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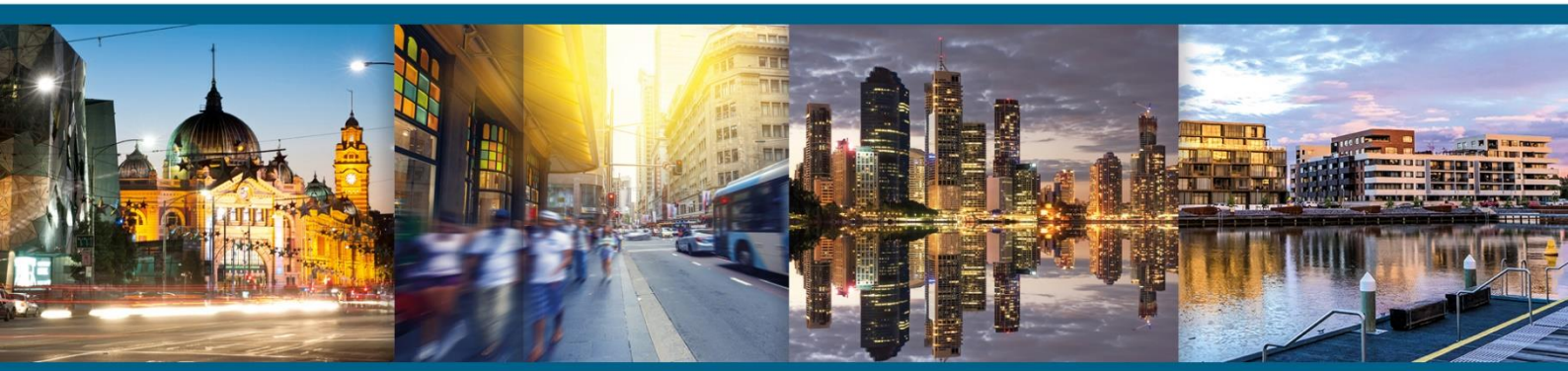
Pittwater House School

70 South Creek Road
Collaroy, NSW 2097

BCA Assessment Report to Accompany Section 4.55 Submission



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Report Revision History

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Issue Date:	27/05/2021
Author	Eddie Liu
Verifier	Andrew Rys

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Revision Details:	R1.0 Draft Report for comments
Date:	21/05/2021
Author:	Eddie Liu
Verifier:	Andrew Rys

Introduction

This report presents the findings of a preliminary assessment of a proposed building works at Pittwater House School against the Deemed-to-Satisfy (DtS) provisions of Building Code of Australia (BCA) 2019 Amendment 1

It has been prepared by building regulations consultants and certifiers Steve Watson and Partners for Neeson Murcutt Architects

Purpose

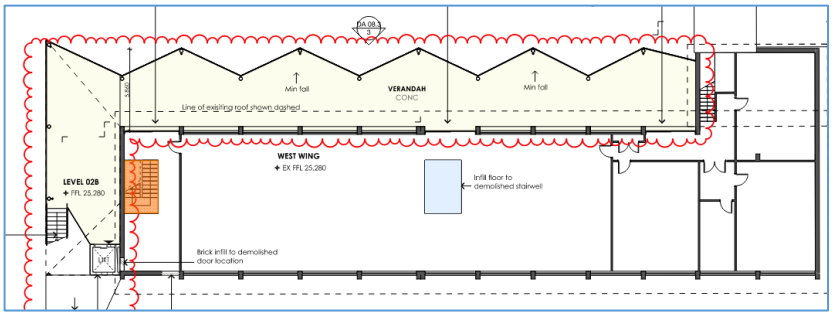
The assessment is undertaken for the purpose of, and to the extent necessary for, submission with the Section 4.55 Application to Council under Part 4 of the Environmental Planning and Assessment Act.

Scope & Limitation

The scope of this assessment is limited to the West Wing and South Wing Building connected via the Universal Access Core as documented in the design documentation referenced in Appendix A of this report.

Description of Proposed Development

The proposed works involve the construction of a 4-storey West Wing and South Wing Building connected via the Universal Access Core within Pittwater House School at 70 South Creek Road Collaroy NSW 2097.

Summary of Construction Determination	
BCA Classification	West Wing & South Wing connected via the Universal Access Core – Class 9b
Number of storeys contained	West Wing & South Wing connected via the Universal Access Core – 4 storeys
Type of construction required	West Wing & South Wing connected via the Universal Access Core – Type A Construction
Effective height	West Wing & South Wing connected via the Universal Access Core – Less than 12m
Floor area	Floor Area to be provided by the Architect
Assumption	The internal non-fire-isolated stair highlighted below in the West Wing Building is not assessed as a required exit: 

Assessment

The following is a summary of an assessment of the proposed design against the relevant Deemed-to-Satisfy provision of the BCA 2019 Amendment 1

Section A: General Provisions

The scope of work within the Section 4.55 application includes:

- Construction of a 4 storey new universal access core connecting the existing West Wing and South Wing
- Associated Drop-off area

Section B: Structure

The structural engineering design of the new universal access core will be required to comply with the structural provisions of Part B1 of the BCA, Design certification from a structural engineer is required at CC stage.

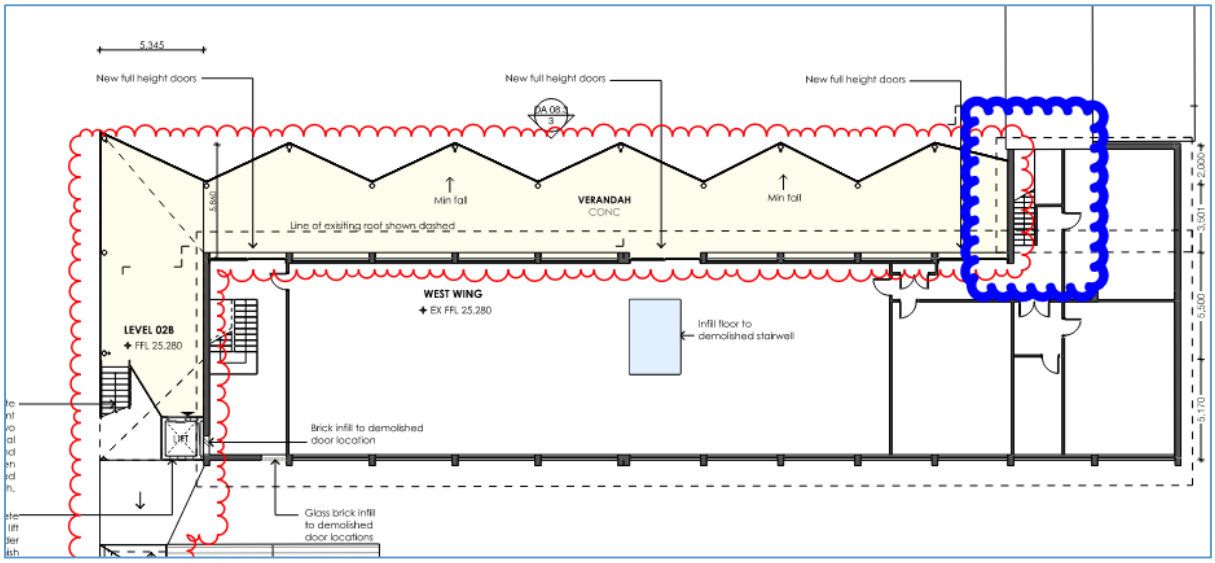
Section C: Fire Resistance

The new universal access core is required to be of Type A construction. The FRL of building elements for Type A construction needs to be in accordance with Table 3 of Specification C1.1 listed under Appendix D of this report.

Proposed floor coverings and any proposed wall and ceiling lining materials must comply with the fire hazard properties nominated in Specification C1.10a of the BCA.

Section D: Access and Egress

The internal stair connecting 3 storeys which serves as required exit in the West Wing building is not fire isolated stairs, this needs to be addressed by a fire engineered performance solution:

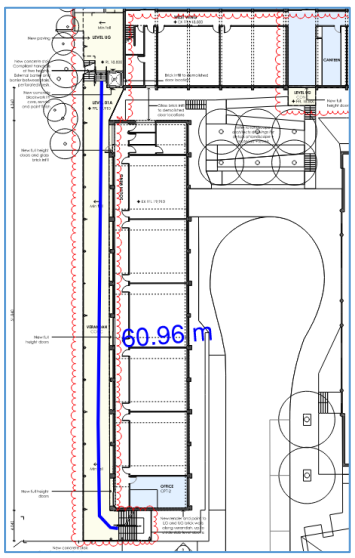


Travel distance in the West Wing complies. Future fitouts will be subject to the following maximum travel distance limitations and departure from the travel distance requirements must be addressed by a performance solution:

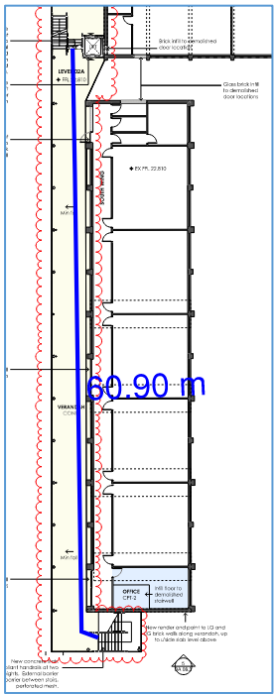
- 20m to a single exit or point from which travel in different directions where 2 exits are available;
- 40m to the nearest exit where 2 or more exits are available;
- 60m between alternative exits;

South Wing has extended travel distance between alternative exit at 61m in lieu of 60m on Level 1 and Level 2. This needs to be addressed by a fire engineered performance solution:

Level 1:



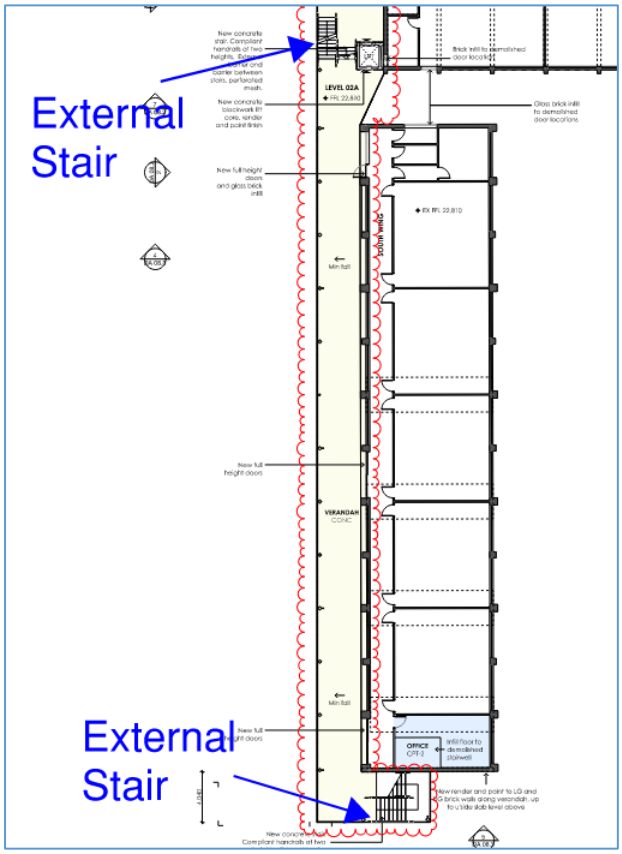
Level 2:



External stair or ramp serving as required exit instead of fire-isolated stairs to a building under 25m in effective height is subject to:

- Stair to be non-combustible construction.
- Exit doors onto the stair to be 1-hour fire rated.

Exit paths via the stair must be shielded if within 6m of openings in external wall of building.



Detail of occupant numbers to be provided to determine the required exit width.

Any new electrical meters, distribution boards (telecommunications or electrical) in the path of travel must be contained within a non-combustible enclosure with the doorways fitted with smoke seals in accordance with Clause D2.7 of the BCA.

The construction of the new stairways in the universal access core including goings, risers and slip resistance classification is to comply with Clause D2.13 of the BCA. Landings at the top and bottom of the stairway is to comply with Clause D2.14 of the BCA.

Handrails are to be provided to the new stairs in accordance with Clause D2.17, D3.3 and Clause 11 and 12 of AS1428.1 – 2009.

Access for people with disabilities is to be provided in the universal access core in accordance with the provisions of Part D3 of the BCA and AS1428.1 – 2009. Certification from an access consultant is to be provided at CC stage.

Any enclosure of spaces under stairways must not be enclosed to form an enclosed space unless the enclosing walls and ceiling have an FRL of not less than 60/60/60 and doorway is fitted with a self-closing -/60/30 fire door.

Section E: Services and Equipment

The universal access core building is required to be served by the fire services listed under Appendix B.

Section F: Health and Amenity

Minimum ceiling heights are to be 2.4m for schools and carpark except where 2.7m is required in corridors serving a building accommodating more than 100 persons.

Artificial lighting is required to all rooms that are occupied, all accessible spaces, all corridors and circulation spaces and path of egress in accordance with AS/NZS 1680.0 – 2009.

Ventilation will be required to all rooms occupied by a person for any purpose by means of natural ventilation complying with Clause F4.6 of the BCA or mechanical ventilation / air-conditioning complying with AS 1668.2 – 2012.

Details of sanitary facilities and occupant numbers are to be provided.

A BCA Performance Solution is required to document the compliance of the walls and roofing with Performance Requirement FP1.4 prior to the issue of the Construction Certificate.

Section G: Ancillary Provisions

The building does not contain elements subject to Section G Ancillary Provisions.

Section H: Class 9b Buildings

The building does not contain elements subject to Section H Ancillary Provisions.

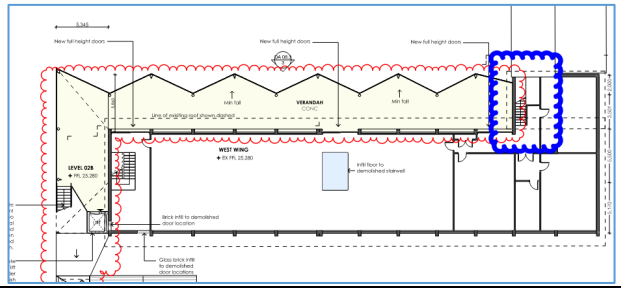
Section J: Energy Efficiency

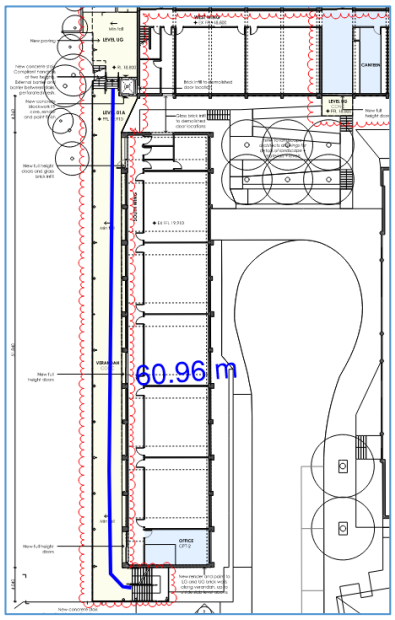
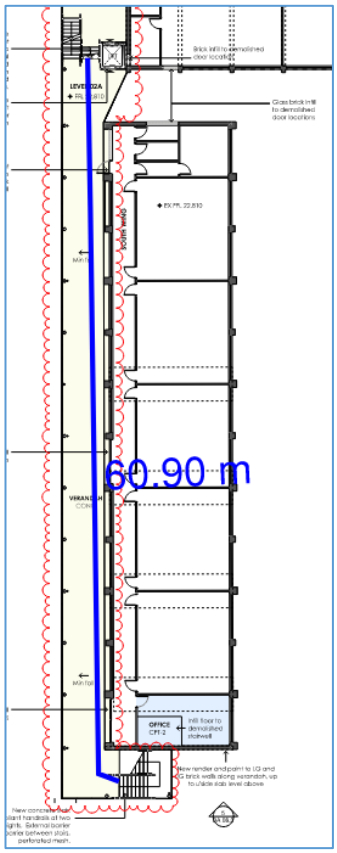
The buildings are to be designed to achieve compliance with the relevant provisions of BCA 2019 Amendment 1 Part J1 to J8 respectively.

Key compliance items include:

- Roof and ceiling construction will be required to achieve compliance with Clause J1.3;
- External wall construction will be required to achieve compliance with Clause J1.5;
- External glazing will be required to achieve compliance with Clause J1.5;
- Building sealing will be required to windows and doors in accordance with the relevant sections Part J3;
- Air-conditioning and mechanical ventilation systems will need to be designed in accordance with the relevant sections of Part J5;
- Artificial lighting and power will need to be designed in accordance with the relevant sections of Part J6;
- Heated water supply system for food preparation and sanitary facilities to be designed and installed in accordance with Part B2 of the Plumbing Code of Australia; and
- Facilities for energy monitoring in accordance with Clause J8.3.

Alternative Solutions (potential)

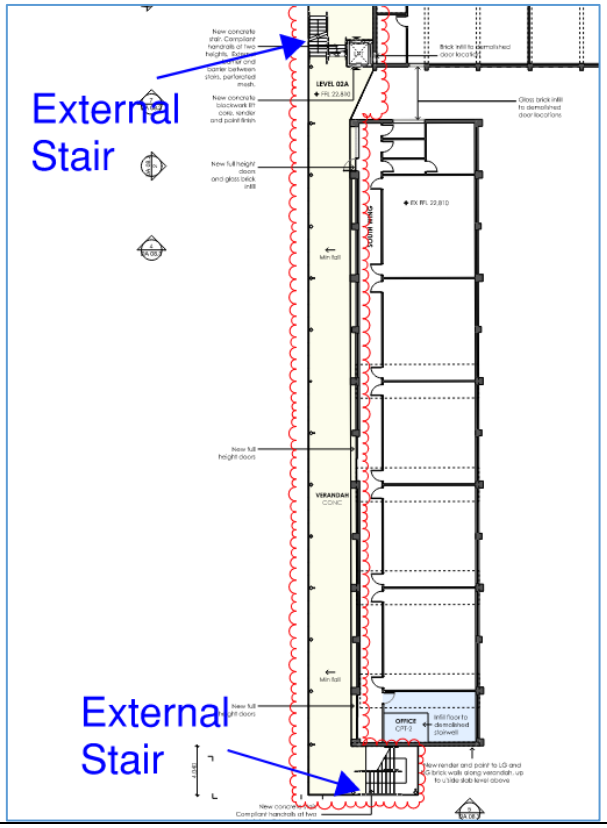
Item	Non-Compliance	DTS Clause	Description	Performance Requirement
1.	When fire-isolated stairways and ramps are required	D1.3	The internal stair connecting 3 storeys which serves as required exit in the West Wing building is not fire isolated stairs, this needs to be addressed by a fire engineered performance solution: 	DP4, DP5

2.	Distance between alternative exits	D1.5	South Wing has extended travel distance between alternative exit at 61m in lieu of 60m on Level 1 and Level 2. This needs to be addressed by a fire engineered performance solution: Level 1:  Level 2: 	DP4

Item	Non-Compliance	DTS Clause	Description	Performance Requirement
3.	Weatherproofing	F1.0	A BCA Performance Solution is required to document the compliance of the walls and roofing with Performance Requirement FP1.4 prior to the issue of the Construction Certificate.	FP1.4

Summary of Additional Details Required at CC Stage

Item	Description	DTS Clause	Assessment	Comments
1.	Structural Provisions	Section B	New buildings need to be certified by a structural engineer. Reduced structural adequacy needs to be justified by a fire engineering solution.	Further information Required
2.	Non-combustible building elements	C1.9	For a building of Type A or B construction, external walls including all components incorporated in them including façade covering, framing and insulation must be non-combustible. Fire test reports to be provided for all proposed cladding	Further information Required
3.	Floor, ceiling, wall and lift car linings	C1.10	Fire test reports to be provided for all proposed linings	Further information Required
4.	Ancillary elements	C1.14	Specification of any proposed signage material to be provided. Ancillary elements need to be non-combustible including the rooftop canopy, details to be provided.	Further information Required
5.	External Walls	Spec C1.1 (Table 4)	External walls require FRLs in accordance with Table 4 of Spec C1.1 tested from both sides. Details to be provided.	Further information Required /
6.	Lift Pit	C1.9	Lift pit in the new universal access core required to be non-combustible. Details to be provided at CC stage.	Further information Required
7.	Dimension of exits and paths of travel to exits	D1.6	Detail of occupant numbers to be provided.	Further information Required

Item	Description	DTS Clause	Assessment	Comments
8.	External stairways or ramps in lieu of fire-isolated exits	D1.8	External stairs or ramps may be used instead of fire-isolated stairs to a building under 25m in effective height, subject to: • Stair to be non-combustible construction. • Exit doors onto the stair to be 1-hour fire rated. Exit paths via the stair must be shielded if within 6m of openings in external wall of building. 	Further information Required
9.	Enclosure of space under stairs and ramps	D2.8	Any spaces under stairs must not be enclosed to form an enclosed space unless the enclosing walls and ceiling have an FRL of not less than 60/60/60 and doorway is fitted with a self-closing -/60/30 fire door.	Further information Required
10.	Goings and risers	D2.13	All commuting stair needs to be accessible complying with AS 1428.1 2009.	Further information Required
11.	Barriers to prevent falls	D2.16	A continuous barrier must be provided along • a stairway and • a ramp Details to be provided	Further information Required

Item	Description	DTS Clause	Assessment	Comments
12.	Parts of Building to be accessible	D3.3	Access is to be provided to all parts of the building normally used by the occupants as specified in the provisions of AS 1428.1 – 2009. Certification from an access consultant needs to be provided at CC stage.	Further information required
13.	Fire Hydrant	E1.3	Fire hydrant needs to be provided to the universal access core	Further information required
14.	Fire Hose Reel	E1.4	Fire hose reel coverage needs to be provided to all areas other than classrooms and associated corridors in a primary school	Further information required
15.	Portable fire extinguisher	E1.6	Portable fire extinguisher needs to be provided in classrooms. Details to be provided.	Further information required
16.	Automatic shutdown of air handling system	NSW Table E2.2b	The universal access core must be provided with automatic shutdown of air handling system (other than non-ducted individual room units with a capacity not more than 1000L/s and miscellaneous exhaust air systems) on the activation of smoke detectors.	Further information required
17.	Emergency lighting requirement	E4.2	Details of emergency lights to be provided	Further information required
18.	Exit signs	E4.5 & E4.6	Details of exit signs to be provided	Further information required
19.	Facilities in Class 3 to 9 buildings	F2.3	Details of unisex disabled toilet and sanitary facilities to be provided. Detail of occupant numbers to be provided.	Further information required
20.	Height of rooms and other spaces	F3.1	Minimum ceiling heights are to be 2.4m for schools except where 2.7m is required in corridors serving an assembly building accommodating more than 100 persons.	Further information required
21.	Energy Efficiency	Section J	Report to be provided by section J Consultant	Further information required

Conclusion

This statement has been provided to accompany the Section 4.55 submission following a preliminary assessment of the proposed design. The development adequately satisfies the intent of being able to comply with the requirements of the BCA for the purpose of Section 4.55 submission.

We confirm the design as shown on the drawings referenced in Appendix A is capable of achieving compliance with the BCA subject to further detail at the design development stage. The design will be subject to a Construction Certificate to ensure all aspects of the design will comply with BCA requirements including any performance-based determinations.

Appendix A – Referenced Documentation

The following documentation was used in the preparation of this report:

Drawing No.	Title	Issue	Date	Drawn By
DA01	Coversheet	04	25/05/21	Neeson Murcutt Architects
DA03	Site Analysis	02	25/05/21	Neeson Murcutt Architects
DA04	Site Plan	03	25/05/21	Neeson Murcutt Architects
DA05	Demolition Plans	02	25/05/21	Neeson Murcutt Architects
DA08	South & West Wing Universal Core Plans	03	25/05/21	Neeson Murcutt Architects
DA08.1	South & West Wing Universal Core Plans	01	25/05/21	Neeson Murcutt Architects
DA08.2	South & West Wing Universal Core Plans	01	25/05/21	Neeson Murcutt Architects
DA08.3	South & West Wing Section & Elevations	01	25/05/21	Neeson Murcutt Architects

Appendix B – Schedule of proposed statutory Fire Safety Measures

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2019 Amendment 1 Clause D2.21.
Emergency lighting	BCA2019 Amendment 1 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2019 Amendment 1 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1
Fire seals protecting opening in fire resisting components of the building	BCA2019 Amendment 1 Clause C3.15, Specification C3.15 and AS 1530.4 –2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Fire Hydrant system	BCA 2019 Amendment 1 Clause E1.3 and AS 2419.1 2005
Fire Hose reel system	BCA2019 Amendment 1 Clause E1.4 and AS 2441 – 2005
Lightweight construction	BCA2019 Amendment 1 Specifications C1.8, Clause A2.3 and AS 1530.4-2005
Portable fire extinguishers	BCA2019 Amendment 1 Clause E1.6 and AS 2444 – 2001
Automatic Shutdown of air handling system **subject to confirmation from Mechanical Engineer*	BCA 2019 Amendment 1 NSW Table E2.2b and AS1668.1 2015
Smoke detectors to activate Automatic Shutdown of air handling system **subject to confirmation from Mechanical Engineer*	BCA 2019 Amendment 1 NSW Table E2.2b and AS 1670.1 2018
Warning and Operational signs	BCA2019 Amendment 1 Clauses E1.4 and E3.3
Fire Engineering Report	TBC

Appendix C – Fire-resistance levels

The below table contain the fire-resistance levels (FRL) required under Specification C1.1 of the BCA.

Type A Construction: FRL of Building Elements				
Building element	**Class of building - FRL:** (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is-				
For loadbearing parts-				
less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 TO LESS THAN 3 M	90/60/60	120/ 90/ 90	180/180/120	240/240/180
3 OR MORE	90/60/30	120/ 60/ 30	180/120/90	240/180/ 90
For non-loadbearing parts-				
less than 1.5 m	-/90/90	- /120/120	- /180/180	- /240/240
1.5 TO LESS THAN 3 M	-/60/60	- / 90/ 90	- /180/120	- /240/180
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an external wall-				
For loadbearing columns	90/ - / -	120/ - / -	180/ - / -	240/ - / -
For non-loadbearing columns	- / - / -	- / - / -	- / - / -	- / - / -
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
Non-loadbearing	- /90/90	- /120/120	- /120/120	- /120/120
Bounding public corridors, public lobbies and the like-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding sole-occupancy units-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of Combustion-				
Loadbearing	90/90/90	120/ 90/ 90	180/120/120	240/120/120
Non-loadbearing	- /90/90	- / 90/ 90	- /120/120	- /120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL 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