13 February 2024

Our Ref: P223_248-3 (BCA & ACCESS) JR

APP Group
Sent via Email

Attention: Stella Durant

KNOX GRAMMAR SCHOOL: EWAN HOUSE
BCA CAPABILITY STATEMENT

Please find enclosed our BCA Capability statement for submission as part of the Development Application proposed at the aforementioned address.

Should you require any further information regarding this proposal, please do not hesitate to contact us.

Yours sincerely,

Jake Robson
Building Regulations Consultant
For Design Confidence (Sydney) Pty Ltd

Lindsay Beard
Principal | Building Regulations
For Design Confidence (Sydney) Pty Ltd

1. INTRODUCTION

An assessment of the subject development has been undertaken by Design Confidence on behalf of Knox Grammar School at the request of APP Group for the minor works which will occur within the existing Ewan House. This assessment has been prepared as part of the ongoing design development for the proposed works being proposed with the educational establishment specially the re-purposing of the classrooms which are being located within the school precinct. Hence, the correspondence contained herein looks to assess the subject design against the deemed-to-satisfy requirements and can whether compliance is achieved and what information is to be provided to ensure this occurs.

2. BACKGROUND

Design Confidence has been engaged to provide building regulatory advice regarding the compliance status of the proposed development when assessed against the relevant requirements as contained within the Building Code of Australia 2022 – Volume 1, including the accessibility provisions (thereby after referred to as the BCA).

A broad assessment has been undertaken of the proposed design (as detailed within the documentation listed in Table 1 below). The assessment undertaken was in the context of the relevant prescriptive provisions of the BCA including the accessibility provisions (Part D4 - Access for People with a Disability, Clause E3D7 & E3D8 - Passenger Lifts and Clause F4D5, F4D6, & F4D7 - Accessible Sanitary Facilities) as applicable to this development.

Table 1 – Architectural documentation

DRAWING	REV	TITLE	DATE
DA-001	4	Cover Sheet & Location Plan	09.02.2024
DA-002	4	Site Pan	09.02.2024
DA-003	4	Site Analysis Plan	09.02.2024
DA-020	4	Removal Ground Floor Plan	09.02.2024
DA-021	4	Removal First Floor Plan	09.02.2024
DA-022	4	Removal Roof Plan	09.02.2024
DA-023	4	Removal Elevations – North & East	09.02.2024
DA-024	4	Removal Elevations – South & West	09.02.2024
DA-025	4	Removal - Courtyard Plan	09.02.2024
DA-100	5	Proposed Ground Floor Plan	09.02.2024
DA-101	4	Proposed First Floor Plan	09.02.2024
DA-102	4	Proposed Roof Plan	09.02.2024
DA-103	4	Proposed Elevations – North & East	09.02.2024
DA-104	4	Proposed Elevations – South & West	09.02.2024
DA-105	4	Proposed Elevations – Courtyard	09.02.2024

3. LEGISLATIVE FRAMEWORK

Clause 14(3) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021: According to this clause, a legislative upgrade may be imposed if the proposed construction works would diminish the existing fire protection and structural capacity of the building. The assessment office's opinion is that the proposed building alterations, given their extent, are not categorized as 'substantial works.' Therefore, they are unlikely to worsen the existing fire safety measures or the structural capacity of the building. This means that, from the perspective of Clause 14(3), the proposed alterations are compliant.

Clause 64 of the Environmental Planning and Assessment Regulations 2021: This clause pertains to the potential imposition of legislative upgrades by the Council. There are two key criteria for such upgrades:

- Total Volume of Works: The Council can mandate a partial or full upgrade if the total volume of construction works carried out on the building over the last three years exceeds more than 50% of the total volume of the building. Based on the assessment, it is the view of the assessment office that the minor building alterations/extensions included in the Development Application (DA) do not surpass this 50% threshold. Therefore, this criterion for upgrades is not triggered in this case.

- Fire and Life Safety Concerns: The Council can also impose upgrades if it has concerns regarding the adequate provision of fire and life safety for the existing building. However, the assessment office's opinion is that the proposed minor building alterations/extensions do not raise such concerns. Therefore, this criterion for upgrades is not met either.

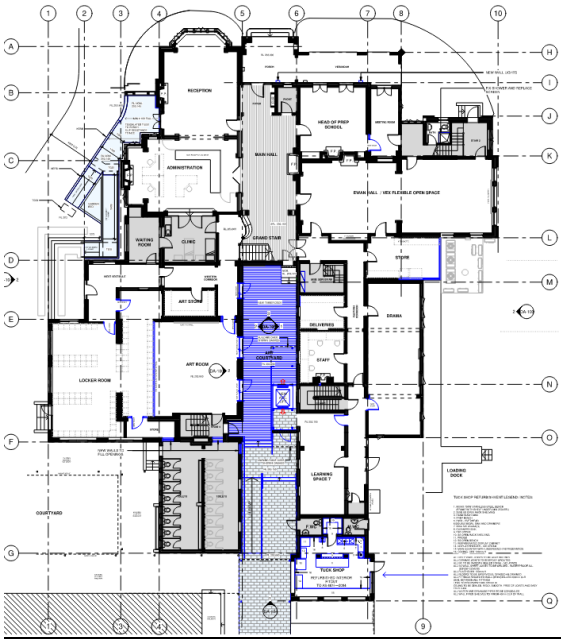
In summary, based on the assessment provided and a review of the relevant building regulations:

- The proposed building alterations do not appear to contravene Clause 14(3) as they are not deemed 'substantial works.'
- The subject building does not seem to meet the criteria for legislative upgrades under Clause 64 since the total volume of works does not exceed 50% of the building's total volume, and there are no significant concerns about fire and life safety.

4. DEVELOPMENT DESCRIPTION

Within the context of the BCA, a brief outline of the building's characteristics –

Ground Floor (Proposed Works)



First Floor (Proposed Works)

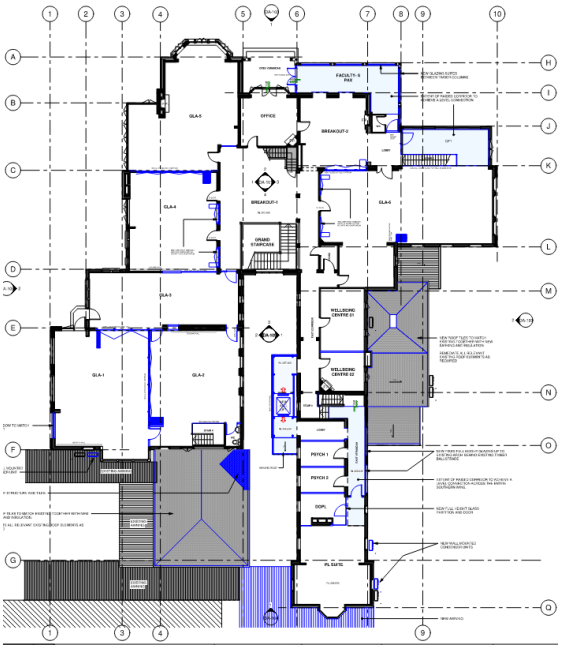


Table 2 – Essential Building Data

DESCRIPTION		
Building Classification	School/Assembly Building	Class 9b
Storeys Contained	Three (3)	
Rise in Storeys	Two (2)	*Note - Attic space has been excluded from the rise in storey assessment pursuant to exemption clause C2D3(2)*
Type of Construction	Type B	
Effective Height	Less than 12m	
Fire Compartment Size (Largest)	5,500m2 33,000m3	Within Limitation
Floor Area	Exceeding 500m2	
Climate Zone	Zone 5	
Importance Level (AS1170)	Level 3	(Structural engineer to confirm)

4.1 BCA Assessment – Interpretation Notes

To provide the reader with additional context, the following information regarding assessment methodology used in this assessment is provided below—

(i) This assessment only considered 'new / proposed' works only and excludes an assessment of the existing; and

(ii) The existing type of construction and size of fire compartment have not been exacerbated as result of the new works; and

(iii) The attic space has been excluded within the rise in storeys assessment; and

The below assessment outlines the relevant BCA matters that will need to be resolved as part of the ongoing design development such that compliance with the BCA is achieved, specifically Sections C, D, E, F & G, as applicable, with accessibility measures discussed separately in **Table 5**.

5. ASSESSMENT

5.1 Accessibility

Table 3 – Accessibility measures and requirements

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
General building access requirements Clause D4D2	Buildings and parts of buildings must be accessible as required by this clause, unless exempted by D4D5.	
	Class 5 [Staff Areas] Access is required to and within all areas normally used by the occupants.	The proposed works are capable of achieving compliance with this clause.
	Class 9b [Schools] Access is required to and within all areas normally used by the occupants.	The proposed works are capable of achieving compliance with this clause.
Access to buildings Clause D4D3	An assessment of the proposed works shows that the following comply with the requirements of clause D4D3 and AS1428.1-2009: ▪ 1in14 ramp and associated features; and ▪ External stairways (x2) and associated features; and ▪ Floor and ground surfaces ▪ Pedestrian entrance (southern entrance doorway) *Note – the proposed works are carried out within an existing building. As such, this assessment report only considers access form the principle pedestrian entrance of the building and along affected parts.*	<u>Floor / Ground Surfaces (Clause 7)</u> The proposed ground surface is capable of achieving compliance with this clause. As the design progresses beyond DA, further design detail shall be provided which confirms compliance with clause 7 of AS1428.1-2009. DC Comment - There are concerns that the timber decking serving the courtyard will not strictly conform to the requirements of clause 7 with respect to the abutment of timber boards possible exceeding the max. permitted 3-5mm tolerance.

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT

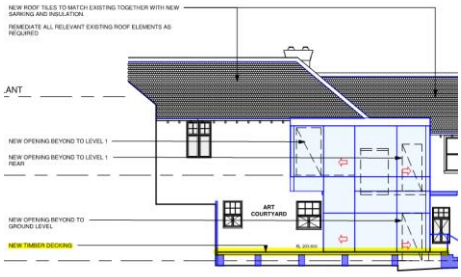


Figure 4.0 – Timber flooring in the accessible path of travel to be further investigated as the project progresses

TGSI's (Clause 9)

Tactile ground surface indicators have not been documented in the design; however, it is capable of achieving compliance with this clause. As the design progresses beyond DA, the following may be pursued:

- updated design detail shall be provided which confirms compliance with clause 9 of AS1428.1-2009; or
- Alternatively, a performance solution may be pursued to remove TGSI's from the proposed ramps and stairways.

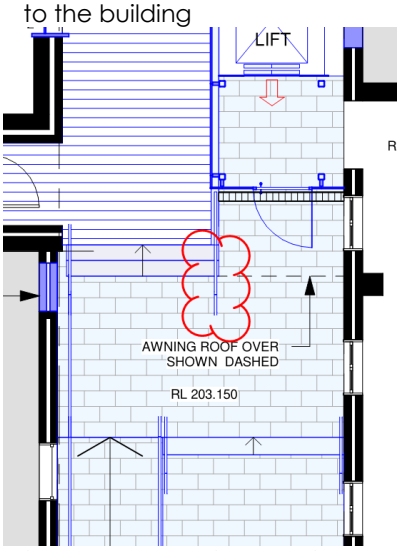
Ramps (Clause 10.3)

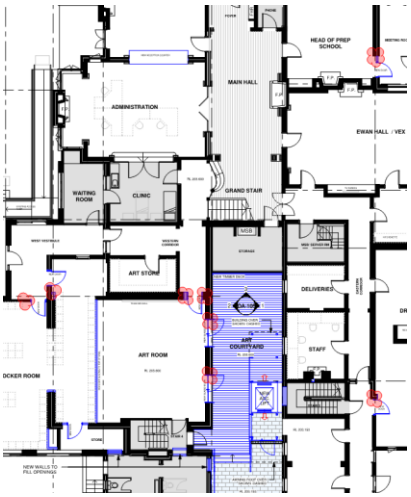
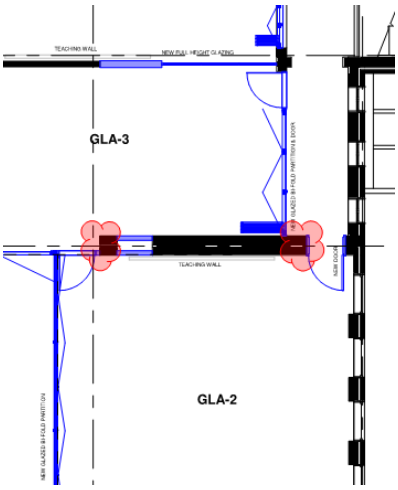
The proposed 1in14 ramp is capable of achieving compliance with this clause. As the design progresses beyond DA, further ramp detail shall be provided which confirms compliance with clause 11 of AS1428.1-2009.

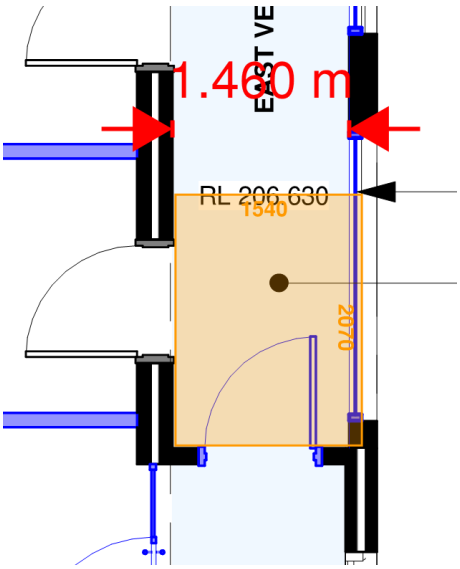
Stairway (Clause 11)

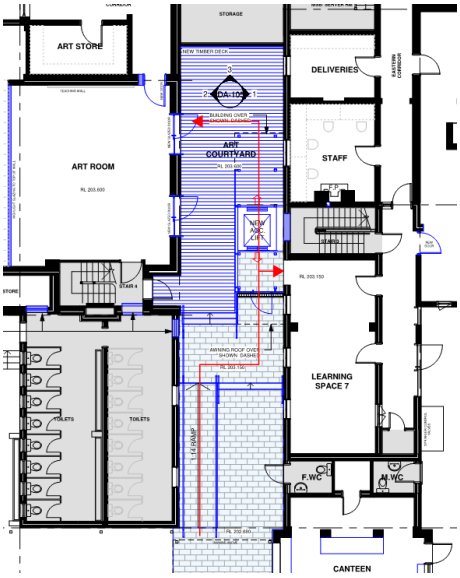
The proposed two (2) external stairways are capable of achieving compliance with this clause. As the design progresses beyond DA, further design detail shall be provided which confirms compliance with clause 11 of AS1428.1-2009.

DC Comment – It has been identified that the handrail serving the stairway protrudes into the traversable

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
		accessible path of travel, thereby creating a non-compliance. As such the following design resolutions are recommended: ▪ Option 1 – Introduce a blade wall / plinth behind the handrail to create a barrier; or ▪ Option 2 - Pursue a performance solution to remove the secondary handrail with reliance on 'lift; access as the primary accessway to the building  **Figure 4.1** – Handrail obstructing the accessible path of travel <u>Handrails (Clause 11&12)</u> As the design progresses beyond DA, further design detail shall be provided which confirms compliance with clause 11 and 12 of AS1428.1-2009.

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
Parts of building to be accessible Clause D4D4	Where a doorway along and accessway has multiple leaves, at least one of those leaves must have a clear opening width of no less than 850mm, unless automatic. This includes pathways within all areas of the building normally used by the occupants internally to be provided with passing places and turning spaces.	The building is capable of complying. Detailed construction documentation to show compliance with AS1428.1. <u>Door Circulation Space (Clause 13)</u> DC Comment Shortfalls relating to door circulation spaces have been identified.  **Figure 4.2** – Multiple door circulation space shortfalls on Ground Floor  **Figure 4.3** – Multiple door circulation space shortfalls on First Floor In addition to the doors identified in figure 4.2 & 4.3 above, it has been identified that access via doorway to the 'PL Suite' will also be justified via a performance solution.

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
		<u>Turning Space Circulation Space (Clause 13)</u> Furthermore, it is noted that the end of corridor space does not achieve the required 1540mm turning space. It is recommended to pursue a performance solution to justify its current layout.  **Figure 4.5** – Reduced end of corridor circulation space can be justified under a BCA performance solution.
Exemptions Clause D4D5	The following rooms / areas and associated accessways have been afforded the concession under D4D5 based on the health or safety risk and therefore access for people with disabilities need not be provided to these areas – ▪ Storage.	Note

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
Signage Clause D4D7	Signage in accordance with this clause and details within AS1428.1 to be provided to identify sanitary facilities, hearing augmentation, non-accessible pedestrian entrances, directional signage and exit levels, where applicable.	Signage package to be submitted with detailed design documentation in accordance with this clause and Spec 15. DC Comment - Due to the multiple pedestrian entrances to the building to the southern end of ground floor, additional wayfinding signage in braille and tactile would benefit the end users of this public building.  **Figure 4.2** – Wayfinding signage is recommended to direct occupants to utilize the appropriate accessible path of travel.
Hearing Augmentation Clause D4D8	As design progresses, consideration shall be given to the hearing augmentation provisions. A hearing augmentation system will be required where an inbuilt amplification system, other than one for emergency warning, is installed. Consideration to be given particularly to the – Class 9b school parts – all areas where an inbuilt amplification system,	The building is capable of complying. Further details required with construction documentation.
Tactile indicators Clause D4D9	Warning TGSI's required where accessways from the allotment boundary require crossing a vehicle isle.	The building is capable of complying.

DESCRIPTION / PROPOSED STANDARD OF PERFORMANCE	STATUTORY REQUIREMENT	COMMENT
	TGSI's required for accessible circulation stairs and ramps in accordance with AS1428.4.1.	Further details required with construction documentation.
Ramps Clause D4D12	A landing for a step ramp must not overlap another landing for a step ramp or ramp. No ramps that exceed 3.6m in height.	The building is currently showing compliance with D4D12 of the BCA.
Glazing on accessways Clause D4D13	On an accessway where frameless or full glazed doors provided, a solid horizontal decal is required in accordance with AS1428.1. Detailed design documents to be provided with finishes schedule for our review of selected decals and 30% LRV contrast with surrounding background.	The building is capable of complying. Further details required with construction documentation.
Passenger lifts Clause E3D8	Lifts to be designed and installed in accordance with E3D8 of the BCA and AS1735.12.	The building is capable of complying with either the performance requirements via deemed to satisfy solution or performance solution. Further details required with construction documentation

5.2 Section B – Structure

Part B1	**Structural provisions** The building or structure must possess a resistance greater than the most critical action resulting from different combinations of actions, this is to be calculated by the project's Structural Engineer as part of the structural design documentation.

5.1 Section C – Fire Resistance

Part C2	**Fire Resistance and stability** The building is to be erected in Type B fire resisting construction in accordance with **Spec. 5** of the BCA. Refer to **Appendix A2** for the relevant fire resisting requirements. Any new flooring provided needs to be constructed so that it is at least of the standard achieved by a floor/ ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or have an FRL of at least 30/30/30; or have a fire protective covering on the underside of the floor, including beams incorporated in it, if the floor is combustible or of metal. This would include any structure supporting the floor. With regards to external elements, the FRL required is dependent on the location if any fire source features (e.g. site boundary. As the building is located more than 3 m from any site boundaries nil FRLs are required by **Spec. 5**. Any new external walls and the flooring and floor framing of lift pit to be non-combustible. New external ancillary items to be non-combustible.
Part C3	**Compartmentation and separation** The building is a single fire compartment within the maximum limitations of this part, generally nil FRLs are required. As design progresses Project Architect and / or building services engineer will need to review C3D13 and C3D14 to confirm that equipment in services room does not need to be fire separated.
Part C4	**Protection of openings** Generally nil FRLs are required. As design progresses Project Architect and / or building services engineer will need to review C3D13 and C3D14 to confirm that equipment in services room does not need to be fire separated.

5.2 Section D - Access and egress

Part D2	**Access and egress** Number of exits It is understood that the proposed occupancy / population for the building is less than 50. Therefore, only one (exit) is required. Exit travel distances Travel distances throughout the development would generally comply, being less than 20 m to the single exit.
Part D3	**Construction of exits** Barriers A barrier shall be provided where the fall below a surface is greater than 1 m Doorways and doors A door serving as an exit must swing in the direction of egress, i.e outwards A door in an exit, forming part of a exit or in the path of travel to an exit must be readily openable without a key.

5.3 Section E - Services and equipment

Part E1	**Fire fighting equipment** A fire hydrant system complying with AS2419.1 is required to serve the building. Note - A hose reel system is not required as the building comprises of class 5 and class 9b (classrooms). Portable fire extinguishers must be provided, selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.
Part E2	**Smoke hazard management** The building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1).Further details on the on the ventilation method and mechanical system (if proposed) are required, input from a mechanical engineer may be necessary. If no mechanical system or no air-handling system is proposed, then no action needed.
Part E3	**Lift Installations** An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification 24

Part E4	**Visibility in an emergency, exit signs and warning systems** Every required exit sign must comply with AS/NZS 2293.1; and Every required emergency lighting system must comply with AS/NZS 2293.1-2018.

5.4 Section F - Health and amenity

Part F1-F3	**Surface water management waterproofing and weatherproofing** All drainage, waterproofing and weatherproofing is to be constructed to comply with part F1-F3 of the BCA.
Part F4	**Sanitary and other facilities** Sanitary facilities numbers are generally capable of compliance, on the basis facilities located elsewhere within the golf club site are permitted to be used.
Part F5	**Room heights** Based off the sections provided, the development is capable of complying with the room height requirements as outline by the BCA.
Part F6	**Light and ventilation** Lighting (natural or artificial) and ventilation (natural or mechanical) shall be provided to any occupiable room.

6. PERFORMANCE BASED ASSESSMENT

In addition to undertaking a detailed assessment of the design against the prescriptive requirements of the BCA a preliminary performance-based assessment has also been undertaken.

The implementation of a performance-based approach in lieu of compliance with the deemed-to-satisfy (DtS) provisions shall be in consultation with all relevant stakeholders and is subject to the approval of the certifying authority.

The adoption of performance solutions for fire safety matters may be subject to consultation with the NSW Fire Brigade as part of the fire engineering brief process under A2G2 (4) of the BCA and may be subject to further consultation as part of the Construction Certificate process under Section 25 - 29 of the *Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021*.

The table below lists scenarios where we believe the adoption of a performance design may add value to development in-lieu of complying with the prescriptive (DtS) provisions—

Table 4 – Performance Solutions

ITEM	PROPOSED PERFORMANCE SOLUTION	BCA DtS CLAUSE	PERFORMANCE REQUIREMENT
1.	Justify multiple shortfalls relating to door circulation spaces on the ground and first floors.	D4D4	D1P1
2.	Justify reduced end of corridor turning space.	D4D4	D1P1
3.	(Optional) Justify abutment of timber floorboard exceeding the max. permitted 3-5mm.	D4D3	D1P1
4.	(Optional) Justify the removal of a secondary handrail to proposed external stairways and associated tactiles.	D4D3	D1P1

7. SUMMARY

We are of the opinion that the proposed works are capable of achieving compliance with the BCA, subject to building systems and services being designed and installed in accordance with the relevant design standards contained within the BCA.

Compliance can be achieved either by meeting the deemed-to-satisfy requirements of the BCA, or via a performance-based approach. Any performance solutions for the development will be developed as part of the ongoing design and consultation with the design team.

Our strategy for ensuring compliance will also be developed as the project and architectural documentation progresses.

We trust that the above information is sufficient for the consent authority in assessing the merit of the architectural design from a regulatory perspective.

This statement should not be construed as relieving any other parties of their legislative or contractual obligations.

Design Confidence possess Indemnity Insurance to the satisfaction of the building owner.

APPENDIX A1

Required FRLs from summarised from Spec. 5 of the BCA.

Table A2 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building—FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/–	120/ 30/–	180/ 60/–	240/ 60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 30	–/ 90/ 60	–/120/ 90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
LOAD BEARING EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Fire-resisting stair *shafts*				
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–