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BUILDING CODE OF AUSTRALIA COMPLIANCE ASSESSMENT REPORT

RESIDENTIAL DEVELOPMENT

61-65 LUCAS AVENUE, MOOREBANK

DATE ► JULY 2018

REPORT NO. ► PROJECT # 6672- REV 3.0

PREPARED FOR ► A & K ENGINEERING PTY LTD

PREPARED BY ► AE&D

BCA / Certifiers

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CONTENTS

REVISION STATUS				
REVISION	**DATE**	**STATUS**	**WRITTEN**	**CHECKED**
6672 - Rev 3.0	27.7.18	UPDATED REPORT	KS	TJ

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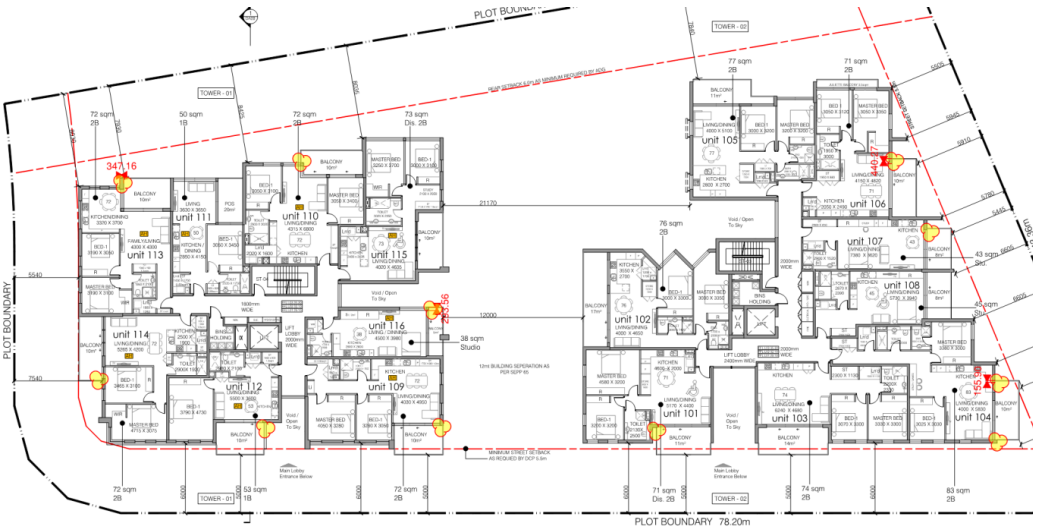
1.0 EXECUTIVE SUMMARY AND RECOMMENDATIONS

This report provides a Building Code of Australia (BCA) 2016 – Amdt 1 assessment of a residential flat building with basement level carparking, to be located at 61-65 Lucas Avenue & 36 Mackay Avenue, Moorebank.

The primary purpose of this report is to identify the non-compliance matters contained in the proposed design against the current Deemed-to-Satisfy (DTS) Provisions of the BCA and to provide compliance recommendations to overcome the DTS non-compliances.

1.1 Recommendations

The following is a list of Deemed-to-Satisfy Provisions that should be addressed either by design amendments, additional information **OR** by way of an Alternative Solution:

BCA Clause	Deemed-to-Satisfy Provision to be addressed
C2.6 Vertical Separation of openings in external walls	There are several openings which require compliant spandrel separation to be provided (see examples below). In these examples, a horizontal spandrel extending a minimum 450mm beyond the opening (offset 450mm from the edge of the balconies) has not been provided. Where a panel wall (not less than 900mm in height, not less than 600mm above the upper surface of the intervening floor and non-combustible with an FRL of not less than 60/60/60) is to be used, the architect is to detail this on the plans at CC stage. Vertical spandrel separation is not detailed on all elevations. Examples of such areas are highlighted in orange below. **Levels 01 – 03** 

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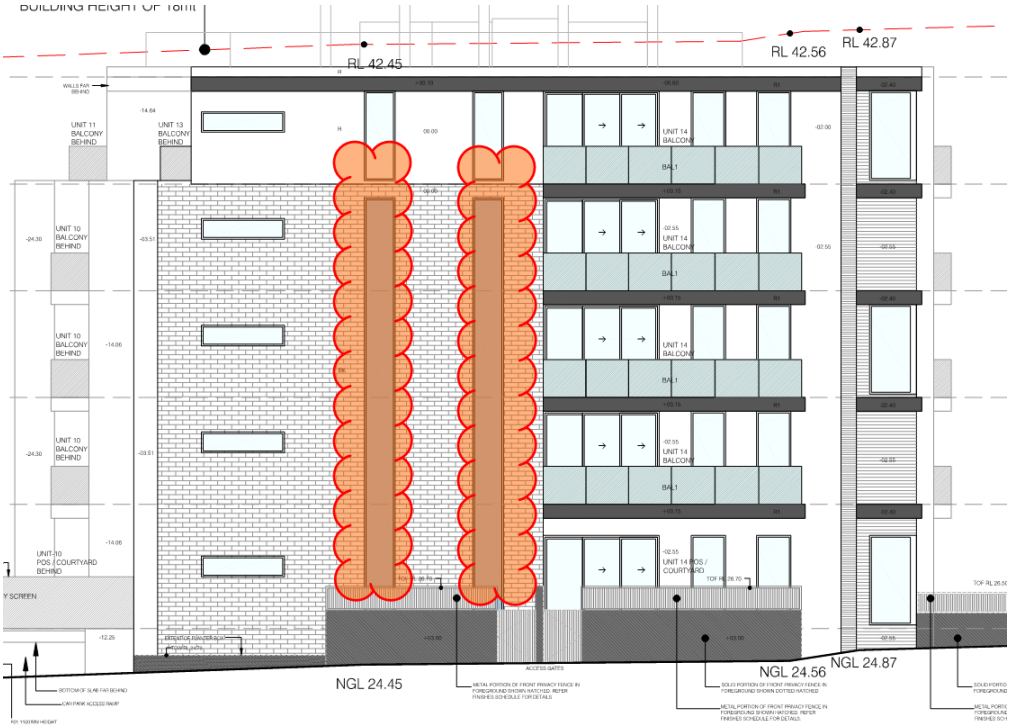
BCA Clause	Deemed-to-Satisfy Provision to be addressed

1 ELEVATION-1 TOWER -1 (LUCAS AV.)
SCALE 1:200



2 ELEVATION-2 TOWER -1 (MCKAY AV.)
SCALE 1:200

C2.9

Separation of Classifications in different stories

Fire separation is required between parts of a building which are of a different classification, when situated one above the other.

The level (FRL) of fire protection required to the storey above is determined by BCA Table 3 of Specification C1.1 corresponding with the building classification of the lower storey. An excerpt from Table 3 has been produced below:

BCA Class	FRL (Table 3 of Spec C1.1)
Class 2	90/90/90

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BCA Clause	Deemed-to-Satisfy Provision to be addressed
	Class 7a | 120/120/120
D1.3 When Fire Isolated exits are required	Stairways 01 & 02 are not detailed as being fire-isolated at ground level.
D1.4 Exit Travel Distances	The following areas exceed the maximum travel distance to an exit or a point of choice: <u>Carpark</u> ▪ Carpark 02 – Up to 24.5m to a point of choice from the north-eastern corner of the carpark in lieu of 20m; <u>Tower 01</u> ▪ Level 01 to 03 - Up to 7.3m from the furthest unit (10) to an exit; ▪ Level 04 - Up to 9.2m from the furthest unit (09) to an exit; <u>Tower 02</u> ▪ Level 01 to 03 – Up to 11m from the furthest unit (02) to an exit; and ▪ Level 04 – Up to 9.1m from the furthest unit (401) to an exit.
D1.5 Distance Between Alternate Exits	<u>Carpark 01</u> ▪ 88m from carspace 39 through the point of choice to ST-03; ▪ 80m from CPS Fan room through the point of choice to ST-02; ▪ ST-03 from the basement levels and residential levels converge at ground floor. <u>Carpark 02</u> ▪ 69.3m from the western corner of the carpark through the point of choice to ST-02; and ▪ 65.2m from the eastern corner of the carpark through the point of choice to ST-02. Stairways ST-01 & ST-04 converge at carpark level 01 contrary to Clause D1.5(d).
D1.6 Dimensions of Exits and paths of Travel to Exits	Stairway ST-01 is less than 1m wide (956mm noted).
D1.7 Travel via Fire Isolated Stairs	▪ Stairways 01 and 04 do not provide independent egress into a fire-isolated passageway. Stairways 01 and 04 converge at carpark level 01. ▪ Stairways 03 serving the carpark levels and stairways serving the residential levels do not provide independent egress into a fire-isolated passageway. The stairways converge at ground floor. ▪ The path of travel to the road following discharge from fire stairs along the eastern side of the allotment on ground floor level will require occupants to pass at right angles and within 6m from the openings highlighted in blue below. **<u>Ground floor</u>**

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	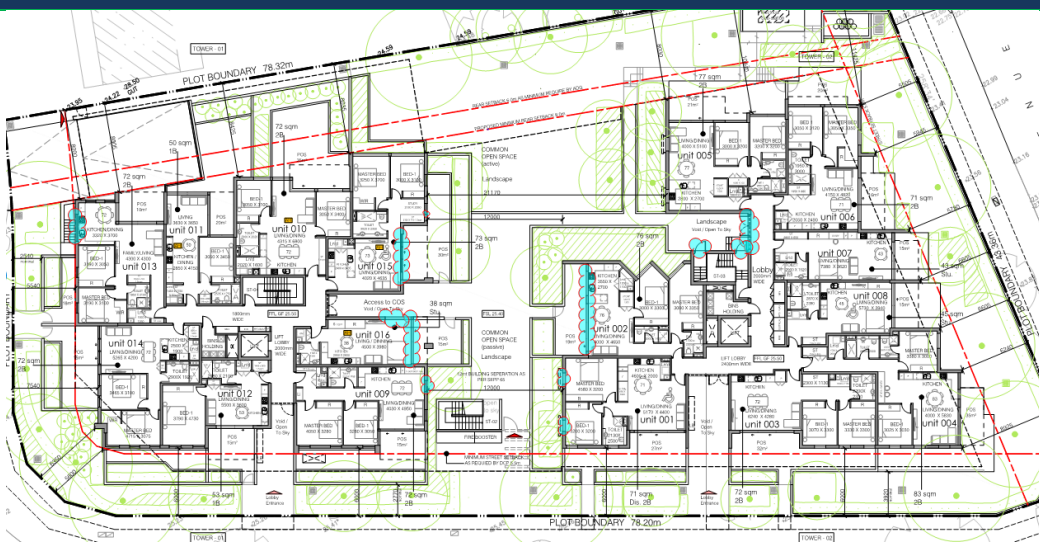
D1.9 Travel by non-fire-isolated stairs	The non-fire-isolated stairways between level 04 and the roof level are more than 20m from a doorway providing egress to a road or open space or a fire-isolated passageway leading to a road or open space. This is to be addressed by way of Performance Solution by a fire engineer.
D1.10 Discharge from Exits	A pathway is to be detailed from stairway 01 and 04 to the road at ground level.
D2.4 Separation of Rising and Descending Stairs	Stairways 03 & 04 connect the upper levels and lower levels contrary to this Clause.
D2.13 Goings & Risers	The stairways serving the rooftop areas of Towers 01 & 02 are not permitted to have winders as per Clause D2.13(a)(viii).
D2.20 Swinging Doors	The doorways to the airlock between stairway ST-02 and the fire pump room are to swing in the direction. Otherwise, this is to be addressed by way of a Performance Solution by a fire engineer.
E1.3 Fire Hydrants	• This building requires a booster to be provided for the sprinkler and hydrant systems. It is anticipated that both booster assemblies will be located in the same enclosure. • The booster is required to be provided with a shield wall extending 2m from both sides of the booster and 3m above the upper booster connections also achieving an FRL of not less than 90/90/90. This may be addressed by way of a Performance Solution by a fire engineer at CC stage. • The booster assembly is located more than 8m from an operable fire brigade pumping appliance (to be located on Lucas Avenue) contrary to Clause 7.3 of AS 2419.1-2005.
E1.5 Sprinklers	• The basement carpark levels will accommodate more than 40 vehicles therefore, the carpark is to be sprinkler protected. The sprinkler alarm valve is to be located in a secure room or enclosure which has direct access to the road or open space. • The Covered balconies that exceed 6 m2 floor area or have a depth in excess of 2 m measured perpendicularly from the external wall shall be sprinkler protected as per Clause 5.9.10 of AS 2118.1-2017. • AED note that within BCA 2019 that a new requirement will be implemented requiring sprinkler protection to Class 2 & 3 buildings of a rise in storeys of more than three (3). As such, AED recommend that sprinklers be provided within this building to

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BCA Clause	Deemed-to-Satisfy Provision to be addressed
	future-proof the building, however, this is not a requirement under BCA 2016 – Amdt 1.
F1.7 Waterproofing of wet area	Wet areas must be waterproofed in accordance with AS 3740-2010 and F1.7 of the BCA. NOTE to the architect - There must be no portion of a window located in the walls serving a shower area for a height of 1.8m from the FFL of the shower floor.

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2.0 INTRODUCTION

This report provides a Building Code of Australia (BCA) 2016 – Amdt 1assessment of a residential flat building with basement level carparking, to be located at 61-65 Lucas Avenue & 36 Mackay Avenue, Moorebank.

This report provides a BCA assessment table in Section 3.0 that summarises the identified non-compliance matters and offers specific recommendations.

2.1 Basis of Report

The key basis of this report is to address compliance with the Building Code of Australia (BCA) 2016. – Amdt 1 The scope of services is limited to Sections C – "Fire Resistance", Section D – "Access & Egress", Section E – "Services & Equipment", Section F "Health and Amenity" and Section J "Energy Efficiency"

This report is based on a desktop assessment of the proposed plans, with specific reference to the following:

- Architectural plans prepared by A & K Engineering Group – Project # 16/007, Drawing Numbers:

Drawing Number	Revision	Dated	Drawing Title
DA10	B	06.06.18	Site Plan - 01
DA16	C	16.7.18	Proposed Plan GL
DA17	B	06.06.18	Proposed Plan L01-03
DA18	B	06.06.18	Proposed Plan L04
DA19	B	06.06.18	Proposed Roof Plan
DA20	B	06.06.18	Car Park - 01
DA21	B	06.06.18	Car Park - 02
DA24	B	06.06.18	Proposed Elevation 01
DA25	B	06.06.18	Proposed Elevation 02
DA26	B	06.06.18	Proposed Elevation 03
DA27	B	06.06.18	Proposed elevation 04
DA28	A	06.06.18	Section - A

- The Building Code of Australia 2016 – Amdt 1 prepared by the Australian Building Codes Board.
- The Guide to the BCA 2016 – Amdt 1, prepared by the Australian Building Codes Board.

2.2 Purpose of the Report

The purpose of this report is to assess the following:

- Assessment under the current Building Code of Australia 2016 -Amdt 1 and list any departures from the BCA 2016.
- Provide recommendations to address identified non-compliances, and/or identify potential alternative solutions

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2.3 Limitations of the Report

This report does not assess the following:

- Access and facilities for people with disabilities is addressed however compliance with Disability Discrimination Act 1992 (DDA) is outside the scope of this report. It should be noted that BCA compliance does not necessarily meet the requirements of the Disability Discrimination Act (DDA).
- Reporting on hazardous materials, OH&S matters or site contamination
- Assessment of any structural elements or geotechnical matters relating to the building, including any structural or other assessment of the existing fire resistant levels of the building
- Consideration of any fire services operations (including hydraulic, electrical or other systems)
- Assessment of plumbing and drainage installations, including stormwater
- Assessment of mechanical plant operations, electrical systems or security systems
- Heritage significance
- Consideration of energy or water authority requirements
- Consideration of Council's local planning policies
- Environmental or planning issues
- Requirements of statutory authorities
- Pest inspection or assessment building damage caused by pests (general/visual pest invasion or damage will be reported, however invasive or intrusive inspections have not be carried out)
- Provision of any construction approvals or certification under Part 4A or Part 5 of the Environmental Planning & Assessment Act 1979.
- Glazing, shading, lighting calculations and the like required by Section J of the BCA not been carried out
- This assessment excludes BCA clauses D3.0-3.12 (Inclusive), F2.4 and E3.6. Refer to separate access consultant's report.
- BCA 2016 does not directly specify slip-resistance classification(s) for all *accessible paths of travel*; however, we highlight the need under AS 1428.1-2009 for all *accessible paths of travel* to have a slip-resistant surface. We recommend you should seek surface finish advice from an independent specialist slip safety consultant.

3.0 BCA ASSESSMENT DATA

The following data is provided in respect to review of the building under the Building Code of Australia 2016 – Amdt 1 in respect to the compliance assessment of the proposed residential flat building with basement level carparking, to be located at 61-65 Lucas Avenue & 36 Mackay Avenue, Moorebank.

BCA Building Classifications:	Class 2 (residential) Class 7a (Carpark) Class 7b (storage & bin room – less than 10% floor area of carpark 01)
Building rise in storeys:	6 (determined in accordance with C1.2 of the BCA).
Type of Construction:	A (determined in accordance with C1.1 of the BCA)
General Floor area limitations:	7 – 5,000m^2/ 30,000m^3
Effective Height (m):	<25m (19m noted – 41.50 – 22.50)
Climate Zone (Thermal Design)	6 (determined in accordance with Figure A1.1)

3.1 Location of Fire Source features

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The fire source features for the subject development are to the western boundaries and north-western boundary, as the northern, southern and eastern boundaries are bounded by public roads.

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4.0 BCA ASSESSMENT SUMMARY

The following table details the BCA compliance of the assessed design.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
SECTION B **STRUCTURE**					
Part B1: Structural Provisions				X	• Structural engineer to provide structural drawings/details and accompanying structural design certificate to demonstrate that all building elements will comply with Section B of the BCA. • Glazing must comply with AS1288-2006 and AS2047-2014. • Termite control must comply with AS3660.1-2000 where any primary building elements are timber. • If the building is in a flood hazard area it is required to comply with BCA clause B1.6. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification (and structural details)***
SECTION C **FIRE RESISTANCE**					
Part C1 **Fire Resistance & Stability**					
C1.1 Type of Construction Required				X	Refer to Spec C1.1 and Attachment B for Schedule of FRLs for Type A Construction. These are to be certified by the architect and structural engineer as having been met, based on the proposed design. Please note that specification C1.1 also requires design compliance with the following: ▪ Where a combustible material is used as a finish or lining to a wall or roof, or sunscreen, or awning, to a building element required to have an FRL the material must be exempted or comply with the fire hazard properties prescribed under C1.10 and must not otherwise constitute an undue risk of fire spread via the façade of the building or compromise egress from the building. This includes any aluminum panels which where containing plastic strengthening elements would not be non-combustible (tested to AS 1530.1). ▪ The architectural plans do not detail the finish of the external wall. If a composite cladding is to be used, a Codemark Certificate for this product will be required. ▪ Confirmation is required that all external walls including insulation & sarking will be non-combustible. ▪ Fire isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					as per specification C1.1. This fire rating is required in two directions. This includes the bin storage room on the basement carpark level if it forms the base of the shaft for the bin chute. An FRL of 240/120/120 if loadbearing or -/120/120 if non-loadbearing. ▪ External walls, common walls and the flooring and floor framing of lift pits must be non- combustible construction. ▪ Internal lightweight walls to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction. ▪ The walls to fire rated shafts must achieve the fire rating from both directions i.e. from inside and outside the shaft. ▪ Roof: The roof of the building does not need an FRL, provided the roof covering is non-combustible (as per the concession in Clause 3.5 of Specification C1.1 of the BCA). ▪ Bounding construction to residential units must comply with the fire rating requirements of table 3. ▪ Floors: see clause C2.9. In addition floors require an FRL of 90/90/90 where between residential levels. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification (and structural details)***
C1.4 Mixed Types of Construction			X		The building will need to be of Type A Construction
C1.8 Lightweight Construction				X	Where it is proposed to use lightweight construction (within the meaning of the BCA) this must comply with Specification C1.8 if it is used in a wall system— (i) that is required to have an FRL; or (ii) for a lift shaft, stair shaft or service shaft or an external wall bounding a public corridor including a non-fire-isolated passageway or non -ire-isolated ramp. If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if — (i) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and (ii) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.
C1.9 Non-combustible elements				X	(a) In a building required to be of Type A construction, the following building elements and their components must be non-combustible:

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					(i) External walls and common walls, including all components incorporated in them including the facade 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. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in— (i) a building required to be of Type A construction.
C1.10 Fire Hazard Properties				X	The fire hazard properties of the following linings, materials and assemblies must comply with Specification C1.10 by way of test reports / certificates provided from a registered testing authority (within the meaning of the BCA): (i) Floor linings and floor coverings. (ii) Wall linings and ceiling linings. (iii) Air-handling ductwork. (iv) Lift cars. (v) sarking-type materials (vi) Attachments to floors, ceilings, internal walls and the internal linings of external walls. (vii) Other materials including insulation materials other than sarking-type materials. Except that: 1. Paint or fire-retardant coatings must not be used to achieve compliance with the required fire hazard properties; and 2. The requirements of this clause are exempted to the martials and assemblies listed under C1.10(c)(i) to (xiv) Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C1.12 Combustible materials				X	The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required within the BCA: (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) Bonded laminated materials where— (i) each laminate is non-combustible; and

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					(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 laminated material as a whole does not exceed 0 and 3 respectively.
Part C2 **Compartmentation & Separation**					
C2.2 General Floor Area & Volume Limitations	X				Complies. Fire compartment floor area and volume limitations shall not exceed the limitations set by Table C2.2.
C2.6 Vertical Separation of openings in external walls		X			**There are several openings which require compliant spandrel separation to be provided (see examples below). In these examples, a horizontal spandrel extending a minimum 450mm beyond the opening (offset 450mm from the edge of the balconies) has not been provided. Where a panel wall (not less than 900mm in height, not less than 600mm above the upper surface of the intervening floor and non-combustible with an FRL of not less than 60/60/60) is to be used, the architect is to detail this on the plans at CC stage.** **Vertical spandrel separation is not detailed on all elevations. Examples of such areas are highlighted in orange below.** <u>Design requirements:</u> • All openings located in the external walls of the building required to have an FRL must comply with vertical separation requirements as stipulated under Clause C2.6, that is: • Vertical spandrel - They are protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab; or • Horizontal spandrel - They are provided with a 1.1m horizontal projection (FRL (60/60/60) also extending at least 450mm either side of the opening. Note: A window or other opening is a term used to describe a part of the external wall which does not have an FRL of at least 60/60/60.

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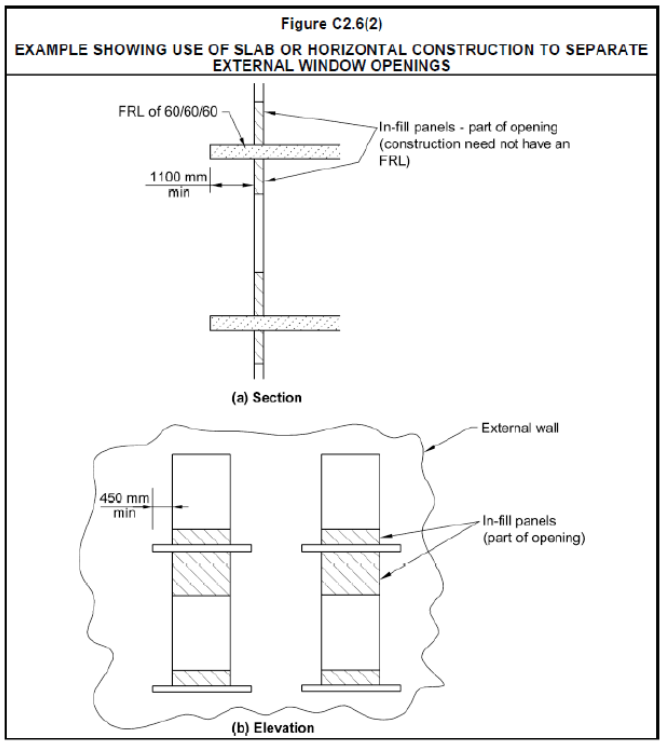
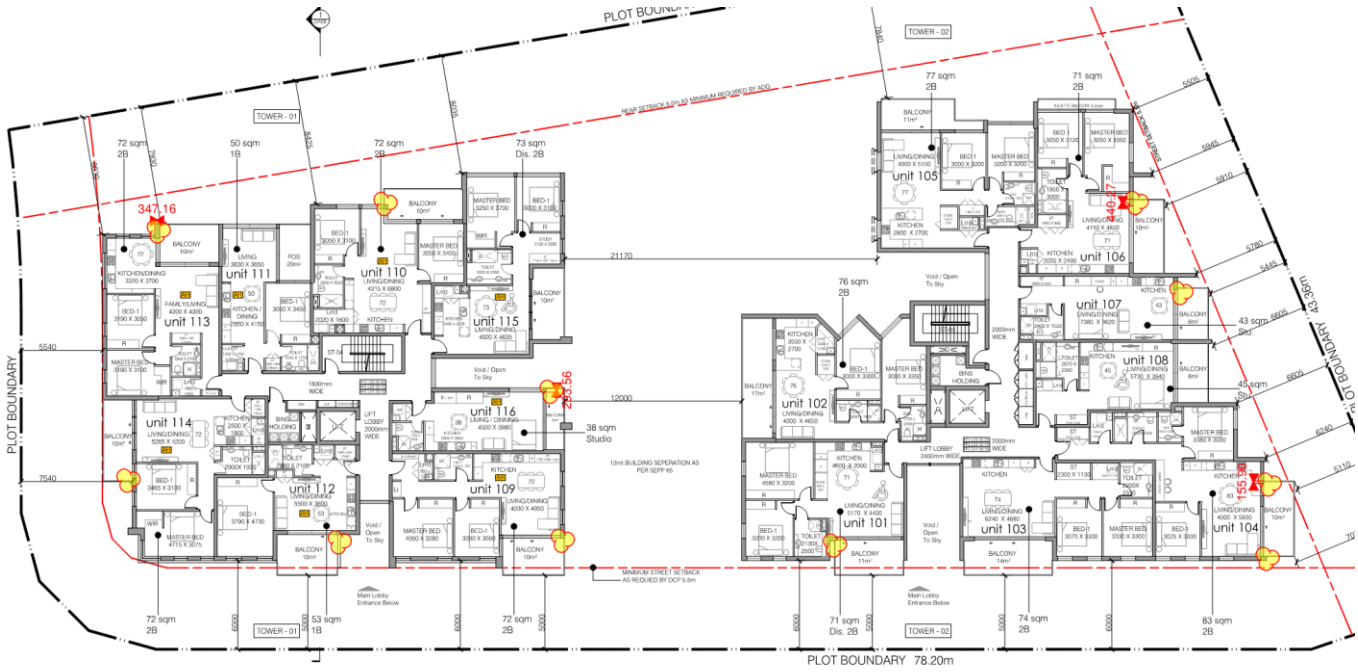
BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					Figure C2.6(2) EXAMPLE SHOWING USE OF SLAB OR HORIZONTAL CONSTRUCTION TO SEPARATE EXTERNAL WINDOW OPENINGS 

Levels 01 – 03



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SCALE 1:200

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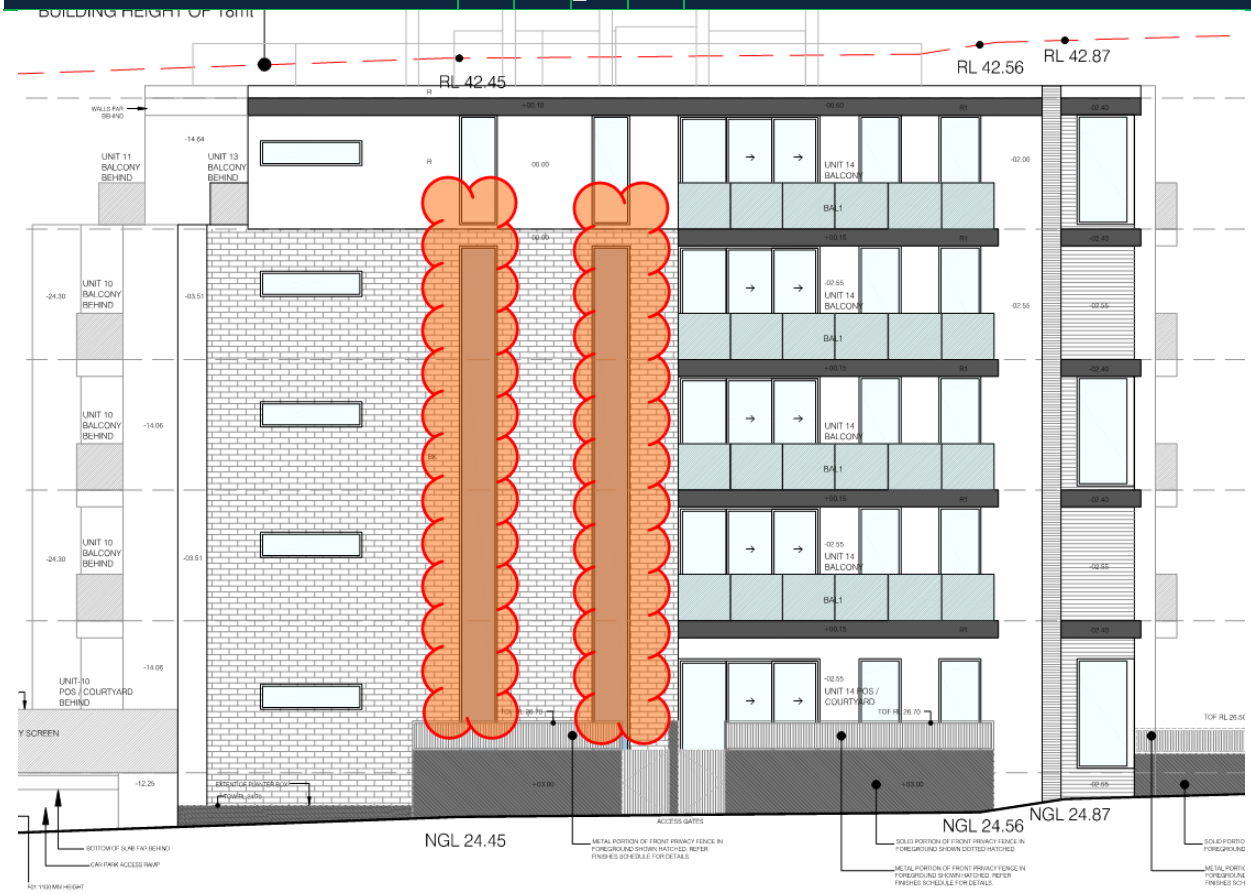

2 ELEVATION-2 TOWER -1 (MCKAY AV.)
SCALE 1:200

C2.7 Separation by Fire Walls				X	A fire wall must be constructed as follows: ▪ The fire wall has the relevant FRL prescribed by Specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL; and ▪ Any openings in the fire wall must not reduce the FRL required by SpecificationC1.1 for the fire wall, except where permitted by the Deemed-to-Satisfy Provisions of Part C3; and ▪ Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire resisting performance of the fire wall is maintained.
C2.9 Separation of Classifications in different stories				X	Fire separation is required between parts of a building which are of a different classification, when situated one above the other. The level (FRL) of fire protection required to the storey above is determined by BCA Table 3 of Specification C1.1 corresponding with the building classification of the lower

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<table>
<tr><th>BCA DEEMED-TO-SATISFY PROVISION</th><th>COMPLIES</th><th>DOES NOT COMPLY</th><th>NA or Informational</th><th>Compliance Required</th><th>COMMENTS</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>storey. An excerpt from Table 3 has been produced below:
<table><tr><th>BCA Class</th><th>FRL (Table 3 of Spec C1.1)</th></tr><tr><td>Class 2</td><td>90/90/90</td></tr><tr><td>Class 7a</td><td>120/120/120</td></tr></table>
Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification</td></tr>
<tr><td>C2.10
Separation of lifts shafts</td><td></td><td></td><td></td><td>X</td><td>The passenger lift must be separated from the remainder of the building by enclosure within a fire rated shaft.
120/120/120 (loadbearing) shaft wall construction applies to carpark and 90/90/90 (load bearing) shaft wall construction applies to Class 2 residential parts.
Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification</td></tr>
<tr><td>C2.11
Stairways and lifts in one shaft</td><td>X</td><td></td><td></td><td></td><td>Complies.</td></tr>
<tr><td>C2.12
Separation of Equipment</td><td></td><td></td><td></td><td>X</td><td>The following equipment must be fire separated from the remaining parts of the building via construction achieving an FRL of not less than 120/120/120 and any access doorway must be fitted with a self-closing fire door having an FRL of not less than -/120/30:
• Lift motors and lift control panels (except that when separating a lift shaft from a lift motor room, an FRL of not less than 120/-/- is required);
• a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours;
• On-site fire hydrant pumps.
• Emergency generators used to sustain emergency equipment operating in emergency mode.
Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification</td></tr>
<tr><td>C2.13
Electrical Supply</td><td></td><td></td><td></td><td>X</td><td>A main switch room housing emergency equipment which is required to operate in the emergency mode, must be fire separated from the remainder of the building in accordance with this Clause i.e. in construction achieving a FRL of not less than 120/120/120 with the access doorway provided with a self-closing fire door achieving a FRL of not less than -/120/30.</td></tr>
</table>

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					In addition any sub-station must be 120/120/120 fire separated from the remainder of the building. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C2.14 Public corridors in Class 2 & 3 Buildings	X				Complies.
Part C3 **Protection of Openings**					
C3.2 Protection of openings in external walls				X	**This assessment assumes the part of the carpark opening (vehicle entry ramp) within 3m from the western allotment boundary is below the finished ground level at the boundary and therefore the opening is not exposed to the fire-source feature.** **If it is determined that the carpark opening 3m from the western boundary is above the finished ground level at the western boundary, the opening within 3m it must then be protected as per clause C3.4 or addressed via fire engineering.** <u>Design requirements</u> Openings in an external wall that is required to have an FRL must be protected in accordance with C3.4: • if the distance between the opening and the fire-source feature is less than 3 m from a side or rear boundary; or • less than 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or • less than 6 m from another building on the allotment that is not Class 10; and if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.4 Acceptable Methods of Protection			X		Where protection is required, doorways, windows and other openings must be protected as follows: (i) Doorways—

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					(A) internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or (B) –/60/30 fire doors that are self-closing or automatic closing. (ii) Windows— (A) internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (B) –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or (C) –/60/– automatic closing fire shutters. (iii) Other openings— (A) excluding voids — internal or external wall-wetting sprinklers, as appropriate; or (B) (B) construction having an FRL not less than –/60/–. Fire doors, fire windows and fire shutters must comply with Specification C3.4.
C3.8 Openings in fire isolated exits				X	Doors to fire stairs must be self or auto closing -/60/30 fire doors. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.9 Service Penetrations in fire-isolated exits				X	The fire isolated exits are not to be penetrated by any services **other** than water supply pipes for fire services OR electrical wiring associated with: • a lighting, detection, or pressurization system serving the exit; or • a security, surveillance or management system serving the exit; or • an intercommunication system or an audible or visual alarm system in accordance with D2.22 (it is noted that re-entry from fire-isolated exits will not be required); or • the monitoring of hydrant or sprinkler isolating valves ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.10 Openings in Fire isolated lift shafts				X	• Lifts landing doors are required to be fire doors with an FRL of -/60/- that comply with AS 1735.11-1986, and be set to remain closed except when discharging or receiving, passengers, goods or vehicles. • Lift indicator panels must also be fire rated in accordance with this clause.

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification
C3.11 Bounding Construction				X	The doorways between sole occupancy units and the public lobbies and any common rooms and the public lobbies must be protected by self–closing -/60/30 fire doors. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.12 Openings in floors and ceilings for services				X	Where services pass through a floor which is required to achieve a FRL or a ceiling required to have a RISF, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C3.15. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.13 Openings in Shafts				X	In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be fire protected in accordance with this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.15 Openings for Service Installations				X	Where services pass through an element which is required to achieve a FRL (other than an external wall or roof), the service must be fire protected in accordance with this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.16 Construction Joints				X	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C3.17 Columns protected in lightweight construction to achieve an FRL				X	Any column proposed to be protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire.

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification
SECTION D **ACCESS & EGRESS**					
Part D1 **Provision for Escape**					
D1.2 Number of Exits required		X			Complies.
D1.3 When Fire Isolated exits are required		X			**Compliance issues:** **Stairways 01 & 02 are not detailed as being fire-isolated at ground level.** Design requirements (a) **Class 2 and 3 buildings** — Every stairway or ramp serving as a required exit must be fire-isolated unless it connects, passes through or passes by not more than— • 3 consecutive storeys in a Class 2 building; • or 2 consecutive storeys in a Class 3 building, and one extra storey of any classification may be included if— (iii) (iv) • it is only for the accommodation of motor vehicles or for other ancillary purposes; or • the building has a sprinkler system complying with Specification E1.5 installed throughout; or • the required exit does not provide access to or egress for, and is separated from, the extra storey by construction having— (A) an FRL of –/60/60, if non-loadbearing; & (B) an FRL of 90/90/90, if loadbearing; & (C) no opening that could permit the passage of fire or smoke. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.4 Exit Travel Distances		X			**Compliance issue:** **The following areas exceed the maximum travel distance to an exit or a point of choice:** **Carpark**

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					▪ **Carpark 02 – Up to 24.5m to a point of choice from the north-eastern corner of the carpark in lieu of 20m;** **Tower 01** ▪ **Level 01 to 03 - Up to 7.3m from the furthest unit (10) to an exit;** ▪ **Level 04 - Up to 9.2m from the furthest unit (09) to an exit;** **Tower 02** ▪ **Level 01 to 03 – Up to 11m from the furthest unit (02) to an exit; and** ▪ **Level 04 – Up to 9.1m from the furthest unit (401) to an exit.** Design requirements **(a) Class 2 and 3 buildings—** (i) The entrance doorway of any sole-occupancy unit must be not more than— (A) 6 m from an exit or from a point from which travel in different directions to 2 exits is available; or (B) 20 m from a single exit serving the storey at the level of egress to a road or open space; and (ii) no point on the floor of a room which is not in a sole-occupancy unit must be more than 20 m from an exit or from a point at which travel in different directions to 2 exits is available. **(b) Class 5, 6, 7, 8 or 9 buildings** — Subject to (d), (e) and (f)— (i) no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m; and (ii) in a Class 5 or 6 building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.5 Distance Between Alternate Exits		X			**Compliance issue:** **Carpark 01** ▪ **88m from carspace 39 through the point of choice to ST-03;** ▪ **80m from CPS Fan room through the point of choice to ST-02;**

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					▪ **ST-03 from the basement levels and residential levels converge at ground floor.** **<u>Carpark 02</u>** ▪ **69.3m from the western corner of the carpark through the point of choice to ST-02; and** ▪ **65.2m from the eastern corner of the carpark through the point of choice to ST-02.** **Stairways ST-01 & ST-04 converge at carpark level 01 contrary to Clause D1.5(d).** <u>Design requirements</u> Exits that are required as alternative means of egress must be— (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and (b) not less than 9 m apart; and (c) not more than— (i) in a Class 2 or 3 building — 45 m apart; or (ii) in a Class 9a health-care building, if such required exit serves a patient care area — 45 m apart; or (iii) in all other cases — 60 m apart; and (d) located so that alternative paths of travel do not converge such that they become less than 6 m apart.
D1.6 Dimensions of Exits and paths of Travel to Exits		X			**<u>Compliance issue:</u>** **Stairway ST-01 is less than 1m wide (956mm noted).** <u>Design requirements</u> In a required exit or path of travel to an exit— (a) the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and (b) the unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than— (i) 1 m. (ii) the unobstructed width of each exit provided to comply with (b), (c), (d) or (e), minus 250 mm; or (c) the unobstructed width of a required exit must not diminish in the direction of travel to a road or open space. (h) the required width of a stairway or ramp must— (i) be measured clear of all obstructions such as handrails,

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					projecting parts of balustrades or other barriers and the like; and (ii) extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosings of the treads or the floor surface of the ramp or landing. (i) to detremine the aggregate unobstructed width, the number of persons accomodated must be calculated according to D1.13 ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.7 Travel via Fire Isolated Stairs		X			**Compliance issue:** ▪ **Stairways 01 and 04 do not provide independent egress into a fire-isolated passageway. Stairways 01 and 04 converge at carpark level 01.** ▪ **Stairways 03 serving the carpark levels and stairways serving the residential levels do not provide independent egress into a fire-isolated passageway. The stairways converge at ground floor.** ▪ **The path of travel to the road following discharge from fire stairs along the eastern side of the allotment on ground floor level will require occupants to pass at right angles and within 6m from the openings highlighted in blue below.** Design requirements (a) A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from— (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. (b) Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— (i) to a road or open space; or (ii) to a point— (A) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and

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					(B) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or (iii) into a covered area that— (A) (A) adjoins a road or open space; (B) and is open for at least 1/3 of its perimeter; and (C) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and (D) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m. (c) Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have— (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4, for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Ground floor					

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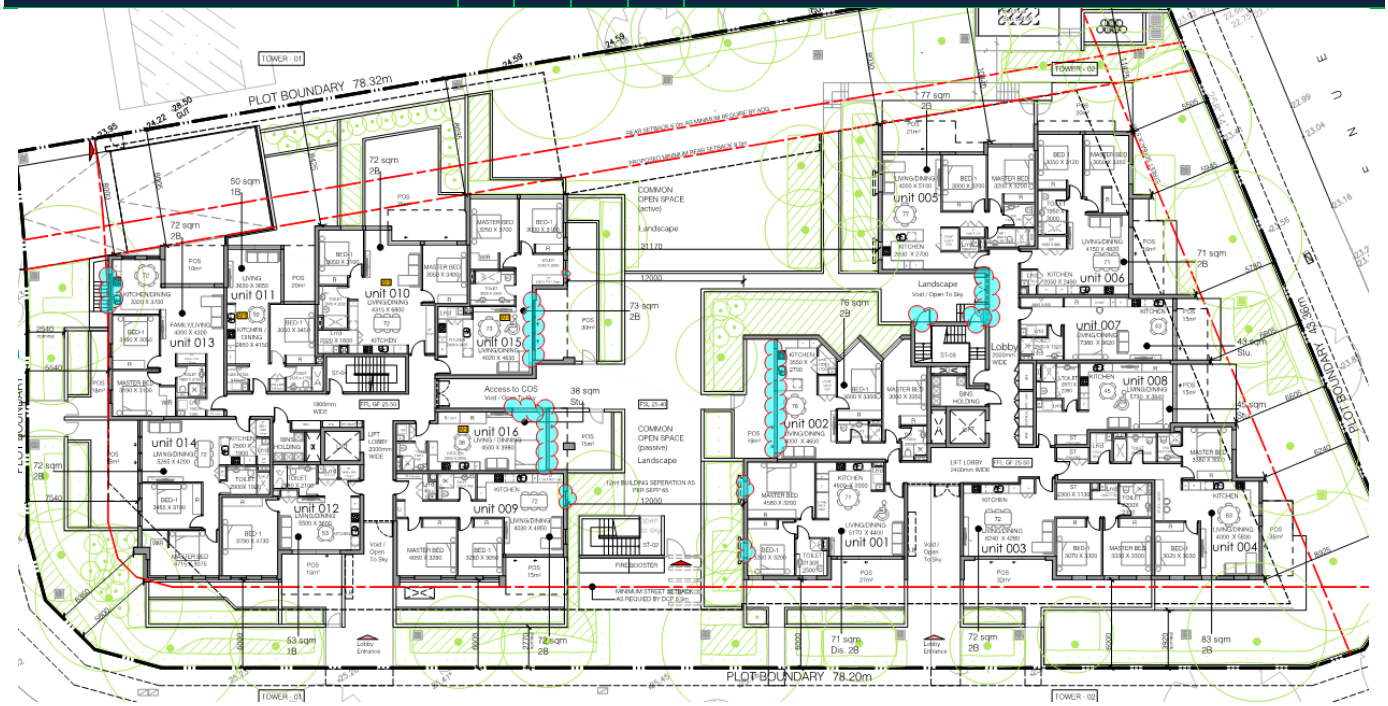					
D1.9 Travel by non-fire-isolated stairs		X			**Compliance issue:** **The non-fire-isolated stairways between level 04 and the roof level are more than 20m from a doorway providing egress to a road or open space or a fire-isolated passageway leading to a road or open space. This is to be addressed by way of Performance Solution by a fire engineer.** Design requirements (a) A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. (b) In a Class 2, 3 or 9a building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than— (i) 15 m from a doorway providing egress to a road or open space or from a fire isolated passageway leading to a road or open space. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.10 Discharge from Exits		X			**Compliance issue:** **A pathway is to be detailed from stairway 01 and 04 to the road at ground level.**

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					Design requirements a) An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it. (b) If a required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than— (i) the minimum width of the required exit; (ii) or 1 m, whichever is the greater. (c) If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by— (i) a ramp or other incline having a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by the Deemed-to-Satisfy Provisions of Part D3; or (ii) except if the exit is from a Class 9a building, a stairway complying with the Deemed-to-Satisfy Provisions of the BCA. (d) The discharge point of alternative exits must be located as far apart as practical. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.16 Plant Rooms and lift Motor Rooms: Concession			X		a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100 m^2; or (ii) all but one point of egress from a plant room, a lift machine room or a Class 8 electricity network substation with a floor area of not more than 200 m2. (b) A ladder permitted under (a)— (i) may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) for a plant room or a Class 8 electricity network substation, must comply with AS 1657; and (iv) for a lift machine room, where access is provided from within a machine room to a secondary floor, a fixed rung type ladder complying with AS 1657 may be used, provided that—

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					(A) the height between the floors is not more than 2800 mm; and (B) the ladder is inclined at an angle to the horizontal not less than 65 degrees nor more than 75 degrees; and (C) the distance between the front face of the ladder and any adjacent obstruction is not less than— (aa) 960 mm, where the ladder is inclined 65 degrees to the horizontal; or (bb) 760 mm, where the ladder is inclined 75 degrees to the horizontal; or (cc) a distance that is determined by interpolating the values in (aa) and (bb), where the ladder is inclined at any angle between 65 degrees and 75 degrees to the horizontal; and (D) a clear space not less than 600 mm exists between the foot of the ladder and any equipment. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.17 Access to lift pits				X	Access to lift pits must— (A) where the pit depth is not more than 3 m, be through the lowest landing doors; or (b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following: (i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii). (ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (A) Access to the doorway must be by a stairway complying with AS 1657. Access to lift pits must— (A) where the pit depth is not more than 3 m, be through the lowest landing doors; or (b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following: (i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii). (ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (A) Access to the doorway must be by a stairway complying with AS 1657.

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Part D2 **Construction of Exits**					
D2.2 Fire-Isolated stairways and ramps				X	The fire isolated stairways must be constructed of non-combustible materials and constructed so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of the shaft. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification (and structural details)***
D2.3 Non-fire Isolated stairways and ramps				X	The non-fire isolated stairways must be constructed according to D2.2, or only of- (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue". ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.4 Separation of Rising and Descending Stairs		X			**Compliance issues:** **Stairways 03 & 04 connect the upper levels and lower levels contrary to this Clause.** Design requirements Separation of all the rising and descending stair flights must be provided as per clause 2 of Specification C2.5. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.7 Installations in Exits and Paths of Travel				X	Any electricity meters, distribution boards; telecommunications distribution boards or equipment; electrical motors or other motors within corridors/hallways/lobbies or the like must be enclosed with non-combustible construction or a fire protective covering with doorways suitably sealed against smoke spread. Electrical wiring may be installed with a fire isolated exit, but only where associated with a lighting, detection, pressurisation, security, surveillance,

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					intercommunication, or hydraulic fire services monitoring valves. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.8 Enclosure of Space Under Stairs and ramps				X	The space under the fire-isolated stairways must not be enclosed to form a cupboard or similar enclosed space. Any space under a non-fire-isolated stair must be enclosed in 60-minute fire rated construction. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.10 Pedestrian Ramps				X	All pedestrian ramps are to have a non-slip finish complying with AS 4586-2013 Slip resistance classification of new pedestrian surface materials. Clause contains additional information relevant to fire isolation and access requirements applicable to pedestrian ramps. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.11 Fire-Isolated Passageways				X	The enclosing construction of a fire isolated passageway must have an FRL when tested for fire outside the passageway in another part of the building. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.12 Roof as Open Space				X	**Entire roof of carpark 01 is to achieve an FRL of 120/120/120 as ground level exits discharge onto it.** ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.13 Goings & Risers		X			**Compliance issue:** **The stairways serving the rooftop areas of Towers 01 & 02 are not permitted to have winders as per Clause D2.13(a)(viii).** Design requirements Stairways must comply with the following: o goings must be between 240 mm and 355 mm within the residential units; o goings must be between 250 mm and 355 mm in other areas;

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					o risers must be between 115 mm high and 190 mm high; o the slope relationship (2 x riser dimension+ going dimension) must be within the range of 550-700; o the goings and risers must be constant (uniform) throughout each flight; o each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosings; o treads must be of solid construction (not mesh or perforated) if the stairway is more than 10 m high or connects more than 3 storeys. o Treads must have a surface with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 4586-2013 Slip resistance classification of new pedestrian surface materials. o BCA 2016 does not directly specify slip-resistance classification(s) for all accessible paths of travel; however, we highlight the need under AS 1428.1-2009 for all accessible paths of travel to have a slip-resistant surface. We recommend you should seek surface finish advice from an independent specialist slip safety consultant. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.14 Landings				X	Landings must not be less than 750mm long and have a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with *AS 4586-2013 Slip resistance classification of new pedestrian surface materials.* BCA 2016 does not directly specify slip-resistance classification(s) for all *accessible paths of travel*; however, we highlight the need under AS 1428.1-2009 for all *accessible paths of travel* to have a slip-resistant surface. We recommend you should seek surface finish advice from an independent specialist slip safety consultant. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.15 Thresholds				X	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaves unless the doorway is in a building required to be accessible by Part D3, and in which case the doorway opens to a road or open space and is provided with a threshold ramp or step ramp in accordance with AS 1428.1.

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification
D2.16 Balustrades and other Barriers Note NSW D2.16				X	In this building – ▪ A continuous barrier must be provided to the fire stairs, balconies and roof (only if public access is intended) if the trafficable surface is 1m or more above the surface beneath; ▪ A barrier provided to a stairway must have a minimum height of not less than 865mm; ▪ A barrier provided to the balconies, stair landings and roof must not be less than 1m high (note transition zone requirements between stair flight and landing); Note – The above barrier heights are measured vertically from the surface beneath i.e. where the barrier sits above a balcony hob, the 1m vertical measurement would be taken from the level of the hob. ▪ A barrier provided to a fire stair must not contain openings greater than 300mm or where rails are used, the maximum opening permissible is a 150mm between the nosing line of the stair treads and the rail and the opening thereafter between the rails must not be more than 460mm; ▪ A barrier provided to a balcony or roof must not contain any openings greater than 125mm; ▪ Where a fall of 4m or more occurs, barriers provided to the balconies or roof must not consist of any horizontal or near horizontal elements between 150-760mm above the surface beneath to facilitate climbing. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.17 Handrails				X	In this building – ▪ All fire stairs must be provided with a handrail to at least one side of the stair flight; ▪ Handrail must be fixed at a height of not less than 865mm when measured above the nosings of the stair treads, landing or the like; ▪ Handrails must be continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand hold; and ▪ The handrails to the required exits must be designed and constructed to comply with Clause 12 of AS 1428.1-2009. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification.***

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D2.18 Fixed Platforms, walkways and ladders				X	Plant areas may be accessed via stairs and ladders compliant with AS 1657-2013. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification.***
D2.19 Doorways & Doors	X				Complies.
D2.20 Swinging Doors		X			**Compliance issue:** **The doorways to the airlock between stairway ST-02 and the fire pump room are to swing in the direction. Otherwise, this is to be addressed by way of a Performance Solution by a fire engineer.**
D2.21 Operation of Latch				X	All doors in a required exit or forming part of a required exit AND doors in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3 – A. be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and B. have a clearance between the handle and the back plate or door face at the center grip section of the handle of not less than 35mm and not more than 45mm; or C. a single hand pushing action on a single device which is located between 900mm and 1.2m from the door. The above requirements do not apply to doors that serve only or is within a SOU in a Class 2 building. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.23 Signs on Doors				X	Information clause relevant to the provision of signs on required fire doors to alert persons that the operation of these doors is not to be impaired. Refer also to offence signage required by Clause 183 of the EP&A Regulation (EPAR) 2000. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.24 Protection of openable windows				X	**Class 2 (Bedrooms)**

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					A window opening in a bedroom of a class 2 SOU must be provided with protection if: • the level of the floor outside the window is below 2m or more; and • the lowest level of the window opening is less than 1.7m above the inside floor level. A window required to be protected must comply with any of the following methods: 1. The window is designed such that any opening does not allow a 125mm sphere to pass through (E.g. louvres); or 2. The window is fitted with a fixed or dynamic device that is capable of restricting the window opening so it does not allow a 125mm sphere to pass through and is difficult for a young child to operate. The restricting device must be capable of resisting a 250 N force when directed against the window such as a casement window or in attempting to push a sliding window open. An internal screen with similar parameters may be installed; or 3. The window is fitted with an internal or external screen that does not permit a 125 mm sphere to pass through and is capable of resisting an outward horizontal force of 250 N against the window restrained by a device or screen protecting the opening. The device or screen protection referred above (Points 2 and 3) must also have a child resistant release mechanism if the screen or device is capable of being removed, unlocked or overridden. **Class 2 (other than bedrooms) and any other area** Where the window is required to have a child release mechanism to be installed and where an openable window, in any location, is 4m or more above the external surface beneath, a barrier with a height not less than 865 mm above the floor would also be required. The barrier must not permit a 125mm sphere to pass through it and not have any horizontal or near horizontal elements between 150mm and 760mm above the floor that would facilitate climbing. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part D3 Access for People with Disabilities – Excluded from this report.					
SECTION E SERVICES & EQUIPMENT					
Part E1					

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Fire Fighting Equipment					
E1.3 Fire Hydrants				X	• **This building requires a booster to be provided for the sprinkler and hydrant systems. It is anticipated that both booster assemblies will be located in the same enclosure.** • **The booster is required to be provided with a shield wall extending 2m from both sides of the booster and 3m above the upper booster connections also achieving an FRL of not less than 90/90/90. This may be addressed by way of a Performance Solution by a fire engineer at CC stage.** • **The booster assembly is located more than 8m from an operable fire brigade pumping appliance (to be located on Lucas Avenue) contrary to Clause 7.3 of AS 2419.1-2005.** Design requirements A hydrant system complying with AS 2419.1-2005 must be provided to serve a building having a total floor area greater than 500m2, where a fire brigade is available to attend a fire. ***Hydraulic Services Design Certification and associated plans must be incorporated into the construction certificate specification***
E1.4 Fire Hose Reels				X	A fire hose reel system complying with AS 2441-2005 must be provided to serve the whole building where internal fire hydrants area installed OR where internal fire hydrants are not installed, to serve any fire compartment with a floor area greater than 500m2. Note: FHR's no longer required to serve a Class 2 or 3 building. ***Hydraulic Services Design Certification and associated plans must be incorporated into the construction certificate specification***
E1.5 Sprinklers				X	**Potential compliance issues:** • **The basement carpark levels will accommodate more than 40 vehicles therefore, the carpark is to be sprinkler protected. The sprinkler alarm valve is to be located in a secure room or enclosure which has direct access to the road or open space.** • **The Covered balconies that exceed 6 m2 floor area or have a depth in excess of 2 m measured perpendicularly from the external wall shall be sprinkler protected as per Clause 5.9.10 of AS 2118.1-2017.** • **AED note that within BCA 2019 that a new requirement will be implemented requiring sprinkler protection to Class 2 & 3 buildings of a rise in storeys of more than three (3). As such, AED recommend that sprinklers be provided within this**

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					building to future-proof the building, however, this is not a requirement under BCA 2016 – Amdt 1. ***Hydraulic Services Design Certification must be incorporated into the construction certificate specification***
E1.6 Portable Fire Extinguishers				X	Portable fire extinguishers must be provided in accordance with Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444-2001. Note: Portable fire extinguishers now required to serve Class 2 and 3 buildings to cover Class A fire risks, where: • Internal fire hydrants area installed; and • Where internal fire hydrants are not installed, to serve any fire compartment with a floor area greater than 500m2, and for the purpose of this clause, a SOU unit in a Class 2 or 3 building or Class 4 part of a building is considered to be a fire compartment. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E1.9 Fire Precautions during construction				X	• During construction, not less than one portable fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required / temporary exit; and • After the building has reach an effective height of 12m, the required fire hydrants and fire hose reels must be operational on all floor / roof covered storeys, except for the 2 uppermost storeys; and • All required booster connections must be installed. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part E2 Smoke Hazard Management					
E2.2 General Requirements (inclusive of Table E2.2a / Table E2.2b & NSW amendments)				X	**<u>General smoke hazard management requirements</u>** An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment (such as lobby air supply) must— (i) be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1; or

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					(ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 4.10 of AS/NZS 1668.1; and for the purposes of this provision, each sole-occupancy unit in a Class 2 or 3 building is treated as a separate fire compartment. Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate systems provided for zone smoke control / automatic air pressurization for fire-isolated exits. Note: Smoke alarms in sole occupancy units now required to be interconnected. **Class 2 (Residential)** The class 2 parts must be provided with an automatic smoke detection and alarm system complying with Spec E2.2a. Clause 2 of Specification E2.2a provides options for the installation of an automatic smoke detection and alarm system. The Class 2 parts must be provided with one of the following options: 1. A smoke alarm system complying with Clause 3 of Specification E2.2a. A smoke alarm system would need to comply with AS 3786- 2014, be powered from the consumer mains source and where there is more than one alarm installed within the SOU, they must all be interconnected within that SOU. Public corridors and other internal spaces must have smoke alarms installed in accordance with requirements for smoke detectors in AS 1670.1-2015 and be connected to activate a building occupant warning system in accordance with clause 6 of Spec E2.2a. BOWS will be required in the carpark areas. OR 2. A smoke detection system (and building occupant warning system) complying with Clause 4 of Specification E2.2a. A smoke detection system throughout the building must be installed to AS 1670.1-2015 and be connected to activate a building occupant warning system as per

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					clause 6 of Spec E2.2a noting that BOWS is also required throughout the carpark areas. OR 3. a combination of a Smoke alarm system complying with Clause 3 within sole-occupancy units and a smoke detection system (and building occupant warning system) complying with Clause 4 in areas not within the sole-occupancy units. **Class 7a buildings** A Class 7a building including a basement provided with a mechanical ventilation system in accordance with AS 1668.2-2012 must comply with clause 5.5 of AS/NZS 1668.1-2015 except that fans with metal blades for operation at normal temperatures may be used, and the electrical ***Appropriate Design Certification must be incorporated into the construction certificate specification***
Part E3 Lift Installations					
E3.1 Lift installations				X	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1 ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E3.2 Stretcher Facility in Lifts				X	The passenger lifts must be capable of accommodating a stretcher facility. A lift with stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E3.3 Warning Against the use of lifts in Fire				X	Warning signs indicating "**DO NOT USE LIFTS IF THERE IS A FIRE**" shall be displayed near every call button for a passenger lift or group of lifts throughout a building as per E3.3. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***

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E3.5 Landings				X	Access and egress to and from lift-well landings must comply with the Deemed-to-Satisfy Provisions of Section D. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E3.7 Fire Service Controls				X	The lifts must be provided with a: • fire service recall control switch complying with E3.9 (for a group of lifts or a single lift not in a group that serves the storey); and • lift car fire drive control switch complying with E3.10 for every lift. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E3.9 Fire service recall operation switch				X	A fire service recall control switch must be provided to the lifts in accordance with BCA Clause E3.9. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E3.10 Lift car fire service drive control switch				X	The fire service drive control switch required by Clause E3.7 must be activated from within the lift car and must comply with the requirements of BCA Clause E3.10. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part E4 Emergency Lighting, Exit Signs and Warning Systems					
E4.2 Emergency Lighting Requirements				X	An emergency lighting system must be installed throughout the buildings in accordance with Clause E4.2 of the BCA and AS 2293.1-2005. ***Electrical Design Certification must be incorporated into the construction certificate specification***
E4.4 Design and Operation of Emergency Lighting				X	The emergency lighting system must comply with AS 2293.1-2005.
E4.5 Exit Signs				X	Exit signs must be installed throughout the buildings in accordance with E4.5 of the BCA and AS 2293.1-2005. ***Electrical Design Certification must be incorporated into the construction certificate specification and exit sign locations must be illustrated on the architectural floor plans***

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E4.6 Direction Signs (inclusive of NSW E4.6)				X	If an exit is not readily apparent to persons occupying or visiting the building then directional exit signs must be installed in appropriate positions. ***Electrical Design Certification must be incorporated into the construction certificate specification and directional exit sign locations must be illustrated on the architectural floor plans***
E4.7 Class 2 & 3 Buildings & Class 4 Parts: Exemption			X		Exit doors in Class 2 parts need not comply with E4.5 provided every exit door is clearly and legibly labelled on the side remote from the exit with the word “EXIT” in capital letters 25mm high in a colour contrasting with that of the background or some other suitable method. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E4.8 Design & Operation of Exit Signs				X	Exit signs must comply with: • AS 2293.1-2005; or • For a photoluminescent exit sign, Specification E4.8. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
SECTION F HEALTH & AMENITY					
Part F1 Damp & Weatherproofing					
F1.1 Stormwater Drainage				X	Stormwater drainage must comply with AS/NZS 3500.3-2015. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.4 External above ground membranes				X	Any external above ground membranes must be waterproofed as per AS 4654 Parts 1 and 2-2012. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.5 Roof coverings				X	Information clause relevant to the Australian Standards applicable to different types of roof coverings. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***

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F1.6 Sarking				X	Sarking-type materials used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2-1994. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.7 Waterproofing of wet area				X	Wet areas must be waterproofed in accordance with AS 3740-2010 and F1.7 of the BCA. NOTE to the architect - There must be no portion of a window located in the walls serving a shower area for a height of 1.8m from the FFL of the shower floor. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.9 Damp-proofing				X	Where a damp-proof course is required, it must consist of a material that complies with AS/NZS 2904-1995; or impervious sheet material in accordance with AS 3660.1-2000 ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.11 Provision of Floor Wastes				X	Bathrooms and laundries in Class 2buildings must be provided with a floor waste, and the floor of such areas must be graded to such floor waste. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.13 Glazed Assemblies				X	Clause relevant to the provision of glazed assemblies within external walls in accordance with AS 2047-1999. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part F2 Sanitary & Other Facilities					
F2.1 Facilities in residential buildings				X	**Within each SOU the following are to be provided:** **Facilities required** / **Facilities provided** Kitchen sink and facilities for the preparation and cooking of food — Complies. A bath or shower — Complies.

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					<table><tr><td>A closet pan and washbasin</td><td>Complies.</td></tr><tr><td>Clothes washing facilities, comprising at least one washtub and space for a washing machine</td><td>Facilities within communal laundry on ground floor to be detailed at CC stage.</td></tr><tr><td>Clothes drying facilities comprising a clothes line or hoist with not less than 7.5m of line or a space for one heat-operated drying cabinet or appliance in the same room as the clothes washing facilities</td><td>Architect to confirm at CC stage.</td></tr></table> **Within the common area provide the following:** <table><tr><td>Cleaners toilet containing a closet pan and washbasin in a compartment or room at or near ground level and accessible to employees without entering an SOU.</td><td>Detailed on carpark 01 level.</td></tr></table> ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F2.5 Construction of Sanitary Compartments				X	The door to a fully enclosed sanitary compartment must open outwards, or slide, or be removable from outside of the compartment, unless there is a clear space of at least 1.2m between the closet pan within the compartment and the doorway. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part F3 Room Sizes					
F3.1 Height of Rooms and other spaces				X	The ceiling height must be not less than— (a) in a Class 2 building — (i) a kitchen, laundry, or the like — 2.1 m; (ii) and a corridor, passageway or the like — 2.1 m; and (iii) a habitable room excluding a kitchen — 2.4 m; and (b) in a Class 7 building— (i) except as allowed in (ii) and (f) — 2.4 m; and

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					(ii) a corridor, passageway, or the like — 2.1 m; and in any building— a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and a commercial kitchen — 2.4 m; and above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.
Part F4 Light & Ventilation					
F4.1 Provision of natural light				X	Natural lighting must be provided to all habitable rooms in Class 2 buildings, and Class 4 parts of a building; ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F4.2 Methods and extent of natural lighting				X	Required natural lighting must be provided by— (i) windows, excluding roof lights, that— (A) have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and (B) are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (ii) roof lights, that— (A) have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 3% of the floor area of the room; and (B) are open to the sky; or (iii) a proportional combination of windows and roof lights required by (i) and (ii). (b) In a Class 2 a required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of— (i) generally — 1 m.
F4.3 Natural light borrowed from adjoining room			X		(a) Natural lighting to a room in a Class 2 building come through a glazed panel or opening from an adjoining room (including an enclosed verandah) if— (i) both rooms are within the same sole-occupancy unit or the enclosed verandah is on common property; and

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					(ii) the glazed panels or openings have an aggregate light transmitting area of not less than 10% of the floor area of the room to which it provides light; and the adjoining room has— (A) windows, excluding roof lights, that— (aa) have an aggregate light transmitting area of not less than 10% of the combined floor areas of both rooms; and (bb) are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (B) roof lights, that— (aa) have an aggregate light transmitting area of not less than 3% of the combined floor areas of both rooms; and (bb) are open to the sky; or (C) a proportional combination of windows and roof lights required by (A) and (B). (b) The areas specified in (a)(ii) and (a)(iii) may be reduced as appropriate if direct natural light is provided from another source.
F4.4 Artificial lighting				X	Artificial lighting must be provided to all areas required by this clause in accordance with AS 1680.0-2009. ***Electrical Design Certification must be incorporated into the construction certificate specification***
F4.5 Ventilation of Rooms				X	All rooms to be provided with Clause F4.6 compliant natural ventilation **OR** a mechanical ventilation or air-conditioning system complying with AS 1668.2-2012. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F4.6 Natural Ventilation			X		(a) Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened— (i) with ventilating area not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— (A) a suitably sized court, or space open to the sky; or (B) an open verandah, carport, or the like; or (C) an adjoining room in accordance with F4.7. (b) The requirements of (a)(i) do not apply to a Class 8 electricity network substation. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***

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F4.7 Ventilation borrowed from adjoining room			X		Natural ventilation to a room may come through a window, opening, ventilating door or other device from an adjoining room (including an enclosed verandah) if both rooms are within the same sole-occupancy unit or the enclosed verandah is common property, and— (a) in a Class 2 building— (i) the room to be ventilated is not a sanitary compartment; and (ii) the window, opening, door or other device has a ventilating area of not less than 5% of the floor area of the room to be ventilated; and (iii) the adjoining room has a window, opening, door or other device with a ventilating area of not less than 5% of the combined floor areas of both rooms; and (c) the ventilating areas specified in (a) and (b) may be reduced as appropriate if direct natural ventilation is provided from another source. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.11 Carparks				X	Every storey of a carpark (except an open deck carpark) must have a system of mechanical ventilation complying with AS1668.2-2012. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part F5 Sound Transmission					
F5.1 Application of Part					The provisions of this Part apply to Class 2, 3 and 9c buildings only.
F5.2 Determination of airborne sound insulation ratings			X		A form of construction required to have an airborne sound insulation rating must— (a) have the required value for weighted sound reduction index (Rw) or weighted sound reduction index with spectrum adaptation term (Rw + Ctr) determined in accordance with AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements; or (b) comply with Specification F5.2. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F5.3 Determination of impact sound insulation ratings				X	(a) A floor in a building required to have an impact sound insulation rating must—

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					(i) have the required value for weighted normalised impact sound pressure level (Ln,w) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or (ii) comply with Specification F5.2. (b) A wall in a building required to have an impact sound insulation rating must— (i) for a Class 2 or 3 building be of discontinuous construction; (c) For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and (i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F5.4 Sound Insulation of floors between units				X	A floor in a Class 2 or 3 building must achieve an R_w + C_{tr} (airborne) not less than 50, and an $L_{n,w}$ (impact) not more than 62, if separating: • SOU's; or • An SOU from a plant room, lift shaft, public corridor, public lobby or parts of a different classification. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F5.5 Sound insulation of walls between units				X	(a) A wall in a Class 2 building must— (i) have an Rw + Ctr (airborne) not less than 50, if it separates sole-occupancy units; and (ii) have an Rw (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and (iii) comply with F5.3(b) if it separates— (A) a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or (B) a sole-occupancy unit from a plant room or lift shaft. (b) A door may be incorporated in a wall in a Class 2 or 3 building that separates a sole occupancy unit from a stairway, public corridor, public lobby or the like, provided the door assembly has an Rw not less than 30.

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					(c) A wall in a Class 9c aged care building must have an Rw not less than 45 if it separates— (i) sole-occupancy units; or (ii) a sole-occupancy unit from a kitchen, bathroom, sanitary compartment (not being an associated ensuite), laundry, plant room or utilities room. (d) In addition to (c), a wall separating a sole-occupancy unit in a Class 9c aged care building from a kitchen or laundry must comply with F5.3(b). (e) Where a wall required to have sound insulation has a floor above, the wall must continue to— (i) the underside of the floor above; or (ii) a ceiling that provides the sound insulation required for the wall. (f) Where a wall required to have sound insulation has a roof above, the wall must continue to— (i) the underside of the roof above; or (ii) a ceiling that provides the sound insulation required for the wall. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F5.6 Sound insulation rating of services				X	Ducts and pipes must achieve an $R_w + C_{tr}$ (airborne) of no less than 40 if the adjacent room is habitable or 25 if non-habitable. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F5.7 Sound isolation of pumps				X	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating pump. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
SECTION G ANCILLIARY PROVISIONS					
Part G1 Minor Structures and Components					
NSW G1.101 Provision for cleaning windows				X	A safe manner for cleaning of windows located 3 or more storeys above ground level must be provided, and compliance is achieved where: • The windows can be cleaned wholly from within the building; or

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					• Via a method complying with the Work Health and Safety Act 2011 and regulations made under that Act. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
SECTION J **ENERGY EFFICIENCY**					
NSW SECTION J ENERGY EFFICIENCY					
NSW SUBSECTION J(A) ENERGY EFFICIENCY - CLASS 2 BUILDINGS AND CLASS 4 PARTS				X	The requirements of the BASIX Certificate must be incorporated into the design. ***Details demonstrating compliance with the approved BASIX design must be incorporated into the construction certificate plans / specification***
NSW J(A)1 BUILDING FABRIC					
NSW J(A)1.1 Application of Part				X	Part J(A)1 is only applicable to Class 2 buildings, and Class 4 parts of a building, where a development consent or complying development certificate specifies that thermal insulation is to be provided as part of the development.
NSW J(A)1.2 Compliance with BCA provisions				X	Class 2 buildings and Class 4 parts of buildings, must comply with the National Provisions of J0.2(b) to (e) i.e.: (b) for general thermal construction, comply with J1.2; and (c) for thermal breaks, comply with J1.3(d) and J1.5(c); and (d) for compensating for a loss of ceiling insulation, comply with J1.3(c); and (e) for floor edge insulation, comply with J1.6(c) and J1.6(d); and ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
NSW J(A)2 BUILDING SEALING					
NSW J(A)2.1 Application of Part				X	The requirements of this Part are applicable to Class 2 buildings and Class 4 parts of buildings, excluding: • A building in a climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler; • A building ventilation opening necessary for the safe operation of a gas appliance;

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					• parts of the building that cannot be fully enclosed.
NSW J(A)2.2 Compliance with BCA Provisions				X	Class 2 buildings and Class 4 parts of buildings, must comply with the following National Provisions: (a) J3.2 Chimneys and flues; (b) J3.3 Roof lights; (c) J3.4 External doors and windows; (d) J3.5 Exhaust fans; (e) J3.6 Construction of roofs walls and floors; and (f) J3.7 Evaporative coolers. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
NSW J(A)3 AIR CONDITIONING AND VENTILATING SYSTEMS					
NSW J(A) 3.2 Compliance with BCA Provisions				X	Class 2 buildings and Class 4 part of a building must comply with the following national BCA provisions (as applicable): (a) J5.2 (a) to (d) and (f) to (g) Air conditioning systems; and (b) J5.3 Mechanical ventilation systems; and (c) J5.4 Miscellaneous exhaust systems. **Note**: Compliance is not required with the national BCA provisions of J5.2(e) as those matters are regulated under BASIX. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
NSW J(A)4 HOT WATER SUPPLY					
NSW J(A)4.1 Application of Part			X		Applicable to Class 2 buildings and Class 4 parts of buildings.
NSW J(A)4.2 Compliance with BCA Provisions				X	A Class 2 building and Class 4 part of a building must comply with the following National BCA provisions of Clause J7.2. **Note:** Compliance is not required with the national BCA provisions of J7.3 and J7.4 as those matters are regulated under BASIX.

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate specification
NSW J(A)5 ACCESS FOR MAINTENANCE					
NSW J(A)5.1 Application of Part			X		Applies to 'common areas' of Class 2 buildings (not within sole occupancy units).
NSW J(A)5.3 Compliance with BCA provisions					Class 2 buildings must comply with the national BCA provisions of J8.3
NSW SUBSECTION J(B) ENERGY EFFICIENCY - CLASS 3 AND CLASS 5-9 BUILDINGS					
NSW J(B) 1 Compliance with BCA Provisions				X	Class 3 and Class 5 to 9 buildings must comply with all of the provisions of the National Section J, except as varied by NSW J3.1 (as referenced below).
NSW J3.1 Application of Part			X		Add the following sub-clause to the National Section J provisions of Clause J3.1: • *J3.1(d) – "parts of buildings that cannot be fully enclosed*"
SECTION J - NATIONAL ENERGY EFFICIENCY PROVISIONS					
Part J0: Energy Efficiency					
J0.2 Heating and cooling loads of sole-occupancy units of a class 2 building or a class 4 part				X	The sole-occupancy units of a Class 2 building must— (a) for reducing the heating or cooling loads— (i) collectively achieve an average energy rating of not less than 6 stars; and (ii) individually achieve an energy rating of not less than 5 stars, using house energy rating software; and (b) for general thermal construction, comply with J1.2; and (c) for thermal breaks, comply with J1.3(d) and J1.5(c); and (d) for compensating for a loss of ceiling insulation, comply with J1.3(c); and (e) for floor edge insulation, comply with J1.6(c) and J1.6(d); and (f) for building sealing, comply with Part J3.

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J0.3 Ceiling fans				X	Ceiling fans required as part of compliance with J0.2(a), must— (a) be permanently installed; and (b) have a speed controller; and (c) serve the whole room, with the floor area that a single fan serves not exceeding— (i) 15 m2 if it has a blade rotation diameter of not less than 900 mm; and (ii) 25 m2 if it has a blade rotation diameter of not less than 1200 mm.
Part J1: Building Fabric					
J1.1 Application of Part				X	The DTS Provisions of this Part apply to building elements forming the envelope of Class 2 to 9 buildings.
J1.2 Thermal construction –general				X	Where required, insulation must be provided as per AS/NZS 4859.1-2002 and installed as per this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
J1.3 Roof and ceiling construction				X	A roof or ceiling that is part of the envelope, other than a sole occupancy unit of a Class 2 building or Class 4 part of a building, must achieve the Total R-Value specified in Table J1.3a for the direction of heat flow, and must satisfy all requirements of this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
J1.5 Walls				X	Each part of a wall that is part of the envelope must satisfy one of the thermal performance options in Table J1.5, noting the specific exceptions of this clause relevant to doors, vents, penetrations, shutters, glazing, and an earth retaining wall or earth berm, in other than climate zone 8. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
J1.6 Floors				X	A floor that is part of the building's envelope must achieve the Total R-Value specified in Table J1.6, and must satisfy all requirements of this clause.
Part J2: Glazing					
J2.1 Application of Part				X	The DTS Provisions of this Part apply to building elements forming the envelope of Class 2 to 9 buildings, other than a sole occupancy unit of a class 2 building or Class 4 part of a building.

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J2.4 Glazing				X	The glazing in each storey, including any mezzanine, must be assessed separately in accordance with the requirements of this clause, for: • Glazing in the external fabric facing each orientation; and • Glazing in the internal fabric, to ensure that the aggregate air-conditioning energy value attributable to the glazing does not exceed the allowance obtained by multiplying the façade area that is exposed to the conditioned space for the orientation by the energy index in Table J2.4a. ***Glazing calculations demonstrating compliance with this clause must be incorporated into the specification***
J2.5 Shading				X	Where required to comply with J2.4, shading must be provided in accordance with this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part J3: Building Sealing					
J3.1 Application of Part				X	The requirements of this Part apply to elements forming the envelope of Class 2 to 9 buildings, other than: • A building in a climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; • A permanent building opening necessary for the safe operation of a gas appliance; • A building or part where mechanical ventilation required by Part F4 provides sufficient pressurization to prevent infiltration; • Parts of buildings that cannot be fully enclosed.
J3.2 Chimney and flues			X		The chimney or flue of an open solid-fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
J3.3 Roof lights			X		Roof lights must be sealed, or capable of being sealed as per the requirements of this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***

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J3.4 Window and doors				X	Seals to restrict air infiltration to windows and doors must be provided as required (note exceptions listed in J3.4 (b), and requirements for sealing of main entrance in J3.4 (d). ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
J3.5 Exhaust fans				X	Miscellaneous exhaust fans must be fitted with self-closing dampers, where serving a conditioned space or a habitable room in climate zones 4, 5, 6, 7 or 8. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
J3.6 Construction of roofs, walls and floors				X	Roofs, ceilings, walls, floors and any openings such as a window frame, door frame, light frame or the like must be sealed in accordance with the requirements of this clause to minimise air leakage. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part J5: Air-conditioning and ventilation systems					
J5.1 Application of Part			X		The Deemed-to-Satisfy Provisions of this Part do not apply to a Class 8 electricity network substation.
J5.2 Air-conditioning systems				X	An air-conditioning unit or system must comply with J5.2(a) to J5.2(g). ***Mechanical Design certification must be submitted in support of the construction certificate application***
J5.3 Mechanical ventilation systems				X	Mechanical ventilation systems must comply with J5.3(a) to J5.3(c). ***Mechanical Design certification must be submitted in support of the construction certificate application***
J5.4 Miscellaneous exhaust systems				X	A miscellaneous exhaust system with an air flow rate of more than 1000 L/s that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory, must have the means for the operator to reduce the energy used (such as by a variable speed fan), and to stop the motor when it is not needed. Refer concessions contained in this clause. ***Mechanical Design certification must be submitted in support of the construction certificate application***
Part J6: Artificial lighting and power					

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J6.1 Application of Part					J6.2. J6.3 and J6.5(a)(ii) do not apply to a Class 8 electricity network substation.
J6.2 Artificial lighting				X	Artificial lighting must comply with J6.2(a), J6.2(b) and J6.2(c), relevant to maximum permitted illumination power loads. ***Electrical Design certification must be submitted in support of the construction certificate application***
J6.3 Interior artificial lighting and power control				X	Internal artificial lighting systems must be switched and zoned in accordance with the specific requirements of this clause. ***Electrical Design certification must be submitted in support of the construction certificate application***
J6.4 Interior decorative and display lighting				X	Interior decorative and display lighting, such as for a foyer mural or art display, must be controlled separately from other artificial lighting, and be switched in accordance with the specific requirements of this clause. ***Electrical Design certification must be submitted in support of the construction certificate application***
J6.5 Artificial lighting around the perimeter of a building				X	Artificial lighting around the perimeter of a building must be controlled by sensors or time switches in accordance with the specific requirements of this clause. Refer exclusions relevant to emergency lighting and lighting around detention centres. ***Electrical Design certification must be submitted in support of the construction certificate application***
J6.6 Boiling water and chilled water storage units				X	Power supply to boiling or chilled water storage units must be time switch controlled in accordance with Specification J6. ***Electrical Design certification must be submitted in support of the construction certificate application***
Part J7: Hot water supply and swimming pool and spa pool plant					
J7.2 Hot water supply				X	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
J7.3 Swimming pool heating and pumping				X	Heating for a swimming pool must be provided by one of the options listed within this clause, and must satisfy the specific requirements of this clause relevant to the

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					provision of pool covers, and time switches. The requirements of this clause do not apply to a spa pool. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
J7.4 Spa pool heating and pumping				X	Heating for a spa pool that shares a water recirculation system with a swimming pool, must be by one of the energy source options listed within this clause, and must satisfy the specific requirements of this clause relevant to the provision of spa pool covers, a push button and time switch operation for the heater. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part J8: Access for maintenance and facilities for monitoring					
J8.1 Application of Part			X		The Deemed-to-Satisfy Provisions of this Part do not apply within a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, or to a Class 8 electricity network substation.
J8.3 Facilities for energy monitoring				X	The building must have facilities to record individually the energy consumption of: • air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and • artificial lighting; and • appliance power; and • central hot water supply; and • internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and • other ancillary plant. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***

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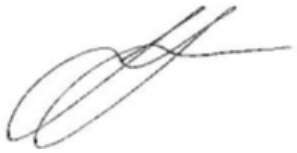
5.0 CONCLUSION

This report provides a Building Code of Australia (BCA) 2016 – Amdt 1assessment of a residential flat building with basement level carparking, to be located at 61-65 Lucas Avenue & 36 Mackay Avenue, Moorebank.

The primary purpose of this report was to identify the non-compliance matters contained in the proposed design philosophy against the current Deemed-to-Satisfy (DTS) Provisions of the BCA and to provide compliance recommendations to overcome the DTS non-compliances.

This report provided a BCA assessment table in Section 3.0 that summarises the identified non-compliance matters and offers specific recommendations that are also outlined in the Executive Summary.

Further, if compliance with the deemed-to-satisfy provisions is not achievable or desirable, Alternative Solutions could be further developed and verified by an appropriately qualified BCA Consultant or Fire Safety Engineer.

Prepared by:	**Reviewed by:**
 **Kelly Smith** Building Surveyor For AED Accredited Certifier / Principal Certifying Authority (Building) – Grade A3 BPB2593	 **Trenton Jones** Director For AED A1 - Accredited Building Surveyor (Building) – Grade A1 BPB No. BPB0203

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6.0 ATTACHMENT A - INSPECTION & MAINTENANCE

6.1 Fire Safety Measures

The fire safety measures within the building must be maintained to ensure correct operation at all times the building is occupied. All firefighting equipment should be tagged when tested/inspected and log books kept up-to-date for all smoke detection, warning systems and sprinkler systems (where installed).

An annual fire safety certificate must be submitted to the local consent authority and the NSW Fire Brigade each year indicating satisfactory performance of the fire safety measures contained within the building. The annual fire safety statement should be displayed in a prominent place within the building (i.e. the main entry foyer)

The correct operation and maintenance of the buildings fire safety measures is critical in affording an adequate level of fire safety.

6.2 Good Housekeeping

The ongoing management of the building should ensure good housekeeping procedures. The following matters should be considered by building management:

- Ensure exits and paths of travel to exits remain unobstructed (in particular stairways)
- Avoid storage of materials in unoccupied areas
- Limit storage of flammable/combustible materials to designated and approved areas
- Prevent chocking open fire/smoke doors
- Prevent storage of materials that could hinder access to firefighting equipment

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3. TYPE A FIRE-RESISTING CONSTRUCTION

3.1 Fire-resistance of building elements

In a building *required* to be of Type A construction—

(a) each building element listed in Table 3 and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and

(b) *external walls*, *common walls* and the flooring and floor framing of lift pits must be *non-combustible*; and

(c) any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—

(i) the underside of the floor next above; or

(ii) the underside of a roof complying with Table 3; or

(iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or

(iv) a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and

(d) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be of

(i) concrete; or

(ii) masonry; or

(iii) Fire-protected timber provided that –

(A) The building is a Class 2,3 or 5 building which is -

(aa) a separate building; or

(bb) a part of a building-

(AA) which only occupies part of a storey, and is separated from the remaining part by a fire wall; or

(BB) which is located above or below a part not containing fire-protected timber and the floor between the adjoining parts is provided with an FRL not less than prescribed for a fire wall for the lower storey; and

(B) The building has an effective height of not more than 25m; and

(C) The building has a sprinkler system throughout complying with Specification E1.5; and

(D) Any insulation installed in the cavity of the timber building element required to have an FRL is non-combustible; and

(E) Cavity barriers are provided in accordance with Specification C1.13

(e) a non-*loadbearing*—

(i) internal wall required to be fire-resisting; and

(ii) lift, ventilating, pipe, garbage, or similar *shaft* that is not for the discharge of hot products of combustion, must be of *non-combustible* construction; and

(f) the FRLs specified in **Table 3** for an external column apply also to those parts of an internal column that face and are within 1.5 m of a *window* and are exposed through that *window* to a *fire-source feature*.

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Table 3 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, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 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*—				
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

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS— continued

Building element	Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
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

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3.2 Concessions for floors A floor need not comply with Table 3 if—

(a) it is laid directly on the ground; or

(b) in a Class 2, 3, 5 or 9 building, the space below is not a *storey*, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or

(c) it is a timber *stage* floor in a Class 9b building laid over a floor having the *required* FRL and the space below the *stage* is not used as a dressing room, store room, or the like; or

(d) it is within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part; or

(e) it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the *required* FRL.

3.3 Floor loading of Class 5 and 9b buildings: Concession

If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa—

(a) the floor next above (including floor beams) may have an FRL of 90/90/90; or

(b) the roof, if that is next above (including roof beams) may have an FRL of 90/60/30.

3.4 Roof superimposed on concrete slab: Concession

A roof superimposed on a concrete slab roof need not comply with Clause 3.1 as to *fire-resisting construction* if—

(a) the superimposed roof and any construction between it and the concrete slab roof are *non-combustible* throughout; and

(b) the concrete slab roof complies with Table 3.

3.5 Roof: Concession

A roof need not comply with Table 3 if its covering is *non-combustible* and the building—

(a) has a sprinkler system complying with Specification E1.5 installed throughout; or

(b) has a *rise in storeys* of 3 or less; or

(c) is of Class2 or 3; or

(d) has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes.

3.6 Rooflights

If a roof is *required* to have an FRL or its covering is *required* to be *non-combustible*, rooflights or the like installed in that roof must—

(a) have an aggregate area of not more than 20% of the roof surface; and

(b) be not less than 3 m from—

  (i) any boundary of the allotment other than the boundary with a road or public place; and

  (ii) any part of the building which projects above the roof unless that part has the FRL *required* of a *fire wall* and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with C3.4; and

  (iii) any rooflight or the like in an adjoining *sole-occupancy unit* if the walls bounding the unit are *required* to have an FRL; and

  (iv) any rooflight or the like in an adjoining fire-separated section of the building; and

(c) if a ceiling with a *resistance to the incipient spread of fire* is *required*, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space.

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3.7 Internal columns and walls: Concession

For a building with an *effective height* of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the *storey* immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and *internal walls* other than *fire walls* and *shaft* walls may have—

(a) in a Class 2 or 3 building: FRL 60/60/60; or

(b) in a Class 5, 6, 7, 8 or 9 building—

  (i) with *rise in storeys* exceeding 3: FRL 60/60/60

  (ii) with *rise in storeys* not exceeding 3: no FRL.

3.8 Open spectator stands and indoor sports stadiums: Concession

In an open spectator stand or indoor sports stadium, the following building elements need not have the FRL specified in Table 3:

(a) The roof if it is non-combustible.

(b) Columns and loadbearing walls supporting only the roof if they are noncombustible.

(c) Any non-loadbearing part of an external wall less than 3 m—

  (i) from any fire-source feature to which it is exposed if it has an FRL of not less than –/60/60 and is non-combustible; or

  (ii) from an external wall of another open spectator stand if it is non-combustible.

3.9 Carparks

(a) Notwithstanding Clause 3.1, a carpark may comply with Table 3.9 if it is an open deck carpark or is protected with a sprinkler system complying with Specification E1.5 and is—

  (i) a separate building; or

  (ii) a part of a building—

    (A) which only occupies part of a storey, and is separated from the remaining part by a fire wall; or

    (B) which is located above or below another classification, and the floor separating the classifications complies with C2.9; or

    (C) which is located above another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3 for a Class 7 part other than a carpark; or

    (D) which is located below another Class 7 part of the building not used for carparking, and the floor separating the parts complies with Table 3.9.

(b) For the purposes of this Clause, a carpark—

  (i) includes—

    (A) an administration area associated with the functioning of the carpark; and

    (B) where the carpark is sprinklered, is associated with a Class 2 or 3 building and provides carparking for separate sole-occupancy units, each carparking area with an area not greater than 10% of its floor area for purposes ancillary to the sole-occupancy units; but

  (ii) excludes—

    (A) except for (b)(i), any area of another classification, or other part of a Class 7 building not used for carparking; and

    (B) a building or part of a building specifically intended for the parking of trucks, buses, vans and the like.

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Table 3.9 REQUIREMENTS FOR CARPARKS

Building element			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

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Table 3.9 REQUIREMENTS FOR CARPARKS — continued

Building element	**FRL (not less than)** ***Structural adequacy/Integrity/Insulation*** **ESA/M (not greater than)**
(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. 2. Refer to **Specification E1.5** for special requirements for a sprinkler system in a *carpark* complying with Table 3.9 and located within a multi-classified building.	

3.10 Class 2 and 3 buildings: Concession

(a) A Class 2 or 3 building having a rise in storeys of not more than 3 need not comply with Clauses 3.1(b), (d) and (e) of Specification C1.1 and the requirement of C2.6 for non-combustible material, if it is constructed using—

(i) timber framing throughout; or

(ii) non-combustible material throughout; or

(iii) a combination of (i) and (ii), provided—

(iv) * * * * *

(v) any insulation installed in the cavity of a wall required to have an FRL is noncombustible; and

(vi) the building is fitted with an automatic smoke alarm system complying with Specification E2.2a.

(b) A Class 2 or 3 building having a rise in storeys of not more than 4 may have the top three storeys constructed in accordance with (a) provided—

(i) the lowest storey is used solely for the purpose of parking motor vehicles or for some other ancillary purpose; and

(ii) the lowest storey is constructed of concrete or masonry including the floor between it and the Class 2 or 3 part of the building above; and

(iii) the lowest storey and the storey above are separated by construction having an FRL of not less than 90/90/90 with no openings or penetrations that would reduce the fire-resisting performance of that construction except that a doorway in that construction may be protected by a –/60/30 self-closing fire door.

(c) In a Class 2 or 3 building complying with (a) or (b) and fitted with a sprinkler system complying with Specification E1.5, any FRL criterion prescribed in Table 3—

(i) for any floor and any loadbearing wall, may be reduced to 60, except any FRL criterion of 90 for an external wall must be maintained when tested from the outside; and

(ii) for any non-loadbearing internal wall, need not apply if—

(A) it is lined on each side with 13 mm standard grade plasterboard or similar non-combustible material; and

(B) it extends—

- to the underside of the floor next above; or
- to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes; or
- to the underside of a non-combustible roof covering; and

(C) any insulation installed in the cavity of the wall is non-combustible; and

(D) any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material; and

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(E) any doorway in the wall is protected by a self-closing, tight fitting, solid core door not less than 35 mm thick.

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