CUSTOM DEVELOPMENT CERTIFICATIONS

Building Code of Australia Assessment Report

Construction of a Mixed-Used Development
Doran Drive, Castle Hill, CASTLE HILL NSW 2154

Prepared for: Poonam Chauhan – Deicorp Pty Ltd
Date: 21 April 2022
Revision: 4

Table of Contents

Date	Rev No	No. of Pages	Issue	Assessed by	Approved by
10.03.22	1	36	Draft-Stakeholder Review	Kurtis Lamaro	Vijay Perumal
08.04.22	2	34	Updated Design Review	Kurtis Lamaro	Vijay Perumal
19.04.22	3	33	DA Lodgement	Kurtis Lamaro	Vijay Perumal
21.04.22	4	33	Final DA Lodgement	Kurtis Lamaro	Vijay Perumal

Executive Summary

Development Overview

The proposed development is Construction of a Mixed-Used Development located at Doran Drive, Castle Hill, CASTLE HILL NSW 2154.

Compliance Summary

As Registered Certifiers we have reviewed the development application architectural design documents prepared by Turner (refer appendix A) for compliance with the current building assessment provisions, i.e. the Building Code of Australia 2019 Amendment 1 (BCA).

The report is intended as an overview of the relevant provisions of the BCA for assistance only. Detailed drawings and associated review will be required as the construction design is developed.

Deviations from the Deemed-to-Satisfy Provisions

The assessment of the develop application design documentation has revealed that the following areas deviate from the deemed-to-satisfy provisions of the BCA. These items are to be addressed to ensure compliance is achieved, either through design amendment to achieve compliance with the deemed-to-satisfy provisions, or through a performance solution demonstrating compliance with the Performance Requirements of the BCA:

No.	Description	DTS Clause	Performance Requirements
Fire Safety Items			
1	**Rationalisation of fire-resistant level's (FRL)** As the building is considered to be 'Type A' Construction as nominated within the BCA, all building elements are required to be constructed in accordance with Table 3 and 3.9 of Spec C1.1 of the BCA. Proposed rationalisation to required FRL's (as specified within Table 3 and 3.9 of Spec C1.1) are to be addressed as part of a fire engineered solution. The following departures have been noted / assumed: ▪ Loading dock and storage areas on Level 1 are greater 10% the floor area for the storey and therefore considered to be Class 7b portions of the building, which require an FRL of 240/240/240. ▪ Where it is proposed to reduce the required FRL of the walls/doors between the carpark portion (class 7a) and the retail escalators areas (Class 6) within Basement 01 – this must be addressed through fire engineering. ▪ Where floor slabs of the wet areas throughout the residential levels incorporate set down in the wet areas resulting in a local reduction of the slab (<200mm) – this must be addressed through fire engineering.	Spec C1.1, C2.7, C2.8	CP1, CP2

No.	Description	DTS Clause	Performance Requirements
	Fire Compartment Drawings are to be provided for review, to determine the full extent of non-conformances.		
2	**Slab edge and façade junction** Due to the configuration of the external wall façade and the slab edge construction, DTS compliant fire separation will not be provided between storeys	Spec C1.1, C2.7, C2.8, C2.9	CP2, CP8
3	**Utilisation of "Dincel / Red-wall" external wall/s** 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 in them including the facade covering, (ii) framing and insulation. (iii) The flooring and floor framing of lift pits. (iv) Non-loadbearing internal walls where they are required to be fire-resisting. Where it is proposed to utilise "Dincel / Redi-wall" construction this must be addressed through a fire engineered solution.	C1.9, C1.14	CP2, CP3
4	**Internal combustible elements** Combustible elements are proposed to be fixed to the internal face of external walls and/or proposed to be penetrated through external walls which are required to be non-combustible (internal joinery, timber skirting, plastic packers, AC pipes, PEX pipes). These attachments are technically not considered to be exempt from the provisions of C1.9 and C1.14 of the BCA	C1.9, C1.14	CP2
5	**Smoke separation of public corridors** In a Class 2 building, a public corridor, if more than 40 m in length, must be divided at intervals of not more than 40m with smoke-proof walls complying with Clause 2 of Specification C2.5. • Corridors in Building A is greater than 40m (approx. 45m) and has no smoke doors.	C2.14	EP2.2, CP2
6	**Separation of external walls and associated openings in different fire compartments** The following openings within the external wall of different fire compartments are flagged as a departure in accordance with this Clause: *Ground Level*	C3.3, C3.4	CP2, CP8

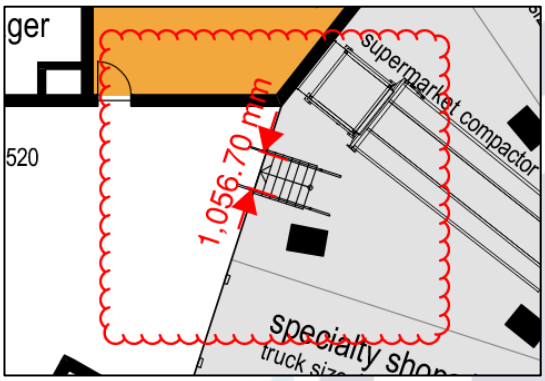
No.	Description	DTS Clause	Performance Requirements
	• Entrance to Lobby B and proximity to adjacent compartment Where protection of these openings are not proposed in accordance with the C3.4 of the BCA, this will be required to be addressed through a Fire Engineered Solution.		
7	**Fire hydrant test drainage pipe** Clause C3.9 of the BCA states that fire-isolated exits must not be penetrated by any services other than: (a) electrical wiring permitted by D2.7(e) to be installed within the exit; or (b) ducting associated with a pressurisation system if it — (i) is constructed of material having an FRL of not less than –/120/60 where it (ii) passes through any other part of the building; and (iii) does not open into any other part of the building; or (c) water supply pipes for fire services. It is assumed that fire hydrant test drainage pipes, which are not water supply pipes for fire services, will be located within the fire-isolated stairways. This will need to be addressed through a fire engineered solution.	C3.9	CP2, CP8, EP2.2
8	**Openings for service penetrations** Electrical conduit cables are cast into the concrete slabs and pass over fire rated walls / compartments. These slab penetrations are not fire sealed in a compliant arrangement per BCA Clause C3.15	C3.15	CP2, CP8
9	**Number of exits** *Ground level* • Multiple tenancies/Lobby B with only 1 exit. *Upper Ground level* • Multiple tenancies/Lobbies with only 1 exit. *Level 01* • Multiple tenancies/Lobbies with only 1 exit. Where design amendments are not afforded, this will need to be addressed as part of a fire engineered solution.	D1.2	DP4, EP2.2

No.	Description	DTS Clause	Performance Requirements
10	**Extended travel distances** The following travel distances are to be addressed through a performance solution, in the event that they are not reduced through design amendments: *Basement 06* • Multiple extended travel distances of up to 52m. • Multiple extended distances to a point of choice up to 28m. *Basement 05* • Multiple extended travel distances of up to 52m. • Multiple extended distances to a point of choice up to 28m. *Basement 04* • Multiple extended travel distances of up to 52m. • Multiple extended distances to a point of choice up to 28m. *Basement 03* • Multiple extended travel distances of up to 53m. • Multiple extended distances to a point of choice up to 28m. *Basement 02* • Multiple extended travel distances of up to 54m. • Multiple extended distances to a point of choice up to 24m. *Basement 01* • Multiple extended travel distances of up to 62m. • Multiple extended distances to a point of choice up to 27m. *Ground Level* • Multiple extended travel distances of up to 46m. • Multiple extended distances to a point of choice up to 28m. *Upper Ground Level* • Multiple extended travel distances of up to 51m. • Up 44m to single exit (from mech supply plant room) • Multiple extended distances to a point of choice up to 31m. *Residential Tower / Levels* • Up to 11m to a POC in lieu of 6m *Level 01* • Multiple extended travel distances of up to 45m. • Multiple extended distances to a point of choice up to 34m. *Level 06*	D1.4	DP4, EP2.2

No.	Description	DTS Clause	Performance Requirements
	• Distance to point of choice of 31.98m Where design amendments are not afforded, this will need to be addressed as part of a fire engineered solution.		
11	**Distance between alternative exits** The following travel distances are to be addressed through a performance solution, in the event that they are not reduced through design amendments: *Basement 06* • Multiple extended distances between alternative exits up to 89m. *Basement 05* • Multiple extended distances between alternative exits up to 89m. *Basement 04* • Multiple extended distances between alternative exits up to 89m. *Basement 03* • Multiple extended distances between alternative exits up to 89m. *Basement 02* • Multiple extended distances between alternative exits up to 93m. *Basement 01* • Multiple extended distances between alternative exits up to 96m. *Ground Level* • Multiple extended distances between alternative exits up to 83m. *Upper Ground Level* • Multiple extended distances between alternative exits up to 63m. *Level 01* • Multiple extended distances between alternative exits up to 81m. • Exits from Community Space are less than 9m apart. *Level 02* • Exits from fire stairs 8 & 9 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 03* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.	D1.5	DP4, EP2.2

No.	Description	DTS Clause	Performance Requirements
	• Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 04* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 05* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 06* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 07* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 08* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 09* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 10* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.		

No.	Description	DTS Clause	Performance Requirements
	• Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 11* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 12* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 13* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 14* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 15* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 16* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart. • Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart. *Level 17* • Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart. • Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.		

<table>
<tr><th>No.</th><th>Description</th><th>DTS Clause</th><th>Performance Requirements</th></tr>
<tr><td></td><td>
Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart.
Level 18
Exits from fire stairs 6 & 7 into Lobby B are less than 9m apart.
Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.
Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart.
Level 19
Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.
Exits from fire stairs 10 & 11 into Lobby D are less than 9m apart.
Level 20
Exits from fire stairs 9 & 8 into Lobby C are less than 9m apart.
Where design amendments are not afforded, this will need to be addressed as part of a fire engineered solution.
</td><td></td><td></td></tr>
<tr><td>12</td><td>
Dimensions of exits and paths of travel
Aggregate egress shortfall provided within the Supermarket as follows
<table>
<tr><th>Part of Building</th><th>Number of people</th><th>Exit Width Required</th><th>Exit Width Provided</th></tr>
<tr><td>Level 1</td><td>704</td><td>6.5m</td><td>5.5m</td></tr>
</table>
The below stairs serving the loading dock on Level one, must be redesigned to have a clear width (between handrails) of 1500mm


</td><td>D1.6</td><td>DP4, DP6, EP2.2</td></tr>
<tr><td>13</td><td>
Travel via fire isolated exits
The following departures exist relevant to the following fire isolated stairs/passageways:
</td><td>D1.7</td><td>DP4, DP5, EP2.2</td></tr>
</table>

No.	Description	DTS Clause	Performance Requirements
	Upper Ground Level • Departures in fire stairs 01, 16 & 13, 19. *Level 01* • Multiple tenancies open directly into fire stair 18. • Multiple D1.7 Departures in fire stair exits. *Level 02* • Departures in fire stairs 7 & 6. • Departures in fire stairs 5 & 4. Where design amendments are not afforded, this will need to be addressed as part of a fire engineered solution.		
14	**Roof as Open Space** *Ground Level* • Due to configuration of commercial tenancies, Roof as Open Space departures are assumed to be present. *Level 2* • Due to configuration of Child Care Centre, Roof as Open Space departures are assumed to be present.	D2.12, D1.18	CP2, DP4, DP5
15	**Doors and doorways** *Basement 01* • Egress via roller door within supermarket pickup and within the northern corner basement are to be addressed *Level 01* • Egress via roller door from Retail Waste Holding is to be addressed. Where the design does not afford to omit roller doors as “doors in a path of travel” or provide additional breakout exit doors within the roller doors, this must be addressed through a fire engineered solution.	D2.19	DP2, DP4, EP2.2
16	**Fire pump room** Fire pump room within the basement is technically not accessible directly via the fire isolated stairways (in lieu via an airlock) in contravention of AS 2419.1 – 2005.	E1.3 & AS2419.1 -2005	EP1.3

No.	Description	DTS Clause	Performance Requirements
17	**Hydrant/Sprinkler Booster** As the current proposal will have the multiple building entrances, the hydrant booster in its current position on will technically not be located within sight of the main entrance and will be required to be assessed through a performance solution.	E1.3 & AS2419.1 -2005	EP1.3, EP1.4
18	**Fire Hydrant & Sprinkler Booster Vertical Ring Main** The combined fire hydrant / system ring main does not meet the requirements of clause 2.6.2 of AS 2118.6-2012 which recommends that the vertical portions of the combined fire sprinkler / hydrant ring main shall be located within separate fire rated exits or fire rated riser shafts.	Clause E1.3 and AS 2118.6-2012	EP1.3, EP1.4
19	**Sprinkler protection to Switch rooms / Substations** Clause 3.1.3 of AS 2118.1-2017 states that sprinklers can be omitted for reasons of safety or incompatibility to high-voltage, normally unoccupied areas such as rooms used for no purposes other than to contain transformers, electrical switch or control gear (non-oil filled), bounded by walls or other barriers to resist the spread of fire, and fitted with multiple controls for alarm purposes only with the drain discharging to an open tundish, or a detection and alarm system installed in accordance with the requirements of AS 1670.1. It is proposed to omit sprinklers from the subject areas due to slight departures of the above mentioned concessions.	E1.5, Spec E1.5	EP1.4
20	**Combined sprinkler and fire hydrant system** The building contains a combined sprinkler and fire hydrant system. Specification E1.5 of the BCA states that a combined sprinkler and fire hydrant system is to comply with AS 2118.6-2012. AS 2118.6-2012 states that a combined sprinkler and fire hydrant system is to comply with AS 2419.1-2005 for the hydrant part and AS 2118.1-1999 for the sprinkler part. The following technical non-conformances will be present: ▪ The building is proposed to be sprinkler protected with the 2017 version of AS 2118 (in lieu of the 1999 version as prescribed by AS 2118.6 – 2012) ▪ Clause 5.9.17 of AS 2118.1-2017 states that sprinklers are not required: o within built-in cupboards and wardrobes provided: (a) the floor area does not exceed 2.5m2; (b) the walls and ceilings are lined with non-combustible materials;	E1.3 & E1.5, Spec E1.5	EP1.3, EP1.4

No.	Description	DTS Clause	Performance Requirements
	(c) are not used for the storage of flammable liquids, and (d) sprinklers in the adjoining room are positioned in front of the door such that they would cover the area of the cupboard/wardrobe if the doors are in the open position. The utilization of this concession is a technical departure. The above non-compliances will need to be addressed through a fire engineered solution.		
21	**Sprinkler system concessions** Clause E1.5 of the BCA states that a sprinkler system must be installed throughout the whole building if any part of the building has an effective height of more than 25m in accordance with Specification E1.5 of the BCA. The DtS Provisions of the BCA contain numerous concessions for buildings provided with a sprinklers system as follows: ▪ Clause C2.6 regarding vertical separation of openings in external walls. ▪ Specification C1.1 Clause 3.5 regarding the roof not containing a FRL. ▪ Specification C1.10 regarding the fire hazard properties of floor coverings and wall and ceiling linings. ▪ Clause E1.3 regarding fire hydrant booster protection. ▪ Specification E2.2a regarding smoke detector locations. ▪ Clause 6.4.2 of AS 2419.1-2005 regarding fire separation of internal pump rooms. The departure from the BCA DtS Provision is that the sprinkler system is to comply with Performance Requirement EP1.4 of the BCA as and not AS 2118.1-2017 as prescriptively.	E1.5, Spec E1.5	EP1.3, EP1.4
22	**Combined sprinkler and fire hydrant system** The building contains a combined sprinkler and fire hydrant system. Specification E1.5 of the BCA states that a combined sprinkler and fire hydrant system is to comply with AS 2118.6-2012. AS 2118.6-2012 states that a combined sprinkler and fire hydrant system is to comply with AS 2419.1-2005 for the	E1.3 & E1.5	EP1.3, EP1.4

No.	Description	DTS Clause	Performance Requirements
	hydrant part and AS 2118.1-1999 for the sprinkler part. The following technical non-conformances will be present: The above non-compliances will need to be addressed through a fire engineered solution.		
23	**Location of the Fire Control Centre** *Upper Ground Level* • FCR not in strict accordance with E1.8 Specification.	E1.8 and Spec E1.8	EP1.6
24	**Smoke Hazard Management** Smoke hazard management throughout the whole building will be required to be addressed through a performance solution, Mechanical engineer to provide further comment as the construction design develops	E2.2	EP2.2
Miscellaneous Items			
25	**Sanitary facilities** Sanitary facilities are to be provided within the development. Please review "Health and Amenity Assessment" for required numbers detailed from Page 14 of the report. It is recommended that the below numbers be provided to the development	F2.3, F2.4	FP2.1
26	**Weatherproofing of External Walls** As there are no deemed to satisfy provisions relating to the weatherproofing of external walls, a performance solution is to be provided by the façade engineer/registered architect demonstrating that the external walls comply with the requirements of Performance Requirement FP1.4.	-	FP1.4

The feasibility and any additional requirements that will apply as a result of the performance solution will need to be confirmed by the professional preparing the performance solution. Any performance solution will need to be prepared by a suitably qualified/accredited professional.

Fire Safety Services

The following key fire safety services are required to meet the minimum DTS requirements.

1.	Sprinklers system throughout the building
2.	Fire hydrant system throughout the building
3.	Fire hose reels throughout the building (except to the Class 2 residential portions)

4.	Automatic smoke detection and alarm system throughout the building
5.	Portable fire extinguishers throughout the building
6.	Air-pressurization throughout the fire isolated stairs throughout the building
7.	Carpark ventilation systems must comply with Clause 5.5 of AS/NZS1668.1-2015 except that fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated
8.	Fire precautions during construction
9.	Sound System and Intercom System for Emergency Purposes

For further information, please review the draft fire safety schedule attached within Appendix B.

Any fire engineered solution relating to insert relevant to Category 2 Performance Requirements as per the BCA (CP9, EP1.3, EP1.4, EP1.6, EP2.2 and EP3.2), will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Further Assessment

The assessment of the design documentation has also revealed that the following additional information is required in order to complete the assessment, and/or the following areas need to be further reviewed.

No.	Items for review	Responsibility
1	Fire compartment plans to be provided for review	Architect
2	Confirmation and evidence of test reports should be provided, confirming the non-combustibility of materials of external walls and attachments, common walls, lifts framing and pits, internal loadbearing walls and fire walls in accordance with C1.9 and C1.14 of the BCA	Architect
3	Plant size/configuration details to be submitted for the Fire /Sprinkler pumps within the basement. These dimensions are to be detailed on updated GA plans, ensuring plans have been provided confirming that internal heights and widths within this area comply with AS 2419.1 – 2005 and D1.6 of the BCA. The above should also be provided for all other plant equipment in other plant areas/rooms.	Architect
4	An updated review will be required as the construction design develops, the following items are noted for the next review: ▪ Further details/sections to be provided around the proposed skylight serving the Level 01 (as it appears there are multiple departures present with Spec C1.1) ▪ Enclosure of garbage chutes by fire-rated construction will need to be reviewed (i.e dampers etc) ▪ Swing of doors serving storage cages within the basement must not be encroaching into the required 1m clear exit paths ▪ As per E1.4 of the BCA - Fire hose reels must be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors. Hose reels must be provided in each fire rated room (not required by C2.12 or C2.13 of the BCA) ▪ Where it is proposed to incorporate impulse fans in the car park area to address isolated stagnant areas, in an otherwise naturally	Custom Development Certifications

ventilated car park, instead of traditional ducted mechanical ventilation in accordance with AS1668, this will be required to be addressed through a Fire Engineered Solution

- Where direction signs will be installed at a greater distance from the Finish Floor Level (FFL) than 2.7m due to the ceiling height this is considered a departure of AS 2293.1 – 2018 and will need to be justified through a fire engineered solution.
- Design Team input will be required for the proposed loading dock turntable. BCA Clause E1.10 requires that additional provision must be made if special fire hazards or where difficulties in fighting fire could arise because of the nature or quantity of materials stored, displayed or used in a building. BCA Clause E2.3 notes that additional smoke hazard management measures may be necessary due to the special characteristics, function or materials stored within a building or fire compartment.

  In the event of a fire within the turntable enclosure, means of fire fighter access and intervention are required and should be reviewed in consultation with FRNSW.

Documentation to enable assessment and demonstrate compliance will be required to address the above items prior to Construction Certificate approval.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

Introduction

The proposed development comprises of the Construction of a Mixed-Used Development located at Doran Drive, Castle Hill, CASTLE HILL NSW 2154.

This report is based upon the review of the design documentation listed in Appendix A of this Report

The report is intended as an overview of the relevant provisions of the Building Code of Australia for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Registered Certifier for the Construction Certificate. For the purposes of this Report, BCA 2019 Amendment 1 has been utilised as the version of the BCA applicable at the time of preparation this Report.

Compliance with the Building Code of Australia

The Building Code of Australia is a performance-based document, whereby compliance is achieved by complying with the Governing Requirements and the Performance Requirements.

Performance Requirements are satisfied by one of the following:

1) A Performance Solution
2) A Deemed-to-Satisfy Solution
3) A combination of (1) and (2)

Documentation of Performance Solutions

A Performance Solution must demonstrate compliance with all relevant Performance Requirements, or the solution must be at least equivalent to the Deemed-to-Satisfy provisions.

Compliance with the Performance Requirements is to be demonstrated through one or a combination of the following:

a) Evidence of suitability in accordance with Part A5 of the BCA that shows the use of a material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements.
b) A Verification Method including the following:
    i. The Verification Methods provided in the NCC.
    ii. Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements
c) Expert Judgement
d) Comparison with the Deemed-to-Satisfy Provisions

Where a Performance Solution is proposed as the method to achieve compliance, the following steps must be undertaken:

a) Prepare a performance-based design brief in consultation with relevant stakeholders
b) Carry out analysis, using one or more of the assessment methods nominated above, as proposed by the performance-based design brief.
c) Evaluate results from (b) against the acceptance criteria in the performance-based design brief
d) Prepare a final report that includes:
    i. All Performance Requirements and/or Deemed-to-Satisfy Provisions identified as applicable
    ii. Identification of all assessment methods used
    iii. Details of required steps above
    iv. Confirmation that the Performance Requirement has been met; and
    v. Details of conditions or limitations, if an exist, regarding the Performance Solution.

Preliminaries

Building Assessment Data

Summary of Construction Determination:

Part of Project	Building 1
Classification	2, 5, 6, 7a, 7b, 8, 9b
Number of Storeys	29
Rise In Storeys	24
Type of Construction	A
Effective Height (m)	<50m

Note: The effective height of the project includes all stories included in the rise in stories of the project.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
Basement 06	7a	5,512.82	184
Basement 05	7a	7,217.35	241
Basement 04	7a	7,185.32	240
Basement 03	7a	7,191.36	240
Basement 02	7a	7,177.85	240
Basement 01	7a	6,613.45	221
Ground Level (Retail)	6	681.81	228
Ground Floor (Supermarket)	6	3,536.28	714
Ground Floor (Residential Lobby)	2	81.27	Ancillary to Residential Apartments
Ground Floor (Plant)	2,5,6,7b,8,9b	277.15	10

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
Upper Ground Level (Retail)	6	1,059.08	354
Upper Ground Level (Residential Lobby)	2	139.28	Ancillary to Residential Apartments
Upper Ground Level (Commercial Lobby)	5	32.74	Ancillary to Commercial Unit
Upper Ground Level (Plant)	2,5,6,7b,8,9b	204.64	7
Level 1 (Retail)	6	303.75	61
Level 1 (Restaurant)	6	420.97	421
Level 1 (Medical and Radiology Centre)	5	824.59	83
Level 1 (Gym)	9b	528.29	156
Level 1 (Community Space)	9b	297.69	TBC
Level 1 (Storage)	7b	664.13	23
Level 1 (Substation & Generator)	8	110.64	3
Level 1 (Plant)	2,5,6,7b,8,9b	437.38	15
Level 1 (Residential Lobby)	2	56.59	Ancillary to Residential Apartments
Level 2 (Community Space)	9b	254.04	TBC
Level 2 (Childcare)	9b	858.18	215
Level 2 (Residential Lobby)	2	203.98	Ancillary to Residential Apartments
Level 2 (Residential)	2	1,654.01	27
Level 3 (Residential)	2	3,162.42	62
Level 4 (Residential)	2	3,199.86	62
Level 5 (Residential)	2	2,956	53
Level 6 (Residential)	2	2,825.97	48
Level 7 (Residential)	2	2,712.64	48
Level 8 (Residential)	2	2,746.03	44
Level 9 (Residential)	2	2,605.65	44
Level 10 (Residential)	2	2,504.59	44
Level 11 (Residential)	2	2,504.59	44
Level 12 (Residential)	2	2,504.59	44
Level 13 (Residential)	2	2,504.59	44
Level 14 (Residential)	2	2,504.59	44

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population
Level 15 (Residential)	2	2,504.59	44
Level 16 (Residential)	2	2,504.59	44
Level 17 (Residential)	2	2,504.59	44
Level 18 (Residential)	2	2,494.01	42
Level 19 (Residential)	2	2,449.18	32
Level 20 (Residential)	2	1,781.89	12
Level 21 (Residential)	2	681.27	Ancillary to Residents
Total		60360.74	TBC

Notes:

- The above populations have been based on floor areas and calculations in accordance with Table D1.13 of the BCA.
- The above floor area and volume calculations are to be confirmed by the Project Architect

Fire Protection

Fire Compartmentation (BCA C1.1)

The BCA stipulates three levels of fire-resistant construction, which is based upon the rise in storeys and classification of the building. Each of these types of construction has maximum floor area and volume limitations as per BCA Table C2.2.

Based upon the rise in storeys and use of the building, it is required to be constructed in accordance with the requirements of Type A Construction, in accordance with Table 3 & 3.9 of Specification C1.1 of the Building Code of Australia 2019 Amendment 1.

Fire Resistance (BCA C1.1)

The building should be constructed generally in accordance with the relevant provisions of Specification C1.1 of the BCA applicable to Type A Construction, Please refer to Appendix C which outlines the required fire rating to be achieved by the development. These fire ratings are summarised below:-

Building Element	Type	Class 2	Class 5,7a & 9	Class 6	Class 7b & 8
External Walls	Loadbearing	90/90/90	120/120/120	180/180/180	240/240/240
	Non-Loadbearing	-/90/60	-/120/120	-/180/180	-/240/240
External Columns	Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
	Non-Loadbearing	-/-/-	-/-/-	-/-/-	-/-/-
Fire Walls	Loadbearing	90/90/90	120/120/120	180/180/180	240/240/240
Fire Stair / Shaft Walls	Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120

Building Element	Type	Class 2	Class 5,7a & 9	Class 6	Class 7b & 8
	Non-Loadbearing	-/90/90	-/120/120	-/120/120	-/120/120
Public Corridors	Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
	Non-Loadbearing	-/60/60	-/-/-	-/-/-	-/-/-
Walls Bounding Apartments	Loadbearing	90/90/90	120/-/-	180/-/-	240/-/-
	Non-Loadbearing	-/60/60	-/-/-	-/-/-	-/-/-
Service Shaft Walls	Loadbearing	90/90/90	120/90/90	180/120/120	240/120/120
	Non-Loadbearing	-/90/90	-/90/90	-/120/120	-/120/120
Floors	Loadbearing	90/90/90	120/120/120	180/180/180	240/240/240
	Non-Loadbearing	-/90/90	-/120/120	-/180/180	-/240/240
Walls, Beams, Columns Supporting Floors	Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Walls, Beams, Columns Supporting Roof	Loadbearing	90/-/-	120/-/-	180/-/-	240/-/-
Roof	Loadbearing	90/60/30	120/60/30	180/60/30	240/90/60
	Non-Loadbearing	-/60/30	-/60/30	-/60/30	-/90/60

Fire Hazard Properties and Non-Combustibility (C1.9, C1.10 and C1.14)

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification C1.10 of the Building Code of Australia. The following requirements apply:

Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 1.2 kW/m^2
b) Wall and Ceiling Linings – Material Group No. 1,2,3 (dependent on specific locations which will be reviewed as the construction design develops)
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8 (dependent on specific locations which will be reviewed as the construction design develops)

Non-Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 2.2 kW/m^{2}a maximum smoke development rate of 750 percent-minutes

b) Wall and Ceiling Linings – Material Group No. 1,2,3 and with a smoke growth rate index not more than 100, or an average specific extinction area less than 250m^2/kg (dependent on specific locations which will be reviewed as the construction design develops)
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8 (if Spread of Flame if >5)

Rigid and flexible air handling ductwork must comply with AS4254 Parts 1 & 2 2012.

Floor linings and floor coverings used in lift cars must have a critical radiant flux not less than 2.2, and wall and ceiling linings must be a Material Group No. 1 or 2.

External Wall Cladding

Since the building is of Type A construction, the following components are required to be completely non-combustible:

- External walls, including façade coverings, framing, insulation;
- Flooring and framing of lift pits;
- Non-loadbearing internal walls required to have an FRL;
- All non-loadbearing shafts;
- All loadbearing internal walls and loadbearing fire walls, including those that are part of loadbearing shafts.

Please provide product specifications and test reports to AS 1530.1-1994 for all materials to demonstrate compliance

For materials and assemblies that are required to be non-combustible, the material or system must be not deemed combustible when tested in accordance with AS 1530.1-1994.

Combustible Materials

The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required:

a) Plasterboard.
b) Perforated gypsum lath with a normal paper finish.
c) Fibrous-plaster sheet.
d) Fibre-reinforced cement sheeting.
e) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
f) Sarking type materials that do not exceed 1mm in thickness and have a Flammability Index not greater than 5.
g) Bonded laminated materials where -
    (i) each laminate is non-combustible; and
    (ii) each adhesive layer does not exceed 1 mm in thickness; and
    (iii) the total thickness of the adhesive layers does not exceed 2 mm; and
    (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

Any Aluminium Composite Panels must be labelled in accordance with SA TS 5344.
The BCA does nominate that ancillary elements may not be fixed to an external wall that is required to be non-combustible unless they comprise of the following:

a) An ancillary element that is non-combustible.
b) A gutter, downpipe or other plumbing fixture or fitting.
c) A flashing.
d) A grate or grille not more than 2 m² in area associated with a building service.
e) An electrical switch, socket-outlet, cover plate or the like.
f) A light fitting.
g) A required sign.
h) A sign other than one provided under (a) or (g) that—
   i) achieves a group number of 1 or 2; and
   ii) does not extend beyond one storey; and
   iii) does not extend beyond one fire compartment; and
   iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.

Please provide fire hazard properties reports for any proposed signs and confirm their extent i.e. not spanning more than one storey or fire compartment:

Egress

Dimensions of Exits (BCA D1.6)

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657-2018 in which case a 600mm clear width is required).

The following table summarises the exit widths required by BCA Clause D1.6:

Storey	Number of people	Exit Width Required	Exit Width Provided
Basement 06	184	2m	3m
Basement 05	241	2.5m	3m
Basement 04	240	2.5m	3m
Basement 03	240	2.5m	3m
Basement 02	240	2.5m	3m
Basement 01	221	2.5m	4m
Ground Level (Retail)	228	2.5m	4m
Ground Floor (Supermarket)	714	7m	7m
Ground Floor (Residential Lobby)	Ancillary to Residential Apartments	1m	1m
Ground Floor (Plant)	10	1m	1m
Upper Ground Level (Retail)	354	3.5m	4m
Upper Ground Level (Residential Lobby)	Ancillary to Residential Apartments	1m	1m

Storey	Number of people	Exit Width Required	Exit Width Provided
Upper Ground Level (Commercial Lobby)	Ancillary to Commercial Unit	1m	1m
Upper Ground Level (Plant)	7	1m	1m
Level 1	704	6.5m	5.5m
Level 1 (Community Space)	TBC	TBC	4m
Level 1 (Substation & Generator)	3	1m	5m
Level 1 (Plant)	15	1m	3m
Level 1 (Residential Lobby)	Ancillary to Residential Apartments	1m	1m
Level 2 (Community Space)	TBC	TBC	1m
Level 2 (Childcare)	215	2.5m	3m
Level 2 (Residential Lobby)	Ancillary to Residential Apartments	1m	2m
Level 2 (Residential)	27	1m	2m
Level 3 (Residential)	62	1m	9m
Level 4 (Residential)	62	1m	9m
Level 5 (Residential)	53	1m	9m
Level 6 (Residential)	48	1m	8m
Level 7 (Residential)	48	1m	8m
Level 8 (Residential)	44	1m	8m
Level 9 (Residential)	44	1m	8m
Level 10 (Residential)	44	1m	8m
Level 11 (Residential)	44	1m	8m
Level 12 (Residential)	44	1m	8m
Level 13 (Residential)	44	1m	8m
Level 14 (Residential)	44	1m	8m
Level 15 (Residential)	44	1m	8m
Level 16 (Residential)	44	1m	8m
Level 17 (Residential)	44	1m	8m
Level 18 (Residential)	42	1m	8m
Level 19 (Residential)	32	1m	7m
Level 20 (Residential)	12	1m	4m
Level 21 (Residential)	Ancillary to Residents	1m	1m

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e. minimum 920 mm doors).

Health and Amenity

Sanitary Facilities (BCA F2.2 and BCA F2.3)

Separate sanitary facilities are required to be provided for male & female employees. In relation to the public, sanitary facilities are required to be provided where more than 600 persons can be accommodated (standard shops).

The below calculation takes into consideration the total employee and patron numbers (derived from the BCA) for:

- Retail;
- Restaurant;
- Specialty Shops;
- Supermarket;
- Medical Centre; and
- Radiology.

Sanitary Facilities Required for Patrons / Staff Combined for Retail, Restaurant, Specialty Shops, Supermarket, Medical Centre and Radiology			
	WC	Urinals	Basins
Male	15	11	11
Female	19	N/A	11
Accessible	1	N/A	1
The Above Facilities are adequate for 855 males & 855 females			

Note: The Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

Class 9b – Gym

Class 9b theatres and sporting venues must be provided with one shower for each 10 participants or part thereof and not less than one washbasin must be provided where closet pans or urinals are provided.

The design submitted indicates that each apartment should satisfy the above requirements.

Facilities for employees must be provided in accordance with F2.3. Separate sanitary facilities are required to be provided for male & female employees at a rate at the following.

Sanitary Facilities Required for Patrons			
	WC	Urinals	Basins
Male	2	2	3

Sanitary Facilities Required for Patrons			
Female	4	N/A	3
Accessible	1	N/A	1
The Above Facilities are adequate for 78 males & 78 females			

Detailed construction designs will need to be developed as to the layout, dimensions, etc of the sanitary facilities.

Class 9b – Early Childhood centre

A Class 9b early childhood centre must be provided with—

- a kitchen or food preparation area with a kitchen sink, separate hand washing facilities, space for a refrigerator and space for cooking facilities, with—
  - the facilities protected by a door or gate with child proof latches to prevent unsupervised access to the facilities by children younger than 5 years old; and
  - the ability to facilitate supervision of children from the facilities if the early childhood centre accommodates children younger than 2 years old; and
- one bath, shower or shower-bath; and
- if the centre accommodates children younger than 3 years old—
  - a laundry facility comprising a washtub and space in the same room for a washing machine; and
  - a bench type baby bath, which is within 1 m of the nappy change bench; and
  - a nappy changing bench which—
    - is within 1 m of separate adult hand washing facilities and bench type baby bath; and
    - must be not less than 0.9 m2 in area and at a height of not less than 850 mm, but not more than 900mm above the finished floor level; and
    - must have a space not less than 800 mm high, 500 mm wide and 800 mm deep for the storage of steps; and
    - is positioned to permit a staff member changing a nappy to have visibility of the play area at all times.
- Not less than one washbasin must be provided where closet pans or urinals are provided.

Facilities for employees / children must be provided in accordance with F2.3. Separate sanitary facilities are required to be provided for male & female employees at a rate at the following.

The following table summarises the sanitary facilities required / provided for **Employees:**

Sanitary Facilities Required for Employees			
	WC	Urinals	Basins
Male	1	0	1
Female	1	N/A	1
Accessible	1	N/A	1
The Above Facilities are adequate for 10 males & 10 females			

Detailed construction designs will need to be developed as to the layout, dimensions, etc of the sanitary facilities.

The following table summarises the sanitary facilities required / provided for **Children:**

Sanitary Facilities Required for Children			
	WC	Urinals	Basins
Children	13	0	13
Accessible	1	N/A	1
The Above Facilities are adequate for 195 Children			

Detailed construction designs will need to be developed as to the layout, dimensions, etc of the sanitary facilities.

Note: Facilities for use by children must be—
(a)junior pans; and
(b)washbasins with a rim height not exceeding 600mm; and
(c)accessible from both indoor and outdoor play areas.

Sanitary Facilities Required for Community Space (Level 1)

The following table summarises the sanitary facilities required / provided:

Sanitary Facilities Required for Employees / Patrons			
	WC	Urinals	Basins
Male	1	0	1
Female	1	N/A	1
Accessible	1	N/A	1
The Above Facilities should be adequate for proposed Staff / Occupants however we will need confirmation from the client of the anticipated staff and patron number to confirm compliance			

Sanitary Facilities Required for Community Space (Level 2)

The following table summarises the sanitary facilities required / provided:

Sanitary Facilities Required for Employees / Patrons			
	WC	Urinals	Basins
Male	1	0	1
Female	1	N/A	1
Accessible	1	N/A	1
The Above Facilities should be adequate for proposed Staff / Occupants however we will need confirmation from the client of the anticipated staff and patron number to confirm compliance			

Class 2 – Sole Occupancy Units

Each apartment is required to be provided with the following:

- A kitchen sink and facilities for the preparation and cooking of food; and
- A bath or shower; and
- A closet pan and wash basin; and

- Clothes washing facilities comprising at least one wash tub and space for a washing machine; and
- Clothesline of at least 7.5m, or space for one heat operated drying device within the same space as the clothes washing.

The design submitted indicates that each apartment should satisfy the above requirements.

Appendix A - Reference Documentation

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

Drawing No.	Title	Date	Revision
DA-110-002	Basement 06	21.04.22	6
DA-110-003	Basement 05	21.04.22	6
DA-110-004	Basement 04	21.04.22	6
DA-110-005	Basement 03	21.04.22	6
DA-110-006	Basement 02	21.04.22	6
DA-110-007	Basement 01	21.04.22	6
DA-110-008	Ground Level	21.04.22	6
DA-110-009	Upper Ground Level	21.04.22	6
DA-110-010	Level 01	21.04.22	6
DA-110-020	Level 02	21.04.22	6
DA-110-030	Level 03	21.04.22	6
DA-110-040	Level 04	21.04.22	6
DA-110-050	Level 05	21.04.22	6
DA-110-060	Level 06	21.04.22	6
DA-110-070	Level 07	21.04.22	6
DA-110-080	Level 08	21.04.22	6
DA-110-090	Level 09	21.04.22	6
DA-110-100	Level 10	21.04.22	6
DA-110-110	Level 11	21.04.22	6
DA-110-120	Level 12	21.04.22	6
DA-110-130	Level 13	21.04.22	6
DA-110-140	Level 14	21.04.22	6
DA-110-150	Level 15	21.04.22	6
DA-110-160	Level 16	21.04.22	6
DA-110-170	Level 17	21.04.22	6
DA-110-180	Level 18	21.04.22	6
DA-110-190	Level 19	21.04.22	6
DA-110-200	Level 20	21.04.22	6
DA-110-210	Level 21	21.04.22	6

Appendix B - Draft Fire Safety Schedule

No.	Measure	Particulars of Measure *(including where the requirement for the measure is set out or described i.e. in building plans or in a performance solution report)*	Currently Implemented (Yes/No)	Proposed (Yes/No)
STATUTORY FIRE SAFETY MEASURES				
1.	Access Panels, Doors and Hoppers	BCA 2019 (Amendment One) Clause C3.13	No	Yes
2.	Automatic Fail-Safe Devices	BCA 2019 (Amendment One) Clause D2.19 & D2.21	No	Yes
3.	Automatic Smoke Detection and Alarm System	BCA 2019 (Amendment One) Clause 3 or 4 or 5 BCA Spec. E2.2a, AS 1670.1 – 2018, AS/NZS 1668.1 – 2015, AS 3786-2014	No	Yes
4.	Automatic Fire Suppression System	BCA 2019 (Amendment One) Spec. E1.5 & AS 2118.1 – 2017 Amdt 1, AS 2118.6 – 2012 (Combined sprinkler & hydrant)	No	Yes
5.	Building Occupant Warning System activated by the Sprinkler System	BCA 2019 (Amendment One) Spec. E1.5 & Specification E2.2a Clause 7 – AS 1670.1 - 2018	No	Yes
6.	Emergency Lifts	BCA 2019 (Amendment One) Clause E3.4	No	Yes
7.	Emergency Lighting	BCA 2019 (Amendment One) Clause E4.2, E4.4 & AS/NZS 2293.1 –2018	No	Yes
8.	EWIS	BCA 2019 (Amendment One) Clause E4.9 & AS 1670.4 - 2018	No	Yes
9.	Emergency Evacuation Plan	AS 3745 – 2002	No	Yes
10.	Exit Signs	BCA 2019 (Amendment One) Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2018	No	Yes
11.	Fire Control Rooms	BCA 2019 (Amendment One) Spec. E1.8 (subject to Fire Engineering assessment)	No	Yes
12.	Fire Dampers	BCA 2019 (Amendment One) Clause C2.12, C3.15, D1.7, E2.2, E2.3, F4.12, Spec E2.2, E2.3, Spec E2.2b, & AS 1668.1 – 2015	No	Yes
13.	Fire Doors	BCA 2019 (Amendment One) Clause C3.2, C3.4 & C3.8 and AS 1905.1 – 2015	No	Yes
14.	Fire Hose Reels	BCA 2019 (Amendment One) Clause E1.4 & AS 2441 – 2005 Amdt 1	No	Yes
15.	Fire Hydrant System	BCA 2019 (Amendment One) Clause C2.12, E1.3, Spec E1.5a, & AS 2419.1 – 2005 Amdt 1 (subject to Fire Engineering assessment)	No	Yes
16.	Fire Seals	BCA 2019 (Amendment One) Clause C3.15, C3.16, Spec C3.15, Spec D1.12, & AS 1530.4 –2014	No	Yes
17.	Lightweight Construction	BCA 2019 (Amendment One) Clause C1.8, Spec C1.8	No	Yes
18.	Mechanical Air Handling System	BCA 2019 (Amendment One) Clause E2.2, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012 (subject to Fire Engineering assessment)	No	Yes
19.	Paths of Travel	EP&A Reg 2000 Clause 186 (subject to Fire Engineering assessment)	No	Yes
20.	Portable Fire Extinguishers	BCA 2019 (Amendment One) Clause E1.6 & AS 2444 – 2001	No	Yes
21.	Pressurising Systems	BCA 2019 (Amendment One) Clause E2.2 & AS/NZS 1668.1 – 2015	No	Yes
22.	Required Exit Doors (power operated)	BCA 2019 (Amendment One) Clause D2.19 (b)(iv)	No	Yes
23.	Self-Closing Fire Hoppers	BCA 2019 (Amendment One) Clause C3.13 & AS 1530.4 – 2014	No	Yes

24.	Smoke Hazard Management System	BCA 2019 (Amendment One) Part E2 & AS/NZS 1668.1 – 2015 (subject to Fire Engineering assessment)	No	Yes
25.	Smoke Dampers	BCA 2019 (Amendment One) Clause Spec E2.2, E2.3, Spec E2.2b, Spec AS/NZS 1668.1 – 2015	No	Yes
26.	Wall-Wetting Sprinklers	BCA 2019 (Amendment One) Clause C3.4	No	Yes
27.	Warning and Operational Signs	BCA (Amendment One) Clause D2.23, E3.3	No	Yes
28.	Fire Engineering Report	All items addressed through the FER	No	Yes

Appendix C – Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2019 Amendment 1:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS	**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 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 1.5 m	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 m 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*, where the distance from any *fire-source feature* to which it is exposed is -				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 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
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

Table 3.9 REQUIREMENTS FOR CARPARKS			**FRL (not less than) Structural adequacy/Integrity/Insulation** **ESA/M (not greater than)**
Wall			
(a)	*external wall*		
	(i)	less than 3 m from a *fire-source feature* to which it is exposed:	
		Loadbearing	60/60/60
		Non-*loadbearing*	–/60/60
	(ii)	3 m or more from a *fire-source feature* to which it is exposed	–/–/–
(b)	*internal wall*		
	(i)	*loadbearing*, other than one supporting only the roof (not used for carparking)	60/–/–
	(ii)	supporting only the roof (not used for carparking)	–/–/–
	(iii)	non-*loadbearing*	–/–/–
(c)	*fire wall*		
	(i)	from the direction used as a *carpark*	60/60/60
	(ii)	from the direction not used as a *carpark*	as *required* by Table 3
Column			
(a)	supporting only the roof (not used for carparking) and 3 m or more from a *fire-source feature* to which it is exposed		–/–/–
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a *carpark*		60/–/– or 26 m^2/tonne
(c)	any other column not covered by (a) or (b)		60/–/–
Beam			
(a)	steel floor beam in continuous contact with a concrete floor slab		60/–/– or 30 m^2/tonne
(b)	any other beam		60/–/–
Fire-resisting lift and stair shaft (within the *carpark* only)			60/60/60
Floor slab and vehicle ramp			60/60/60
Roof (not used for carparking)			–/–/–
Notes:	1.	ESA/M means the ratio of exposed surface area to mass per unit length.	