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BUILDING CODE OF AUSTRALIA COMPLIANCE ASSESSMENT REPORT

PROPOSED MIXED USE DEVELOPMENT

175-177 CLEVELAND STREET & 1-5 WOODBURN STREET, REDFERN

DATE ► 4 SEPTEMBER 2015

REPORT NO. ► 5567 – REV 02

PREPARED FOR ► JPRA ARCHITECTS

PREPARED BY ► AED

BCA / Certifiers

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REVISION STATUS				
REVISION	**DATE**	**STATUS**	**WRITTEN**	**CHECKED**
REV 00	2 July 2015	DRAFT FOR COMMENT	JS	MZ
REV 01	18 August 2015	FINAL REPORT ISSUED TO THE CLIENT	JS	MZ
REV 02	4 SEPTEMBER 2015	FINAL REPORT ISSUED TO THE CLIENT	JS	MZ

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1.0 EXECUTIVE SUMMARY AND RECOMMENDATIONS

This report provides a Building Code of Australia (BCA) 2015 assessment of the proposed mixed use development, to be located at 175-177 Cleveland Street & 1-5 Woodburn Street, Redfern.

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 table lists the non-compliances identified with the Deemed-to-Satisfy Provisions of the BCA which 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
D1.4 Exit Travel Distances	**Compliance issue(s):** **1. The travel distance to a point of choice to two alternate exits from the ground level bicycle parking store is more than 20m (27m noted)** **Recommendation(s)** **Architect must either update the plans to demonstrate compliance with the requirements of this BCA Clause or seek to engage a fire engineer to provide an alternative solution to satisfy the BCA performance criteria where DTS compliance is unattainable.**
D1.7 Travel via Fire Isolated Stairs	**Compliance issue(s):** **1. The western fire stairs serving basement and upper levels discharge inside ground floor / level 1 in lieu of discharging onto an area that is permitted under D1.7(b).** **2. The occupants discharging from the eastern fire serving both the lower and upper basement levels are required to pass adjacent to the fire stair discharge door serving the class 3 hotel tower. Hence under the requirements of this clause, the discharge door to the fire stair serving the residential tower is required to be fire rated in accordance with BCA Clause C3.4.** **3. Where the fire stair serving the class 2 residential tower discharges onto a covered area, this must achieve a clear height of not less than 3m.** **Recommendation(s)** **Architect must either update the plans to demonstrate compliance with the requirements of this BCA Clause or seek to engage a fire engineer to provide an alternative solution to satisfy the BCA performance criteria where DTS compliance is unattainable.**

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2.0 INTRODUCTION

This report provides a Building Code of Australia (BCA) 2015 assessment of the proposed mixed use development, to be located at 175-177 Cleveland Street & 1-5 Woodburn Street, Redfern.

This report provides a BCA assessment table in Section 4.0 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) 2015. 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 JPRA Architects – Project #2014067, Drawing Numbers:

Drawing Number	Revision	Dated	Drawing Title
DA2000	A	11/08/15	Lower Basement Floor Plan
DA2001	A	11/08/15	Upper Basement Floor Plan
DA2002	A	02/09/15	Ground/Level 1 Floor Plan
DA2003	A	02/09/15	Level 2 Floor Plan
DA2004	A	11/08/15	Level 3 Floor Plan
DA2005	A	11/08/15	Level 4 Floor Plan
DA2006	A	11/08/15	Level 5 Floor Plan
DA2007	A	11/08/15	Level 6 Floor Plan
DA2008	A	11/08/15	Level 7 Floor Plan
DA2009	A	10/08/15	Roof Plan
DA3000	A	10/08/15	North Elevation
DA3001	A	10/08/15	South Elevation
DA3002	A	11/08/15	East Elevation
DA3003	A	10/08/15	West Elevation
DA3100	A	10/08/15	Section A
DA3101	A	10/08/15	Section B

- The Building Code of Australia 2015 prepared by the Australian Building Codes Board.
- The Guide to the BCA 2015, prepared by the Australian Building Codes Board.

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2.2 Purpose of the Report

The purpose of this report is to assess the following:

- Assessment under the current Building Code of Australia 2015 and list any departures from the BCA 2015.
- Provide recommendations to address identified non-compliances, and/or identify potential alternative solutions

2.3 Limitations of the Report

- 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
- Consideration of energy or water authority requirements
- Consideration of Council's local planning policies
- Environmental or planning issues
- Requirements of statutory authorities
- Sections H or I of the BCA are not considered.
- 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
- BCA 2015 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.
- This assessment does not give consideration to AS 4299 for adaptable housing.
- This report does not assess the requirements of State Environmental Planning Policy No 65 — Design Quality of Residential Flat Development.
- This assessment excludes BCA clauses D3.0-3.12 (Inclusive), F2.4 and E3.6. Refer to separate access consultant's report.

3.0 BCA ASSESSMENT DATA

The following data is provided in respect to review of the building under the Building Code of Australia 2015 in respect to the compliance assessment of the proposed mixed use development, to be located at 175-177 Cleveland Street & 1-5 Woodburn Street, Redfern.

BCA Building Classifications:	Class 2 (Residential units) Class 3 (Hotel suites) Class 6 (Commercial) ***– AED has assumed this classification, otherwise please advise if the commercial space is intended to have a different use.*** Class 7a (Carpark) Class 7b (Storage)
Building rise in storeys:	8 (determined in accordance with C1.2 of the BCA).

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Type of Construction:	A (determined in accordance with C1.1 of the BCA)
Effective Height (m):	23.25m

3.1 Location of Fire Source features

The fire source features for the subject development are:

- North – The far side of Cleveland Street which is >6m
- East – The far side of Woodbury Street which is >6m
- South – The allotment boundary which is <3m
- West – The far side of Eveleigh Street which is >6m

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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 AS 1288-2006 and AS 2047-2014. • Termite control must comply with AS 3660.1-2000 where any primary building elements are timber. • Verify with Council whether the building is to be located in a flood hazard area or not. Where it is found that the building is located in floor hazard area it must meet the requirements of ABCB Standard for Construction of Buildings in Floor Hazard Areas. ***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: 1. 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. 2. Fire isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction as per specification C1.1. This fire

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					rating is required in two directions. 3. External walls, common walls and the flooring and floor framing of lift pits must be non-combustible construction. 4. 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. 5. Internal walls 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. 6. 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). 7. Bounding construction to the class 2 and 3 units must comply with the fire rating requirements of table 3 (See attachment B). 8. 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)***
C1.2 Calculation of Rise In Stories			X		Refer to Section 3.0 of this report for further details
C1.3 Buildings of Multiple Classifications			X		Informational clause only
C1.4 Mixed Types of Construction			X		The building will need to be of Type A Construction

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
C1.5 Two Storey Class 2, 3 or 9 buildings			X		Not applicable.
C1.6 Class 4 Parts			X		Not applicable.
C1.7 Open Spectator Stands			X		Not applicable.
C1.8 Lightweight Construction				X	Any proposed lightweight construction if used in a wall system or for the fire-resisting covering of a steel column or the like must comply with the requirements of clause C1.8 and Spec C1.8. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C1.9			X		Clause deleted
C1.10 Fire Hazard Properties				X	1. Fire hazard properties must comply with clause C1.10 and Spec C1.10 for the following linings, materials and assemblies: • Floor linings and floor coverings • Wall linings and ceiling linings • Air-handling ductwork • Lift cars • Sarking-type material • Insulation materials 2. Various materials or assemblies are exempt from the requirements of this clause. See clause C1.10(c). ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
NSW C1.10 (b) Fire Hazard Properties			X		Noted - Informational clause only
C1.11 Performance of External Walls in Fire			X		Not applicable
C1.12 Combustible materials			X		Noted - Informational clause only
Part C2					

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
Compartmentation & Separation					
C2.2 General Floor Area & Volume Limitations	X				There are no fire compartments shown to exceed the floor area or volume limitations of Table C2.2.
C2.3 Large Isolated Buildings			X		Not applicable
C2.4 Requirements for Open Space			X		Not applicable
C2.5 Class 9a & 9c Buildings			X		Not applicable
C2.6 Vertical Separation of openings in external walls				X	The building is not required to be sprinkler protected under the BCA, hence all openings located in the external walls of the building that are required to have an FRL must comply with vertical separation requirements as stipulated under Clause C2.6, that is: • They are protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab, or • They are provided with a 1.1m horizontal projection (FRL (60/60/60) also extending at least 450mm either side of the opening. Particular attention should be paid to openings being protected via a balcony slab to ensure that the slab extends outwards 1.1m. **Compliance issue(s):** **1. The example openings highlighted in red below have not been indicated with spandrels on the plans as per the above requirements.** 2. No elevations have been provided for the external openings facing the light court. However in assessing "Section A" plan it is indicated that compliance vertical spandrels have been provided to the window openings of Suite F and as such it is assumed that the other hotel suites facing the courtyard have also been provided with compliant spandrels. **Recommendation(s)** **Architect to provide compliant spandrels to the openings highlighted below and any other openings required to be protected with a spandrel. Details of spandrels to be provided at CC stage.**

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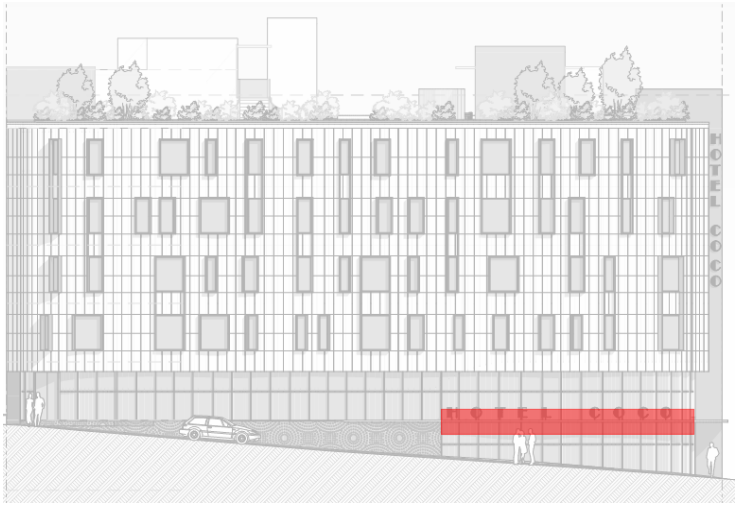
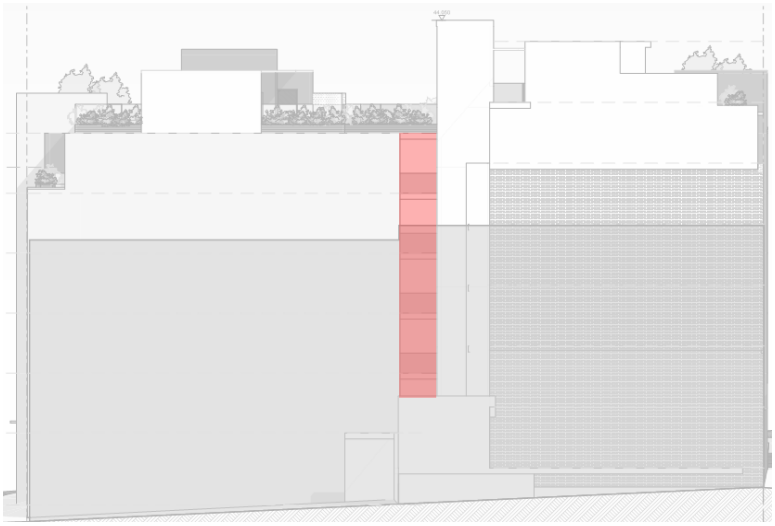
BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					Details of compliant spandrel separation must be provided.



Northern elevation



Southern elevation

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
 Western elevation					
C2.7 Separation by Fire Walls		X			Informational clause only
C2.8 Separation of Classifications in the same storey				X	The building contains different classifications located alongside each other as follows: • There is class 7a (carpark) located alongside class 7b (storage) on the lower basement floor; • There is class 7a (carpark) located alongside class 7b (storage) on the upper basement floor; • There is class 3 (hotel suites), class 2 (residential units) and class 7b (storage) located alongside each other on Ground / Level1; and • There is class 2 (residential units), class 3 (hotel suites) and class 6 (commercial unit) located alongside each other on level 2. Therefore each of the above storeys must – • Have each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or • the different parts must be fire wall separated; or • A fire engineered solution is obtained to rationalise lower FRL ratings. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C2.9 Separation of Classifications in different stories				X	There are parts of different classifications situated one above the other in adjoining storeys that must be fire separated in accordance Table 3 of Spec C1.1 by applying the FRLs required for the lower storey or

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					obtain a fire engineered alternative solution to rationalise lower FRLs between different classifications. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C2.10 Separation of lifts shafts				X	All proposed lifts must be separated from the remainder of the building by enclosure in a fire rated shaft achieving the FRLs prescribed for the classification in which the lift shafts are situated within the building as per Table 3 of Spec C1.1. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C2.11 Stairways and lifts in one shaft			X		There are no stairways and lifts situated within the same shaft enclosure.
C2.12 Separation of Equipment				X	Any lift motor rooms, lift control panels, battery rooms, boilers rooms, must be two hour fire separated as per this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
C2.13 Electrical Supply				X	In this building: • The main switch room (not indicated on the plans) and any proposed substations must be fire separated from the remainder of the building via construction achieving an 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. • Electrical conductors located in this building must comply with the requirements of clause C2.13(c). • All emergency switchgear located in a switchroom must be separated from the non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear. See clause C2.13(e) for examples of emergency equipment. ***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	The public corridors serving the class 2 and 3 parts have been smoke divided to not exceed 40 m in length. The smoke-proof walls and doors must comply with Clause 2 of Specification C2.5.

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification
Part C3 **Protection of Openings**					
C3.2 Protection of openings in external walls	X				There are no openings located within 3m from the allotment boundary or less than 6m from the far side of a road or the like.
C3.3 Separation of external walls and associated openings in different fire compartments			X		There are no horizontal fire compartments indicated on the plans.
C3.4 Acceptable Methods of Protection			X		Where protection is required, doorways, windows and other openings must be protected as follows: (i) Doorways— (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) construction having an FRL not less than –/60/–. Fire doors, fire windows and fire shutters must comply with Specification C3.4.
C3.5 Doorways in Fire Walls			X		Any doors in proposed firewalls must have a integrity rating equivalent to the firewall in which they are located and an insulation rating of not less than 30 minutes, e.g. a two hour fire wall would require a -/120/30 fire door etc.
C3.6 Sliding Fire Doors			X		Not applicable

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
C3.7 Protection of Doorways in horizontal exits			X		Not applicable
C3.8 Openings in fire isolated exits				X	Doors that open to the 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	The proposed lifts are required to comply as follows: • 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. ***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 (class 2 and 3 parts) 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 are proposed to 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

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					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	Any 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 an 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 1530.4-2004 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 columns protected in fire rated plasterboard to be compliant with this clause. ***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				In this building, without passing through another sole-occupancy unit every occupant of a storey or part of a storey must have access to – • A minimum of two (2) exits in the basement levels; and • A minimum of one (1) exit in all other level.
D1.3 When Fire Isolated exits are	X				All stairs indicated on plan for occupant egress have been detailed as fire stairs.

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required					
D1.4 Exit Travel Distances		X			**Class 2 and 3 building part —** 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 (C) 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. **In all other areas —** 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 In a Class 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. **Compliance issue(s):** 1. The architect is to detail the walls and doors to the storage space shown on the lower and upper basement floors so that a travel distance assessment can be carried out or advise AED that the storage areas are not proposed to be enclosed with walls and doors. 2. This travel assessment has assumed that the doors serving the ground level Garbage Room (Hotel), Hotel Reception Lobby and the Garbage Room (Resi) will not contain lockable door hardware, Architect to confirm this assumption is correct at CC stage. **3. The travel distance to a point of choice to two alternate exits from the ground level bicycle parking store is more than 20m (27m noted)** **Recommendation(s)** **Architect must either update the plans to demonstrate compliance with the requirements of this BCA Clause or seek to engage a fire engineer to provide an alternative solution to satisfy the BCA performance criteria where DTS compliance is unattainable.** ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
D1.5 Distance Between Alternate Exits	X				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 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	In a required exits or paths 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 (required to be 750mm wide unless required to be accessible under Part D3), must be not less than 1m. *Note - Based on comments from the architect the path of travel will be a minimum 1m clearance when handrails are added to the commercial tenancy stair on Level 2.* ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.7 Travel via Fire Isolated Stairs		X			(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— 1. 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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					2. 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— 3. (A) adjoins a road or open space; 4. and is open for at least 1/3 of its perimeter; and 5. has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and 6. 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. **Compliance issue(s):** **1. The western fire stairs serving basement and upper levels discharge inside ground floor / level 1 in lieu of discharging onto an area that is permitted under D1.7(b).** **2. The occupants discharging from the eastern fire serving both the lower and upper basement levels are required to pass adjacent to the fire stair discharge door serving the class 3 hotel tower. Hence under the requirements of this clause, the discharge door to the fire stair serving the residential tower is required to be fire rated in accordance with BCA Clause C3.4.** **3. Where the fire stair serving the class 2 residential tower discharges onto a covered area, this must achieve a clear height of not less than 3m.** **Recommendation(s)** **Architect must either update the plans to demonstrate compliance with the requirements of this BCA Clause or seek to engage a fire engineer to provide an alternative solution to satisfy the BCA performance criteria where DTS compliance is unattainable.**

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					Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification
D1.8 External Stairways or ramps in lieu of Fire Isolated Stairs			X		Not applicable
D1.9 Travel by non-fire-isolated stairs			X		Not applicable
D1.10 Discharge from Exits				X	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. 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 1m. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D1.11 Horizontal Exits			X		Not applicable
D1.12 Non-required stairways, ramps or escalators			X		Not applicable
D1.13 Number of Persons Accommodated Note NSW Table D1.13 Area per person according to use			X		The number of persons accommodated in a storey, room or mezzanine must be determined with consideration to the purpose for which it is used and the layout of the floor area by— (a) calculating the sum of the numbers obtained by dividing the floor area of each part of the storey by the number of square metres per person listed in Table D1.13 according to the use of that part, excluding spaces set aside for— (i) lifts, stairways, ramps and escalators, corridors, hallways, lobbies and the like; and (ii) service ducts and the like, sanitary compartments or other ancillary uses; or (iii) reference to the seating capacity in an assembly building or room; or (iv) any other suitable means of assessing its capacity.
D1.14 Measurement of Distances			X		The nearest part of an exit means in the case of— (a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway

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					providing access to them; and (b) a non-fire-isolated stairway, the nearest part of the nearest riser; and (c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and (d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a horizontal exit, the nearest part of the doorway.
D1.15 Method of Measurement			X		Informational clause only
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— (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),

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					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	Any proposed lift pits must be provided in accordance with the requirements of this clause. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part D2 **Construction of Exits**					
D2.1 Application of Part Note NSW D2.1			X		Informational clause only
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		Not applicable
D2.4 Separation of Rising and Descending Stairs			X		Not applicable
D2.5 Open Access ramps and balconies			X		Not applicable
D2.6 Smoke Lobbies			X		Not applicable
D2.7 Installations in Exits and Paths				X	Any electricity meters, distribution boards; telecommunications distribution boards or equipment (i.e. electrical motors or other motors) within the path

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of Travel					of travel to an exit must be enclosed in non-combustible construction or a fire protective covering with doorways suitably to sealed to prevent smoke spread. ***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		Not applicable
D2.9 Width of Stairs			X		Not applicable
D2.10 Pedestrian Ramps				X	The proposed pedestrian ramps are to have a non-slip finish complying with AS 4586-2013 Slip resistance classification of new pedestrian surface materials. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.11 Fire-Isolated Passageways			X		Not applicable
D2.12 Roof as Open Space				X	The entire portion of the roof serving the upper basement level is required to achieve an FRL of not less than 120/120/120 FRL. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.13 Goings & Risers				X	The dimensions for the treads and risers have not been indicated on the drawings. In accordance with Table D2.13 - • The goings would need to be between 250mm and 355mm; and • the risers must be between 115mm high and 190mm high; and • the stair going to riser ratio (2R + G) must be within the range of 700-550mm. • The goings and risers must be (constant) uniform throughout each flight and each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosing's. • 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*

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					pedestrian surface materials. • BCA 2015 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 2015 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. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.16 Barriers to prevent falls				X	In this building – • A continuous barrier must be provided to the fire stairs, balconies and roof 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); • A barrier provided to a fire stair must not contain openings greater than 300mm or where rails are

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					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.***
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	Doorways serving as required exits or forming part of a required exit must be of the swinging type or they can be sliding doors acting as the required exits if they suitably discharge directly to a road or open space and are capable of being opened manually under a force of not more than 110N. If power operated, they must also be able to be opened manually under the same degree of force if there is a malfunction or failure of the power source and open automatically if there is a power failure on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. ***Details demonstrating compliance with this clause must be incorporated into the***

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					construction certificate plans / specification.
D2.20 Swinging Doors	X				All exit doors have been shown to swing in the direction of egress.
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: - Class 2 or 3 SOU; - Class 5, 6, 7 and 8 SOUs with a floor area of not more than 200m^2 - A space which is otherwise inaccessible to persons at all times when the door is locked. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
D2.22 Re-entry from Fire isolated exits			X		Not applicable to buildings that do not exceed an effective height of 25m
D2.23 Signs on Doors				X	Signs are to be installed on the doors into and out of the fire-isolated stair to alert persons that the operation of these doors is not to be impaired in accordance with the requirements of this clause. In addition, signage in accordance with Clause 183 of the EP&A Reg (EPAR) 2000 is required to be installed in conspicuous locations adjacent to doorways providing access to fire-isolated exits. The installation requirements are stipulated under Clause 183 of the EPAR 2000. ***Details demonstrating compliance with this clause must be incorporated into the***

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					construction certificate plans / specification
D2.24 Protection of openable windows				X	**Class 2 and 3 parts** A window opening in a bedroom of a class 2 or 3 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, 3 and in 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 provided prior to the issue of the Construction Certificate.**
SECTION E					

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SERVICES & EQUIPMENT					
Part E1 Fire Fighting Equipment					
E1.3 Fire Hydrants				X	A hydrant system complying with AS 2419.1-2005 must be provided to serve the whole building. **Please indicate on plan the location of the hydrant booster and the hydrant pump room in accordance with AS 2419.1-2005.** ***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 building other than the class 2 and 3 parts. The FHRs must be located not more than 4m from an exit. ***Hydraulic Services Design Certification and associated plans must be incorporated into the construction certificate specification***
E1.5 Sprinklers			X		Not applicable
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. Portable fire extinguishers provided in the class 2 and 3 parts of the building must be: • An ABE type fire extinguisher; and • A minimum size of 2.5kg; and • Distributed outside the SOU to serve only the storey at which they are located and so that travel distance from the entrance doorway of any SOU to the nearest PFE is not more than 10m. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
E1.8 Fire Control Centre			X		Not applicable
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

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					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***
E1.10 Provision for Special Hazards			X		Not applicable
Part E2 Smoke Hazard Management					
E2.2 General Requirements (inclusive of Table E2.2a / Table E2.2b & NSW amendments)				X	**General smoke hazard management requirements** 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 1668.1-1998; or (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 building is treated as a separate fire compartment. Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 1668.1-1998 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. **Class 2 residential parts** An **Automatic Smoke Detection And Alarm**

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					System must be installed throughout the Class 2 parts of the building (sole-occupancy units, public corridors / lobbies, etc) complying with Clause 2 of Specification 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: • a smoke alarm system complying with Clause 3 of Specification E2.2a; or • a smoke detection system (and building occupant warning system) complying with Clause 4 of Specification E2.2a; or • 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. A smoke alarm system would need to comply with AS 3786-1993 or 2014 and a smoke detection system (including a **Building Occupant Warning System**) would need to comply with AS 1670.1-2004. A building occupant warning system, complying with Clause 6 of Specification E2.2a is also required including throughout the car park area. Detection must also be provided to other internal spaces located within the class 2 parts other than SOUs in accordance with AS 1670.1-2004 and must be connected to activate a building occupant warning system in accordance with clause 6 of Spec E2.2a. **Class 7a carpark** The Class 7a carpark must be provided with a mechanical ventilation system in accordance with AS 1668.2-2012 and must comply with Clause 5.5 of AS/NZS 1668.1-1998 and; Fans with metal blades suitable for operation at normal temperature may be used; and the electrical power and control cabling need not be fire rated. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
E2.3 Provision for Special Hazards			X		Not applicable
Part E3 Lift Installations					
E3.1				X	An electric passenger lift installation and an

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Lift installations					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	A stretcher facility must be provided to at least one lift serving the class 2 parts and the class 3 parts to 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***
E3.4 Emergency Lifts			X		Not applicable
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***
E3.8 Aged Care Buildings			X		Not applicable
E3.9 Fire service recall operation switch				X	The lifts must be provided with one fire service recall control switch required by E3.7 that activates the fire service recall operation. The switch must be installed to the requirements of Clause E3.9.

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					Details demonstrating compliance with this clause must be incorporated into the construction certificate specification
E3.10 Lift car fire service drive control switch				X	The lifts car fire service drive control switch required by E3.7 must be activated from within the lift car. The switch must be installed as per the requirements of Clause E3.10. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
Part E4 Emergency Lighting, Exit Signs and Warning Systems					
E4.2 Emergency Lighting Requirements				X	An emergency lighting system must be installed throughout each building in accordance with E4.2 of the BCA and AS 2293.1-2005. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification and electrical design***
E4.3 Measurement of Distance			X		Noted. Informational clause only.
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 each building in accordance with E4.5 of the BCA and AS 2293.1-2005. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification and electrical design***
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 exit direction signs must be installed in appropriate positions in corridors, hallways, lobbies etc indicating the direction to a required exit. Direction signs must be installed throughout the building in accordance with E4.6 of the BCA and AS 2293.1-2005. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification and electrical design***

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
E4.7 Class 2 & 3 Buildings & Class 4 Parts: Exemption			X		Informational clause - Exit doors in Class 2 and 3 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***
E4.9 Sound System And Intercom System For Emergency Purposes			X		Not applicable
SECTION F HEALTH & AMENITY					
Part F1 Damp & Weatherproofing					
F1.1 Stormwater Drainage				X	Stormwater drainage must comply with AS/NZS 3500.3-2003. ***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	Any proposed metal roofs must comply with the requirements of AS 1562.1-1992. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
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***

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					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 - The architect has confirmed that where windows are located in the shower area of units 114, 209, 216, 309, 316, 409, 416, 501, 502, 507, 514 etc there is 1.8m high solid walls to accord with AS 3740-2010.* ***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 termite shields in accordance with AS 3660.1-2000 ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F1.10 Damp-proofing of floors on the ground				X	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870-2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions). ***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 2 and 3 parts 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***
F1.12 Sub Floor Ventilation			X		Not applicable
F1.13 Glazed Assemblies				X	See part B1
Part F2 Sanitary & Other Facilities					
F2.1 Facilities in residential buildings				X	**Within each class 2 SOU provide the following:**

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS

Facilities required	Facilities provided
Kitchen sink and facilities for the preparation and cooking of food	Facilities are required to be shown on the CC plans.
A bath or shower	Facilities are required to be shown on the CC plans.
A closet pan and washbasin	Facilities are required to be shown on the CC plans.
Clothes washing facilities, comprising at least one washtub and space for a washing machine	Facilities are required to be shown on the CC plans.
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	Facilities are required to be shown on the CC plans.

Within each class 3 SOU provide the following:

Facilities required	Facilities provided
A bath or shower	Private facilities noted on plan which must be detailed on the CC drawings.
A closet pan and washbasin	Private facilities noted on plan which must be detailed on the CC drawings.

Within the common area provide the following:

Cleaners toilet containing a closet pan and washbasin in a compartment or room at or near ground level and accessible to employees without	A cleaner toilet has been provided on Ground / Level 1. However, it is required that the cleaner's toilet is an accessible unisex

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					entering an SOU. | toilet as per AS 1428.1-2009. Refer to Clause F2.4. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F2.2 Calculation of number of occupants and fixtures			X		Noted. Informational clause only.
F2.3 Facilities for Class 3 to 9 Buildings				X	In accordance with Table F2.3, sanitary facilities must be provided to serve the staff of the class 3 and class 6 building parts relevant to the number of staff proposed to be employed. **Compliance issue(s):** **1. The plans indicate a toilet facility on the common area on Ground / Level 1. The staff occupancy load for the Class 3 parts must be provided at CC stage to enable assessment against Table F2.3 to determine sanitary facility compliance.**
F2.5 Construction of Sanitary Compartments				X	The door to a fully enclosed sanitary compartment must: (i) Open outwards; or (ii) Slide; or (iii) Be readily removable from the outside of the sanitary compartment unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the doorway, measured in accordance with Figure F2.5. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F2.6 Interpretation: Urinals and washbasins			X		Informational clause relevant to urinal and washbasin design.
F2.7 Microbial Control			X		N/A Clause Deleted in NSW.
F2.8 Waste Management			X		Not applicable.
Part F3					

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
Room Sizes					
F3.1 Height of Rooms and other spaces				X	In this building the following floor to ceiling heights are required – **Class 2 and 3 parts –** • Habitable rooms – 2.4m • Kitchen, laundry or the like – 2.1m • Corridor, passageway or the like – 2.1m **Class 6 parts –** • Generally throughout – 2.4m • Corridor, passageway or the like – 2.1m **In any other part of the building –** • Above a carpark space (other than an accessible carpark space) – 2.1m; • Sanitary compartments and store rooms – 2.1m; • Above a stairway, ramp, landing or the like – 2m (measured vertically above the nosing line) **The architect must certify the design complies with the above floor to ceiling heights prior to the issue of the Construction Certificate.**
Part F4 Light & Ventilation					
F4.1 Provision of natural light				X	Natural lighting must be provided as follows – • To the class 2 parts – to all habitable rooms • To the class 3 parts – to all bedrooms **The architect is required to provide a window schedule at CC stage confirming the windows serving the above areas achieve a light transmitting area that is 10% of the floor area of the room being served.**
F4.2 Methods and extent of natural lighting				X	The natural light required by F4.1 must be provided from windows which are open to the sky and have an aggregate light transmitting area of not less than 10% of the floor area of the room which they serve. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F4.3 Natural light borrowed from adjoining room			X		Noted. Informational clause. Natural light is allowed to be 'borrowed' from other rooms.
F4.4				X	Artificial lighting (complying with AS/NZS 1680.0 - 2009) must be provided throughout the building if

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Artificial lighting					natural lighting of a standard equivalent to that required by F4.2 is not available. Artificial lighting must be provided in accordance with this clause. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F4.5 Ventilation of Rooms				X	All rooms in building are to be provided either with adequate natural ventilation OR a mechanical ventilation or air-conditioning system complying with AS 1668.2–2012. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F4.6 Natural Ventilation			X		Noted. Informational clause. Natural ventilation must come through permanent openings or operable windows which have an operable size of not less than 5% of the floor area of the room which they serve.
F4.7 Ventilation borrowed from adjoining room			X		Noted. Informational clause. Natural ventilation is allowed to be 'borrowed' from other rooms.
F4.8 Restriction of position of water closets and urinals			X		No toilets indicated contravening the requirements of this clause.
F4.9 Airlocks			X		Not applicable
F4.11 Carparks				X	The carpark must have a system of mechanical ventilation complying with AS 1668.2-2012. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
F4.12 Kitchen local exhaust			X		No commercial kitchens proposed or indicated on plan.
Part F5 Sound Transmission					
F5.1 Application of Part				X	The provisions of this Part apply to the Class 2 and 3 building parts only.
F5.2 Determination of airborne sound			X		Noted. Informational clause only.

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
insulation ratings					
F5.3 Determination of impact sound insulation ratings				X	Noted. Informational clause. • Floors required to have an impact sound insulation must have the required value for weighted normalized impact sound pressure level with spectrum adaptation determined in accordance with AS/ISO 717.2 or comply with Specification F5.2. • Walls required to have an impact sound insulation must be of discontinuous construction ***i.e. 20mm cavity and resilient wall ties to be used.***
F5.4 Sound Insulation of floors between units				X	The floors between – - Sole occupancy units; and - Sole occupancy units and parts of a different classification. Must achieve a R_w + C_{tr} (airborne) not less than 50 and $L_{n,w}$+C_l (impact) of no more than 62. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F5.5 Sound insulation of walls between units				X	The following sound insulation ratings for walls must be achieved – • Walls between sole occupancy units must achieve an Rw + Ctr (airborne) rating of not less than 50. • The wall between the level 1 class 3 SOU's and the class 5 office part must achieve an Rw (airborne) rating of not less than 50. • Where a wall separates a bathroom, sanitary compartment, laundry or kitchen in one sole-occupant unit from a habitable room (other than a kitchen) in an adjoining unit; or an SOU from a plant area or lift shaft, the walls must comply with clause F5.3b for discontinuous construction. • Any door that separates a SOU from a stairway, public corridor, public lobby or the like must achieve an Rw not less than 30. • Where a wall required to have sound insulation has a floor above, the wall must continue to: • the underside of the floor above; or • a ceiling that provides the sound insulation required for the wall. • Where a wall required to have sound insulation

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					has a roof above, the wall must continue to: • the underside of the roof above; or • a ceiling that provides the sound insulation required for the wall. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
F5.6 Sound insulation rating of services				X	The following sound insulation ratings is required for internal services – • Ducts and pipes that pass through more than one SOU must achieve an Rw + Ctr (airborne) of not less than 40 if the adjacent room is habitable or 25 if non-habitable. • If a stormwater pipe passes through a SOU it must be separated in accordance with the above requirements. ***Details demonstrating compliance with this clause must be provided prior to the issue of the Construction Certificate.***
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 • 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 SUBSECTION J(A) ENERGY EFFICIENCY - CLASS 2 BUILDINGS AND CLASS 4 PARTS					

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
BASIX				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 the Class 2 part of the building, where a development consent specifies that the thermal insulation is to be provided as part of the development.
NSW J(A)1.2 Compliance with BCA provisions				X	The Class 2 parts 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)
NSW J(A)2 BUILDING SEALING					
NSW J(A)2.1 Application of Part				X	Please confirm if: • in the Class 2 part of the building, the only means of air-conditioning is by using an evaporative cooler; • if there is a need for a building ventilation opening for the safe operation of a gas appliance; or • whether there are parts of the building that cannot be fully enclosed. If it is established that the Class 2 part is subject to any of these conditions, then NSW J(A)2.2 is applicable.
NSW J(A)2.2 Compliance with BCA Provisions				X	Subject to NSW J(A)2.1, the Class 2 part of the building must comply with the following national BCA provisions: (a) J3.3 Roof lights (the design does not indicate any roof lights); (b) J3.4 External doors and windows; (c) J3.5 Exhaust fans; (d) J3.6 Construction of roofs walls and floors; and

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					(e) J3.7 Evaporative coolers.
NSW J(A)3 AIR CONDITIONING AND VENTILATING SYSTEMS					
NSW J(A) 3.1 Application of Part			X		Applicable to Class 2 parts.
NSW J(A) 3.2 Compliance with BCA Provisions				X	Class 2 parts of the building must comply with the following national BCA provisions (as applicable): (a) J5.2 Air conditioning and ventilating systems; (b) J5.3 Time switch; (c) J5.4(a) and (c) to (i) Heating and cooling systems; and (d) J5.5 Ancillary exhaust systems.
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	Class 2 parts of the building must comply with the following national BCA provisions (as applicable): (a) J7.2 – Heated water supply. ***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 parts (not within sole occupancy units).
NSW J(A)5.2 Access for maintenance			X		This clause has been deleted.
NSW J(A)5.3 Compliance with BCA provisions				X	The Class 2 building parts must comply with the national provisions of J8.3. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***
NSW SUBSECTION J(B) ENERGY EFFICIENCY - CLASS 3 AND CLASS 5-9 BUILDINGS					
NSW J(B) 1 Compliance with BCA Provisions				X	The Class 3, 6, 7a and 7b are subject to the national provisions of Section J except for NSW J3.1 and NSW J8.2.

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NSW J3.1 Application of Part			X		Noted. Informational clause only.
Part J1: Building Fabric					
J1.1 Application of Part				X	The DTS provisions of this part will apply to the building fabric forming the envelope of a conditioned space noting that a conditioned space does not include an area where the input energy to an air conditioning system is not more than 15 W/m^2 or 15J/s.m^2.
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 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***
J1.4 Roof lights				X	Any proposed roof lights including any shaft or diffuser forming part of the envelope, must comply with the thermal performance requirements of Table J1.4. Refer additional requirements relevant to satisfying Part F4. **Provide a roof plan for assessment.** ***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. ***Details demonstrating compliance with this***

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					clause must be incorporated into the construction certificate specification
Part J2: Glazing					
J2.1 Application of Part				X	The DTS provisions of this part will apply to the glazing forming the envelope of a conditioned space (other than Class 2 parts as this is dealt via BASIX) noting that a conditioned space does not include an area where the input energy to an air conditioning system is not more than 15 W/m^2 or 15J/s.m^2.
J2.2			X		Blank clause.
J2.3			X		Blank clause.
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 must5 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 DTS provisions of this part will apply to building elements sealing the envelope of a conditioned space noting that a conditioned space does not include an area where the input energy to an air conditioning system is not more than 15 W/m^2 or 15J/s.m^2, 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;

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					• Parts of buildings that cannot be fully enclosed.
J3.2 Chimney and flues			X		Not applicable
J3.3 Roof lights			X		Not applicable
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***
J3.7 Evaporative coolers				X	Any proposed evaporative cooler must be fitted with a self-closing damper of the like when serving a heated space, or a habitable room or a public area of a building in climate zones 4, 5, 6, 7 or 8. ***Details demonstrating compliance with this clause must be incorporated into the construction certificate plans / specification***
Part J4: Blank					
Part J5: Air-conditioning and ventilation systems					
J5.1 Application of part			X		This part applies to all areas (except within class 2 SOUs as this is required to comply with BASIX) served with an air–conditioning and ventilation system.
J5.2 Air-conditioning systems				X	An air-conditioning system must comply with J5.2(a) to (d) and (f) to (g). ***Mechanical Design certification must be submitted in support of the construction***

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
					certificate application
J5.3 Mechanical ventilation systems				X	Mechanical ventilation systems must be designed and installed in accordance with the requirements of this Clause. ***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					
J6.1 Application of Part			X		This part is applicable to all areas containing artificial lighting and power other than the Class 2 parts which are required to comply with BASIX.
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				X	Artificial lighting around the perimeter of the building must be controlled by sensors or time switches in accordance with the specific requirements of this

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BCA DEEMED-TO-SATISFY PROVISION	COMPLIES	DOES NOT COMPLY	NA or Informational	Compliance Required	COMMENTS
perimeter of a building					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	Any proposed 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: Heated water supply and swimming pool and spa pool plant					
J7.2 Heated water supply				X	Any hot water supply for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia. ***Hydraulic Design certification must be submitted in support of the construction certificate application***
J7.3 Swimming pool heating and pumping			X		Not applicable
J7.4 Spa pool heating and pumping			X		Not applicable
Part J8: Facilities for energy monitoring					
J8.1 Application of Part			X		The Deemed-to-Satisfy Provisions of this Part apply to this building.
J8.2			X		This clause has been deleted.
J8.3 Facilities for energy monitoring				X	Facilities to record individual energy consumptions must be provided as per J8.3(b). ***Details demonstrating compliance with this clause must be incorporated into the construction certificate specification***

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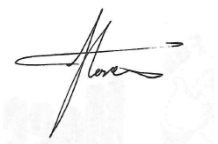
5.0 CONCLUSION

This report provides a Building Code of Australia 2015 (BCA) assessment of the proposed mixed use development, to be located at 175-177 Cleveland Street & 1-5 Woodburn Street, Redfern.

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.

 **Report by:** Jason Storer Director for AE&D	 **Report reviewed by:** Michael Zora Building Code Consultant for AE&D

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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 fire fighting 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 (ie. 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 fire fighting 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 concrete or masonry; and

(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*.

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

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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

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.

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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.

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.

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3.9 Carparks

(a) Notwithstanding Clause 3.1, a carpark may comply with Table 3.9 if it is an opendeck 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.

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**

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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

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—

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(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—

(aa) to the underside of the floor next above; or

(bb) to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes; or

(cc) 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

(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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