floor lining or floor covering must have– (b) a *critical radiant flux* not less than that listed in Table 2; and (c) in a building not protected by a sprinkler system complying with Specification E1.5, a maximum smoke development rate of 750 percent-minutes; and (a) 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.	The floor linings or covering must be provided in accordance with this Clause.	CRA – Refer Annexure F
4.	Wall and ceiling linings	(b) 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. (a) A *group number* of a wall or ceiling lining and the *smoke growth rate index* or *average specific extinction area* must be determined in accordance with AS 5637.1:2015.	The wall and ceiling linings must be provided in accordance with this Clause.	CRA – Refer Annexure F

Section C: Fire Resistance				
5.	Air-handling ductwork	Rigid and flexible ductwork must comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.	The air handling ductwork must be provided in accordance with this Clause.	CRA – Refer Annexure F
6.	Lift cars	Not applicable	There are no lifts to the proposed additions - Lift is existing.	N/A
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.	Any other material proposed within the building must be provided in accordance with this Clause.	CRA – Refer Annexure F
Specification C3.4 – Fire Doors, Smoke Doors, Fire Window and Shutters				
1.	Scope	Informational	Noted	Noted
2.	Fire doors	Fire doorsets must comply with AS 1905.1:2015 and not fail by radiation through any glazed part during the period specified for integrity in the required *FRL*.	All fire doors are required to be provided in accordance with this Clause.	CRA – Refer Annexure F
3.	Smoke doors	3.1 - Smoke doors must be constructed so that smoke will not pass from one side of the doorway to the other and, if they are glazed, there is minimal danger of a person being injured by accidentally walking into them. 3.2 – A smoke door of one or two leaves satisfies Clause 3.1 if it is constructed as follows: (a) The leaves area side-hung to swing– (i) in the direction of egress; or (ii) in both directions. (b) (i) The leaves are capable of resisting smoke at 200 degrees Celsius for 30 minutes. (ii) Solid-core leaves at least 35 mm thick satisfy (i). (c) The leaves are fitted with smoke seals.	Electrical distribution cupboards and communications risers must be smoke sealed in accordance with D2.7. Between vertical compartments, they must be sealed in accordance with BCA Clause C3.15.	CRA – Refer Annexure F

Section C: Fire Resistance				
		(d) (i) The leaves are normally in the closed position; or (ii) (A) The leaves are closed automatically with the automatic closing operation initiated by smoke detectors, installed in accordance with the relevant provisions of AS 1670.1, located on each side of the doorway not more than 1.5m horizontal distance from the doorway; and (B) in the event of power failure to the door the leaves fail-safe in the closed position. (e) The leaves return to the fully closed position after each manual opening. (f) Any glazing incorporated in the door complies with AS 1288. (g) (i) If a glazed panel is capable of being mistaken for an unobstructed exit, the presence of the glass must be identified by opaque construction. (ii) An opaque mid-height band, mid-rail or crash bar satisfied (i).		
4.	Fire shutters	Fire shutters must comply with Clause 4 of BCA Specification C3.4.	Any fire shutters shall be provided in accordance with this Clause.	Noted
5.	Fire windows	Fire window must be identical to the prototype which achieved the required *FRL* and be installed in the same manner and in an opening that is not larger than the tested prototype.	Any fire windows shall be provided in accordance with this Clause.	Noted

Section D: Access and Egress				
Part D1 – Provision for Escape				
D1.0:	Deemed-to-Satisfy Provisions	Informational	Noted.	Noted
D1.1:	Application of Part	The Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a *sole-occupancy unit* in a Class 2 or 3 building or a Class 4 part of a building.	Noted.	Noted
D1.2:	Number of exits required	Not less than 2 exits must be provided from any storey or mezzanine that accommodates more than 50 persons.	Not less than 2 exits must be provided.	CRA – Refer Annexure F
D1.3:	When fire-isolated stairways and ramps are required	Every stairway or ramp serving as a required exit must be fire-isolated unless it connects, passes through or passes by not more than 2 consecutive storeys.	The proposed stairways are not required to be fire isolated.	Noted
D1.4:	Exit travel distances	Class 5, 6, 7, 8 or 9 buildings: > 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; and	Egress provisions are to be determined once completed furniture layout drawings have been provided during further design development. Current drawings indicate that compliance is achievable. It was noted by the architect that the clouded areas below are sliding doors and shall not be fixed glazing. 	CRA – Refer Annexure F

Section D: Access and Egress				
D1.5:	Distance between alternative exits	*Exits* that are required as alternative means of egress must be– (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 *exits* is readily available from all points on the floor including lift lobby areas; and (b) not less than 9 m apart; and (c) not more than 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.	It has been considered that compliance between the two alternative exits is readily achievable.	CRA – Refer Annexure F
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.	A maximum of 550 persons are permitted in the building as per the St Pauls Anglican Plan of Management dated August 2021. It is therefore considered that 5m clear width is required in accordance with BCA Clause D1.6(d)(i). It is proposed that each non fire-isolated stair is to provide 1.7m clear width plus an additional 1.7m which leads to the auditorium and an additional 2m which leads to the entry lobby. This would provide: (1.7 + 1.7 + 1.6 + 2) = 7.0m of aggregate width	CRA – Refer Annexure F

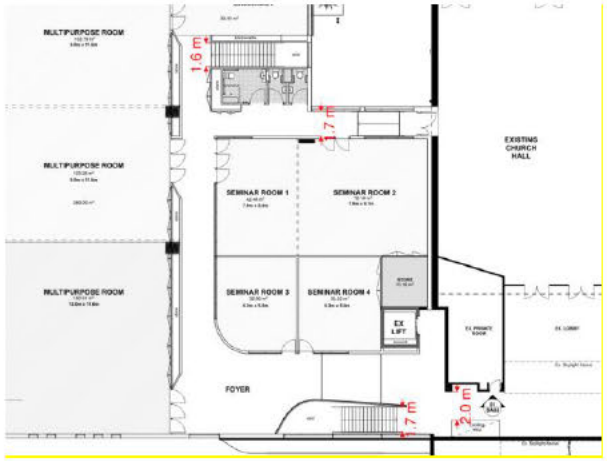
Section D: Access and Egress

> the unobstructed width of a required *exit* must not diminish in the direction of travel to a road or open space.

> if the storey, mezzanine or open spectator stand accommodates more than 200 persons, the aggregate unobstructed width, except for doorways, must be increased to—

(i) 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12; or

(ii) in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200; an



This calculation takes into account the use of existing exits in the building where further work is required to the eastern external gates which are required to be widened to provide 4.75m clear width and comply with D2.21.

If the proposed multipurpose rooms in addition to the existing halls (north + south) on level 2 are all operating at full capacity, the number of persons would be 1,273 occupants (1 occupant per $1m^2$ in accordance with D1.13 and only calculating the function rooms, not the foyers and circulation space). This would require 11m of clear aggregate width. If we consider three exits on level 2 (the two proposed stairs and the north hall), then a total required exit width would be 10.25m. In this case, the egress capacity within the building would be insufficient with a total of 8.25m clear exit width being provided for (4.95m + 1.7m + 1.6m). It is therefore noted that the either:

> the overall egress widths be widened to provide an aggregate width of 11m and the exits to provide for a clear width of 10.25m; or,

Section D: Access and Egress				
			> the number of occupants shall strictly be monitored to allow for 550 persons maximum within the building at any one time. D1.6(g) the unobstructed width of a required exit must not diminish in the direction of travel to a road or open space. The existing eastern gates which lead from the north hall to the road need to be upgraded to comply with this Clause.	
D1.7:	Travel via fire-isolated exits	Not applicable	Not applicable to the proposed building works	N/A
D1.8:	External stairways or ramps in lieu of fire-isolated exits	Not applicable	Not applicable to the proposed building works	N/A
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, 6, 7, 8 or 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 80m. > 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	Both of the proposed non fire-isolated stairways discharge not more than 20m from a doorway providing egress to open space.	Complies

Section D: Access and Egress			
	ramp is in opposite or approximately opposite directions.		
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 aggregate unobstructed width of not less than 4.75m. 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	It is considered that compliance is readily achievable for BCA Clause D1.10.	CRA – Refer Annexure F
D1.11: Horizontal exits	Not applicable	There are no horizontal exits proposed for the new works.	N/A
D1.12: Non-required stairways, ramps or escalators	Not applicable	There are no non-required stairways, ramps or escalators proposed for the new works.	N/A
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—	Noted. St Pauls Anglican Church Plan of Management August 2021 states in Part 2: **Part 2 Seating Capacity and Number of Attendees** 5. The total seating capacity of the main auditorium in the church building will not exceed 455 at any given moment from Sunday to Saturday. 6. The total number of persons on site shall not exceed 550 at any given time. It is noted that the current design would not provide for sufficient egress width if each room was at full capacity. Therefore, the plan of management must be followed, or the egress widths redesigned (refer to Clause D1.6 above).	Noted

Section D: Access and Egress			
	(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:		
D1.14: Measurement of distances	Informational – The nearest part of an *exit* means in the case of— (a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access to them; and (b) a non-fire-isolated stairway, the nearest part of the nearest riser; and (c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and (d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a *horizontal exit*, the nearest part of the doorway.	Noted.	Noted
D1.15: Method of Measurement	Informational	Noted.	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Not applicable at this stage of design	Further analysis is required to determine if room top plant is required to be access by ladder at the design development stage post-DA stage.	Noted

Section D: Access and Egress			
D1.17: Access to lift pits	Not applicable	There are no lifts proposed in the new building works.	N/A
D1.18: Egress from early childhood centres	Not applicable	Not applicable due to the use of the building.	N/A
Part D2 – Construction of Exits			
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted.	Noted
D2.1: Application of Part	Informational– Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17 (e), D2.18 & D2.24, the deemed-to-satisfy Provisions of this Part do not apply to internal parts of the Class 2 *sole-occupancy units.*	Noted.	Noted
D2.2: Fire-isolated stairways and ramps	Not applicable	There are no fire-isolated stairways and ramps required in the building.	N/A
D2.3: Non-fire-isolated stairways and ramps	In a building having a rise in storeys of more than 2, required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to D2.2, or only of— (f) reinforced or prestressed concrete; or (g) steel in no part less than 6 mm thick; or (h) 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 (i) (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol	The proposed non fire-isolated stairways are to be constructed in accordance with this Clause.	CRA – Refer Annexure F

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		formaldehyde or resorcinol phenol formaldehyde glue.		
D2.4:	Separation of rising and descending stair flights	Not applicable	The proposed stairways are not required to be fire-isolated in accordance with D1.3.	N/A
D2.5:	Open access ramps and balconies	Not applicable	The are no open access ramps or balconies proposed to the new building works.	N/A
D2.6:	Smoke lobbies	Not applicable	The are no smoke lobbies required by D1.7.	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: o a lighting, detection, or pressurization system serving the *exit*; or o a security, surveillance or management system serving the *exit*; or o an intercommunication system or an audible or visual alarm system in accordance with D2.22; or	Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in the common areas or along an egress path must be smoke sealed in accordance with this Clause.	CRA – Refer Annexure F

Section D: Access and Egress			
	○ the monitoring of hydrant or sprinkler isolating valves.		
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.	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. The proposed cleaners store on level 1 shall be in accordance with this Clause.	CRA – Refer Annexure F
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.	Noted. Each of the proposed stairs are under 2m in width.	Noted
D2.10: Pedestrian ramps	Not applicable	There are no pedestrian ramps proposed in the new building works.	N/A
D2.11: Fire-isolated passageways	Not applicable	There are no fire-isolated passageways proposed in the new building works.	N/A
D2.12: Roof as open space	Not applicable	It is considered that there is no roof as open space in accordance with this Clause in the new building works.	N/A
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 240 mm and 355 mm within the residential units; > Goings must be between 250 mm and 355 mm;	Compliance is readily achievable with such requirements and shall be demonstrated at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	> Goings must be between 250 mm and 355 mm in other areas; > 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; > 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		

<table>
<tr><th colspan="4">Section D: Access and Egress</th></tr>
<tr><td></td><td>4586-2013 Slip resistance classification of new pedestrian surface materials.</td><td></td><td></td></tr>
<tr><td>D2.14: Landings</td><td>Landings must be not less than 750 mm long and have either a surface with a slip-resistance classification complying with Table D2.14 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
<table>
<tr><th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr>
<tr><th>Dry</th><th>Wet</th></tr>
<tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr>
</table></td><td>The landings are assumed to be provided in accordance with this Clause. Each of the elements must be provided with the required slip resistance in accordance with this Clause and table D2.14.</td><td>CRA – Refer Annexure F</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 1428.1:2009; or
(b) in other cases–</td><td>The thresholds provided throughout the building must be provided in accordance with this clause. Based on majority of the doorways being internal or accessible it is considered that compliance would be available. Confirm with access consultant at the lodgement of CC applications.</td><td>CRA – Refer Annexure F</td></tr>
</table>

Section D: Access and Egress			
	(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– o 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 o 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>	Barriers to prevent falls will need to be provided in accordance with this clause and maintain a height of no less than 1m. The stairways will need to maintain a height of no less than 865mm and landings no less than 1000mm. Compliance is readily achievable with such requirements and shall be demonstrated at CC stage.	CRA – Refer Annexure F

Section D: Access and Egress			
	For floors more than 4m above the surface beneath, the balustrade must not incorporate any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that could facilitate climbing.		
D2.17: Handrails	Handrails to stairways must: > be located along at least one side of the ramp or flight (a flight being 2 or more risers); and > located along each side if the total width of the stairway or ramp is 2m or more; and > be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and > be continuous between stair flight landings and have no obstruction that will break a hand-hold. > be constructed to comply with clause 12 of AS 1428.1:2009 (including handrails to the fire stairs). > Handrails in common areas (other than fire stairs) must also accord with D3.3. Clause 12 of AS 1428.1:2009 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 AS 1428.1:2009. 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 AS 1428.1:2009 or with larger landings to accommodate required handrail extensions.	Throughout the stairways it is required that handrails are provided in accordance with this Clause. At this stage no detailed drawings of the handrails have been provided. Compliance is assumed to be readily achievable with such requirements and shall be demonstrated at CC stage.	CRA – Refer Annexure F

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 1657:2018.	It is considered that there are no plant rooms that would access in accordance with this Clause.	Noted
D2.19: Doorways and doors	> Sliding doors serving as *exit* doors must be openable manually under a force of not more than 110N. > *Exit* doors that are power operated must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source and if leading to road or open space, open automatically if there is a power failure or on the 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.	Each of the proposed egress doorways are noted as being a swinging doorway. Any of the doors that are power operated will need to be manually openable and failsafe open under a power or fire trip in accordance with this Clause. Compliance is readily achievable and shall be demonstrated at CC stage through door and hardware schedules.	CRA – Refer Annexure F
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 m2, it is the only required *exit* from the building or part and it is fitted with a device for holding it in the open position; or	Where swinging doors are used as an exit and the final discharge door these must swing in the direction of egress as required by this Clause. It was noted that the existing 150 seat south hall on level 2 has a door which does not swing in the direction of egress. This room, however, has a large sliding door which is a door in a path of egress and has been deemed sufficient for the purposes of this Clause.	CRA – Refer Annexure F

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	All doors in a required *exit* or forming part of a required *exit* AND doors in a path of travel to a required *exit* must be readily openable without a key from the side that faces a person seeking egress, by– (iii) a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3 – (A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and (B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm; or (iv) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. (v) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (aa) not less than 500 mm from an internal corner; and (bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface	The latches throughout the egress paths of the building are required to be provided in accordance with this Clause. This will require a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor. Compliance for the proposed works is readily achievable with the door latch hardware requirements of this Clause and shall be demonstrated at CC stage. **It is noted that the existing sliding doorways to the lower level hall (existing hall 3) which are designated as final exit doors are to have door hardware upgraded in accordance with this Clause.**	**DNC – Refer to Part 3 of this Report**

Section D: Access and Egress			
	mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that – (i) serves only or is within a *sole-occupancy unit* in a Class 2 building; or (ii) serves a *sole-occupancy unit* in a Class 5, 6, 7 or 8 building with a floor area not more than 200m2; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system installed throughout the building and is readily openable when unlocked. 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		

Section D: Access and Egress			
	whenever the building is occupied by the public, so the door can yield to pressure.		
D2.22: Re-entry from fire-isolated exits	Not applicable	The building does not have an effective height of more than 25m.	N/A
D2.23: Signs on doors	Not applicable	There are no fire or smoke doors proposed to the new works.	N/A
D2.24: Protection of openable windows	Noted	This Clause applies to a Class 2, 3, 4 or 9b early childhood centre. Hence, window openings are not required to be protected. It is, however, highly recommended that windows be protected in accordance with this Clause as it is assumed children will be on the premises.	Noted
D2.25: Timber stairways: concession	Not applicable	There are no timber stairways proposed in accordance with this clause.	N/A
Part D3 – Access for People with A Disability			
Refer to separate access report.			

Section E: Services and Equipment			
Part E1 – Fire Fighting Equipment			
E1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E1.3: Fire hydrants	As the building has a floor area greater than 500 m2, a fire hydrant system complying with AS 2419.1:2005 must be provided to serve the building.	> Hydrant booster assembly location (if required – TBC by hydraulic designer). The booster location must comply with the following:	CRA – Refer Annexure F

Section E: Services and Equipment			
		○ be within 8m of a hardstand for fire brigade appliance; ○ be within sight of the main entry; > Assuming it is attached to the building, be separated from the building by construction achieving FRL 90/90/90 for 2m either side of and 3m above the upper hose connections > Hydrant pump room location (if a pumpset is required). An internal pump room must have a door opening to a road or open space or egress to open space via a fire-isolated *exit*; > Internal hydrants in each fire-isolated *exit* at each storey providing coverage to all parts of the building. For internal fire hydrant coverage, all points on the floor must be covered by a 10m hose stream, issuing from 30 m hose length, extending not less than 1m into the room. Note: Consideration should be given to the location of Electrical Substations on adjoining sites in regards to proximity to Fire Hydrant Boosters being within 10.0m The hydraulic engineer is to design and certify the hydrant system in accordance with this Clause and AS2419.1.	
E1.4: Fire hose reels	A fire hose reel system complying with BCA clause E1.4 and AS 2441:2005 must be provided to the building (excluding Classes 2, 3, 4, 5, 8 and 9c). All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m. Fire hose reels must be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors, except—	Fire hose reels are required to be provided throughout in accordance with this Clause. It is noted that the hose reels have not been detailed at this stage. The system design and performance shall be certified by the Hydraulic/Fire Services Engineer at CC stage.	CRA – Refer Annexure F

Section E: Services and Equipment			
	(v) doorways in walls referred to in C2.5(a)(v) in a Class 9a building and C2.5(b)(iv) in a Class 9c building, separating ancillary use areas of high potential fire hazard; and (vi) doorways in walls referred to in C2.12 or C2.13 separating equipment or electrical supply systems; and (vii) doorway openings to shafts referred to in C3.13.		
E1.5: Sprinklers	Not applicable	It is assumed that Part H1 of the BCA does not apply as it does not meet the Clause H1.1 application of part requirements. It is also noted that the Class 5 portion of the new proposed works would require sprinkler protection is the building has an effective height of 25m. Therefore, no sprinkler protection is required to the building at this stage of design development.	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.	Extinguishers are required to cover Class A fire risks associated with the Class 5 portion of the building. Extinguishers are required to cover Class AE or E fire risks associated with emergency services switchboards	CRA – Refer Annexure F
E1.8: Fire control centres	Not applicable	The building is below 25m in height.	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	Noted.	Noted

Section E: Services and Equipment				
		must be operational on all floor / roof covered storeys, except for the 2 uppermost storeys; and all required booster connections must be installed.		
E1.10:	Provision for special hazards	Suitable additional provisions must be made if special problems of firefighting could arise because of the nature or quantity of stored materials or the location of the building in relation to a water supply.	Noted. It is not considered that there are an special hazards in the building. Further assessment would be required once the service engineers have defined their requirements.	Noted
Part E2 – Smoke Hazard Management				
E2.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E2.1:	Application of Part	Informational	Noted	Noted
E2.2:	General requirements (including Tables E2.2a and E2.2b)	**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 1668.1:2015; 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	**Class 9b requirements** The building must be provided with automatic shutdown of any air-handling system (other than miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of— (i) smoke detectors installed complying with Specification E2.2a; and (ii) any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5 Each fire compartment, having a floor area of more than 2000 m2 must be provided with— (i) an automatic smoke exhaust system complying with Specification E2.2b; or	DNC – Refer to Part 3 of this Report

Section E: Services and Equipment			
	automatically by smoke detectors complying with clause 7.5 of AS 1668.1:2015; 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 1668.1:2015 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.	(ii) … (iii) if the floor area of the fire compartment is not more than 5000 m2 and the building has a rise in storeys of not more than 2— (A) an automatic smoke detection and alarm system complying with Specification E2.2a; or (B) a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5. **As the building has an existing automatic smoke detection and alarm system, it is assumed the new proposed works will be provided with the same. It is noted that there are deficiencies in the existing detection system which would need to be addressed at CC stage.** **NSW Table E2.2a Specific Provisions** **Automatic shutdown:** A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of— (i) smoke detectors installed complying with Clause 6 of Specification E2.2a; and (ii) any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5. **Stages and backstage:**	

Section E: Services and Equipment			
		(i) For the purposes of this Table, where a stage is separated from the auditorium by a proscenium wall incorporating a proscenium opening, a backstage room or area that is not separated from the stage by construction having an FRL of not less than 60/60/60, is taken to form part of the stage. (ii) A building or part of a building used as an assembly building which has a stage— (A) with a floor area of more than 50 m2 and not more than 150 m2 must, over the stage, be provided with— (aa) an automatic smoke exhaust system complying with Specification E2.2b (including Figure 2); or (ab) roof mounted automatic smoke-and-heat vents complying with NSW H101.22, in a single storey building or the top storey of a multi storey building. **It is assumed the stage is less than 50m2 where the calculation does not include the access ramp onto the stage. The ramp is considered to be used for egress purposes only.**	
E2.3: Provisions for special hazards	Not applicable	The building is not deemed to be a special hazard	N/A
Specification E2.2a – Smoke Detection and Alarm System			
1. Scope	Informational	Noted	Noted
2. Type of system	A required automatic smoke detection and alarm system must be provided in accordance with the following: (a) Class 2 buildings and Class 4 parts of a building—	A smoke detection system complying with Clause 4 of Specification E2.2a is required throughout.	CRA – Refer Annexure F

Section E: Services and Equipment			
	(i) a smoke alarm system complying with Clause 3; or (ii) a smoke detection system complying with Clause 4; or (iii) a combination of a smoke alarm system and a smoke detection system complying with Clause 5. (b) Class 3 buildings— (i) with a Class 3 part located more than 2 storeys above ground level — a smoke detection system complying with Clause 4; or (ii) which accommodate more than 20 residents and are the residential part of a school, accommodation for the aged, children or people with a disability — a smoke detection system complying with Clause 4; or (iii) all other Class 3 buildings— (A) a smoke alarm system complying with Clause 3; or (B) a smoke detection system complying with Clause 4; or (C) a combination of a smoke alarm system and a smoke detection system complying with Clause 5. (c) Class 5, 6, 7, 8, 9b and 9c buildings— a smoke detection system complying with Clause 4. (d) Class 9a health-care buildings — (i) where more than 6 bed patients are accommodated — a smoke detection system complying with Clause 4; or		

Section E: Services and Equipment				
		(ii) where 6 or less bed patients are accommodated— (A) a smoke alarm system complying with Clause 3; or (B) a smoke detection system complying with Clause 4.		
3.	Smoke alarm system	Not applicable	Refer to Clause 2 above.	N/A
4.	Smoke detection system	(a) All Class 2 - 9 buildings— (i) A smoke detection system must— (A) subject to (b) and (c), comply with AS 1670.1; and (B) activate a building occupant warning system in accordance with Clause 7. (ii) In kitchens and other areas where the use of the area is likely to result in smoke detectors causing spurious signals— (A) any other detector deemed suitable in accordance with AS 1670.1 may be installed provided that smoke detectors are installed elsewhere in the sole-occupancy unit in accordance with the requirements for alarms in Clause 3(b)(i) and Clause 3(b)(ii); or (B) an alarm acknowledgement facility may be installed, except where the kitchen or other area is in a building protected with a sprinkler system complying with Specification E1.5 (other than a FPAA101D or FPAA101H system), the detectors need not be installed in the kitchen or other areas likely to result in spurious signals.	A smoke detection system complying with Clause 4 of Specification E2.2a is required throughout.	CRA – Refer Annexure F

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	(b) Class 2 or 3 buildings or Class 4 parts of a building — In a Class 2 or 3 building or Class 4 part of a building provided with a smoke detection system, the following applies: (i) Smoke detectors must be installed— (A) within each sole-occupancy unit, in accordance with the requirements for alarms in Clause 3(b)(i) and Clause 3(b)(ii); and (B) subject to (ii), in public corridors and other internal public spaces. (ii) In a Class 2 or 3 building or Class 4 part of a building protected with a sprinkler system complying with Specification E1.5 (other than a FPAA101D or FPAA101H system), smoke detectors are not required in public corridors and other internal public spaces. (c) Class health-care buildings — The following applies in a Class 9a health-care building: (i) (A) Photoelectric type smoke detectors must be installed in patient care area and in paths of travel to exits from patient care areas; and (B) in areas other than patient care areas and paths of travel to exits from patient care areas, where the use of the area is likely to result in smoke detectors causing spurious signals, any other detector deemed suitable in accordance with AS 1670.1 may be installed in lieu of smoke detectors, except where an area is protected with a sprinkler system complying with Specification		

Section E: Services and Equipment				
		E1.5, smoke detectors need not be installed where the use of the area is likely to result in spurious signals. (ii) Manual call points must be installed in evacuation routes so that no point on a floor is more than 30 m from a manual call point. (d) Class 9c buildings — In a Class 9c building— (i) remote automatic indication of each zone must be given in each smoke compartment by means of— (A) mimic panels with an illuminated display; or (B) annunciator panels with alpha numeric display; and (ii) if the building accommodates more than 20 residents, manual call points must be installed in paths of travel so that no point on a floor is more than 30 m from a manual call point.		
5.	Combined smoke alarm and smoke detection system	Not applicable	Refer to Clause 2 above.	N/A
6.	Smoke detection for smoke control system	(a) Smoke detectors required to activate air pressurisation systems for fire-isolated exits and zone pressurisation systems must— (i) be installed in accordance with AS 1670.1; and (ii) have additional smoke detectors installed adjacent to each bank of lift landing doors set back horizontally from the door openings by a distance of not more than 3 m. (b) Smoke detectors required to activate—	Smoke detectors required to activate the automatic shutdown and must be installed in accordance with this Clause and AS1670.1 as applicable.	CRA – Refer Annexure F

Section E: Services and Equipment			
	(i) automatic shutdown of air-handling systems in accordance with Table E2.2b; or (ii) a smoke exhaust system in accordance with Specification E2.2b, must— (iii) be spaced— (A) not more than 20 m apart and not more than 10 m from any wall, bulkhead or smoke curtain; and (B) in enclosed malls and walkways in a Class 6 building not more than 15 m apart and not more than 7.5 m from any wall, bulkhead or curtain; and (iv) have a sensitivity— (A) in accordance with AS 1670.1 in areas other than a multi- storey walkway and mall in a Class 6 building; and (B) not exceeding 0.5% smoke obscuration per metre with compensation for external airborne contamination as necessary, in a multi- storey walkway and mall in a Class 6 building. (c) Smoke detectors provided to activate a smoke control system must— (i) (A) form part of a building fire or smoke detection system complying with AS 1670.1; or (B) be a separate dedicated system incorporating control and indicating equipment complying with AS 1670.1; and		

Section E: Services and Equipment				
		(ii) activate a building occupant warning system complying with Clause 7, except that smoke detectors provided solely to initiate automatic shutdown of air-handling systems in accordance with (b)(i) need not activate a building occupant warning system.		
7.	Building occupant warning system	Subject to E4.9, a building occupant warning system provided as part of a smoke hazard management system must comply with clause 3.22 of AS 1670.1 to sound through all occupied areas except— (a) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke alarm system in accordance with Clause 3(b)(iii)— (i) the sound pressure level need not be measured within a sole-occupancy unit if a level of not less than 85 dB(A) is provided at the door providing access to the sole-occupancy unit; and (ii) the inbuilt sounders of the smoke alarms may be used to wholly or partially meet the requirements; and (b) in a Class 2 and 3 building or Class 4 part of a building provided with a smoke detection system in accordance with Clause 4(b), the sound pressure level from a building occupant warning system need not be measured within a sole-occupancy unit if a level of not less than 100 dB(A) is provided at the door providing access to the sole-occupancy unit; and (c) in a Class 3 building used as a residential care building, the system— (i) must be arranged to provide a warning for occupants; and (ii) in areas used by residents, may have its alarm adjusted in volume and content to minimise	In accordance with E4.9(e) the building is considered to require an Emergency warning and intercom system in accordance with AS1670.4.	CRA – Refer Annexure F

Section E: Services and Equipment			
	trauma consistent with the type and condition of residents; and (d) in a Class 9a health-care building, in a patient care area, the system— (i) must be arranged to provide a warning for occupants; and (ii) in a ward area, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of the patients; and (e) in a Class 9c building, the system— (i) must be arranged to provide a warning for occupants; and (ii) must notify staff caring for the residents of the building; and (iii) in areas used by residents, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of residents.		
8. System Monitoring	The following installations must be connected to a fire alarm monitoring system connected to a fire station or fire station dispatch centre in accordance with AS 1670.3: (a) A smoke detection system in a Class 3 building provided in accordance with Clause 2(b)(i) or Clause 2 (b)(ii). (b) A smoke detection system in a Class 9a health-care building, if the building accommodates more than 20 patients. (c) A smoke detection system in a Class 9c building.	It is considered that system monitoring is not required.	Noted

Section E: Services and Equipment				
		(d) Smoke detection in accordance with Clause 6 provided to activate— (i) a smoke exhaust system in accordance Specification E2.2b; or (ii) smoke-and-heat vents in accordance with Specification E2.2c. (e) An automatic fire detection and alarm system required by Table E2.2a for large isolated buildings subject to C2.3.		
Part E3 – Lift Installations				
There are no lifts proposed to the new building works. Access consultant to confirm further requirements if any.				
Part E4 – Visibility In An Emergency, Exit Signs And Warning Systems				
E4.0:	Deemed-to-Satisfy Provisions	Informational	Noted	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.	Emergency lighting is required to be installed to all common areas of the building in accordance with this Clause.	CRA – Refer Annexure F
E4.3:	Measurement of distance	Informational	Noted	Noted
E4.4:	Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1:2018.	The emergency lighting will need to comply with AS2293.1	CRA – Refer Annexure F
E4.5:	Exit signs	*Exits* signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary.	Exits signage must be provided throughout the building in accordance with this Clause.	CRA – Refer Annexure F
E4.6:	Direction signs	Where an *exit* is not readily apparent, directional signage is to be installed indicating the direction of egress.	Noted.	CRA – Refer Annexure F

Section E: Services and Equipment				
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Not applicable due to the Class of the building.	N/A
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.	Exits signage must be provided in accordance with this Clause.	CRA – Refer Annexure F
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 the building.	In accordance with E4.9(e) the building is considered to require an Emergency warning and intercom system in accordance with AS1670.4.	CRA – Refer Annexure F

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.	A performance solution would be required to address this provision.	**PS Required**
F1.1:	Stormwater drainage	Stormwater drainage to comply with AS/NZS 3500.3:2018.	Stormwater drainage will need to be provided in accordance with this clause.	CRA – Refer Annexure F
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS 4654 Parts 1 and 2:2012.	Waterproofing membranes will need to be provided in accordance with this Clause. At this stage there is insufficient detailing around the external waterproofing membrane design and proposals. This shall be updated to strictly satisfy AS4654 Parts 1 & 2, with particular care to the installation of rooftop service equipment and the like which cannot penetrate the	CRA – Refer Annexure F

Section F: Health and Amenity				
			waterproof membrane without also being sealed in accordance with AS4654.1. It is recommended that an external waterproofing specialist is engaged at the CC stage to ensure that compliance is achieved.	
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.	The roof coverings will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.6:	Sarking	*Sarking-type materials* used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2:2017.	Sarking will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.7:	Water proofing of wet areas in buildings	Wet areas must be constructed in accordance with AS 3740:2010 and F1.7 of the BCA.	Wet areas will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.9:	Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.	Damp-proofing will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.10:	Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870:2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions).	Damp-proofing will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.11:	Provision of floor wastes	In Class 2 or 3 buildings or Class 4 part of a building, a bathroom or laundry is to have a floor waste where the floor is graded to the floor waste to permit the drainage of water.	Floor wastes in the Class 2 portion will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
F1.12:	Sub-floor ventilation	Not applicable	The building is proposed to be slab on ground and therefore not contain any sub-floor ventilation.	N/A

Section F: Health and Amenity			
F1.13: Glazed Assemblies	Glazed assemblies are to comply with AS 2047:2014 and AS 1288:2006.	Glazed assemblies will need to be provided in accordance with this Clause.	CRA – Refer Annexure F
Part F2 – Sanitary and Other Facilities			
F2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F2.1: Facilities in residential buildings (including Table F2.1)	Not applicable	Not applicable due to the Class of the building.	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	Refer to Section 3.5 of this report.	CRA – Refer Annexure F
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.	Refer to Section 3.5 of this report.	CRA – Refer Annexure F

Section F: Health and Amenity			
	(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. (f) Separate sanitary facilities for males and females need not be provided for patients in a ward area of a Class 9a building. (g) A Class 9a health-care building must be provided with – (i) one kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and (ii) laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary towels and the like and the receipt and storage of clean linen; and (iii) one shower for each 8 patients or part thereof; and (iv) one island-type plunge bath in each storey containing a ward area (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		

Section F: Health and Amenity			
	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 height, 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		

Section F: Health and Amenity				
		have visibility of the play area at all times. (i) Class 9b theatres and sporting venues must be provided with one shower for each 10 participants or part thereof. (j) Not less than one washbasin must be provided where closet pans or urinals are provided.		
F2.4:	Accessible sanitary facilities (including Table F2.4)	Refer to separate access report	Noted.	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— (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.	It is noted that the doors to the proposed sanitary compartments are required to have lift off hinges to satisfy this Clause. Door and glazing scheduled to be reviewed at the CC stage.	CRA – Refer Annexure F

Section F: Health and Amenity				
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.	Noted
F2.8:	Waste Management	Not applicable	Not applicable due to the class of the building.	N/A
F2.9:	Accessible adult change facilities	Not applicable	Not applicable due to the occupancy of the building.	N/A
Part F3 – Room Heights				
F3.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F3.1:	Height of rooms and other spaces	(a) The height of rooms and other spaces must be not less than— (b) 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—	The elevations show minimum height throughout to be 3030mm which would be in accordance with this Clause. Sections and RCPs at CC stage will be required to review and confirm compliance with this Clause. It is noted that the existing storage room on level 1 would not comply with this Clause. Further details are required post DA regarding RLs of this area to confirm if a performance solution would be required.	Noted

Section F: Health and Amenity			
	(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 (c) in any building— (i) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and (ii) a commercial kitchen — 2.4 m; and (iii) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like. (iv) A required accessible adult change facility – 2.4m		
Part F4 – Light and Ventilation			
F4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F4.1: Provision of natural light	Class 2 & 4 Natural light must be provided to all habitable rooms. Class 3 Natural light must be provided to all bedrooms and dormitories. Class 9a & 9c	It is noted that there is no required provision for natural lighting to the Class 5 and 9b portions. It is assumed that compliant artificial lighting will be provided throughout the remainder of the building.	N/A

Section F: Health and Amenity				
		Natural light must be provided to all rooms used for sleeping purposes. Class 9b schools Natural light must be provided to all general purpose classrooms in primary or secondary schools 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.		
F4.2:	Methods and extent of natural lighting	Not applicable	Refer to Clause F4.1 above.	N/A
F4.3:	Natural light borrowed from adjoining room	Not applicable	Refer to Clause F4.1 above.	N/A
F4.4:	Artificial Lighting	Lighting to all areas is to comply with AS/NZS 1680.0:2009.	It is assumed that compliant artificial lighting will be provided throughout the remainder of the building.	CRA – Refer Annexure F
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.	Ventilation to the rooms must be provided in accordance with this clause.	CRA – Refer Annexure F
F4.6:	Natural ventilation	(a) Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened— (i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— (A) a suitably sized court, or space open to the sky; or	If natural ventilation is to be provided, it is to be in accordance with this Clause. Mechanical engineer to specify the ventilation requirements.	CRA – Refer Annexure F

Section F: Health and Amenity				
		(B) an open verandah, carport, or the like; or (C) an adjoining room in accordance with F4.7.		
F4.7:	Ventilation borrowed from adjoining room	Ventilation may be 'borrowed' from adjoining rooms in some instances in accordance with this clause.	Mechanical engineer to specify the ventilation requirements.	CRA – Refer Annexure F
F4.8:	Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a – > kitchen or pantry > public dining room or restaurant > dormitory in a Class 3 building > room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) > workplace normally occupied by more than one person.	Due to the internal location for the majority of the facilities it is consider that each sanitary compartment will be provided with mechanical ventilation.	CRA – Refer Annexure F
F4.9:	Airlocks	Not applicable	Access to each sanitary compartment is via hallway.	N/A
F4.11:	Carparks	Not applicable	Assumed existing car parking facilities which are open deck.	N/A
F4.12:	Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1:2015 and AS 1668.2:2012 where: > any cooking apparatus has: o a total maximum electrical power input exceeding 8 kW; or o a total gas power input exceeding 29 MJ/h; or	Any kitchen facilities are to be provided in accordance with this Clause.	CRA – Refer Annexure F

Section F: Health and Amenity			
	> the total maximum power input to more than one apparatus exceeds: o 0.5 kW electrical power; or o 1.8 MJ gas, Per m2 of floor area of the room or enclosure.		
Part F5 – Sound Transmission and Insulation			
F5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F5.1: Application of Part	Informational– The Deemed-to-Satisfy Provisions of this Part apply to Class 2 and 3 buildings and Class 9c buildings.	It is noted that Part F5 does not apply to Class 9b buildings.	Noted
Part F6 – Condensation Management			
F6.0: Deemed-to-satisfy provisions	Informational	Noted	Noted
F6.1: Application of Part	Informational	It is noted that Part F6 does not apply to Class 9b buildings.	Noted

Section G: Ancillary Provisions			
Part G1 – Minor Structures and Components			
	Not applicable		
Part G2 – Boilers, Pressure Vessels, Heating Appliances, Fireplaces, Chimneys and Flues			
	Not applicable		

Section G: Ancillary Provisions			
Part G3 – Atrium Construction			
	Not applicable		
Specification G3.8 – Fire and Smoke Control in Buildings Containing Atriums			
	Not applicable		
Part G4 – Construction in Alpine Areas			
	Not applicable		
Part G5 – Construction in Bushfire Prone Areas			
	Not applicable		
Part G6 – Occupiable Outdoor Areas			
	Not applicable	It is not considered that there is occupiable outdoor space in the proposed extension.	

Section H: Special Use Buildings
Part H
The stage is less than 200m^2 and the seating arrangement is not stepped hence this Part is deemed not applicable. Furthermore, the church building is not deemed an entertainment venue under the Environmental Planning and Assessment Regulation 2000.

Section I: Maintenance
Part I1 – Equipment and Safety Installations

Section I: Maintenance

This Part has been deleted in BCA2019.

Section J: Energy Efficiency

Part J0 – Energy Efficiency

Refer to separate Energy Efficiency (Section J) report.

ANNEXURE E DEFINITIONS

Annexure E - Definitions

Effective height

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

Exit

Exit means –

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

(i) An internal or external stairway.

(ii) A ramp.

(iii) A fire-isolated passageway.

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

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

Fire compartment

Fire compartment means –

(a) the total space of a building; or

(b) when referred to in—

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

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

Fire-resistance level (FRL)

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

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

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

Fire-source feature

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

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

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

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Non-combustible

Non-combustible means—

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

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

Open space

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

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – BCA Compliance Specification

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

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 4 of Specification C1.1 of BCA2019 for a building of Type B 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. The external walls and openings of separate fire compartments will be protected in accordance with Clause C3.3.
7. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
8. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
9. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
10. The electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
11. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019.
12. The external walls and openings of separate fire compartments will be protected in accordance with Clause C3.3.
13. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
14. 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.
15. 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.
16. 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.
17. 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, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.

18. 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.
19. 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.
20. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
21. Fire shutters and fire windows will be in accordance with Specification C3.4 of BCA2019 **(TBC)**
22. The number of exits provided to the building will be in accordance with Clause D1.2 of BCA2019.
23. The required exits will be fire-isolated in accordance with Clause D1.3 of BCA2019.
24. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019.
25. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more that 60m in accordance with Clause D1.5 of BCA2019.
26. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
27. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
28. The non-required stairways, ramps and escalators will be in accordance with Clause D1.12 of BCA2019.
29. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.
30. 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.
31. 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.
32. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
33. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
34. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
35. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
36. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
37. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
38. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.

39. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
40. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
41. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
42. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
43. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
44. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
45. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.
46. Sub-floor ventilation will be provided in accordance with Clause F1.12 of BCA2019.
47. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
48. 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.
49. 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.
50. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
51. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
52. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
53. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.
54. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
55. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
56. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
57. 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.
58. 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:

59. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
60. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
61. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.

62. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4.9 of BCA2019.
63. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
64. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

Hydraulic Services Design Certification:

65. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
66. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
67. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.

Mechanical Services Design Certification:

68. 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 1668.1:2015.
69. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
70. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2019, and AS 1668.1:2015 and AS 1668.2:2012.
71. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 *sole-occupancy unit* will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.
72. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

73. 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:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
74. Earthquake actions – AS 1170.4:2007
75. Masonry – AS 3700:2018
76. Concrete Construction – AS 3600:2018
77. Steel Construction AS 4100:1998
78. Aluminium Construction – AS/NZS 1664.1 or 2:1997
79. Timber Construction – AS 1720.1:2010
80. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
81. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 4, for a building of Type B Construction.
82. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.

83. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
84. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.
85. The concrete panel external walls will be in accordance with Specification C1.11 of BCA2019.
86. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D2.2 of BCA2019 for the fire isolated stairs.

NSW Specification Design Certificate:

87. 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.