



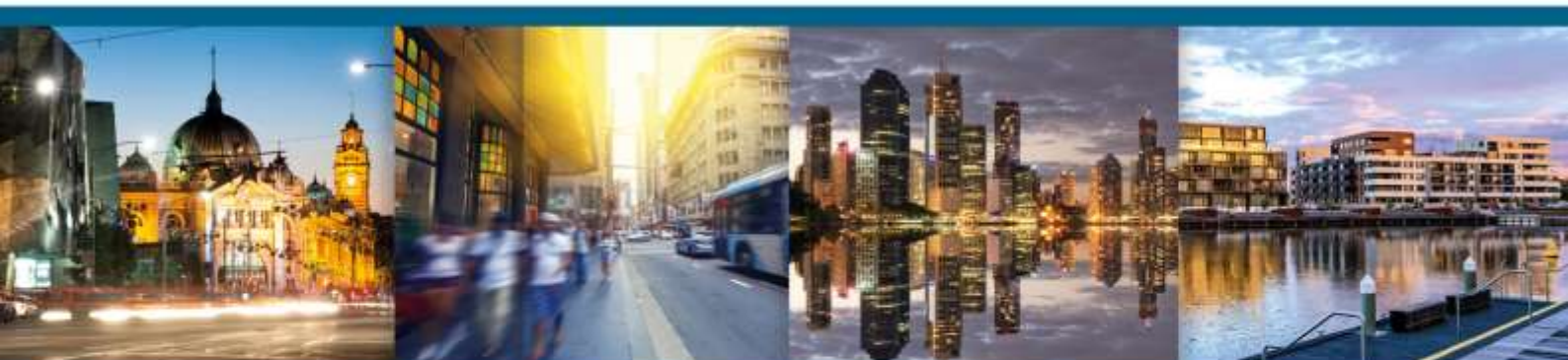
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Waverley Council Chambers Upgrade

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Preliminary BCA and Certification Assessment 2020/3168 R1.3



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Report Revision History

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Date:	Tuesday, 1 March 2022
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Disclaimer:

This report is based on a desktop audit of preliminary documentation only. Details contained in the report address issues of significance to broad BCA compliance relevant to this stage of design resolution.

This report is based on a review of the design documentation only. It represents a compliance report for “documentation to this point in time” and will be subject to amendment and expansion as project documentation develops.



Introduction

This report presents the findings of a preliminary assessment of the proposed upgrade of Waverley Council Chambers Upgrade development of the 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 Lahznimmo Architects.

Purpose

The purpose of this report is to identify issues and omissions in the audited documentation that are required to be addressed to permit the lodgement and approval of an application for a Construction Certificate under Part 6 of the EP&A Act.

Scope

The scope of this assessment is limited to the design documentation referenced in Appendix A of this report.

Statutory Framework

The following table summarises the key statutory issues relating to fire safety and the BCA in relation to the certification of new building works.

Issue	Legislative reference	Comment
Existing building fire safety	EPAR 94	Council may require upgrading in some circumstances
Alts and adds – change in building use	143(1)	Fire safety to be upgraded in affected part of building Structural adequacy to be signed off Category 1 fire safety provisions to be upgraded. (Hydrants, sprinklers, fire control centres, smoke detection, smoke hazard management, emergency lifts.)
Alts and adds – no change in use	EPAR 143(3)	No reduction in the level of safety permitted
New Work	EPAR 145	All new works must comply
Access to premises	Disability (Access to Premises — Buildings) Standards 2010	Upgrade of the “Affected Part” to provide access for people with disabilities

New Work

Clause 145 of the EPAR requires that all new work comply with the current requirements of the BCA.



This means that all works proposed in the plans are required to comply but that existing features of an existing building need not comply with the BCA unless required to under other clauses of the legislation.

Consent authority may require building to be upgraded

When determining a development application, a Consent Authority (Council) is required to assess fire safety in an existing building under Clause 94 of the EPAR.

The assessment must consider whether the measures contained in a building are inadequate

- (i) to protect persons using the building and facilitate their egress in the event of a fire or
- (ii) to restrict the spread of fire between buildings.

In determining a development application, the consent authority is to take into consideration whether it would be appropriate for the building to be brought into total or partial conformity with the BCA. Normally this discretionary power would only be enacted in the following circumstances:

- the proposed scope of works encompasses a large portion of the building so that a total building upgrade would not be considered an onerous requirement (ie ½ the total volume of the building including other works undertaken in the last 3 years) ;
- the upgrading measure(s) significantly increase the level of safety and are able to be cost-effectively incorporated into the proposed works so that they would not be considered an onerous requirement
- the existing level of safety is so deficient that the council consider a upgrade is necessary irrespective of the scope of works proposed.

No change of building use - structural strength and fire safety

Clause 143 (3) of the EPAR prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

Change of building use - structural strength and fire safety

If a change in use is involved under the application, Clause 143 (1) of the EPAR requires that the fire protection (egress), structural capacity and Category 1 Fire Safety provisions must be applicable to the new use of the building.

Audit Report and Certification Work

This report is provided with strict regard to the conflict-of-interest requirements in Part 3 the Building and Development Certifiers Act 2018 and Part 4 of the Building and Development Certifiers Regulation 2020, with particular reference to Clause 25(5) of the Regulation.

Hence, the contents of this report, and any associated correspondence, are provided in the context of a preliminary audit of plans and other design documents. The report is intended to identify BCA or regulatory issues required to be addressed in the design to achieve compliance. It may not be construed to constitute involvement in building design, the preparation of plans and specifications, the provision of advice on how to amend a plan or specification, or to breach any other restriction or limitation imposed under the conflict-of-interest provisions of the above or any other legislation.



Description of Proposed Development

The proposed works involve an upgrade of the existing Waverley Council Chambers.

Summary of Construction Determination	
BCA Classification	Class 5 and 9b
Number of storeys contained	4
Rise in storeys	4
Type of construction required	Type A
Effective height	9.75m (Ground R 98.5 - Level 3 RL 108.25)

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 B: Structure

The structural engineering design of the building will be required to comply with the structural provisions of Part B1 of the BCA. The existing structure needs to be certified to be structural adequate.

Section C: Fire Resistance

The building is required to comply with Type A construction. Floors are required to have an FRL of 120/120/120 and any services penetrations appropriately fire sealed. Refer to Appendix C.

In a building required to be of Type A construction, the following building elements and their components must be non-combustible:

- i. External walls and common walls, including all components incorporated within them including façade covering, framing and insulation;
- ii. The flooring and floor framing of lift pits;
- iii. Non-loadbearing internal walls where they are required to be fire-resisting;
- iv. Non-loadbearing shaft being a lift, ventilating, garbage or similar shaft.

Architect and Structural engineer to make provisions for this requirement in the design.

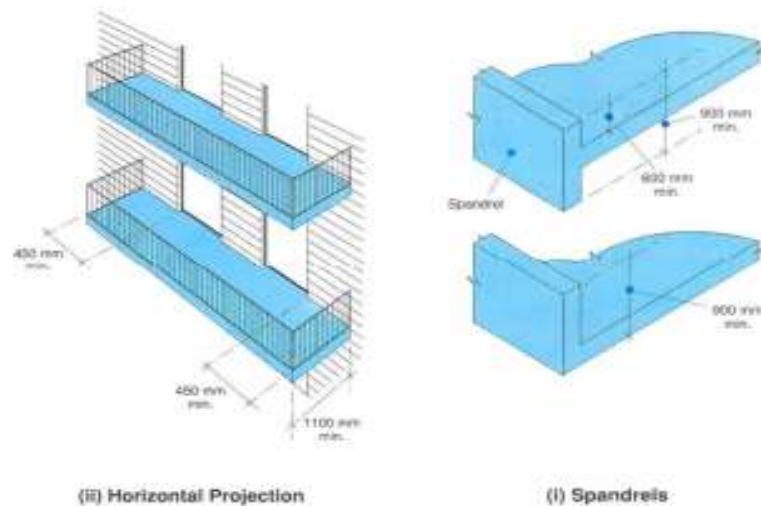
Proposed floor coverings and any proposed wall and ceiling lining materials must comply with the fire hazard properties nominated in Specification C1.10 of the BCA.

Any ancillary element fixed, installed or attached to the internal parts or external face of an external wall must be non-combustible unless exempt under Clause C1.14.

Ground floor has a void connecting to level 1 which is proposed to be separated via a compliant fire rated wall with an FRL of 120/120/120 or via a Performance Solution. Level 1 and level 2 are connected via open voids and a stair. The compartment sizes comply with the floor area and volume limitations for Type A. The floor area and volume limitations are for Class 5 and 9b: 8,000m² and 48,000m³.



In a building of Type A construction that is not sprinkler protected, a spandrel must be provided. The spandrel must be not less than 900mm in height, extended not less than 600mm above the upper surface of the intervening floor and be of non-combustible material having an FRL of not less than 60/60/60.



If the separation of the void connecting ground and level 1 is proposed with glazing that does not comply with the DTS provisions of the BCA then a Performance Solution will need to be investigated to satisfy Performance Requirement CP2.

The southern external wall is located within 3m of the boundary. The wall is required to have an FRL not less than 120/120/120 and openings protected in accordance with Clause C3.4. It has been proposed to investigate whether the wall can be addressed via a Performance Solution by the Fire Safety Engineer.

The building is sited over 2 separate lots. In this situation it is assessed as a united building and the boundary that passes through the building is not considered a fire source feature.



Image taken from ePlanning Portal.



Section D: Access and Egress

Egress from the building is capable of complying with Clauses D1.4 and D1.5 of the BCA. 20m to a single exit or point from which travel in different directions where 2 exits are available;

- The balcony on Level 3 is considered to be an “occupiable outdoor area” in accordance with Part G6.
- 40m to the nearest exit where 2 or more exits are available;
- 60m between alternative exits;

In accordance with Clause D1.6 of the BCA, the available exits provided are capable of accommodating the population from each floor based on number of persons calculated under Clause D1.13 of the BCA. Level 3 is limited to 200 people based on 2m of egress width provided from each storey.

The existing external stairway is a non-required stairway. Under Clause D1.12(b)(iii) there are no issues having the external stair passing all 4 storeys of the building.

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 stores area beneath the stair on level 1 is required to be comply with Clause D2.8. The enclosing walls are to have an FRL of not less than 60/60/60 and the doorway fitted with a self-closing -/60/30 fire door.

Appropriate door swing & door hardware will be required for the doors serving as doors in the path of travel from the outdoor terrace on level 3. If the outdoor terrace accommodates more than 100 people, then doors in the path of travel are required to swing in the direction of egress and must be provided with panic bars. Compliant door hardware must be provided to the sliding doors between grid line D and E on level 3 as they are in the path of travel providing egress from the terrace through the Council Chambers.

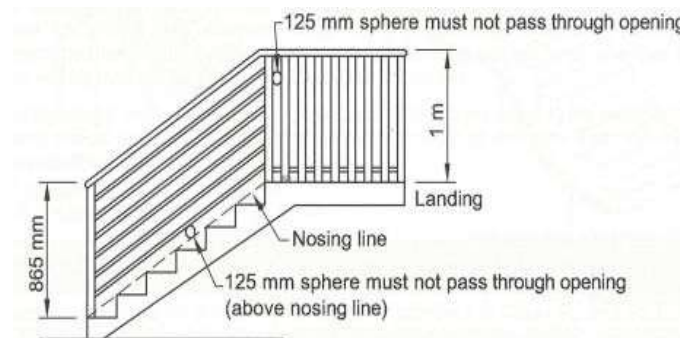
The construction of the stairways including goings, risers and slip resistance classification is to comply with Clause D2.13 of the BCA. Landings at the top and bottom of the stairway is to comply with Clause D2.14 of the BCA.

	Riser (R)		Going (G) ⁽²⁾		Quantity (2R+G)	
	Max	Min	Max	Min	Max	Min
Public stairways	190	115	355	250	700	550
Private stairways ⁽¹⁾	190	115	355	240	700	550

125 mm sphere must not pass through treads

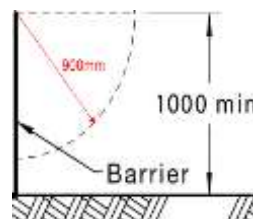


Requirements apply to the provision and design of barriers at locations where a person could fall 1m or more. Generally, 125mm maximum gap size limits apply between balusters or rails and a 1m minimum height applies, with alternate dimensions permitted in fire isolated stairs and industrial areas.



Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor.

Climbable elements cannot be located within 900mm of the top rail of each balustrade where the fall is greater than 4m. This measurement is taken in an arc as seen in the extract below



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 accordance with the provisions of Part D3 of the BCA and AS1428.1 – 2009. The access consultant to provide an access report detailing compliance.

Section E: Services and Equipment

The building is required to be served by a fire hydrant system complying with Clause E1.3 of the BCA and AS 2419.1 – 2005. Consideration is to be given to the location of the fire brigade booster assembly. Where located remotely from the buildings the booster assembly is required to be:

- At the boundary of the site and be within sight of the main entrance to the building;
- Adjacent to the principal vehicular access to the site;

The hydrant booster assembly is not visible from the main entrance of the building and not located adjacent the vehicular access to the site.

The fire brigade booster assembly is required to be installed in accordance with AS2419.1 – 2005 except that it may be located between 3.5m and 10m of the building where the assembly is protected by an adjacent fire-rated freestanding wall that—



- achieves an FRL of not less than 90/90/90; and
- extends not less than 1 m each side of the outermost fire hydrant booster risers within the assembly and is not less than 3 m wide; and
- extends to a height of not less than 2 m above finished ground level.

The Class 9b parts of the building are required to be served by fire hose reels complying with Clause E1.4 of the BCA and AS 2441 – 2005.

The building will require portable fire extinguishers complying with Clause E1.6 of the BCA and AS 2444 – 2001.

Air handling plant not forming part of a smoke hazard management system must be installed to operate as a zoned smoke control system under AS1668.1-2015, or should shut down in fire mode and be fitted with dampers to prevent smoke spread. With the Class 9b galleries any air handling system (other than miscellaneous exhaust systems installed in accordance with Clause 5 and 6 of AS1668.1) which does not form part of a smoke exhaust system is required to automatically shutdown.

As the building has a rise in storeys of more than 2 and less than 25m in effective height it is required to be provided with one of the following:

- a) Automatic stair pressurisation to all fire isolated exits to AS1668.1-2015; or
- b) Zone pressurisation system to AS1668.1-2015; or
- c) An automatic smoke detection and alarm system to Specification E2.2a and AS1670.1-2018; or
- d) A sprinkler system complying with AS2118.1- 2017 (Note a sprinkler system is required due to the atrium connecting 3 storeys)

The proposed lift will be required to be one of types identified in Table E3.6a, subject to the limitations on use specified in the Table. The lift also is required to incorporate the accessible features in accordance with Table E3.6b of the BCA.

The building will require emergency lighting and exit signage in accordance with Part E4 of the BCA and AS 2293.1 – 2005.

The Council Chambers would be considered a public hall which then requires an emergency warning and communication system (EWIS) in accordance with Clause E4.9 and AS 1670.4-2018.

Section F: Health and Amenity

Any new or modified external walls are to be weather proofed. A Performance Solution is required to be prepared to satisfying Performance Requirement FP1.4 in accordance with Verification Method FV1. Note there is no DTS Clause for Performance Requirement FP1.4 in respect of external walls.

Stormwater drainage must comply with AS/NZS 3500.3-2018. Water proofing of wet areas within a building to comply with AS 3740-2010.

Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047-2014 requirements for resistance to water penetration.



Details of the sanitary facilities on level 3 are required. However, the number of sanitary facilities proposed to be provided complies for the calculated population:

Class	Use	Occupant Numbers			WC Required	Urinal Required	Basin Required
		Total					
5	Office	300	Male	150	8	4	5
			Female	150	10	N/A	5
9b	Multi-purpose workshop / Chambers	152	Male	76	1	2	2
			Female	76	3	N/A	2

If level 3 is utilised for a function with a maximum population of 200 (limited by the egress width) the following sanitary facilities are required

Class	Use	Occupant Numbers			WC Required	Urinal Required	Basin Required
		Total					
9b	Chambers / Function optional	200	Male	100	1	2	2
			Female	100	3	N/A	2

An accessible unisex sanitary compartments is required in accordance with Clause F2.4 of the BCA and AS 1428.1 – 2009. A male and female sanitary compartment suitable for a person with an ambulant disability is required in accordance with AS 1428.1 – 2009.

Minimum ceiling heights are to be 2.4m except where 2.1m is permitted in corridors, passageways, bathrooms, sanitary compartments, storerooms or the like. The Chambers is capable of having more than 100 people so is required to have a ceiling height of not less than 2.7m.

Artificial lighting is required to all rooms that are frequently 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

Section G: Ancillary Provisions

Where the proposed separation of the void connecting ground to level 1 is proposed with glazing that does not achieve the required FRL of 120/120/120 then a performance solution will need address the Performance Requirements of the BCA by the fire safety engineer. The performance solution may need to consider the requirements where an atrium void which connects 3 storeys in a building.



Section J: Energy Efficiency

Any new or modified external walls or glazing which form part of the building envelope must comply with Part J1 of the BCA for energy efficiency. The building is located in climate zone 5. Insulation must comply with AS/NZS 4859.1-2018 and be installed in accordance with Clause J1.2. Modification to the roof will require compliance with Part J1. A R3.7 for downward direction of heat flow is required for the roof/ceiling. The solar absorptance of the upper surface of the roof must not be more than 0.45.

Any new windows, doors and exhaust fans that form the envelope of the building must be sealed in accordance with Part J3.

Air-conditioning and ventilation systems must comply with Part J5.

Artificial lighting and power must comply with Part J6.

Any heated water supply must comply with Part J7.

As the building has a floor area more than 2,500m² it must have the facility to record individually the energy consumption of:

- a) air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and
- b) artificial lighting; and
- c) appliance power; and
- d) central hot water supply; and
- e) internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and
- f) other ancillary plant.

The energy meters must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring where it can be stored, analysed and reviewed.



Non-compliances to be addressed

Item	Non-Compliance	DTS Clause	Description	Performance Requirement(s)
1.	Separation by fire walls	C1.1, Spec C1.1 C2.7	Glazed walls will not achieve the required FRL of 120/120/120	CP2
2.	Protection of openings in external walls	C3.2	The southern wall contains window openings which are within 3m of the boundary	CP2 and CP8
3.	Hydrant system	E1.3	The hydrant booster is not located within sight of the main entrance or adjacent the vehicular access	EP1.3
4.	Weatherproofing of external walls	N/A	Any new or modified external walls are to be weatherproofed. A Performance Solution is required to be prepared to satisfying Performance Requirement FP1.4 in accordance with Verification Method FV1	FP1.4
5.	Atrium Provisions	Part G3	A building containing voids which connect 3 storeys are required to comply with Part G3. Part G3 Atrium requires a sprinkler system to be provided within a building that has an atrium connecting 3 storeys. It has been proposed to have the fire safety engineer review the design and assess any potential Performance Solutions in relation fire separation of the voids. Further details will need to be provided by the fire safety engineer for review.	CP2, EP1.3 and EP2.2



Conclusion

This report documents a preliminary audit of the proposed design against the BCA and the relevant legislative requirements for the issue of a Construction Certificate.

We confirm the proposed design, as shown on the drawings referenced in Appendix A, is capable of achieving compliance with the BCA. The proposed design will therefore be capable of being approved under a Construction Certificate, subject to the provision of further detailed design, documentation of proposed performance-based solutions and other documentation necessary to satisfy the relevant legislative requirements.



Appendix A – Referenced Documentation

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

Drawing No.	Title	Issue	Date	Drawn By
A -101	Site Plan	02	12/10/2021	Lahznimmo Architects
A-103	Ground Floor Demolition Plan	02	12/10/2021	Lahznimmo Architects
A-104	First Floor Demolition Plan	02	12/10/2021	Lahznimmo Architects
A-105	Second Floor Demolition Plan	02	12/10/2021	Lahznimmo Architects
A-106	Third Floor Demolition Plan	02	12/10/2021	Lahznimmo Architects
A-107	Existing and New Diagrams	02	12/10/2021	Lahznimmo Architects
A-108	Ground Floor Plan	04	25/02/2022	Lahznimmo Architects
A-109	Level 1 Floor Plan	02	12/10/2021	Lahznimmo Architects
A-110	Level 2 Floor Plan	02	12/10/2021	Lahznimmo Architects
A-111	Level 3 Floor Plan	03	25/02/2022	Lahznimmo Architects
A-112	Roof Floor Plan	02	12/10/2021	Lahznimmo Architects
A-200	North and East Elevations	02	12/10/2021	Lahznimmo Architects
A-201	South and West Elevations	02	12/10/2021	Lahznimmo Architects
A-300	Sections	02	12/10/2021	Lahznimmo Architects



Appendix B – Schedule of proposed statutory Fire Safety Measures

Statutory fire safety measure	Standard of Performance
Access Panels, Doors And Hoppers To Fire Resisting Shafts	BCA 2019 Amendment 1 Clause C3.13 and tested prototypes (AS 1530.4 – 2014)
Automatic Fail Safe Devices	Scheduled devices release upon trip of smoke detection, fire detection and sprinkler activation in accordance with BCA 2019 Amendment 1 Clause D2.21.
Automatic Fire Detection And Alarm System (<i>Smoke Detection System</i>)	BCA 2019 Amendment 1 Clause 4 of Specification E2.2a and AS 1670.1 – 2018
Automatic Fire Suppression Systems (<i>Sprinklers</i>)	BCA 2019 Amendment 1 Specification E1.5 and AS 2118.1 – 2017
Emergency Lighting	BCA 2019 Amendment 1 Clause E4.2, E4.4 and AS/NZS 2293.1 – 2018
Emergency Warning and Intercommunication System	BCA 2019 Amendment 1 Clause E4.9 and AS 1670.4 – 2018
Exit Signs	BCA 2019 Amendment 1 Clause E4.5, NSW E4.6, E4.8 and AS/NZS 2293.1 – 2018
Fire Dampers	BCA 2019 Amendment 1 Clause C3.15 and AS 1668.1 – 2015 (AS 1682.1 – 2015 and AS 1682.2 – 2015)
Fire Doors	BCA 2019 Amendment 1 Specification C3.4 and AS/NZS 1905.1 – 2015
Fire Hydrants Systems	BCA 2019 Amendment 1 Clause E1.3 and AS 2419.1 – 2005
Fire Seals Protecting Opening In Fire Resisting Components Of The Building	BCA 2019 Amendment 1 Clause C3.15, Specification C3.15, AS 1530.4 – 2014, AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Hose Reel System	BCA 2019 Amendment 1 Clause E1.4 and AS 2441 – 2005
Lightweight Construction	BCA 2019 Amendment 1 Specifications C1.8, Clause A2.3 and AS 1530.4 – 2014
Mechanical Air Handling System (<i>Automatic Shut Down Of Air-Handling System</i>)	BCA 2019 Amendment 1 Clause E2.2 and AS 1668.1 – 2015
Portable Fire Extinguishers	BCA 2019 Amendment 1 Clause E1.6 and AS 2444 – 2001
Wall Wetting Sprinkler And Drencher Systems	BCA 2019 Amendment 1 Clause C3.4
Warning And Operational Signs	BCA 2019 Amendment 1 Clauses D2.23, D3.6 and E3.3

Note the fire safety schedule will need to be amended subject to the inclusion of a fire engineered performance solution.



Appendix C – Fire-resistance levels

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