

Building Code of Australia 2019

Report for BCA Compliance

PROJECT NAME: New Western Sydney University Bankstown City Campus

DATE: 24th August 2020



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REVISION HISTORY



Revision	Date	Details	Authorised	
			Name/Position	Signature
A	4 th March 2019	Preliminary BCA Compliance Report – Schematic Design	-	-
B	11 th March 2019	BCA Compliance Report – Schematic Design	-	-
C	29 th July 2019	BCA Compliance Report – SEAR'S Submission	-	-
D	18 th December 2019	BCA Compliance Report – Design Development	-	-
E	24 th August 2020	BCA Compliance Report – DA Re-submission	Nick Aitchison – Building Regulations Consultant	
			Brett Clabburn - Director	

Table 1 – Revision History

or use this document. This document has been prepared based on the Client's description of its requirements and Group DLA's experience, having regard to assumptions that Group DLA can reasonably be expected to make in accordance with sound professional principles. Group DLA may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

1.0 EXECUTIVE SUMMARY

The report is for the assessment of the New Western Sydney University Bankstown City Campus to assess compliance with the Building Code of Australia 2019 ("BCA"). The information submitted at this stage of the design is not considered to be detailed to the extent where the development of a full BCA report is possible and therefore this report is preliminary only. The report however is considered satisfactory for a planning submission. The report has been produced to identify areas of non-compliance that will need to be addressed by performance based solutions.

The following items have been noted as items of interest at this stage of the review. The items have been considered non-compliant and require further review against the detailed design, or may be able to be justified as a Performance Solution:

Item	Query or DTS Non- Compliance	Suggested Resolution	BCA Clause	BCA Performance Requirements
1	The external wall to the Western Façade is required to achieve an FRL in accordance with Specification C1.1 of the BCA and have openings protected in accordance with Clause C3.2.	Performance Solution by Fire Engineer	C1.1, Specification C1.1, C3.2/C3.4	CP1, CP2
2	The Class 6 areas on the ground floor will have an FRL of 120/120/120 in Lieu of 180/180/180 and will not be fire separated from the Class 9b lobby areas.	Performance Solution by Fire Engineer (to rationalise & reduce to 120/120/120)	C1.1, Specification C1.1	CP1
4	Extended Travel Distances: Fitout (levels Ground-Level 9) Travel distances to a point of Choice will exceed 20m up to a maximum of 25m. Travel Distances to the nearest exit will exceed 40m up to a maximum of 50m. Travel distances between alternate exits will exceed 60m up to a maximum of 75m. Refer to body of report for full extent of travel distance non-compliances.	Performance Solution by Fire Engineer & Design Change	D1.4, D1.5	DP4, EP 2.2
5	Atrium smoke exhaust system to be sized for class 2, 3, 5 & 9 parts but will have class 6 areas opening into it.	Performance Solution by Fire Engineer	G3.2, Spec G3.8,	EP2.2
6	Where the atrium smoke exhaust system integrates into the zone smoke control system riser, smoke dampers will be used in lieu of sub-ducts	Performance Solution by Fire Engineer	G3.4, Spec G3.8,	EP2.2

Item	Query or DTS Non- Compliance	Suggested Resolution	BCA Clause	BCA Performance Requirements
7	The zone pressurisation system on Ground- level 2 fire compartment may not achieve a 20 Pa pressure difference between an upper level in the event of a fire on the upper levels	Performance Solution by Fire Engineer	E2.2, Spec E2.2a	EP2.2
8	Travel from The Fire Control Room at ground floor to a road or open space involves a level change of approximately 700mm in lieu of the required 300mm.	Performance Solution by Fire Engineer	Specification E1.8	EP1.5, EP1.6
9	The Atrium Well spanning from Ground – Level 7 containing the escalators, as well as the Southern Atrium spanning from Ground to Level 3 do not have a minimum width throughout of not less than 6m.	Performance Solution by Fire Engineer	G3.2	CP2
10	Atrium bounding construction will not comply with DtS requirements as fire curtains are proposed.	Performance Solution by Fire Engineer	G3.4, G3.5	CP2, EP2.2
11	Atrium will not utilise visual warning devices “EVACUATE” signs.	Performance Solution by Fire Engineer	G3.8, Spec G3.8	EP4.2
12	The proposed phone booths at level 8 are present the following non-compliances: <ul style="list-style-type: none"> - Omission of Sprinkler coverage - Omission of Smoke Detectors - Sound Levels for EWIS system may not be achieved - Phone Booths will not be accessible for persons with a disability 	Performance Solutions By Fire Engineer & Accessibility Consultant as applicable	E1.5, E2.2, Spec E2.2a, D3	EP2.2, EP1.1, DP1
13	Fire Hose Reels throughout are not located within 4m of an exit as follows: <p>Base-build:</p> <ul style="list-style-type: none"> - Ground Floor adjacent Fire Stair 1 <p>Fit out:</p> <ul style="list-style-type: none"> - Level 9 at fire stair 2 	Performance Solution by Fire Engineer/Design Change	E1.4	EP1.1

Table 2 – DtS Non-compliances

Note: the above BCA non-compliances are not an exhaustive list of all non-compliances for the building. The report in whole needs to be reviewed by the design team to obtain an understanding of all BCA issues.

In order for Group DLA to confirm the design complies with the BCA the following items listed in Table 3 below are required to be clarified, submitted, illustrated, etc. as the case may be:

1.1 Additional Information for further assessment

Item No.	Item	Comment	BCA Clause
A	Section J Report/JV3 Assessment	Section J Report/JV3 Assessment report to be provided to confirm compliance with Section J of the BCA	Part J

Table 3 – Request for Further Information

2.0 INTRODUCTION

This BCA review has been limited to the evolving architectural drawings which do not detail sufficient information to allow a full BCA report to be produced. **The architectural plans are yet to be developed to the extent that a complete BCA assessment can be undertaken and therefore this report is preliminary only. This report is considered satisfactory for a planning submission.**

The report is prepared based on a review of the documentation listed in Table 6 and the information provided by the client and is intended for their use only.

2.1 Reporting Team

The information contained within this report was prepared by Nick Aitchison Accredited Certifier Grade A3 (BDC3040) and reviewed by Brett Clabburn, Accredited Certifier Grade A1 (BDC0064) from Group DLA.

2.2 Current Legislation

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979.

Whilst we await final confirmation on the building approval mechanism, we believe it is likely to be a Crown project. The provisions of Section 6.28 (formerly known as 109R) (Crown Building Work), of this act require that the building work be carried out in accordance with the Building Code of Australia (BCA). The application of compliance with the particular version of the BCA is the date on which tenders are issued. In this case the application of the provisions of the BCA 2019 is the relevant code as tenders will be issued during the period of 1 May 2019 to 1 May 2022.

The BCA is now updated every three years, the next update will be BCA 2022 which will come into force on the 1st May 2022.

2.3 Fire Brigade

Fire & Rescue NSW ("FRNSW"): The EP&A Regulations 2000, Clause 144, requires buildings the subject of Construction Certificate approval to be referred to FRNSW. Clause 144 refers to EP&A Regs defined Category 2 Fire Safety Provisions¹. If any of these measures are required to be considered as a performance solution due to DtS non-compliances identified within a design, and the floor area of a fire compartment exceeds 2000 m² or the floor area of the building exceeds 6000 m², the Clause 144 referral to the FRNSW is required.

It is common practice to adopt this process on Crown projects under a voluntary submission.

This design currently contains the following DtS non-compliance Category 2 Fire Safety Provisions or BCA Performance Requirements: EP2.2:

- EP2.2
- EP1.6

The process involves initial input from FRNSW at the Fire Engineering Brief Questionnaire ("FEBQ") stage and then official Lodgement of the Performance Solution Report by the PCA or Crown Certifier.

Under recent changes to the legislation the brigade are required to respond within 10 days advising whether or not they will be proceeding with a review and providing the Initial Fire Safety Report. If so they have not more than 28 days from the initial lodgement to provide their report or the PCA can choose to invoke the provisions of Clause 144(6A)(c) and issue the Construction Certificate after 28 days of officially lodging the Clause 144 application; further consultation is required on this issue. This may see a requirement for a peer review by an independent C10 accredited fire safety engineer.

At this stage in the design we have noted possible Performance Solutions (listed above) that require report and consent to the brigade.

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

2.4 Limitations

- This report does not include assessment of the documentation against the provisions of the Disability Discrimination Act 1992 or (Access to Premises Buildings) Standards 2010.
- This assessment is limited to the developed documentation at the date of this report and as referenced within the “Documentation Assessed” section of the Report.
- Any roof top plant or the like has been assessed (assumed) as open to the sky. Covered areas to roof tops may constitute an extra storey thus BCA requirement for the entire building may change.
- The travel distances have been assessed on an open plan basis with an allowance made for travel around pending fixed structures. It cannot be taken as accurate when considering future fixed structures parameters.
- 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
- Demolition Standards not referred to by the BCA;
- Work Healthy and Safety Act 2011;
- The National Construction Code – Plumbing Code of Australia Volume 3

3.0 BUILDING DESCRIPTION

3.1 Building Site

The site includes 74 Rickard Road (being Lot 5 DP 777510) and a portion of 375 Chapel Street (being part Lot 6 DP 777510). In addition, public domain works are proposed to Rickard Road, 70 Rickard Road (being part Lot 7 DP 777510) and access is proposed via 80 Rickard Road (being Lot 12 DP 566924).

The site currently consists of an existing at grade car park and grassed area.

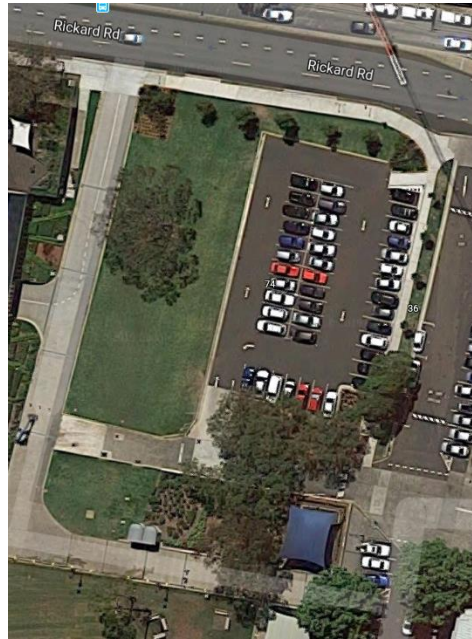


Figure 1: Aerial View of Site

3.2 Building Development

The building development subject of this report is located adjacent to the Paul Keating Park in the Bankstown CBD at the corner of Appian Way & Rickard Road. The building comprises 18 storeys plus two below ground basement car parking levels.

The proposed development involves the construction of a new high rise mixed used building consisting of University & retail use. The building is to be occupied by Western Sydney University. A summary of the proposed uses is provided below:

- Basement 1 & 2 containing EOTF, plant, loading areas and car parking.
- Ground floor containing University lecture space as well as several retail tenancies
- Levels 1-7 & 9-18 containing university learning/teaching spaces
- Level 8 containing a conference centre



Figure 2 – Proposed development

3.3 Building Description

Class	Level	Description
7a	Basement 1 & 2	Basement car parking, plans rooms, EOTF
6 & 9b	Ground	Retail Tenancies & Lecture Theatre
9b/5	Ground - Level 7, Level 9 - 18	University/Education Use including office & meeting spaces
9b	Level 8	Conference Facility

Table 4 – Building Class (or part)

Characteristic	Description
Type of Construction:	Type A Construction
Floor Area of Building:	Circa 30,000m2
Max Fire Compartment Size:	Circa 6,600m2
Rise in Storeys:	19
Levels Contained:	21
Effective Height:	75m

Table 5 – Building Characteristic

3.4 Documentation Assessed

The architectural plans are yet to be developed to the extent that a complete BCA assessment can be undertaken and therefore this report is preliminary only. The plans are considered satisfactory for a planning submission.

This report is based on the following documentation:

Description	Drawing No.	Revision	Date
Base-build – Lyons Architects			
Plan – Basement 2	A30-01	39	21.08.20
Plan – Basement 1	A30-02	44	21.08.20
Plan – Ground Floor	A30-03	44	21.08.20
Plan - Level 1	A30-04	40	21.08.20
Plan - Level 2	A30-05	39	21.08.20
Plan - Level 3	A30-06	39	21.08.20
Plan - Level 4	A30-07	39	21.08.20
Plan - Level 5	A30-08	37	21.08.20
Plan - Level 6	A30-09	37	21.08.20
Plan - Level 7	A30-10	38	21.08.20
Plan - Level 8	A30-11	35	21.08.20
Plan - Level 9	A30-12	32	21.08.20
Plan - Level 10	A30-13	32	21.08.20
Plan - Level 11	A30-14	34	21.08.20
Plan - Level 12	A30-15	32	21.08.20
Plan - Level 13	A30-16	32	21.08.20
Plan - Level 14	A30-17	32	21.08.20
Plan - Level 15	A30-18	31	21.08.20
Plan - Level 16	A30-19	31	21.08.20
Plan - Level 17	A30-20	33	21.08.20

Plan - Level 18	A30-21	33	21.08.20
Plan - Roof	A30-22	25	21.08.20
Building Elevations – North (Rickard Road)	A40-01	25	21.08.20
Building Elevations – East (Appian Way)	A40-02	24	21.08.20
Building Elevations - South	A40-03	25	21.08.20
Building Elevations - West	A40-04	26	21.08.20
Building Section A	A45-01	25	14.07.2020
Building Section B	A45-02	26	14.07.2020
Building Section C	A45-03	25	14.07.2020
Building Section D	A45-04	25	14.07.2020
Fit out – HDR Architects			
Basement 2 General Arrangement Plan	I12-01	C	14.08.2020
Basement 1 General Arrangement Plan	I12-02	H	14.08.2020
Ground Floor General Arrangement Plan	I12-03	I	14.08.2020
Level 1 General Arrangement Plan	I12-04	J	20.08.2020
Level 2 General Arrangement Plan	I12-05	I	14.08.2020
Level 3 General Arrangement Plan	I12-06	I	14.08.2020
Level 4 General Arrangement Plan	I12-07	I	14.08.2020
Level 5 General Arrangement Plan	I12-08	I	14.08.2020
Level 6 General Arrangement Plan	I12-09	J	20.08.2020
Level 7 General Arrangement Plan	I12-10	J	20.08.2020
Level 8 General Arrangement Plan	I12-11	J	20.08.2020
Level 9 General Arrangement Plan	I12-12	J	20.08.2020

Table 6 – Documentation Assessed

4.0 BCA NON-COMPLIANCES & FURTHER CONSIDERATIONS

The following assessment will provide an overview of compliance with the BCA and identify issues (non-compliances) and indicate clauses that are required to be complied with but cannot be assessed at this particular stage of the development. Please refer to Appendix A for a Clause by Clause assessment of the proposed development.

Legend:

Red – Non-compliance, rectification/performance solution required

Purple – Further information/clarification required

Green – Compliant/Compliance readily achievable

Section B – Structure

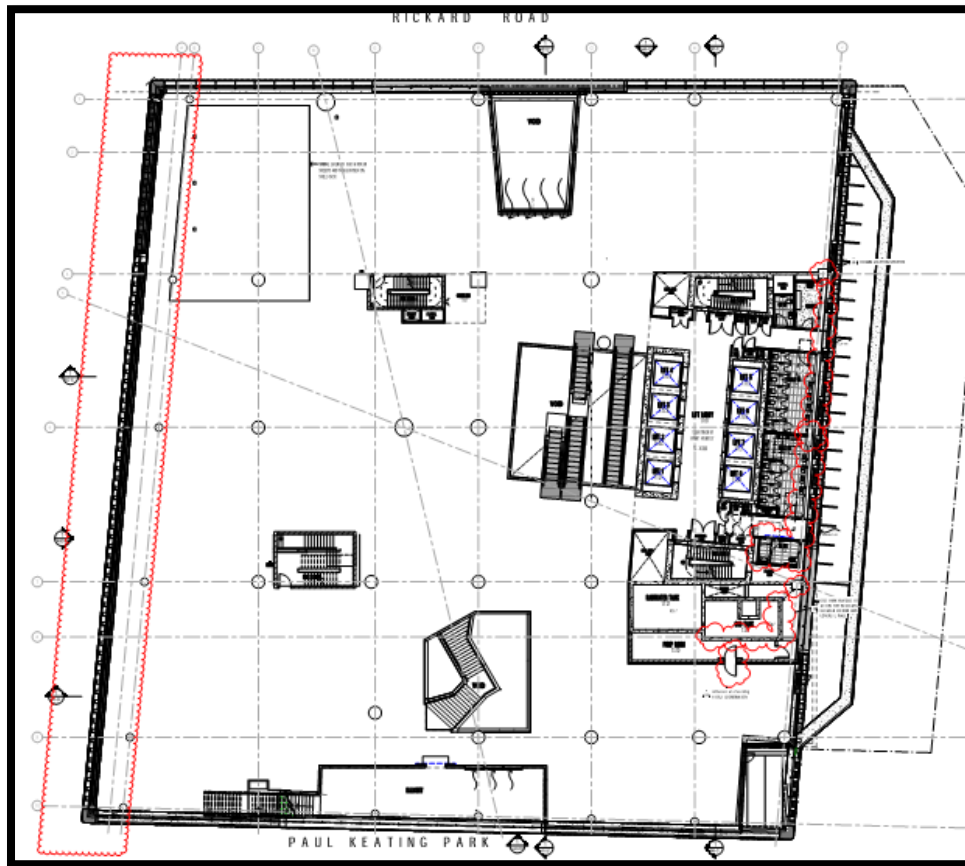
Structural Engineer to confirm compliance with Section B of the BCA.

Section C – Fire Resistance

Clause C1.1/Specification C1.1 - Fire Resistance Level's

The building is required to be constructed using Type A construction as per the requirements of Table 3 in Specification C1.1 of the BCA (refer Appendix B.)

Compliance with the requirements of Table 3 of Specification C1.1 is required for all building elements. Table 3 of Spec C1.1 requires an FRL of not less than -120/120 for a non-loadbearing External Wall within 1.5m of a fire source feature. The Western Façade of the building at levels Ground, 1 & 2 is located within 1.5m of the boundary (a fire source feature for the purposes of this clause) and is therefore required to have an FRL of not less than 120/120/120. This is shown below:



It is understood that a Fire Engineered Performance Solution will be developed to omit the requirement for an FRL & protection of openings to this external wall.

Clause C1.9 – Non-combustible Building elements

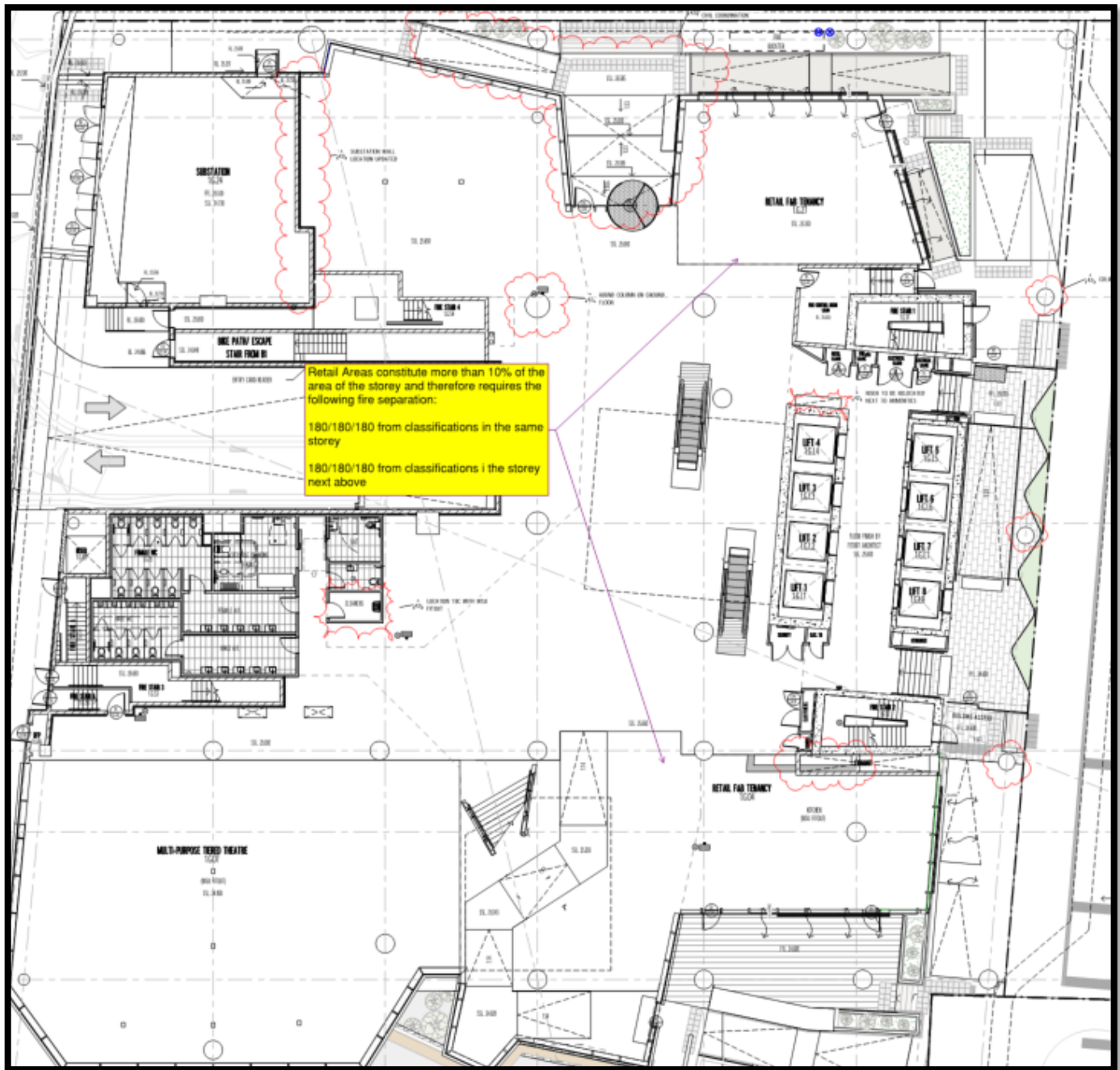
In accordance with Clause C1.9, the following building elements are required to be non-combustible

- External walls including all elements incorporated within them including façade covering, framing & insulation; and
- Flooring & floor framing of the lift pit (if applicable)
- Lift Shaft
- Non-loadbearing internal walls that are required to be fire-resisting (i.e. SOU bounding walls)

Provide a schedule of materials proposed to be used in the construction of any of the abovementioned elements to allow assessment of combustibility.

Clause C2.8/2.9 – Separation of classifications

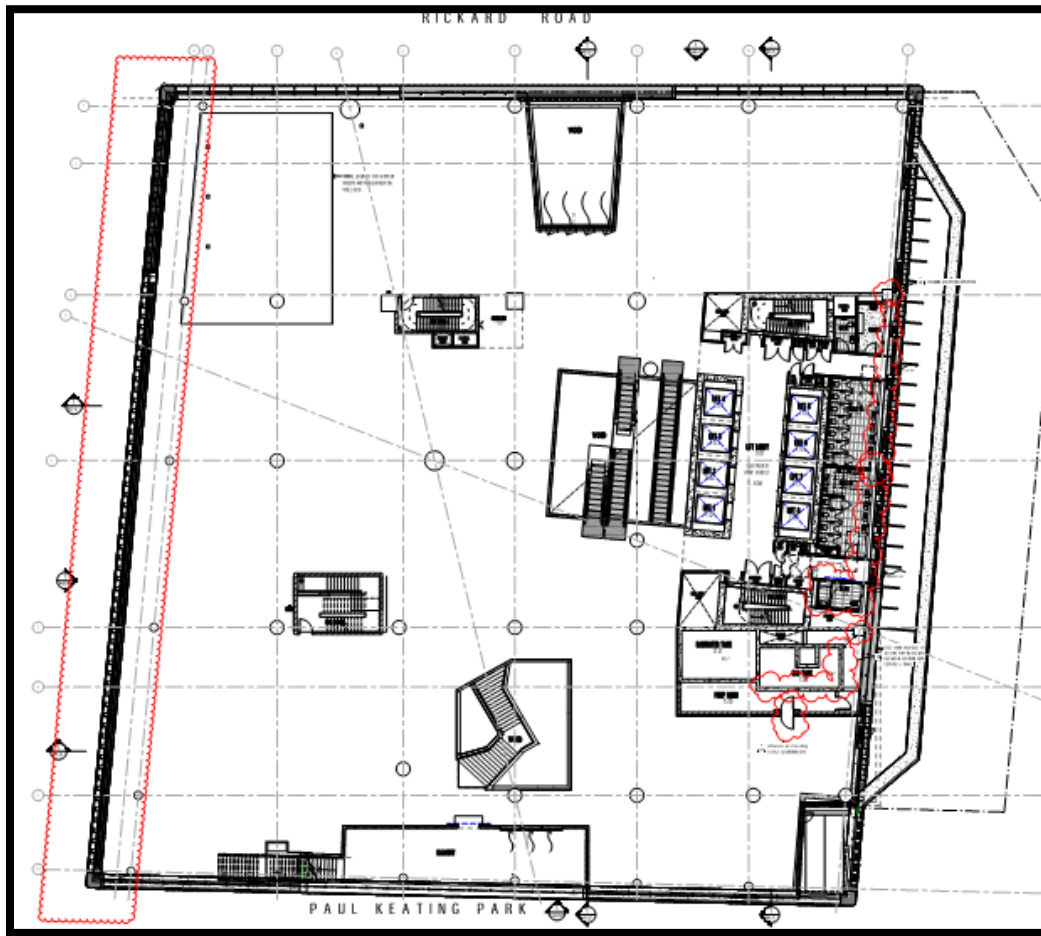
If a building has parts of different classifications located alongside one another in the same storey, or above/below one another in different storeys, the parts must be separated by a fire wall/floor slab having the higher FRL prescribed in Table 3 of Specification C1.1 or the whole fire compartment is to be constructed to the higher FRL, which in this instance would be 180/180/180 for a Class 6 area.



Fire separation between class 6 portions and class 9b portions of the ground floor storey is not proposed and will be addressed via a Fire Engineered Performance Solution.

Clause C3.2/3.4 Protection of openings in external walls

The laneway adjacent to the western side of the building is a non-gazetted road and therefore the site boundary with the laneway is considered a fire-source feature for the purposes of section C of the BCA. Accordingly, the openings in the external wall to levels ground, 1 & 2 at the western façade adjoining the laneway are within 3m of the title boundary and require protection in accordance with this clause.



It is understood that a Fire Engineered Performance Solution will be developed to partially omit the requirement for external wall-wetting sprinklers to this elevation.

Section D – Access & Egress

Clause D1.4/D1.5 – Exit travel distances

Clause D1.4 requires that no point on a floor must be more than 20m from an exit or a point of choice to two exits, in which case the maximum distance to one of those exits must not exceed 40m.

Clause D1.5 requires that alternative exits be no closer than 9m or further than 60m apart. The travel distances identified in the tables below are based on the concept fit-out drawings for levels Ground to 12 and Level 18, and base building drawings for Basement levels 1 & 2 and Levels 13-17

The Following Non-compliances highlighted in red are present in the building. These are split into base-building and fit out non-compliances for ease of reference as the design and construction model considers these separately.

Fitout:

Location	DTS Travel Distance Requirement	Current condition (Point of Choice/Nearest Exit/Dist between alt exits)	Resolution
Ground	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 20/50/61 	Design Change or Performance Solution
Level 1	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 11/39/67 11/25/69 24/48/53 28/37/28 	Design Change or Performance Solution
Level 2	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 11/38/64 11/25/69 25/42/50 24/42/50 28/37/28 	Design Change or Performance Solution
Level 4	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 24/33/40 22/35/50 	Design Change or Performance Solution
Level 5	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 18/35/69 17/29/75 	Design Change or Performance Solution
Level 6	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 24/43/69 11/39/65 	Design Change or Performance Solution
Level 7	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 24/43/69 11/39/65 	Design Change or Performance Solution
Level 8	<ul style="list-style-type: none"> 20m max. to a point of choice. 40m max. to an exit (2 min.). 60m Max between alternative exits. 	<ul style="list-style-type: none"> 8/32/70 	Design Change or Performance Solution

It is understood the extended travel distances identified in the table above will be addressed via design changes or a Fire Engineered Performance Solution.

Clause D1.6 Dimensions of exits and paths of travel to exits

Clause D1.6 (a) requires that the unobstructed height throughout a required exit or path of travel to an exit must not be less than 1m, except for a doorway of which the unobstructed height may be reduced to 1980mm. Further information will be required at detailed design stage to confirm compliance with this clause however compliance is readily achievable.

Clause D1.6 (c) requires, for a storey accommodating more than 100 persons but not more than 200 persons, the aggregate unobstructed egress width except for doorways be not less than:

- i) 1m plus 250mm for each 25 persons (or part) in excess of 100

Clause D1.6 (d) requires, for a storey accommodating more than 200 persons, the aggregate unobstructed egress width, except for doorways must be increased to:

- i) 2m plus 500mm for every 60 persons (or part) in excess of 200 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, 2m plus 500mm for every 75 persons in excess of 200

The building as designed is compliant with the requirements of this clause based upon the maximum populations proposed. Refer to Appendix B, Lyons Populations Memo Revision 6 dated 21st May 2019, created in consultation with the Client, Western Sydney University, detailing maximum populations and corresponding egress widths.

Part D3 – Access for people with a disability

Refer to separate disability access report for compliance with part D3.

Section E – Fire Services & Equipment**E1 – Fire Fighting Equipment**

The following firefighting equipment is required to be installed in this building and will be subject to specific requirements of the Fire Engineering Report when it becomes available:

- Fire hydrants to AS 2419.1-2005
- Fire Hose Reels to AS 2441-2005
- Automatic Fire Sprinkler System to AS 2118.1-2017
- Portable Fire Extinguishers to AS 2444-2001

Design Certification is required from an appropriately qualified and accredited Fire Services Engineer for each of these services prior to the issue of a Construction Certificate/Crown Building Certificate.

Clause E1.4

Clause E1.4 I (i) & (ii) requires that a fire hose reel be provided adjacent to an internal fire hydrant (other than one in a fire-isolated exit) and within 4m of an exit, however they need not be located within 4m of every exit or adjacent to every internal fire hydrant provided system coverage can be achieved.

The Following Non-compliances pertaining to Fire-Hose Reels are present in the building. These are split into base-building and fit out non-compliances for ease of reference considering the design and construction model considering these separately.

Base-Building:

Location	Non-Compliance	Resolution
GF Adjacent Fire Stair 2	7m from an exit in lieu of 4m	Performance Solution by Fire-Engineer

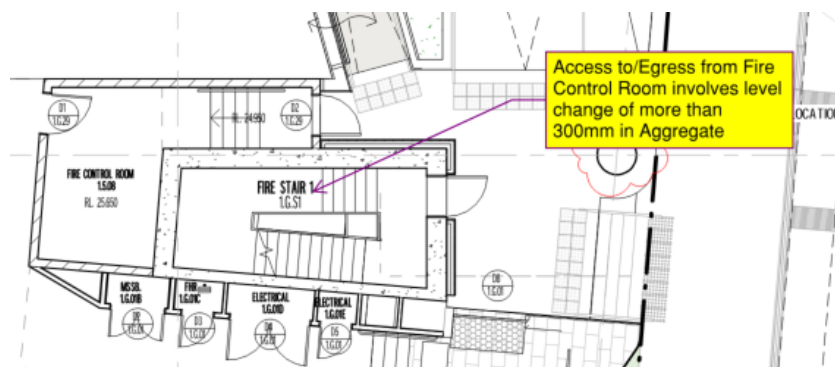
Fit out:

Location	Non-Compliance	Resolution
Level 9 Fire Stair 2	FHR not within 4m of the exit	Provide a FHR within 4m of the exit.

Clause E1.8/Specification E1.8 – Fire Control Centres

Specification E1.8 requires a Fire Control Centre be located within a separate room (Fire Control Room) where the effective height of a building exceeds 50m. Specification E1.8 (3) states that a fire control centre must not be so located in a building that egress from any part of its floor, to a road or open space, does not involve changes in level which in aggregate exceed 300mm.

The proposed location of the fire control room is in aggregate approximately 700mm above the level of the closest area considered a road or open space. It is understood a performance solution will be developed by the fire safety engineer to address this non-compliance.



E2 – Smoke Hazard Management

The BCA requires the following Smoke Hazard Provisions to be implemented for this development and is subject to specific requirements of the Fire Engineering Report.

- Zone smoke control system to AS/NZS 1668.1-2015
- Stair pressurisation to all fire-isolated exists and passageways to AS/NZS 1668.1-

2015

- BOWS to Clause 7 of specification E2.2a
- Carpark mechanical ventilation / extraction, to BCA E2.2, AS 1668.2-2012 & Clause 5.5 of AS/NZS 1668.1- 2015
- Automatic Smoke Exhaust System complying with Specification E2.2b

Design Certification is required from an appropriately qualified Fire Services Engineer for each of these services prior to the issue of a Construction Certificate/Crown Building Certificate.

Zone Smoke Control – Pressure Differential non-compliance

AS 1668.1-2015 (part 5) requires that a pressure differential of 20 Pa be maintained between the fire floor and all other floors. This is to mitigate smoke spread between levels. In the proposed building, as the atrium fire compartment will include Ground level – Level 2 (atrium fire compartment), it has been indicated by the design team due to the likely number of doors being open (for occupants evacuating on the ground level), that it will be difficult to maintain 20 Pa between this compartment and the fire affected compartment. While exclusively negative pressure may be used on the fire floor to maintain a pressure difference to the atrium fire compartment, it is considered difficult to ensure exit door forces are appropriate for occupants evacuating. This non-compliance will be addressed via a performance solution developed by the Fire Safety Engineer.

E3 – Lift Installations

The BCA requires the following lift provisions to be implemented for this development:

- At least two (2) Emergency Lifts are required to serve all storeys.
- Stretcher facilities are required in at least one of the lifts. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level.
- Warning signage, i.e. “Do not use lifts if there is a fire”
- Landings are to comply with the access and egress provision of Section D of the BCA.
- The lifts must be a type of lift noted in Table E3.6(a) of the BCA.
- The lifts must have features in accordance with Table E3.6(b), i.e. handrails, certain dimensions, etc, as stipulated within this table.
- Fire Services Controls – consisting of a fire recall switches for the group of lifts and a lift car fire service drive control switch complying with E3.10 for every lift.
- The lift car must have emergency lighting.
- Cooling of the lift shaft to ensure that the dry bulb air temperature in the lift shaft does not exceed 40oC and if the cooling is by ventilated system, be provided with an air change rate determined using a temperature rise of no more than 5 K.
- Emergency access doors may be required for these single enclosed shafts, vertical transport consultant to advise when considering the multiple prerequisites of Specification E3.1 Clause 6.

Design Certification will be required from the Vertical Transport Consultant prior to the issue of a Construction Certificate/Crown Building Certificate to confirm the proposed lift installation within the building is compliant with the above.

E4 – Visibility in an Emergency Lighting, Exit Signs and Warning Systems

The BCA requires the following Emergency Lighting, Exit Signs and Warning Systems for this development:

- Emergency lighting and exit signs are required to be installed throughout the building in accordance with the provisions of the BCA and AS 2293.1 - 2018.
- A sound system and intercom system for Emergency purposes complying with AS1670.1-2018 and specific fire engineering requirements is required throughout the building.

Design Certification from the appropriately qualified electrical engineer will be required prior to the issue of a Construction Certificate/Crown Building Certificate to confirm compliance of the above with the relevant standards.

Section F – Health and Amenity

F2 – Sanitary & Facilities

Clause F2.3 requires sanitary facilities to be provided in Class 3-9 buildings in accordance with the provisions of Table F2.3.

Refer to Appendix B, Lyons Populations Memo Revision 7 dated 22nd July 2019, created in consultation with the Client, Western Sydney University, detailing sanitary facilities on each floor in accordance with the stipulated population numbers and as per the DtS requirements of the BCA.

F3 – Room Sizes

The ceiling height must be not less than—

- Generally, 2.4 m; and
- A habitable room excluding kitchen; and a corridor, passageway, or the like — 2.4 m; and
- a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, apartment kitchen and laundry, or the like — 2.1 m; and
- a commercial kitchen — 2.4 m; and
- 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.

The sections appear to illustrate compliance with this provision, however they should be updated with relevant dimensions for absolute confirmation.

NSW G1.101 Provision for Cleaning Windows

A building must be provided for a safe manner of cleaning windows above 3 or more storeys. This provision is satisfied if the windows can be cleaned from the inside, or externally via a method complying with the

Work Health and Safety Act 2011 and associated regulations. Design certification will be required from an appropriately qualified person prior to the issue of the Crown Certification, and Installation Certification will be required prior to issuing the Crown Completion Certificate.

Section G - Ancillary Provisions

G3 – Atrium Construction

Smoke Exhaust Rate

The smoke exhaust rate for the smoke exhaust system required for the atrium is designed exclusively for Class 9b use however the atrium fire compartment has Class 6 areas opening into it as well. The exhaust rate is proposed to be 45m³/s in lieu of 74m³/s.

This non-compliance will be addressed via a performance solution developed by the Fire Safety Engineer.

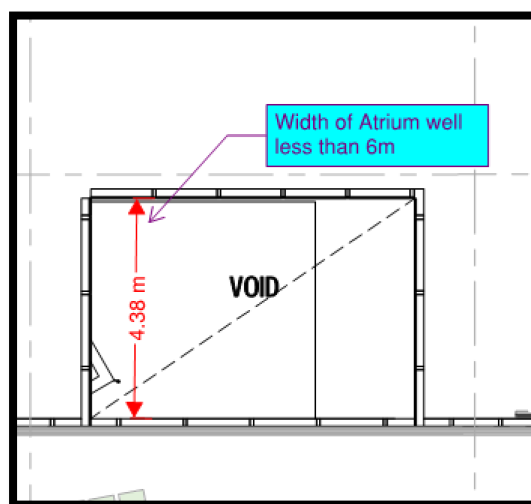
Omission of Sub-ducts to Hot Layer Smoke Exhaust System

The atrium smoke exhaust will be exhausted via the smoke control riser shaft. The zone smoke control riser shaft will have sub-ducts at every level for the zone smoke control system in accordance with AS 1668.1 The atrium exhaust will also utilise this riser (essentially as a zone smoke control system for Ground - Level 2, but at a higher exhaust rate). To reduce the duct sizes above the ceiling it has been proposed to extract smoke from the atrium at several levels (e.g. Level 7, 6, 5 & 4) and use the atrium as a smoke reservoir. Therefore, at each level where the duct from the atrium enters the riser, AS 1668.1 (Part 5) would require the ducts to have a sub-duct. It is proposed not to use sub-ducts into the atrium riser, rather motorised smoke dampers will be used.

This non-compliance will be addressed via a performance solution developed by the Fire Safety Engineer.

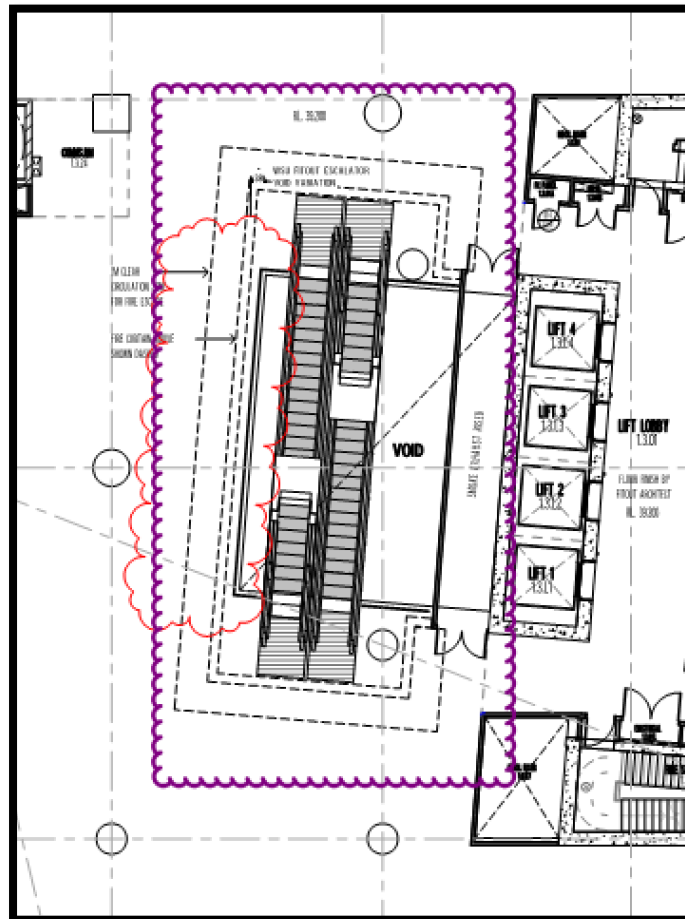
Width of Atrium Well

Section G3 of the BCA requires an Atrium well to have a width throughout the well that is able to contain a cylinder having a horizontal diameter not less than 6m. The Atrium to the south side of the building from Ground to level 3 will not comply with this requirement.



Atrium Bounding Construction

The proposed atrium bounding construction will not strictly comply with the DtS requirements of the BCA as fire curtains are proposed on various levels in lieu of DtS compliant drencher protected glazing or solid construction achieving the required FRL. This non-compliance will be addressed via performance solution developed by the Fire Safety Engineer.



Omission of 'Evacuate' Signage on Atrium Levels

It is proposed to omit the 'EVACUATE' signs required by BCA DtS Clause G3.8 & Specification G3.8 Clause 5. This non-compliance will be addressed via. Performance solution by a Fire Engineer.

Section J – Energy Efficiency

Compliance with the requirements of Section J of the BCA 2019 is required for this project. ESD Engineer or other appropriately qualified consultant is required to confirm compliance.

5.0 ESSENTIAL FIRE SAFETY MEASURES (EFSM)

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

Fire Safety Measure	Standard of Performance	BCA Clause(s)	Proposed Fire Safety Measures
Access panels, doors & hoppers to fire resisting shafts	AS 1530.4 – 2014	C3.13	☑
Atrium provisions <ul style="list-style-type: none"> Detection & alarm system SSISEP Sprinklers Stair pressurisation 	AS 1670.1-2018 AS 1670.4-2018 AS 2118.1-2017 AS 1668.1-2015	G3.8, Spec G3.8	☑
Automatic fail-safe devices	--	C3.8, D2.21, Spec C3.4	☑
Automatic fire detection & alarm systems	AS 1670.1 – 2018	Spec E2.2b, G3.8	☑
Automatic fire suppression systems	AS 2118.1 – 2017	E1.5, Spec E1.5, NSW Table E2.2b, G3.8	☑
Emergency lighting	AS 2293.1 – 2018	E4.2, E4.4	☑
Exit signs	AS 2293.1 – 2018	E4.5, NSW E4.6 & E4.8, EP4.2	☑
Fire dampers	AS 1668.1 – 2015	Spec E2.2a	☑
Fire doors	AS 1905.1 – 2015	Spec C3.4, C3.10	☑
Fire hose reel systems	AS 2441 – 2005	E1.4, EP1.1	☑
Fire hydrant systems	AS 2419.1 – 2005	E1.3, EP1.3	☑
Fire seals (protecting openings in fire resisting components of the building)	AS 4072.1 – 2005 AS 1530.4 – 2014	C3.12, C3.13, C3.15	☑
Lightweight construction	AS 1530.4-2014	C1.8, Spec C1.8, CP1, CP2	☑
Mechanical air handling systems <ul style="list-style-type: none"> Auto shutdown Stair pressurisation Smoke exhaust Zone Smoke Control 	AS 1668.1 – 2015 AS 1668.2 –2012	E2.2, Spec E2.2a, Spec E2.2b	☑
Portable fire extinguishers & fire blankets	AS 2444 – 2001	E1.6	☑
Smoke dampers	AS/NZS 1668.1 – 2015	C3.15, Spec G3.8	☑

Fire Safety Measure	Standard of Performance	BCA Clause(s)	Proposed Fire Safety Measures
Sound systems and intercom systems for emergency procedures	AS 1670.4 – 2018 AS 4428.4 – 2004	E4.9, Spec G3.8	<input checked="" type="checkbox"/>
Standby power systems	-	Spec G3.8	<input checked="" type="checkbox"/>
Wall wetting sprinklers & drencher systems	AS 2118.1 – 2017	Spec G3.8	<input checked="" type="checkbox"/>
Warning and operational signs	--	C3.6, E3.3, D2.23 & Spec E1.8	<input checked="" type="checkbox"/>
Paths of Travel	--	D1.6, DP4, DP5, DP6, EP2.2	<input checked="" type="checkbox"/>
Fire/Smoke Curtain	--	--	<input checked="" type="checkbox"/>
Alternative Performance Solution, Report No. TBC	Alternative Solution, Report No. TBC , issued by, dated TBC .	-	<input checked="" type="checkbox"/>

Table 7 – Essential Fire Safety Measures (EFSM)

Appendix A:

Fire Resistance Levels (FRL's)

Specification C1.1, BCA Table No. 3 – Type A Construction: FRL of Building Elements

Item	Class 2, 3 or 4 part	Class 5, 7a or 9b	Class 6	Class 7b or 8
Loadbearing External Walls <ul style="list-style-type: none"> Less than 1.5m to a fire source feature 1.5 – less than 3m from a fire source feature; 3m or more from a fire source feature 	90/90/90 90/60/60 90/60/30	120/120/120 120/90/90 120/60/30	180/180/180 180/180/120 180/120/90	240/240/240 240/240/180 240/180/90
Non-Loadbearing External Walls <ul style="list-style-type: none"> Less than 1.5m to a fire source feature 1.5 – less than 3m from a fire source feature; 3m or more from a fire source feature 	-/90/90 -/60/60 -/-	-/120/120 -/90/90 -/-	-/180/180 -/180/120 -/-	-/240/240 -/240/180 -/-
External Columns <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	90/- -/-	120/- -/-	180/- -/-	240/- -/-
Common Walls & Fire Walls	90/90/90	120/120/120	180/180/180	240/240/240
Stair and Lift Shafts required to be fire-resisting <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	90/90/90 -/90/90	120/120/120 -/120/120	180/120/120 -/120/120	240/120/120 -/120/120
Internal walls bounding sole occupancy units <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	90/90/90 -/60/60	120/- -/-	180/- -/-	240/- -/-
Internal walls bounding public corridors, public lobbies and the like: <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	90/90/90 -/60/60	120/- -/-	180/- -/-	240/- -/-
Ventilating, pipe, garbage and like shafts: <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	90/90/90 -/90/90	120/90/90 -/90/90	180/120/120 -/120/120	240/120/120 -/120/120
Other loadbearing internal walls, beams trusses and columns	90/-	120/-	180/-	240/-
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

Note: See concessions in Spec C1.1 for concessions to these above tabulated requirements, as this may reduce or remove fire rating requirements subject to certain criteria and haven't been captured in this report.

Table 8 – Fire Resistance Levels (FRL's)

Appendix B: Populations

4.0 Revised Base Building Design

Updates to SEARs Response Architectural Design Report:

2.1.3 Building Populations

5.0 Base Building Design

4.1. Building Populations

New form has resulted in adjustment to how the floor area and population are distributed within the building in order to meet the University's needs. The overall building GFA, remains within the proposed floor space ratio (FSR), with the External Area redistributed across 3 terraces and 11 recessed balconies. Revisions to Building Populations table as follows:

Usage	Level	GFA m ²	NLA m ²	External Area m ²	Estimate Occupancy Population	Life Safety Maximum Population	Toilet Population	Toilet Calculation Basis
Upper Tower: University / Education Use	Level 18	809	665	63	67	200	150	Class 5 Office employees
	Level 17	1084	940	-	94	200	150	
	Level 16	1210	1066	104	107	200	150	
	Level 15	1278	1122	-	112	200	150	
	Level 14	931	786	608	79	320	150	
Mid-Tower: University / Education Use	Level 13	1378	1219	55	200	320	150p or 200p	Class 5 Office employees or Class 9b Schools-Students
	Level 12	1478	1329	34	200	320	150p or 200p	
	Level 11	1372	1224	105	200	320	150p or 200p	
	Level 10	1461	1312	54	200	320	150p or 200p	
Uni.Staff Workspaces, Research.	Level 9	1454	1306	22	200	320	150p or 200p	
Conference Facilities & Terrace	Level 8	1122	974	862	320	320	320p	Class 9b Schools-Students or Class 9b Function Halls
Lower Tower: Learning spaces, University Staff Workspaces, Research.	Level 7	1942	1772	-	320	320	320p or 180p	Class 9b Schools-Students or Class 5 Office employees
	Level 6	1940	1770	-	320	320	320p or 180p	
	Level 5	1865	1696	62	320	320	320p or 180p	
Library	Level 4	1936	1768	58	320	320	320p or 180p	
Student Hub & Terrace	Level 3	1455	1300	1237	260	440	320p	Class 9b Schools-Students
Engagement, Research & Student Services	Level 2	2575	2411	61	440	440	440p	
	Level 1	2431	2269	74	440	440	440p	
'University street' Concierge, Tiered Multipurpose Space & Retail.	Ground Level	1663	1476	1441	547	440 plus Retail	350p plus 250p	Class 6 Retail (food /beverage) and Class 9b Schools-Students
End of trip facilities, Plant, Loading, Car Parking	Basement 1 & 2	-	157	-	minimal	440	N/A	N/A
TOTAL		29,384	26,562	3,399	4,745			

FSR: 7.99

Appendix C:

BCA Provisions

BCA PROVISIONS

The following is a clause-by-clause assessment of the architectural drawings against the deemed-to-satisfy provisions of the BCA 2019.

Key of Figures:

✓	The building as designed / indicated complies with this clause.
X	The building does not comply with this clause.
?	Further information or documentation required to clarify compliance.
CR	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
N/A	This clause is not applicable to this project.
PS	Performance Solution using Performance Requirements has been utilised/proposed to address this item – see body of report for further information
Noted	This clause is for information.

Section A: General Provisions		
A3	Classification of Buildings and Structures	
Clause	Reference	Comment
A3.2	Classifications	
✓	The classification of a building is determined by the purpose for which it is designed, constructed or adapted.	9b, 7a, 6, 5
A3.3	Multiple classification	
✓	Each part must be classified separately: (a) Classified to the major use if not more than 10% of the floor area of the storey. (b) Plant rooms are classified as the same part.	Considered.
A4	United Buildings	
Clause	Reference	Comment
A4.1	When buildings are united	
N/A	Two or more buildings adjoining each other form one united building if they are connected through openings in the walls dividing them and both buildings comply with the requirements of the BCA as though they are a single building.	This clause is not applicable to this project

Section B: Structure		
B1	Structural Provisions	
Clause	Reference	Comment
B1.1	Resistance to actions & Loads	Structural Engineer to Confirm
B1.2	Determination of individual actions	
CR	<p>The building or structure must resist loads determined in accordance with the following:</p> <ul style="list-style-type: none"> (a) Dead and live load combinations: AS 1170.0-2002 and AS 1170.1-2002 (b) Wind loads AS 1170.2- 2011 and BCA Part B1 (c) Snow loads AS 1170.3-2003 (d) Earthquake loads AS 1170.4-2007 	Structural Engineer to Confirm
B1.3	Materials and forms of construction	
CR	<p>The building or structure must resist loads determined in accordance with the following:</p> <ul style="list-style-type: none"> (a) Dead and live load combinations: AS 1170.1 (b) Wind loads AS 1170.2-2002 or 2011 with BCA B1 (c) Snow loads AS 1170.3-2003 (d) Earthquake loads AS 1170.4-2007 	Structural Engineer to Confirm
B1.4	Materials and forms of construction	
CR	<p>Forms of construction are to be designed to the following Australian Standards as applicable:</p> <ul style="list-style-type: none"> (a) AS 3700 (b) AS 3600 (c) AS 4100 (d) AS 1288-2006 (see note below) (e) AS 2047 (f) AS 1562.1 (g) AS 1720.1 (h) AS 3660.1 (i) AS 4654.1 and 2 – Waterproofing of external above ground areas (j) AS/NZS 4505 – garage doors and large access doors (k) Table B1.4 – re Glazing in lift shafts that do not require an FRL 	All to be listed in the building specification. Structural Engineer, Architect and Manufacturers to certify.
B1.6	Construction in Flood Prone Areas	
N/A	A Class 2, 3, 4 (part), 9a or 9c building in a flood hazard area must comply with the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	This clause is not applicable to this project

Section C: Fire Provisions		
Part C1 – Fire Resistance and Stability		
Clause	Reference	Comment
C1.1	Type of construction	
Noted PSOL	Type of Construction required is determined by the Table C1.1, to comply with general requirements of Spec C1.1 and: Type A – Part 3 of Spec C1.1	Type A Construction is required. Performance Solution is proposed to reduce FRL of Retail Tenancies on Ground Floor & To allow Western Façade to not achieve an FRL. See body of report and Fire Engineering Strategy for further information.
C.1.2	Calculation of rise in storeys	
Noted	The rise in storeys is the greatest number of storeys at any part of the external walls of the building above the finished ground next to that part. It excludes a single level of plant room only, and any storeys completely below ground Note: Some over height spaces in industrial and warehouse buildings can count as two storeys in some situations	The building has a rise in storeys of 19 in accordance with the BCA definition.
C1.3	Building of multiple classification	
Noted	The Type of construction required is determined on the basis that the classification of the top storey applies to all storeys.	This Clause is for information only.
C1.4	Mixed types of construction	
N/A	Building may be of mixed Types of Construction where it is separated in accordance with C2.7	This clause is not applicable to this project.
C1.5	Two storey Class 2 or 9c buildings	
N/A	Class 2 or 3 of two storeys may be Type C construction if each SOU has: <ul style="list-style-type: none"> Access to at least 2 exits; or Its own direct access to a road or open space. 	This clause is not applicable to this project.
C1.6	Class 4 parts of a building	
N/A	Class 4 part of a building requires same FRL as that required by a Class 2 in similar circumstances.	This clause is not applicable to this project.
C1.7	Open spectator stands and indoor sports stadium	
N/A	May be of Type C construction if it contains only 1 tier and is of non-combustible material.	This clause is not applicable to this project.
C1.8	Lightweight construction	

Noted	Lightweight construction may be used if it is in compliance with Specification C1.8.	Compliance required where applicable. Further information to be provided at Construction Stage if lightweight fire-rate construction is to be utilised in the building.
C1.9	Non-combustible building elements	
CR	<p>a) In a building of Type A or Type B Construction the following building elements and their components must be non-combustible:</p> <ul style="list-style-type: none"> I. External walls & common walls, including all components incorporated in them including the façade covering, framing & insulation II. The flooring and floor framing of lift pits III. Non-loadbearing internal walls where they are required to be fire-resisting <p>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:</p> <ul style="list-style-type: none"> I. A building required to be of Type A Construction II. A building require to be of Type B construction, subject to C2.10 in a Class 2, 3 or 9 Building, and a Class 5, 6, 7 or 8 Building if the shaft connects more than 2 storeys <p>Note: the requirements of a & b don't apply to certain building elements (C1.9d), and certain materials can be used where non-combustible materials are required (C1.9e)</p>	Confirmation required that elements proposed in external wall are non-combustible. Refer to body of report for further information. A schedule of all materials proposed for use in the external wall will be require prior to the issue of the Construction Certificate.

C1.10	Fire hazard properties	
CR Noted	<p>Materials and assemblies used in the building must comply with the requirements of Specification C1.10.</p> <ul style="list-style-type: none"> In the case of a sarking material the Flammability Index (FI) shall not be more than 5. Floor materials – Critical Radiant Flux (CRF) of not less than 1.2 (sprinkler protected building) Wall and Ceiling materials – Either Group 1, 2 or 3 materials. Ductwork – to comply with AS 4254 Lift Cars – to be CRF of 2.2 or more for floors, and Group 1 or 2 material for the wall/ceilings <p><u>Note:</u> Timber as a product generally only achieves a Group 3 rating, so if Group 1 or 2 is required then an alternative product is to be sourced or this is to be the subject of a Performance Solution from a qualified fire safety engineer.</p>	<p>Compliance required.</p> <p>Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p> <p>Fire Hazard test reports and certificates will be required for review and comment, suggest these are submitted prior to purchasing of the product and installation.</p>
C1.11	Performance of external wall in fire	
N/A	In buildings of up to two storeys, any concrete external walls that could collapse as complete panels to comply with specification C1.11.	This clause is not applicable to this project.
C1.13	Fire-protected timber – Concession	
N/A	<p>Fire-protected timber may be used on a class 2, 3 or 5 building whenever an element is required to be non-combustible provided:</p> <ul style="list-style-type: none"> The building has an effective height of not more than 25 m; and The building contains a sprinkler system throughout; and Any related insulation is non-combustible; and Cavity barriers are provided in accordance with Specification C1.13. 	This clause is not applicable to this project.

C1.14	Ancillary Elements	
Noted	<p>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:</p> <ul style="list-style-type: none"> • An ancillary element that is not combustible • Plumbing fixtures / fitting (i.e. gutter, downpipe, etc) • Grate / grille with less than 2m² associated with a building service • Light fitting • Required sign • Flashing • Awning, sunshade, canopy (except ground level and level above) that is not in an exit • Intercom devices • Wiring • Paint or the like • Gasket / caulking / sealant 	This Clause is for information.
Part C2 – Compartmentation and Separation		
Clause	Reference	Comment
C2.2	General floor area limitations	
✓	<p>Table C2.2 limits the size of fire compartments to:</p> <ul style="list-style-type: none"> - Class 5 or 9b Type A, 8,000 m² & 48,000m³ - Class 6, 7, 8 or 9a Type A, 5,000 m² & 30,000 m³ 	The building is under the size limitation from Table C2.2 and this clause.
C2.3	Large isolated buildings	
N/A	<p>A fire compartment may exceed that specified in Table C2.2. Buildings under of exceeding 18,000m² in floor area to be provided with specific requirements Generally, a sprinkler system complying with Specification E1.5 provided with a perimeter vehicular access complying with C2.4 (b) – additional measures may include a smoke exhaust system in accordance with Specification E2.2b or smoke-and-heat vents in accordance with Specification E2.2c.</p>	This clause is not applicable to this project.

C2.4	Requirements for open spaces and vehicular access	
N/A	Requirements for open spaces and vehicular access capable of supporting emergency vehicles, 6m wide not more than 18m from the building. Part (a) – 18m wide open space without any buildings or obstructions whatsoever and must also comply with Part (b) of this section. ✓	This clause is not applicable to this project.
C2.5	Class 9a & 9c buildings	
N/A	Class 9a & 9c Fire Compartmentation and separation requirements: 9a <ul style="list-style-type: none"> • Patient care areas not greater than 2000 m2 • Ward areas divided into 1000 m2 60/60/60 compartments, 500 m2 smoke separation • Treatment areas 1,000 m2 smoke compartments • Ancillary areas separated from Patient Care areas by 60/60/60 walls • Openings in wall required to have an FRL to be protected • All Ward areas are to be smoke separated from the rest of building if Ward area is less than 500m2 (60/60/60 FRL in this case), or if Ward area is less than 1,000m2 9c <ul style="list-style-type: none"> • 500 m2 smoke compartments • Fire compartments with 60/60/60 (see also C2.7 & Spec C1.1) • Internal walls supporting floors to have 60/-/- • Ancillary areas separated from sole-occupancy units by smoke proof walls • Openings in wall required to have an FRL to be protected 	This clause is not applicable to this project.

C2.6	Vertical separation of openings in external walls	
N/A	<p>The following applies to buildings Type A Construction that are not provided with a sprinkler system installed throughout.</p> <p>Where the vertical projection of an opening in an external wall falls no further than 450 mm outside an opening in the storey next below, the openings must be provided with vertical separation complying with Clause C2.6, that is:</p> <ul style="list-style-type: none"> • They must be protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab, or • They must be provided with a 1.1m horizontal projection (FRL 60/60/60) also extending at least 450mm either side of the openings. <p>Note: The above does not apply to openings within the same stairway. Note: When the BCA requires an FRL the fire rating is required to come from both directions, from outside in and from inside out.</p>	The building is protected by a Sprinkler system complying with Specification E1.5, therefore this clause is not applicable.
C2.7	Separation by fire walls	
Noted	Firewalls are to be designed/built to the various requirements of this provision.	This clause is for information.
C2.8	Separation of classifications in the same storey	
PSOL	Firewalls are needed to separate different classifications, or the building must be built to the higher fire resistance level.	Performance solution using performance requirements has been utilised/proposed to address separation of retail tenancies at Ground Floor. See body of report & Fire Engineering Strategy for further details.
C2.9	Separation of classifications in different storeys	
Noted & CR.	<p>The separating floors must have an FRL not less than that required for the lower storey use.</p> <p>Note: 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 and D2.12 whereby roof as open space must have an FRL not less than 120/120/120.</p>	Performance solution using performance requirements has been utilised/proposed to address separation of retail tenancies at Ground Floor. See body of report & Fire Engineering Strategy for further details.

C2.10	Separation of lift shafts	
Noted & CR	<p>The lift is to be enclosed in a fire-isolated shaft if it connects more than two storeys or three storeys if provided with a sprinkler system.</p> <p>Note: Emergency lifts must be in fire-rated shafts not less than FRL 120/120/120 (Type A Construction).</p>	The building as designed is proposed to comply with this clause.

C2.11	Stairs and lift in one shaft	
✓	Not to be within the same shaft if either is required to be fire-isolated.	The building as designed is proposed to comply with this clause.
C2.12	Separation of equipment	
Noted & CR.	<p>Equipment comprising lift motors and control plant, emergency generators or central smoke control plant; boilers or batteries are required to be separated from the remainder of the building by construction achieving a FRL of 120/120/120 with openings protected by self-closing fire doors having an FRL of not less than –/120/30.</p> <p>Note: Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.</p> <p>Note: Battery rooms are rooms where the batteries stored exceed 10 ampere hours <u>and</u> 24 volts</p>	Compliance required and appears readily achievable.
C2.13	Electricity supply system	
Noted & CR.	A substation located within a building or main switchboard, which sustains emergency equipment, must be separated from the remainder of the building by construction achieving a FRL of not less than 120/120/120.	Compliance required and appears readily achievable.
C2.14	Public corridors in Class 2 & 3 buildings	
N/A	In a Class 2 & 3 building, a public corridor, if more than 40m in length, must be divided at intervals of not more than 40m with smoke-proof walls complying with Clause 2 of Spec C2.5.	This clause is not applicable to this project.

Part C3 – Protection of Openings

Clause	Reference	Comment
C3.2	Protection of opening in external walls	
Complies	<p>Openings in the external walls are to be protected in accordance with C3.4 if:</p> <ul style="list-style-type: none"> less than 3m to side or rear boundary less than 6m from the far boundary of a road if not located at or near ground level Less than 6m from another building on the same allotment. 	A performance solution is proposed to address the protection of openings in the Western façade at levels Ground, 1 & 2.

C3.3	Separation of external walls and associated openings in different fire compartment																	
N/A	<p>External walls of a different fire compartments to be separated by a fire wall of not less than FRL 60/60/60 or any openings must be protected in accordance with Clause C3.4 if within the distance set out in Table C3.3.</p> <table><tr><th colspan="2">Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS</th></tr><tr><th>Angle between walls</th><th>Min Distance</th></tr><tr><td>0° (walls opposite)</td><td>6m</td></tr><tr><td>more than 0° to 45°</td><td>5m</td></tr><tr><td>more than 45° to 90°</td><td>4m</td></tr><tr><td>more than 90° to 135°</td><td>3m</td></tr><tr><td>more than 135° to less than 180°</td><td>2m</td></tr><tr><td>180° or more</td><td>Nil</td></tr></table> <p>Note: Please note that fire does not transfer through openings in 180° between different fire compartments.</p>	Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS		Angle between walls	Min Distance	0° (walls opposite)	6m	more than 0° to 45°	5m	more than 45° to 90°	4m	more than 90° to 135°	3m	more than 135° to less than 180°	2m	180° or more	Nil	<p>This clause is not applicable to this project.</p>
Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS																		
Angle between walls	Min Distance																	
0° (walls opposite)	6m																	
more than 0° to 45°	5m																	
more than 45° to 90°	4m																	
more than 90° to 135°	3m																	
more than 135° to less than 180°	2m																	
180° or more	Nil																	
C3.4	Acceptable methods of protection																	
✓	<p>Where openings are exposed require to be protected by the followings:</p> <p>Doorways:</p> <ul style="list-style-type: none">Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing; or–/60/30 fire doors that are self-closing. <p>Windows:</p> <ul style="list-style-type: none">Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or–60/– fire windows that are automatically closing or permanently fixed in the closed position; or–/60/– automatic closing fire shutters. <p>Other openings:</p> <ul style="list-style-type: none">Excluding voids – internal or external wall-wetting sprinklers; orConstruction having an FRL not less than –/60/– <p>Note: Fire doors, fire windows and fire shutters must comply with BCA Specification C3.4.</p>	<p>Openings at the external walls adjacent to Fire Stairs discharging at apian way are proposed to be protected in Accordance with this clause (As required by Clause D1.7 (C) (ii))</p>																

C3.5	Doorways in fire walls	
Noted	Doorways in a fire wall which are not part of a horizontal exit, must not exceed ½ the length of the fire wall, and: <ul style="list-style-type: none"> • have the FRL required for the fire wall, and • Be self-closing or automatic-closing. Note: Door in a fire wall can have an insulation level of at least 30.	This clause is for information.
C3.6	Sliding fire doors	
N/A	If utilised must fail-safe in the closed position, be suitably signposted with an audible alarm, signage and directional arrow to indicate direction to slide door to open when in the closed position.	This clause is not applicable to this project.
C3.7	Doorways in horizontal exits	
Noted CR	To be suitably protected by fire doors with FRL of not less than that required for the fire wall and be self-closing or automatic-closing. Note: Door must swing in the direction of travel (this may be both ways if so either two doors or a multi directional swing fire door is required).	Compliance required and appears readily achievable.
C3.8	Openings in fire-isolated exits	
Noted CR	Doorways that open to fire-isolated stairways, fire-isolated passageways or fire-isolated ramps, and are not doorways opening to a road or open space, must be protected by a -/60/30 fire door that is self-closing, or automatic closing.	Compliance required and is readily achievable.
C3.9	Service penetrations in fire-isolated exits	
Noted	Fire exits must not be penetrated by services other than electrical wiring associated with lighting, stair pressurisation or the intercommunication system & hydrant system.	Compliance required.
C3.10	Openings in fire rated lift shafts	
CR	<ul style="list-style-type: none"> • Doors to be - /60/ - fire doors to AS1735.11. Lift indicator panels to be backed by -/60/60 construction if exceeding 35,000mm² in area. 	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

C3.11	Bounding Construction; Class 2, 3 & 4 buildings	
N/A	<p>Doorway to each SOU to be protected by self-closing -/60/30 fire doors.</p> <p>Note: Protection of openings in an external wall are required where a path of travel from an SOU to a single exit does not provide a person seeking egress with alternative exits, and passes another SOU along a balcony, landing or the like.</p>	This clause is not applicable to this project.
C3.12	Openings in floors for services	
Noted CR	To be enclosed in a fire rated shaft with a FRL or a ceiling required to have a resistance to the incipient spread of fire in accordance with Specification C1.1 or protected by Clause C3.15 of BCA	Compliance required and is readily achievable.
C3.13	Openings in shafts	
Noted CR	<p>Openings in shafts must be protected by:</p> <ul style="list-style-type: none"> • 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 • a self-closing –/60/30 fire door or hopper; or • an access panel having an FRL of not less than –/60/30; or • if the shaft is a garbage shaft – a door or hopper of non-combustible construction. 	Compliance required and is readily achievable.
C3.15	Openings for service installations	
Noted CR	<p>Where services pass through an element which is required to achieve a FRL (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15. These electrical, plumbing mechanical ventilation shafts etc. not to impair the FRL of rated members.</p> <p>For Type A Construction all services passing through the slab or other fire rated elements are to be fire sealed in accordance with this clause. For other types of construction penetrations to fire rated elements are required to be provided.</p> <ul style="list-style-type: none"> • Electrical – cables etc. fire sealed in accordance with Spec C3.15 or in accordance with a tested prototype. • Hydraulic – PVC pipes provided with fire collars, metal pipes fire sealed, these are both to be in accordance with Spec C3.15. • Mechanical Ducts – to AS 1668 and AS 1682 with fire dampers in accordance with these standards. 	<p>Compliance required.</p> <p>Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p>

C3.16	Construction joints	
Noted CR	Where constriction joints are required to be fire resisting for integrity and insulation they must be constructed identical to test prototype tested in accordance to AS1530.4	Compliance required.
C3.17	Columns protected with lightweight construction to achieve an FRL	
Noted CR	Where required and passing through and building element required to have an FRL must be installed same as tested prototype	Compliance required.

Specification C1.1 – Fire Resisting Construction		
Clause	Reference	Comment
2.0	General Requirements	
Noted	Informational	Noted
2.1	Exposure to fire-source features	
Noted	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– <ul style="list-style-type: none"> has an FRL of not less than 30/–/–; and is neither transparent nor translucent. 	Noted
2.2	Fire protection for a support of another part	
CR	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.	Compliance required and readily achievable at this stage of the design.
2.3	Lintels	
CR	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).	Structural Engineer to confirm compliance or otherwise.

2.4	Attachments not to impair fire-resistance	
CR	<p>Where a combustible material is used as a finish or lining to a wall or roof, or sunscreen, or awning, to a building element required to have an FRL—</p> <ul style="list-style-type: none"> the material must be exempted under C1.10 or comply with the fire hazard properties prescribed under C1.10; and the material must not be located near or directly above a required exit so as to make the exit unusable in a fire; and the material must not otherwise constitute an undue risk of fire spread via the façade of the building or compromise egress from the building. <p>Note: Aluminium panels containing plastic strengthening elements (fibres) would be considered combustible.</p> <p>Note: Aluminium composite panels (ACP) are considered an attachment to a fire rated element, the panels and their location must comply with the above. Therefore, specs including fire hazard properties of the panels are to be provided for review – ACP are likely to need a Performance Solution Report.</p>	Compliance Readily achievable as design progresses.
2.5	General concessions	
Noted	<p><u>Structures on roofs</u></p> <p>A non-combustible structure situated on a roof need not comply with the other provisions of this Specification if it only contains—</p> <p>(i) lift motor equipment; or</p> <p>(ii) one or more of the following:</p> <p>(A) Hot water or other water tanks.</p> <p>(B) Ventilating ductwork, ventilating fans and their motors.</p> <p>(C) Air-conditioning chillers.</p> <p>(D) Window cleaning equipment.</p> <p>(E) Other service units that are non-combustible and do not contain flammable or combustible liquids or gases.</p>	This clause is for information at this stage of the design.
2.6	Mezzanine floors: Concession	
N/A	Not Applicable.	Not Applicable.

2.7	Enclosure of shafts	
CR	<p>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.</p> <p>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.</p>	Compliance readily achievable
2.8	Carparks in Class 2 and 3 Buildings	
N/A	<p>Class 2 buildings not more than 4 storeys</p> <p>Class 3 building not more than 3 storeys</p>	This clause does not apply to this project
3.0	Type A fire resisting construction	
Noted.	The building is to be designed to comply with the general requirements of Spec C1.1 and Spec C1.1 Part 3.	This clause is for information.

3.1	Fire-resistance of building elements	
PSOL	<ul style="list-style-type: none"> The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 5.0 of this report (see above). External walls, common walls and the flooring and floor framing of lift pits must be non-combustible. (Note: insulation and sarking used must be non-combustible) Internal walls required to be fire rated must extend to— <ul style="list-style-type: none"> To the underside of the floor next above; or The underside of a roof complying with Table 3; or If under Clause 3.5 the roof is not required to comply with Table 3, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75x50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or A ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes. Load bearing internal walls (including those part of a loadbearing shaft) and fire walls must be of concrete or masonry. 	<p>Performance solution proposed to omit FRL to the western façade at Ground, Level 1 & Level 2.</p> <p>Compliance readily achievable for all other elements of the building.</p>

	<ul style="list-style-type: none"> Non-loadbearing internal walls required to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction. <p>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.</p> <p>Note: The FRLs specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5m of a window and are exposed through that window to a fire-source feature.</p> <p>Note: It should also be noted that if Dincel material is to be used as an element where the BCA requires such element to be non-combustible, this material will need to be the subject of a Fire Engineering Assessment at the CC stage.</p>	
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3.2	Concessions for floors	
N/A	<p>A floor need not comply with Table 3 if —</p> <ul style="list-style-type: none"> it is laid directly on the ground; or in a Class 2, 3, 5 or 9 building, the space below is not a storey, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or it is a timber stage floor in a Class 9b building laid over a floor having the required FRL and the space below the stage is not used as a dressing room, store room, or the like; or it is within a sole-occupancy unit in a Class 2 or 3 building or Class 4 part of a building; or it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the required FRL. 	Concession does not apply to this project.
3.3	Floor Loading of Class 5 and 9b buildings: Concession	
N/A	<p>If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3kPa –</p> <ul style="list-style-type: none"> The floor next above (including floor beams) may have an FRL of 90/90/90; or The roof, if that is next above (including roof beams) may have an FRL of 90/60/30. 	Concession does not apply to this project.
3.4	Roof superimposed on concrete slab: Concession	

N/A	<p>A roof superimposed on a concrete slab roof need not comply with Clause 3.1 as to fire-resisting construction if—</p> <ul style="list-style-type: none"> • The superimposed roof and any construction between it and the concrete slab roof are non-combustible throughout; and • The concrete slab roof complies with Table 3. 	Concession does not apply to this project.
3.5	Roof: Concession	
✓	<p>A roof need not comply with Table 3 if its covering is non-combustible and the building—</p> <ul style="list-style-type: none"> • has a sprinkler system complying with Specification E1.5 installed throughout; or • has a rise in storeys of 3 or less; or • is of Class 2 or 3; or • has an effective height of not more than 25m and the ceiling immediately below the roof has a resistance to the incipient spread of fire to the roof space of not less than 60 minutes. 	This concession can be applied to this building.

3.6	Roof lights	
N/A	<p>If a roof is required to have an FRL or its covering is required to be non-combustible, roof lights or the like installed in that roof must —</p> <ul style="list-style-type: none"> • Have an aggregate area of not more than 20% of the roof surface; and • Be not less than 3m from— <ul style="list-style-type: none"> - Any boundary of the allotment other than the boundary with a road or public place; and - Any part of the building which projects above the roof unless that part has the FRL required of a fire wall and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with C3.4; and - Any rooflight or the like in an adjoining sole-occupancy unit if the walls bounding the unit are required to have an FRL; and - Any rooflight or the like in an adjoining fire-separated section of the building; and • If a ceiling with a resistance to the incipient spread of fire is required, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space. 	N/A no rooflights proposed.
3.7	Internal columns and walls: Concession	

N/A	<p>For a building with an effective height of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the storey immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and internal walls other than fire walls and shaft walls may have—</p> <ul style="list-style-type: none"> • in a Class 2 or 3 building: FRL 60/60/60; or • in a Class 5, 6, 7, 8 or 9 building— <ul style="list-style-type: none"> - with rise in storeys exceeding 3: FRL 60/60/60 - with rise in storeys not exceeding 3: no FRL. 	Not applicable to this project.
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3.8	Open spectator stands and indoor sports stadiums concession	
N/A	<p>In an open spectator stand or indoor sports stadium, the following building elements need not have the FRL specified in Table 3:</p> <ul style="list-style-type: none"> • The roof if it is non-combustible. • Columns and loadbearing walls supporting only the roof if they are non-combustible. • Any non-loadbearing part of an external wall less than 3 m— <ul style="list-style-type: none"> - from any fire-source feature to which it is exposed if it has an FRL of not less than – /60/60 and is non-combustible; or - from an external wall of another open spectator stand if it is non-combustible. 	Not Applicable to this project.

3.9	Carparks	
N/A	<ul style="list-style-type: none"> • Notwithstanding Clause 3.1, a carpark may comply with Table 3.9 if it is an opendeck carpark or is protected with a sprinkler system complying with Specification E1.5 and is— <ul style="list-style-type: none"> - a separate building; or - a part of a building— <ul style="list-style-type: none"> (A) which only occupies part of a storey, and is separated from the remaining part by a fire wall; or (B) which is located above or below another classification, and the floor separating the classifications complies with C2.9; or (C) which is located above another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3 for a Class 7 part other than a carpark; or 	This clause is not applicable to this project.

	<p>(D) which is located below another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3.9. (b)</p> <ul style="list-style-type: none"> For the purposes of this Clause, a carpark— <ul style="list-style-type: none"> includes— <p>(A) an administration area associated with the functioning of the carpark; and</p> <p>(B) where the carpark is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate sole-occupancy units, each carparking area with an area not greater than 10% of its floor area for purposes ancillary to the sole-occupancy units; but</p> excludes— <p>(A) except for (b)(i), any area of another classification, or other part of a Class 7 building not used for carparking; and</p> <p>(B) a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.</p> <p>Note: See Table 3.9 directly from the BCA for more details.</p>	
3.10	Class 2 and 3 buildings: Concession	
N/A	<ul style="list-style-type: none"> A Class 2 or 3 building having a rise in storeys of not more than 3 need not comply with Clauses 3.1(b), (d) and (e) of Specification C1.1 and the requirement of C2.6 for non-combustible material, if it is constructed using— <ul style="list-style-type: none"> timber framing throughout; or non-combustible material throughout; or a combination of (i) and (ii), <p>provided—</p> <ul style="list-style-type: none"> ***** any insulation installed in the cavity of a wall required to have an FRL is non-combustible; and the building is fitted with an automatic smoke alarm system complying with Specification E2.2a. A Class 2 or 3 building having a rise in storeys of not more than 4 may have the top three storeys constructed in accordance with (a) provided— <ul style="list-style-type: none"> the lowest storey is used solely for the purpose of parking motor vehicles or for some other ancillary purpose; and 	This concession is not relevant to this project.

	<ul style="list-style-type: none"> - the lowest storey is constructed of concrete or masonry including the floor between it and the Class 2 or 3 part of the building above; and - the lowest storey and the storey above are separated by construction having an FRL of not less than 90/90/90 with no openings or penetrations that would reduce the fire-resisting performance of that construction except that a doorway in that construction may be protected by a –/60/30 self-closing fire door. • In a Class 2 or 3 building complying with (a) or (b) and fitted with a sprinkler system complying with Specification E1.5, any FRL criterion prescribed in Table 3— <ul style="list-style-type: none"> - for any floor and any loadbearing wall, may be reduced to 60, except any FRL criterion of 90 for an external wall must be maintained when tested from the outside; and - for any non-loadbearing internal wall, need not apply if— <ul style="list-style-type: none"> (A) it is lined on each side with 13mm standard grade plasterboard or similar non-combustible material; and (B) it extends— <ul style="list-style-type: none"> (aa) to the underside of the floor next above; or (bb) to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes; or (cc) to the underside of a non-combustible roof covering; and (C) any insulation installed in the cavity of the wall is non-combustible; and (D) any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material; and (E) any doorway in the wall is protected by a self-closing, tight fitting, solid core door not less than 35mm thick 	
N/A	<ul style="list-style-type: none"> • A Class 2 or 3 building having a rise in storeys of not more than 3 need not comply with Clauses 3.1(b), (d) and (e) of Specification C1.1 and the requirement of C2.6 for non-combustible material, if it is constructed using— <ul style="list-style-type: none"> - timber framing throughout; or - non-combustible material throughout; or - a combination of (i) and (ii), provided— 	This concession is not relevant to this project.

	<ul style="list-style-type: none"> - * * * * * - any insulation installed in the cavity of a wall required to have an FRL is non-combustible; and - the building is fitted with an automatic smoke alarm system complying with Specification E2.2a. • A Class 2 or 3 building having a rise in storeys of not more than 4 may have the top three storeys constructed in accordance with (a) provided— <ul style="list-style-type: none"> - the lowest storey is used solely for the purpose of parking motor vehicles or for some other ancillary purpose; and - the lowest storey is constructed of concrete or masonry including the floor between it and the Class 2 or 3 part of the building above; and - the lowest storey and the storey above are separated by construction having an FRL of not less than 90/90/90 with no openings or penetrations that would reduce the fire-resisting performance of that construction except that a doorway in that construction may be protected by a –/60/30 self-closing fire door. • In a Class 2 or 3 building complying with (a) or (b) and fitted with a sprinkler system complying with Specification E1.5, any FRL criterion prescribed in Table 3— <ul style="list-style-type: none"> - for any floor and any loadbearing wall, may be reduced to 60, except any FRL criterion of 90 for an external wall must be maintained when tested from the outside; and - for any non-loadbearing internal wall, need not apply if— <ul style="list-style-type: none"> (A) it is lined on each side with 13mm standard grade plasterboard or similar non-combustible material; and (B) it extends— <ul style="list-style-type: none"> (aa) to the underside of the floor next above; or (bb) to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes; or (cc) to the underside of a non-combustible roof covering; and (C) any insulation installed in the cavity of the wall is non-combustible; and (D) any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with 	
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	<p>intumescent putty or other suitable material; and</p> <p>(E) any doorway in the wall is protected by a self-closing, tight fitting, solid core door not less than 35mm thick</p>	
Specification C1.10 – Fire Hazard Properties		
Clause	Reference	Comment
1	Scope	
Noted.	Informational	Noted
2	Application	
Noted.	Informational	Noted
3	Floor linings and floor coverings	
CR	<p>A floor lining or floor covering must have–</p> <ul style="list-style-type: none"> a critical radiant flux not less than that listed in Table 2; and 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 group number complying with Clause 6(b), for any portion of the floor covering that is continued more than 150 mm up a wall. 	Compliance required, test report for linings to be provided as design progresses.
4	Wall and ceiling linings	
CR	<ul style="list-style-type: none"> 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 – <ul style="list-style-type: none"> a smoke growth rate index not more than 100; or an average specific extinction area less than 250 m²/kg. 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 AS5637.1. 	Compliance required, test report for linings to be provided as design progresses.
5	Air-handling ductwork	
N/A	Rigid and flexible ductwork must comply with the fire hazard properties set out in AS4254 Parts 1 and 2.	Compliance required, test report for linings to be provided as design progresses.
6	Lift cars	

CR	<p>Materials used as—</p> <ul style="list-style-type: none"> • floor linings and floor coverings must have a critical radiant flux not less than 2.2; and • wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with AS5637.1. 	Compliance required, test report for linings to be provided as design progresses.
7	Other materials	
Noted.	Materials and assemblies not included in Clauses 3, 4, 5 or 6 must not exceed the indices set out in Table 4.	Clause is for information only.

Specification C3.15 – Penetration of Walls, Floors and Ceiling by Services

Clause	Reference	Comment
1	Scope	
Noted	Informational	Noted
2	Application	
Noted	Informational	Noted
3	Metal pipe system	
CR	Metal pipes must be 200mm separated from any other penetration otherwise insulated according to this clause. The penetration must be fire stopped.	<p>Compliance required.</p> <p>Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p>
4	Pipes penetrating sanitary compartments	
CR	The penetration of a PVC or metal pipe must be fire stopped in accordance to this clause.	<p>Compliance required.</p> <p>Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p>
5	Wires and cables	

CR	Wires and cables must be located 50mm from any other penetration (40mm max. bunch of cables). The penetration must be fire stopped.	Compliance required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
6	Electrical switches and outlets	
CR	Recess for electrical switched or the like must be not more than 300mm horizontally, 600mm vertically of any opening or recess on the opposite side of the wall, or half of the wall thickness.	Compliance required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
7	Fire-stopping	
CR	Fire stopping methods must be used in accordance to this clause and according to the test report. Prototype must be identical to the installed penetration. I	Compliance required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

Section D: Access and Egress		
Part D1 – Provision for Escape		
Clause	Reference	Comment
D1.2	Number of exits required	
✓	<ul style="list-style-type: none"> The number of exits is to be designed to satisfy performance standard DP4 of the BCA. A minimum of one exit is required from all buildings, and Two (2) exits for each storey are required for buildings over 25m, basement storeys or for class 9b of 6 storey or greater, buildings that exceed 50 persons, school buildings, class 9a patient care areas or class 9c sleeping areas, etc. 	The building as designed/indicated is compliant with this clause.
D1.3	When fire isolated exits are required	
✓	<ul style="list-style-type: none"> Every stair in a building must be fire isolated unless it does not connect or pass through more than 3 consecutive floors in a sprinkler protected building or 2 storeys in a non-sprinkler protected building. Class 9a & 9c buildings require stairs to be fire isolated. Those stairs not requiring fire isolating must discharge at a level of road or open space 	The building as designed/indicated is compliant with this clause.
D1.4	Exit travel distances	
PSOL	No point on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m.	Non-compliances exist throughout the building which are proposed to be addressed via performance solution. See body of report & Fire Engineering Strategy for further information.
D1.5	Distance between alternative exits	
PSOL	To be no less than 9m or more than 45m in a Class 2, 3, and 9a, or 60m in all other classes, uniformly distributed with access to 2 exits if required and not converge so they become less than 6m apart.	Non-compliances exist throughout the building which are proposed to be addressed via performance solution. See body of report & Fire Engineering Strategy for further information.

D1.6	Dimensions of exits and paths of travel	
✓	<ul style="list-style-type: none"> Height – minimum 2m: doorways 1980mm Width 1m minimum Width change based upon populations – generally for populations up to 100 persons require 1m of egress, up to 200- 2m and then varies according to use over 200 people per floor / storey depending on the use/classification. Door width clear opening size of a minimum 850mm (AS 1428.1-2009) Egress dimensions are not to diminish in direction of travel. <p>Note: see also re number of exits for certain uses Clause D1.2 as may require additional exits no matter the population of the storey.</p>	Building as designed is compliant with the requirement of this clause
D1.7	Travel by fire isolated stairs	
✓	<ul style="list-style-type: none"> Must provide independent egress and discharge to road or open space or complying covered area. Details of height and extent of open area depends on distance and location of the discharge. This clause outlines details of the methods of compliance. Also, if passing by openings of the building within 6m of the pathway, then the openings are to be protected internally 9 Fire doors fire dampers, fire shutters or sprinklers on fixed non-operable glazing 	Building as designed is compliant with the requirement of this clause
D1.8	External stairs or ramps in lieu of fire isolated exits	
N/A	External stairs or ramps may be used in lieu of a fire-isolated stair or ramp to a building under 25m in effective height.	This clause is not applicable to this project.
D1.9	Travel by non-fire-isolated stairs	
N/A	<p>Travel by non-fire-isolated stairs:</p> <ul style="list-style-type: none"> The distance from any point on the floor to a point of egress not to exceed 80m. The stairway not to discharge at a point more than: <ul style="list-style-type: none"> 20m to an exit 40m to one of 2 exits. 	This clause is not applicable to this project.

D1.10	Discharge from exits	
✓	<ul style="list-style-type: none"> An exit must not be blocked nor be capable of being blocked at its point of discharge. Ramp to a grade of 1:8 is required to connect with open space. 	The building as designed / indicated complies with this clause.
D1.11	Horizontal exits	
✓	<p>May be counted as required exits if the path of travel from a fire compartment leads by one or more horizontal exits directly into another fire compartments which has at least one required exit which is not a horizontal exit.</p> <p>Cannot be utilised in some classes or areas of buildings details to be assessed to ensure compliance with specific clause</p>	The building as designed / indicated complies with this clause.
D1.12	Non-required stairs	
✓	May connect 2 levels in a non-sprinkler protected building. Within a sprinkler protected building may serve 3 storeys.	The building as designed / indicated complies with this clause.
D1.13	Number of persons accommodated	
Noted	To be in accordance with Table D1.13 of the BCA	This clause is for information.
D1.16	Plant rooms and lift motor rooms: Concessions	
Complies	<ul style="list-style-type: none"> Where a plant room or lift motor room has a floor area: <ul style="list-style-type: none"> Not more than 100m² a ladder may be used in lieu of a stairway. More than 100m² but less than 200m² where two or more points of egress are provided, a ladder may be used in lieu of a stairway from all but one of those points. A ladder to the plant room is to comply with AS 1657 and the ladder to the lift motor room is to comply with AS 1735.2. <p>Note: Lift machine room access – AS 1657 access may be utilised if the lift machine room complies with the listed parameters of Clause D1.16 (a) and (b) (iv) of the BCA</p>	The building as designed / indicated complies with this clause.
D1.17	Access to lift pits	

CR	Requirements apply to access to lift pits less than or greater than 3m including signage.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
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Part D2 – Construction of Exits		
Clause	Reference	Comment
D2.2	Fire isolated stairs	
Noted CR	Must be in a fire resisting shaft and be constructed of non-combustible materials and if there is local failure not cause structural damage or impair the fire resistance of the shaft.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
D2.3	Non-fire-isolated stairs	
N/A	Non fire isolated stairways must be constructed of either: <ul style="list-style-type: none"> reinforced or pre-stressed concrete 6mm thick steel 44mm thick timber 	This clause does not apply to this project.
D2.4	Separation of rising and descending stairs flights	
✓	A required fire isolated stair cannot connect above and below ground flights unless separated by fire and smoke separation.	The building as designed / indicated complies with this clause.
D2.5	Open access ramps and balconies	
N/A	Open access ramp or balcony is provided to meet the requirements of smoke hazard management E2.2a, it must; <ul style="list-style-type: none"> have ventilation openings to the outside air; and Not be enclosed on its open sides above height of 1m. 	This clause is not applicable to this project.
D2.6	Smoke lobbies	
N/A	Smoke lobby required by D1.7 must; <ul style="list-style-type: none"> have a floor area not less than 6sqm; and be separated by walls impervious to smoke; and be fitted with smoke doors; and Be pressurised if the exit is required to be. 	This clause is not applicable to this project.

D2.7	Installations in exits and paths of travel	
CR	<ul style="list-style-type: none"> No openings to ducts conveying hot products of combustion permitted. Gas or fuel services not permitted in required exits. Electric or services equipment not permitted unless in a non-combustible and smoke sealed enclosure. 	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
D2.8	Enclosure of space beneath stairs	
Noted.	<ul style="list-style-type: none"> in a fire stair no cupboards are permitted under the stair The space beneath the non-fire isolated stairs are not to be enclosed unless in 60/60/60 construction with 60/60/30 fire doors. 	Compliance required. No enclosure of spaces underneath stairs is proposed at this stage of the design.
D2.9	Width of stairs	
Noted.	Width is to be measured clear of all obstructions and the stair must extend a minimum 2.0m above nosing's. (unless specified elsewhere to require a greater height)	Further review of the detailed design required in order to determine design compliance.
D2.10	Pedestrian ramps	
Noted.	A fire isolated ramp may be substituted for a fire isolated stairway where installed in accordance with AS 1428.1, and not having a gradient steeper than 1:8, and be finished with a slip resistant as per Table D2.14	Noted and not applicable at this stage of the design.
D2.11	Fire-isolated passageways	
✓	To attain the same FRL as the fire isolated stair	The building as designed/indicated complies with this clause.
D2.12	Roof as open space	
N/A	<p>If an exit discharges to a roof of a building, the roof must;</p> <ul style="list-style-type: none"> have an FRL 120/120/120; and Have roof lights or other openings within 3m of the path of travel. 	Not applicable.

D2.13	Treads and risers																		
CR	<ul style="list-style-type: none"> • minimum 2 risers / maximum 18 in each flight • risers 115mm min 190 mm max - going 250mm min 355mm max - 2R+G 550mm min 700mm max. • Goings and risers to be constant. • risers not to permit 125mm sphere to pass through • treads to be slip resistant as per Table D2.14 • no stepped quarter landings 	Compliance is readily achievable, Further review of the detailed design required in order to determine design compliance.																	
D2.14	Landings & Slip Resistance requirements																		
CR	<p>Maximum gradient not to exceed 1:50 and be a minimum 750 long measured from the inside edge of the landing.</p> <p><u>Note:</u> if required for Disabled access the landing sizes and circulation areas will be determine in accordance with AS 1428.1-2009 and will exceed these minimums.</p> <table border="1"> <thead> <tr> <th rowspan="2">Application</th><th colspan="2">Surface Conditions</th></tr> <tr> <th>Dry</th><th>Wet</th></tr> </thead> <tbody> <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 flatter 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> </tbody> </table>	Application	Surface Conditions		Dry	Wet	Ramp Steeper than 1:14	P4 or R11	P5 or R12	Ramp steeper than 1:20 but flatter than 1:14	P3 or R10	P4 or R11	Tread or Landing Surface	P3 or R10	P4 or R11	Nosing or landing edge strip	P3	P4	Design statement required from the architect.
Application	Surface Conditions																		
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Nosing or landing edge strip	P3	P4																	
D2.15	Thresholds																		
CR	<ul style="list-style-type: none"> • No step or ramp at any point closer to the door than the width of the door leaf. • Generally, doors opening to outside are able to be provided with a maximum 190mm step or 50mm if Class 9b Assembly building (NSW) • If the building is required to be accessible the doorways that open to road or open space, and must be provided with a threshold ramp or step ramp in accordance with AS1428.1-2009 (except for D3.4 exempted areas and discharges from fire isolated stairs) 	Compliance is readily achievable, Further review of the detailed design required in order to determine design compliance.																	

D2.16	Balustrades	
CR	<p>A continuous balustrade or barrier must be provided along the side of any roof to which public access is provided, any stairway or ramp, any floor, corridor, hallway, balcony, veranda, mezzanine, access bridge or the like and along any side of any access path to a building if it is not bounded by a wall and the level above the floor or ground surface is more than 4m where it is possible to fall through an open window or 1m in any other case.</p> <p><u>Note:</u> Frameless glass balustrades are no longer a feasible option to achieve compliance with the BCA – see AS 1288-2006 for details of balustrade to ensure design achieves compliance or the structural engineer is to design the glazing in this location to ensure compliance with the structural code.</p> <p><u>BCA 2014 (Residential buildings):</u> Effective from 1st May 2013, the BCA will require window barriers and non-climable elements below windows in bedrooms in residential buildings - such as houses, apartments, hotels - where the floor beneath the window is more than two metres above the surface beneath. – See BCA Clause D2.24 for details</p>	Compliance required. Further review of the pending detail required. Compliance readily achievable.
D2.17	Handrails	
CR	Required along one side and on both sides of stairs over 2m in width, 865mm above nosing's and be continuous.	Compliance required. Further review of the pending detail required. Compliance readily achievable.
D2.18	Fixed platforms, walkways, stairways and ladders	
CR	Treads, risers, handrails, ladders and balustrades to plant rooms and the like must comply with AS 1657	Compliance required. Further review of the pending detail required. Compliance readily achievable.
D2.19	Doorways and doors	
	<p>A doorway serving as a required exit (or forming part of a required exit) must not be revolving door, roller shutter or tilt door.</p> <p>Can be fitted with a sliding door if it leads directly to open space and can be opened manually under a force of not more than 110N and be fitted with a fail-safe device if the door is power operated.</p>	Compliance is readily achievable, Further review of the detailed design required in order to determine design compliance.
D2.20	Swinging doors	
✓	Must not encroach more than 500mm into the required width of the stair or 100mm when fully open and swing in the direction of travel.	Building as designed is compliant with this clause.

D2.21	Operation of latch	
Noted CR	<p>To be located 900mm to 1100mm above the floor and be openable with a single-handed downward action. It must be such that the hand must not slip, i.e. “D” shaped handle and have a clearance between the handle and the back of the door of not less than 35 mm and not more than 45 mm.</p> <p>Fail safe unlock is permitted as long as linked to the base building fire alarm system.</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
D2.22	Re-entry from fire-isolated exits	
CR	<p>Every door serving a fire isolated must not be locked from the inside to prevent re-entry to the storey or room, where the subject stair serves any storey over 25m in height.</p> <p>Specific details of compliance are defined in this clause of the BCA – the doors all must unlock on fire trip, if needed to be locked may be provided with alarm to allow re-entry in a non-fire situation</p>	Compliance with this clause is required and is readily achievable at this stage of the design.
D2.23	Signs on doors	
Noted CR	<p>Fire & Smoke Door signage required:</p> <ul style="list-style-type: none"> • “Fire Safety Door – Do Not Obstruct” (if on magnamatic hold open device • “Fire Safety Door-Do Not Obstruct – Do Not Keep open” – if self-closing door • Fire Safety Door – DO Not Obstruct – for the discharge door to outside from a fire isolated exit <p>These signs are <u>only</u> required to:</p> <ul style="list-style-type: none"> • Doors opening into a fire isolated exit • Required Smoke Doors • Fire doors used as Horizontal Exits • Door leading from a fire isolated exit to outside <p>The location of signs, i.e. on one side or both sides is:</p> <ul style="list-style-type: none"> • For Horizontal fire door exits, smoke doors that swing both ways, doors on hold open devices and door leading from a fire exit to outside – signage on both sides of the door • Doors into fire isolated exits, and single swing smoke doors – on the side facing the occupants when exiting the area <p><u>Note:</u> See Clause D3.6 for Exit Signage to Exit doors, which is in addition to this signage</p>	Compliance required.

D2.24	Protection of Openable Windows	
N/A	<p>(a) A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in—</p> <p>(i) a bedroom in a Class 2 or 3 building or Class 4 part of a building; or</p> <p>(ii) a Class 9b early childhood centre.</p> <p>(b) Where the lowest level of the window opening is less than 1.7 m above the floor, a window opening covered by (a) must comply with the following:</p> <p>(i) The openable portion of the window must be protected with—</p> <p>(A) a device to restrict the window opening; or</p> <p>(B) a screen with secure fittings.</p> <p>(ii) A device or screen required by (i) must—</p> <p>(A) not permit a 125mm sphere to pass through the window opening or screen; and</p> <p>(B) resist an outward horizontal action of 250 N against the—</p> <p>(aa) window restrained by a device; or</p> <p>(bb) screen protecting the opening; and</p> <p>(C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.</p> <p>(c) A barrier with a height not less than 865 mm above the floor is required to an openable window—</p> <p>(i) in addition to window protection, when a child resistant screen release mechanism is required by (b)(ii)(C); and</p> <p>(ii) for openable windows 4m or more above the surface beneath if the window is not covered by (a).</p> <p>(d) A barrier covered by (c) must not—</p> <p>(i) permit a 125mm sphere to pass through it; and</p> <p>(ii) have any horizontal or near horizontal elements between 150mm and 760mm above the floor that facilitate climbing</p>	<p>This clause is not applicable to this project.</p>

D2.25	Timber Stairways – Concession	
N/A	<p>(a) Notwithstanding D2.2(a), timber treads, risers, landings and associated supporting framework which—</p> <p>(i) has a finished thickness of not less than 44 mm; and</p> <p>(ii) has an average density of not less than 800 kg/m³ at a moisture content of 12%, may be used within a required fire-isolated stairway or fire-isolated passageway constructed from fire-protected timber in accordance with C1.13 subject to—</p> <p>(iii) the building being protected throughout by a sprinkler system complying with Specification E1.5 which extends to within the fire-isolated enclosure; and</p> <p>(iv) fire protection being provided to the underside of stair flights and landings located immediately above a landing level which—</p> <p>(A) is at or near the level of egress; or</p> <p>(B) provides direct access to a carpark.</p> <p>(b) Fire protection required by (a) must be not less than one layer of 13 mm fire-protective grade plasterboard fixed in accordance with the system requirements for a fire-protective covering.</p>	N/A
Part D3 – Access for People with Disabilities		
Clause	Reference	Comment
D3.1	General building access requirements – Refer to separate Accessibility Report	

Section E: Services and Equipment		
Part E1 – Fire Fighting Equipment		
Clause	Reference	Comment
E1.3	Hydrants	
CR	<ul style="list-style-type: none"> System to be provided to serve whole building: <ul style="list-style-type: none"> Floor area exceeds 500m² Installed to AS2419.1-2005 Pump set to AS2419.1-2005. <p>Note: Details of the proposed Hydrant Booster locations are to be provided, to ensure compliance with AS2419.1 (2005)</p>	<p>As the building has a floor area greater than 500m², a fire hydrant system complying with AS2419.1-2005 must be provided to serve the building.</p> <p>Details should be provided showing:</p> <ul style="list-style-type: none"> Hydrant booster assembly location. The booster location must comply with the following: <ul style="list-style-type: none"> 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 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 30m hose length, extending not less than 1m into the room.
E1.4	Fire hose reels	

CR PSOL	<ul style="list-style-type: none"> System to be provided to serve whole building: <ul style="list-style-type: none"> Where hydrants installed internally or to serve any fire compartment greater than 500m²: Installed to AS2441-2005 Hose to reach every part Located externally or, <ul style="list-style-type: none"> Within 4m of exit or further if coverage cannot be achieved or, Adjacent to hydrant (not within fire isolated exit). <p>Note: FHR's must not pass through fire or smoke doors</p>	<p>Hydraulic Consultant to confirm system compliance including coverage and locations.</p> <p>PSOL or Design changes proposed to address Non-compliance with location of FHR's throughout</p>
E1.5	Sprinklers	
CR	System required to be provided to serve the entire building to AS2118.1 and Spec E1.5 as applicable.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
Spec E1.5	Fire Sprinkler Systems	
CR	<p>Sprinkler Alarm valves must be located in a secure room which has direct egress to a road or open space.</p> <p>The area must be secured with system suitable to the NSWFB</p>	Fire service consultant to confirm. Not yet illustrated.

E1.6	Portable fire extinguishers	
Noted CR	To be installed to Table E1.6 and AS 2444. ABE Type 2.5 kg fire extinguishers are required to be installed so that the travel distance from the entrance doorway of any sole-occupancy unit is not more than 10 m.	Compliance required. Installation and commissioning certification will be required from the installer.
E1.8	Fire control centres	
PSOL	A fire control centre facility is required for a building which; <ul style="list-style-type: none"> Exceeds 25m in effective height, or Class 6, 7, 8 or 9 with a total floor area exceeding 18,000m² 	Performance Solution is proposed for non-compliance of fire control room location. See body of report & Fire Engineering Strategy for further information.
Part E2 – Smoke Hazard Management		
Clause	Reference	Comment
E2.2a	General requirements	
PSOL CR	This building requires those highlighted in bold below: <ul style="list-style-type: none"> Smoke Detection and Alarm System Sprinkler system Stair pressurisation Automatic Smoke Exhaust system Shutdown of Air Handling system and units Sound systems and intercom systems for emergency purposes 	Performance Solution is proposed addressing non-compliances with smoke exhaust & zone pressurisation systems. See body of report and Fire Engineering Strategy for further information. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E2.3	Provision for special hazards	
N/A	Additional smoke hazard management measures may be necessary due to the: <ul style="list-style-type: none"> Special characteristics of the building, including nature or quantity of materials stored or location of building in relation to a water supply to fight fire. 	No special characteristics or hazards identified.
Part E3 – Lift Installations		
Clause	Reference	Comment
E3.1	Lift Installations	

CR	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
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E3.2	Stretcher facility in lifts	
CR	<ul style="list-style-type: none"> Must be provided within: <ul style="list-style-type: none"> at least 1 emergency lift (if required by E3.4), or where an emergency lift is not required, in at least 1 passenger lift installed to serve a storey above an effective height of 12m. Required to be not less than 600mm wide and 2000mm long x 1400mm height. 	Required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E3.3	Warning against use of lift in fire	
CR	Warning signs are required at each lift landing located near every call button in accordance with Figure E3.3.	Compliance required and is readily achievable.
E3.4	Emergency lifts	
CR	<p>(a) At least one emergency lift complying with (e) must be installed in—</p> <p>(i) a building which has an effective height of more than 25 m; and</p> <p>(ii) a Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space.</p> <p>(b) An emergency lift may be combined with a passenger lift and must serve those storeys served by the passenger lift so that all storeys of the building served by passenger lifts are served by at least one emergency lift.</p> <p>(c) Where two or more passenger lifts are installed and serve the same storeys, excluding a lift that is within an atrium and not contained wholly within a shaft—</p> <p>(i) at least two emergency lifts must be provided to serve those storeys; and</p> <p>(ii) if located within different shafts, at least one emergency lift must be provided in each shaft.</p> <p>(d) An emergency lift must—</p> <p>(i) be contained within a fire-resisting shaft in accordance with C2.10; and</p> <p>(ii) in a Class 9a building serving a patient care area—</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

	<p>(A) have minimum dimensions, measured clear of all obstructions, including handrails, etc complying with Table E3.4; and</p> <p>(B) be connected to a standby power supply system where installed; and</p> <p>(iii) if the building has an effective height of more than 75 m, have a rating of at least—</p> <p>(A) 600 kg if not provided with a stretcher facility; or</p> <p>(B) 900 kg if provided with a stretcher facility.</p>	
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E3.5	Landings	
CR	Access and egress to and from liftwell landings must comply with the Deemed-to-Satisfy Provisions of Section D.	Refer to separate disability Access compliance report.
E3.6	Passenger lifts	
CR	<p>Every passenger lift must comply with Table E3.6a and include Disabled accessible features as per Table E3.6b.</p> <p>The lift must not rely on a constant pressure device for its operation if the lift car is fully enclosed</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E3.7	Fire service controls	
CR	All passenger lift cars require fire service controls in accordance with AS 1735.2, serving a storey above an effective height of 12m.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E3.8	Aged care buildings	
N/A	<p>Where residents are on levels which do not have direct access to a road or open space the building must be provided with either:</p> <ul style="list-style-type: none"> • At least one lift to accommodate a stretcher or • A ramp in accordance with AS1428.1 • Must both discharge at a level providing direct access to a road or open space 	This clause is not applicable to this project.
E3.9	Fire service recall operation switch	

<p>CR</p>	<ul style="list-style-type: none"> (a) Each group of lifts must be provided with one fire service recall control switch required by E3.7 that activates the fire service recall operation at (e). The switch must— <ul style="list-style-type: none"> (i) be located at the landing nominated by the appropriate authority; and (ii) be labelled "FIRE SERVICE" in indelible white lettering on a red background; and (iii) have two positions with an "OFF" and an "ON" position identified; and (iv) be operable only by the use of a key that is removable in either the "OFF" position or the "ON" position. (b) Adhesive labels must not be used for compliance with (a)(ii) and (a)(iii). (c) The key in (a)(iv) must be able to turn all fire service recall control switches in the building and must have a different key combination to other keys used for lifts in the building. (d) The fire service recall operation must be activated by— <ul style="list-style-type: none"> (i) switching the fire service recall control switch in (a) to "ON"; or (ii) a signal from a fire management system approved by the appropriate authority. (e) The activation of the fire service recall operation at (d) must— <ul style="list-style-type: none"> (i) cancel all registered car and landing calls; and (ii) inactivate all door reopening devices that may be affected by smoke; and (iii) ensure lift cars travelling toward the nominated floor continue to the nominated floor without stopping; and (iv) ensure lift cars travelling away from the nominated floor stop at or before the next available floor without opening the doors (either automatically or by the door open button), reverse direction and travel without stopping to the nominated floor; and (v) for lifts stopped at a floor other than the nominated floor, close the doors and travel without stopping to the nominated floor; and (vi) ensure that lifts stay at the nominated floor with doors open; and (vii) permit all lifts to return to normal service if the fire service recall control switch at (a) is switched to the "OFF" position during or after the fire service recall operation. (f) The requirements of (e) do not apply to lifts on inspection service or when the lift car fire service control switch required by E3.10 is in the "ON" position. 	<p>Required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p>
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	(g) Lifts having manual controls must signal an alert to the lift for the lift to return to the nominated floor containing the recall switch that activated the signal.	
E3.10	Lift Car Fire Service Drive Control	
CR	<p>(a) The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. The switch must—</p> <ul style="list-style-type: none"> (i) be located between 600 mm and 1500 mm above the lift car floor; and (ii) be labelled "FIRE SERVICE" by indelible white lettering on a red background; and (iii) have two positions with an "OFF" and an "ON" position identified; and (iv) operate only by the use of a key that is removable in either the "OFF" position or the "ON" position. <p>(b) Adhesive labels must not be used for compliance with (a)(ii) or (a)(iii).</p> <p>(c) When the lift car fire service drive control switch at (a) is turned to the "ON" position, the lift must—</p> <ul style="list-style-type: none"> (i) not respond to the fire service recall control switch; and (ii) cancel all registered lift car and landing calls; and (iii) override all lift car call access control systems; and (iv) inactivate all door reopening devices that may be affected by smoke; and (v) allow the registration of lift car call by lift car call buttons, however the lift doors must not close in response to the registration of lift car calls; and (vi) activate door closing by constant pressure being applied on the "door close" button unless the button is released before the doors are fully closed, in which case the doors must reopen and any registered lift car calls must be cancelled; and (vii) when the doors are closed, move the lift in response to registered lift car calls while allowing additional lift car calls to also be registered; and (viii) travel to the first possible floor in response to registered lift car calls and cancel all registered lift car calls after the lift stops; and (ix) ensure doors do not open automatically, rather by constant pressure being applied on the "door open" button unless the button is released before the doors are fully open, in which case the doors must re-close; and 	<p>Required. Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.</p>

	<p>the requirements of (c)(i) to (c)(ix) do not apply to a lift operating on inspection service.</p> <p>(d) A multi-deck lift installation must have systems in place that—</p> <p>(i) are able to communicate to the fire officer that the fire service drive control switch will not operate until all decks have been cleared of passengers; and</p> <p>(ii) ensure there is an appropriate method of clearing all deck landings of passengers; and</p> <p>(iii) maintain all doors to deck landings not containing the fire service control switch closed and inoperative while the lift is on fire service drive control.</p>	
Part E4 – Emergency Lighting, Exit and Warning Systems		
Clause	Reference	Comment
E4.2	Emergency lighting	
CR	<p>Required in every path of travel to an exit and any room having a floor area more than 100m² that does not open to a corridor or space with emergency lighting and any room having a floor area in excess of 300m² required in every required non-fire isolated stair way.</p> <p>Emergency signage to be installed to AS 2293.1 - 2018</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E4.3	Measurement of distance	
Noted	Distances other than vertical rise must be measured along the shortest path of travel whether by straight lines, curves or a combination of both.	This clause is for information.
E4.4	Design and operation of exit signs	
CR	Every required exit sign must comply with AS 2293.1-2018	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E4.5	Exit signage	

CR	Required above egress doors and doors from an enclosed stair to open space. Directorial signs required to designate paths of travel. Exit signage to be installed to AS 2293.1	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E4.6	Direction signs	
CR	Where an exit is not apparent, exit signs with directional arrows are required. Class 9b POPE must have exit signs external to the building to show the way to the road if not apparent when in the open space.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E4.7	Class 2, 3 and 4 parts: Exemptions	
NA	E4.5 does not apply to- <ul style="list-style-type: none"> Class 2 building if the word "EXIT" is placed on the side of door remote from an exit, An entrance door of a SOU in Class 2, 3 or 4. 	This clause is not applicable to this project.
E4.8	Design and operation of exit signs	
CR	Every required exit sign must - <ul style="list-style-type: none"> Comply with AS 2293.1; and Be clearly visible at all times when the building is occupied. 	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
E4.9	Sound systems and intercom systems for emergency purposes	
CR	Sound systems and intercom systems for emergency purposes required to comply with AS 1670.4; <ul style="list-style-type: none"> Buildings exceeding 25m in effective height In a Class 3 building having an RIS greater than 2, used as accommodation for aged or children Class 3 residential age care Class 9b building having RIS more than 2 and floor area greater than 1000m² Class 9b used as school (RIS greater than 3), or public hall / theatre having RIS more than 2 and floor area greater than 100m² 	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant

Section F: Health and Amenity		
Part F1 – General		
Clause	Reference	Comment
FP1.4	External Wall Water Proofing	
CR	An external wall (including openings around windows and doors) must prevent the penetration of water that could cause unhealthy conditions, or loss of amenity for occupants; and undue dampness or deterioration of building elements.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant. This should be provided from the façade consultant or architect and should include manufacturer's relevant details and any tests reports.
F1.1	Stormwater Drainage	
CR	Stormwater drainage must comply to AS 3500.3.2015	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.4	External Waterproofing of above ground membranes	
CR	Waterproofing membranes for external above ground use must comply with AS 4654 Parts 1 and 2 - 2012	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.5	Roof Covering	
CR	Roof covering must comply with required Australian Standard	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

F1.6	Sarking	
CR	Sarking used for weather proofing of roofs must comply with AS/NZS 4200.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.7	Water Proofing of Wet Areas in Buildings	
CR	Water proofing of wet areas within a building to comply with AS 3740.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.9	Damp-proofing	
CR	Damp-proofing where required to be installed in accordance with AS/NZS 2904 or AS 3660.1	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.10	Damp-proofing of Floors on the Ground	
CR	Damp-proofing where required to be installed in accordance with AS 2870	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F1.12	Sub-floor Ventilation	
N/A	The sub-floor space between a suspended floor of a building and the ground must be in accordance with the requirements of this clause.	This clause is not applicable to this project.
F1.13	Glazed assemblies	

CR	Glazed assemblies in an external wall to comply with AS 2047 requirements for resistance to water penetration	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
Part F2 – Sanitary and Other Facilities		
Clause	Reference	Comment
F2.1	Facilities in Residential Buildings	
N/A	<p>Within each sole occupancy unit, the following are to be provided;</p> <ul style="list-style-type: none"> • Kitchen sink, including area for food preparation; • Bath or shower; • Closet pan and washbasin • Laundry facilities, including at least one washtub and space for washing machine, and clothes drying facilities, including clothes line or hoist (min. 7.5m line) or space for heat operated drying appliance., or • A separate laundry for each 4 Sole occupancy units or part thereof. <p>In addition, where a building contains more than 10 sole occupancy units, a closet pan and washbasin is to be in a compartment at or near ground level, accessible to employees without entering a sole occupancy unit.</p>	This clause is not applicable to this project.
F2.3	Sanitary facilities in Class 3-9 buildings	
	<p>The number of sanitary facilities must be based upon the number of person accommodated calculated in accordance with D1.13</p> <p>Note: Showers are required for Class 9b Theatres and sporting venues must be provided, being 1 shower for each 10 participants.</p>	The building is as designed/indicated is compliant with this clause based on the population numbers provided at this stage.

F2.4	Facilities for persons with disabilities	
CR	<p>In a building required to be accessible—</p> <p>(a) accessible unisex sanitary compartments must be provided in accessible parts of the building in accordance with Table F2.4(a); and</p> <p>(b) accessible unisex showers must be provided in accordance with Table F2.4(b); and</p> <p>(c) at each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 must be provided for use by males and females; and</p> <p>(d) an accessible unisex sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels; and</p> <p>(e) the circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with Table F2.4(a) and Table F2.4(b) must comply with the requirements of AS 1428.1-2009; and</p> <p>(f) an accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only; and</p> <p>(g) where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible; and</p> <p>(h) where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations; and</p> <p>(i) an accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not required by D3.3(f) to be provided with a passenger lift or ramp complying with AS 1428.1.</p>	Refer to separate disability access compliance report.
F2.5	Construction of sanitary compartments	
Noted	<p>Where clear space between closet pan and doorway is less than 1.2m, doors must open outwards, slide or be readily removable from outside.</p> <p>Doors to disabled toilets are required to be provided with Lift off hinges to the doors irrespective of distance between pan and doorway</p>	<p>Compliance Appears readily achievable.</p> <p>Further review of the detailed design required in order to determine design compliance.</p>
F2.6	Interpretation: Urinals and washbasins	
Noted.	<p>Urinal may be 600 mm of urinal trough or a closet pan used in place of a urinal</p> <p>Washbasin may be individual basin or part of a hand washing trough served by a single water tap</p>	This clause is for information.

F2.8	Waste management	
Noted.	In a Class 9a a slop hopper or other device must be provided on any storey containing ward areas or bedrooms and a flushing apparatus, tap and grating In a Class 9c for every 60 beds on each storey containing resident use areas must be provided with a slop-hopper and a device for the disinfection of pans or an adequate means to dispose of receptacles	This clause is not applicable to this project.
Part F3 – Room Sizes		
Clause	Reference	Comment
F3.1	Height of Rooms	
Complies	Room heights to be a minimum of 2.4m generally for office areas & 2.7m for other areas, except as follows in which case 2.1m is allowable; <ul style="list-style-type: none"> Corridors, passageways or the like. Car parking areas Sanitary compartments Kitchen / Laundry Non-habitable rooms 	Building as designed/indicated appears compliant with this clause.
Part F4 – Provision of Natural Light		
Clause	Reference	Comment
F4.1	Provision of Natural Light	
N/A	Class 2 buildings, Class 3 buildings and Class 4 parts and Class 9b classrooms to schools – to habitable rooms and classrooms	This clause is not applicable to this project.
F4.4	Artificial Lighting	
CR	Required to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress. Artificial lighting system is to comply with AS1680.0 Note: See also Section J for details of energy efficiency of lighting required.	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

F4.5	Ventilation of Rooms	
CR	<p>A mechanical ventilation or air conditioning system complying with AS 1668.2 - 2012 version is required.</p> <p>Note: See also Section J for details of energy efficiency of Ventilation / Mechanical Ventilation/Air-conditioning required.</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F4.6	Natural ventilation	
Noted	<p>(a) Natural ventilation provided in accordance with F4.5(a) must consist of openings, windows, doors or other devices which can be opened—</p> <p>(i) with a ventilating area not less than 5% of the floor area of the room require ventilated; and</p> <p>(ii) open to—</p> <p>(A) a suitably sized court, or space open to the sky; or</p> <p>(B) an open verandah, carport, or the like; or</p> <p>(C) an adjoining room in accordance with F4.7.</p> <p>(b) The requirements of (a)(i) do not apply to a Class 8 electricity network substation.</p>	This clause is for information.

F4.7	Ventilation borrowed from adjoining room	
Noted	<p>Natural ventilation to a room may come through a window, opening, door or other device from an adjoining room (including an enclosed verandah) if both rooms are within the same soleoccupancy unit or the enclosed verandah is common property, and—</p> <p>(a) in a Class 2 building, a sole-occupancy unit of a Class 3 building or Class 4 part of a building—</p> <p>(i) the room to be ventilated is not a sanitary compartment; and</p> <p>(ii) the window, opening, door or other device has a ventilating area of not less than 5% of the floor area of the room to be ventilated; and</p> <p>(iii) the adjoining room has a window, opening, door or other device with a ventilating area of not less than 5% of the combined floor areas of both rooms; and</p> <p>(b) in a Class 5, 6, 7, 8 (except a Class 8 electricity network substation) or 9 building—</p>	This clause is for information.

	<p>(i) the window, opening, door or other device has a ventilating area of not less than 10% of the floor area of the room to be ventilated, measured not more than 3.6 m above the floor; and</p> <p>(ii) the adjoining room has a window, opening, door or other device with a ventilating area of not less than 10% of the combined floor areas of both rooms; and</p> <p>(c) the ventilating areas specified in (a) and (b) may be reduced as appropriate if direct natural ventilation is provided from another source.</p>	
F4.8	Restriction on location of sanitary compartments	
Noted	<p>Sanitary compartments must not open directly into—</p> <p>(a) a kitchen or pantry; or</p> <p>(b) a public dining room or restaurant; or</p> <p>(c) a dormitory in a Class 3 building; or</p> <p>(d) a room used for public assembly (which is not an early childhood centre, primary school or open spectator stand); or</p> <p>(e) a workplace normally occupied by more than one person.</p>	The building as designed/indicated is compliant with this clause.
F4.9	Airlocks	
N/A	<p>Required for rooms containing a closet pan or urinal where it opens directly to another room</p> <p>Exemption to use mechanical exhaust if Class 5-9</p>	This clause does not apply to this project.
F4.11	Car Parks	
CR	<p>Every storey of a car park, except an open deck car park, must have a system of ventilation complying with AS/NZS 1668.1-2015 and AS/NZS1668.2 – 2012 or AS1668.4-2012</p> <p>Note: for natural ventilation AS1668.4-Natural Ventilation of buildings is now a referenced Australia standard</p>	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.
F4.12	Kitchen local exhaust ventilation	
CR	Commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS1668.1- 2015 and AS1668.2 - 2012 (depending on input)	Design statement (or other means) required from appropriate qualified designer/person that the building will comply with this clause at the design stage & installation certification will be required on completion of the project from the relevant installer or engaged consultant.

Part F5 – Sound Insulation & Transmission		
Clause	Reference	Comment
Part F5	General requirements from the Part	
N/A	<p>Applicable to Class 2, 3 and 9c buildings only.</p> <p>Various walls, doors & Floors require airborne and impact sound insulation ratings as noted within F5.2 to F5.6, to AS/NZS 1276.1 or ISO 717.1, or comply with Specification F5.2.</p> <p>Discontinuous construction required to various walls as noted within F5.5.</p> <p>Sound insulation rating of internal services & pumps is required as per F5.6 & F5.7.</p>	This clause is not applicable to this project.

Section G: Ancillary Provisions		
Part G3 – Atrium Construction		
Clause	Reference	Comment
Part G3	Atrium Construction	
PSOL	<p>An atrium is defined as a space within a building that connects two or more storeys, and is wholly or substantially enclosed at the top by a floor or roof (including a glazed roof structure).</p> <p>This part does not apply to an atrium which</p> <ul style="list-style-type: none"> • Connects only 2 storeys, or • Connects only 3 storeys, providing each storeys is provided with a sprinkler protection system, and a storey discharges direct to road or open space. <p>The requirements of atrium under this clause and associated specification include;</p> <ul style="list-style-type: none"> • Sprinkler protection throughout; and • Separation of atrium by bounding walls; and • Fire and Smoke Control provisions • Enhanced SSESIP system • Smoke Detection throughout to AS 1670.1 • Automatic Smoke Exhaust <p>Pressurisation of fire stairs</p>	Performance solutions are propose for several non-compliances pertaining to the atrium, see body of report for further information.

Section J: Energy Efficiency		
Part J1 to J8 – Building Fabric		
Clause	Reference	Comment
J0.1	Application of Section J – Refer to Assessment by ESD consultant	

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