BUILDING REGULATION & FIRE SAFETY ENGINEERING CONSULTANTS

Project:	**134-140 MARSDEN STREET, PARRAMATTA (V BY CROWN)**
Report:	**BCA ASSESSMENT REPORT**
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Date:	10th September 2012
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DOCUMENT CONTROL

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PART 1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at 134-140 Marsden Street, Parramatta and will be known as V by Crown. The site is currently vacant and it is proposed to construct a high rise residential building(associated gym), retail area, conference centre, and basement carparking.

1.2 Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA2012, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA2012. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3 Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 - Building Code of Australia, 2012 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate Application to the Accredited Certifying Authority. The BCA is updated generally on the 1st of May each year.

1.4 Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for: -

(a) the structural adequacy or design of the building;

(b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

(c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the National Construction Code – Plumbing Code of Australia Volume 3

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (The provision of disabled access to the subject development has been assessed against the deemed to satisfy provisions of Part D3 and F2.4 of BCA2012 only) ;

(c) Demolition Standards not referred to by the BCA;

(d) Occupational Health and Safety Act;

(e) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, WorkCover, RTA, Council and the like; and

(f) Conditions of Development Consent issued by the Local Consent Authority.

1.5 Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

PART 2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1 Rise in Storeys (Clause C1.2)

The building has a rise in storeys of thirty-one (31)
Note: The mezzanine level has been included in the rise of storeys.

2.2 Classification (Clause A3.2)

The building has been classified as follows.

Class	Level	Description
3	Level 1-7	Serviced Apartments
2	Level 3-29	Residential Apartments
6	Ground Floor	Retail Areas
7a	Basements 1-6	Carparking and ancillary areas
9b	Level 1 & mezzanine	Conference room, gym, archaeology
10b	Level 1	Swimming pool

2.3 Effective Height (Clause A1.1)

The building has an effective height of more than 50 metres (94.8m)

2.4 Type of Construction Required (Table C1.1)

Type A Construction.

2.5 Floor Area and Volume Limitations (Table C2.2)

The building is subject to maximum floor area and volume limits of:-

- Class 9b - Maximum Floor Area 8,000m^2
  Maximum Volume 48,000m^3
- Class 6 - Maximum Floor Area 5,000m^2
  Maximum Volume 30,000m^3
- Class 7a - The carpark is to be sprinkler protected and as such there are no maximum floor area or volume limitations for this area.
- Class 2 & 3 - The Class 2 & 3 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specification C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.

2.6 Fire Compartments

The following fire compartments have been assumed:

1. The basement carpark;
2. Retail/residential levels ground – Level 3 (due to atrium);
3. Each floor of the residential levels 2-29;
4. The conference centre.

2.7 Exits

The following points in the building have been considered as the exits:

A. Fire-isolated stairways 2 and 4 from the basement levels;
B. The sliding doors leading to Marsden Street and Hunter Street on the ground floor;
C. Fire-isolated stairways 1, 2 and 3 from the residential levels;
D. The door from the loading dock discharging to Hunter Street;
E. The stairway from the conference centre leading to the ground floor;
F. The stairway from the conference centre, adjacent to the courtyard leading to the mezzanine level, and into the fire-isolated passageway discharging to Hunter Street;
G. The stairway from the gym leading to the pool area, and the doorway from north eastern corner of the gym;
H. The 2 stairways from the plant room on the mezzanine level;
I. The northern and southern doorways within the eastern elevation of retail tenancy 1 and 2, discharging to Marsden Street;
J. The doorway in the eastern elevation of retail tenancy 3, discharging to Hunter Street.

2.8 Climate Zone (Clause A1.1)

The building is located within Climate Zone 6, being in the Parramatta Local Government Area.

PART 3 ESSENTIAL FIRE SAFETY MEASURES

The following fire safety measures are required to be installed in the building.

Item	Proposed Essential Fire Safety Measure	Minimum Standard of Performance
1.	Access panels, doors and hoppers to fire resisting shafts	BCA2012 Clause C3.13
2.	Automatic fail safe devices	BCA2012 Clause D2.21, AS1670.1-2004 and Manufacturer's Specification
3.	Automatic fire detection and alarm system	BCA2012 Clause E2.2a and Clause 3, 4, 5, 6 of Specification E2.2a, AS1670.1-2004
4.	Automatic fire suppression system (sprinkler system)	BCA2012 Clause E1.5, AS2118.1-1999
5.	Emergency lighting	BCA2012 Clauses E4.2 & E4.4, AS2293.1-2005
6.	Emergency lifts	BCA2012 Clause E3.4, AS1735.2-2001
7.	Exit signs	BCA2012 Clauses E4.5, E4.6 & E4.8, AS2293.1-2005
8.	Fire control rooms	BCA2012 Clause E1.8
9.	Fire dampers	BCA2012 Specification C3.15, AS/NZS1668.1-1998, AS1682.1 & 2
10.	Fire doors	BCA2012 Spec C3.4, AS1905.1-2005
11.	Fire hose reel system	BCA2012 Clause E1.4, AS2441-2005
12.	Fire hydrant system	BCA2012 Clause E1.3, AS2419.1-2005
13.	Fire seals protecting openings in fire resisting components of the building	BCA2012 Clause C3.15, AS1530.4-2005
14.	Fire shutters	BCA2012 Spec C3.4, AS1905.2-2005
15.	Fire windows	BCA2012 Spec C3.4
16.	Lightweight Fire Rated Construction	BCA2012 Clause / Specification C1.8
17.	Mechanical air handling systems	BCA2012 Clause F4.5, F4.11, AS/NZS1668.2-1991
18.	Paths of travel, stairways, passageways or ramps	BCA2012 Section D
19.	Portable fire extinguishers	BCA2012 Clause E1.6, AS2444-2001
20.	Pressurisation system	BCA2012 Table E2.2a, AS/NZS1668.1-1998
21.	Required (automatic) exit doors	BCA2012 Clause D2.19, AS1670.1-2004
22.	Smoke and heat vents	BCA2012 Specification E2.2c, AS2665-2001
23.	Smoke control system	BCA2012 Specification E2.2a, BCA Specification E2.2b, AS/NZS1668.1-1998
24.	Smoke dampers	AS/NZS1668.1-1998
25.	Smoke doors	BCA2012 Specification C3.4
26.	Sound systems and intercom systems for emergency purposes (formerly EWIS)	BCA2012 Clause E4.9, AS1670.4-2004
27.	Standby power system	BCA2012 Specification G3.8 Clause 6
28.	Wall wetting sprinkler and drencher system	BCA2012 Clause C3.4
29.	Warning and operational signs	BCA2012 Clause D2.23, EP&A Reg. 2000 Clause 183

PART 4 FIRE RESISTANCE LEVELS

The following fire resistance levels (FRL's) required for the various structural elements of the building, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Item	Class 2 & 3	Class 7a or 9b	Class 6
Loadbearing External Walls • less than 1.5m to a fire source feature • 1.5 – 3m from fire source feature; • more than 3m from a fire source feature.	 90/90/90 90/60/60 90/60/30	 120/120/120 120/90/90 120/60/30	 180/180/180 180/180/120 180/120/90
Non-Loadbearing External Walls • less than 1.5m to a fire source feature • 1.5 – 3m from fire source feature; • more than 3m from a fire source feature.	 -/90/90 -/60/60 -/-/-	 -/120/120 -/90/90 -/-/-	 -/180/180 -/180/120 -/-/-
External Columns • Less than 3m • 3m or more	 90/-/- -/-/-	 120/-/- -/-/-	 180/-/- -/-/-
Fire Walls	90/90/90	120/120/120	180/180/180
Stair and Lift Shafts • Loadbearing • Non loadbearing	 90/90/90 -/90/90	 120/120/120 -/120/120	 180/120/120 -/120/120
Internal walls bounding sole occupancy units • Loadbearing • Non loadbearing	 90/90/90 -/60/60	 120/-/- -/-/-	 180/-/- -/-/-
Internal walls bounding public corridors, hallways and the like: • Loadbearing • Non loadbearing	 90/90/90 -/60/60	 120/-/- -/-/-	 180/-/- -/-/-
Ventilating, pipe garbage and the like shafts: • Loadbearing • Non loadbearing	 90/90/90 -/90/90	 120/90/90 -/90/90	 180/120/120 -/120/120
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-	180/-/-
Floors	90/90/90	120/120/120	180/180/180
Roofs [1]	90/60/30	120/60/30	180/60/30

N.B. There are FRL concessions applicable for fully sprinkler protected car park portions under Clause 3.9 of BCA Specification C1.1, reducing the carpark FRL's down from 120/120/120 to 60/60/60.

1 The roof need not comply with any FRL's due to the sprinkler protection of the entire building.

PART 5 STATEMENT OF COMPLIANCE

5.1 General

The architectural design documentation as referred to in this report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure B) with that Code, with the exception of the matters listed below where compliance with the relevant Performance Requirements or Deemed-to-Satisfy Provisions of the BCA may not be achieved, Performance Based (Fire Engineered) Alternative Solutions can be considered, however Performance Based (Fire Engineered) Alternative Solutions are unlikely to be considered for the accessibility matters listed under 5.3 below, therefore these matters will need to be updated at Construction Certificate stage.

5.2 Performance Based Design – Alternate Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters will need to be addressed in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover:

Item	Description of Alternate Solution	DTS Provision	Performance Requirement to be met
1.	Protection of openings within different fire compartments.	C3.3 of BCA 2012	CP2 & CP3
2.	Provision of glass sliding doors within the fire wall separating the conference centre and the hotel portion.	C3.5 of BCA 2012	CP2, CP3 & CP4
2.	Extended travel distance from the units in the south eastern corner on levels 12-25 to an exit or a point of choice to an alternative exit, and extended travel distance from the plenums within the basement carpark levels.	D1.4 of BCA 2012	DP4
3.	The width of plenums associated with the basement carpark levels are 850mm wide in lieu of the minimum 1m.	D1.6 (b) of BCA 2012	DP4
4.	Fire-isolated stairways 1 and 4 at the northern end of the building discharge within the building.	D1.7(b) of BCA 2012	DP4
5.	Travel via the non-fire-isolated stairways from the plant room on the mezzanine level to the point of egress exceeds 80m.	D1.9 (c) of BCA 2012	DP4
6.	The fire hydrant booster valve is located in a position that is not protected by walls achieving an FRL of 90/90/90 extending 3m above and 2m either side of the booster assembly in accordance with AS 2419.1.	E1.3 of BCA2012	EP1.3
7.	Removal of the need for the fire hose reels to the residential levels, where internal hydrants are provided.	E1.4 of BCA 2012	EP1.1

At the time of the Construction Certificate Application submission for the main building works, the Final Fire Safety Engineering Assessment Report to be prepared will be required to be formally referred to the NSW Fire Brigade under S144 of the Environmental Planning & Assessment Regulation 2000 who are required to formally comment and concur with the findings of the report.

5.3 Access for people with disabilities - Part D3

Access to the building for people with a disability is required in accordance with Part D3 of BCA2012 and AS1428.1-2009. The matters below may be updated on the CC plans.

a) There are 5 pedestrian entrances into retail tenancy 1, therefore 3 of the entrances are to be accessible in accordance with AS1428.1-2009. The plans indicate there is a 600mm difference in floor level between the lobby and the retail tenancy. The accessible entrances are to be distributed between Marsden St and the lobby area, and the accessible entrances are not to in excess of 50m from a non-accessible entrance.

b) There are 6 pedestrian entrances to retail tenancy 2, therefore 3 of the entrances are to be accessible in accordance with AS1428.1-2009. The plans indicate there is a 1050mm difference in floor level between the lobby and the retail tenancy. The accessible entrances are to be distributed between Marsden St and the lobby area and the accessible entrances are not to in excess of 50m from a non-accessible entrance;

c) The pedestrian entrance into retail tenancy 3 is to be accessible, it is noted there is a change in floor level of 300mm;

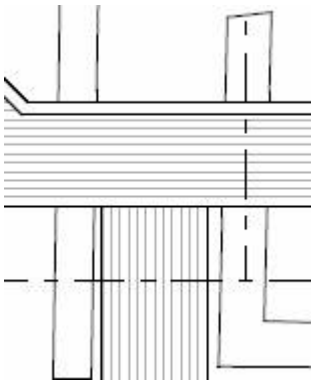
d) Access to and into the swimming pool;

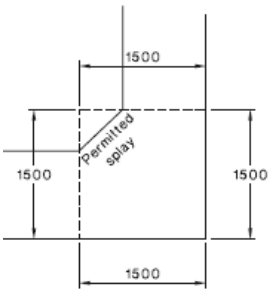
e) Clarification is required on the thresholds at the doors leading to the roof terraces on level 12 & 26, and the courtyard associated with the gym, and conference centre, and the door from the lift lobby area on level 1 leading to the pool area;

f) Turning space 1540mm wide for a length of 2070mm, at maximum 20m intervals in accordance with Clause 6.4 of AS1428.1-2009, are required to the corridors on levels 1-26;

g) Circulation/turning space in accordance with Clause 6.5 of AS1428.1-2009, for wheelchair turn on the walkways associated with the archaeology, where the walkway crosses to the display area as indicated below.

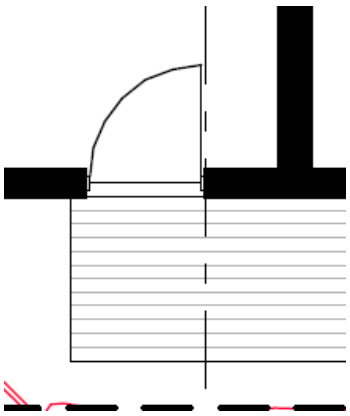
The corridor/walkway is to be not less than 1500mm wide and 1500mm long in the direction of travel. The space may be splayed as shown below.





Turn 90° in path of travel
Corridor less than 1500 mm wide requires widening at turn

h) A minimum 1540mm circulation/turning space for a wheel chair to turn is required at the north western end of the walkway associated with the archaeology display as indicated below;



i) Sanitary facilities associated with the conference centre and amenities facilities without showers and incorporating the hand basin to the side of the WC pan is to be a minimum 2330mm wide, in accordance with figure 43 of AS1428.1-2009;

j) The showers in the accessible units are required to be a minimum 1160mm wide x 1100 deep. It is considered there is sufficient space within the sanitary facility for the showers to be increased in size;

k) Ensure there is a minimum 1400mm between the pan and the handbasin within the accessible sanitary facility within the store room on the ground floor. This distance is currently measured to be 1300mm.

ANNEXURE A

DESIGN DOCUMENTATION

This report has been based on the following design documentation.

Architectural Plans Prepared by AJ + C Architects, dated 31st August 2012.		
Drawing Number	**Revision**	**Title**
DA2001	17	Basement 1
DA2002	14	Basements 2,3,5
DA2004	13	Basement 4
DA2006	13	Basement 6
DA2099	12	Mezzanine
DA2100	17	Ground Floor
DA2101	18	Level 1
DA2102	14	Level 2
DA2103	17	Level 3
DA2104	17	Level 4 - 11
DA2112	12	Level 12
DA2113	5	Level 13
DA2114	13	Level 14-20
DA2121	7	Level 21-25
DA2126	12	Level 26
DA2127	16	Level 27
DA2128	11	Level 28
DA2129	2	Level 29
DA2200	9	Roof
DA3100	12	North elevation
DA3101	10	South elevation
DA3102	12	East elevation
DA3103	11	West elevation
DA3200	12	Section

ANNEXURE B

DETAILED ASSESSMENT OF THE DEEMED-TO-SATISFY PROVISIONS OF BCA2012

BUILDING ASSESSMENT

Outlined below is a detailed assessment of the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) including the State variations where applicable.

All Deemed-to-Satisfy clauses that are applicable to the subject building have been referred to below, including a comment adjacent to each clause of the proposal's ability to satisfy each respective clause.

The abbreviations outlined below have been used in the following tables.

N/A	-	Not Applicable. The Deemed-to-Satisfy clause does not apply to the subject building.
Complies	-	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA	-	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there was not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, subject to noting the requirements of each clause, compliance can be readily achieved. This information may be included in other documentation, which was not forwarded to this office for assessment, such as door schedules, electrical, mechanical and hydraulic design documentation or architectural specifications.
FI	-	Further Information is necessary to determine the compliance potential of the building design.
AS	-	Alternative Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	-	Does Not Comply
Noted	-	BCA Clause simply provides a statement not requiring specific design comment or confirmation

DEEMED TO SATISFY CLAUSE ASSESSMENT SUMMARY

Clause	Comment	Status
SECTION B: STRUCTURE		
PART B1 – STRUCTURAL PROVISIONS		
B1.0: Deemed-to-Satisfy Provisions	Noted	-
B1.1: Resistance to Actions	For Information Only – Structural Engineer to certify at CC stage.	CRA
B1.2: Determination of Individual Actions	No details of loads imposed upon the building – Structural Engineer to certify at CC stage.	CRA
B1.4: Determination of Structural Resistance of Materials and Forms of Construction	No details of materials and forms of construction – Structural Engineer, Architect and Manufacturers to certify at CC stage.	CRA
B1.5 Structural Software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software. Structural Engineer to certify.	CRA
SECTION C: FIRE RESISTANCE		
PART C1 – FIRE RESISTANCE AND STABILITY		
C1.0: Deemed-to-Satisfy Provisions	Noted	-
C1.1: Type of Construction Required	The building is to be of Type A Construction.	CRA
C1.2: Calculation of Rise in Storeys	The building has a rise in storeys of 31.	Noted
C1.3: Buildings of Multiple Classification	The building is to be of Type A Construction.	CRA
C1.4: Mixed Types of Construction	The building is to be of Type A Construction.	CRA
C1.8: Lightweight Construction	Lightweight construction may be used to achieve required fire resistance levels. Should lightweight construction be proposed it is to comply with Specification C1.8.	CRA
C1.10: Fire Hazard Properties	No details of the fire hazard properties of the materials and assemblies in the proposed building. Fire hazard indices to comply with Specification C1.10.	CRA
C1.12: Non-combustible Materials	For information only.	Noted
PART C2 - COMPARTMENTATION AND SEPARATION		
C2.0: Deemed-to-Satisfy Provisions	Noted	-
C2.1: Application of Part	Noted	-
C2.2: General Floor Area and Volume Limitations	Applies to the Class 6 retail and Class 9b gym & archaeology. These areas are well within the limitations of this Clause. The Class 7a carpark is to be sprinkler protected and therefore the floor area and volume limitations are not applicable.	Noted
C2.6: Vertical Separation of Openings in External Walls	Vertical separation satisfactory as the building is to be fully sprinkler protected.	Complies
C2.7: Separation by Fire Walls	Fire walls may be used to separate the following areas: 1) The Class 9b conference centre from the Class 3 hotel area; 2) Class 6 retail area and Class 9b interpretation centre on the ground floor from the Class 7a loading dock area.	CRA
C2.8: Separation of Classifications in the Same Storey	Fire walls may be used to separate classifications. It is assumed the separation will between the retail area and interpretation centre on the ground floor and the loading dock area, alternatively the classifications may be in the one fire compartment of the higher FRL's. The residential areas on Levels 1, 2 & 3 are required to achieve the higher FRL's of Class 9b (conference centre) or Class 6 retail (due to atrium), or the conference centre is to be fire separated from the Class 3 residential area. This will be further considered at the CC stage of the development.	CRA
C2.9: Separation of Classifications in Different Storeys	The floors separating the storeys are to have the FRL relative to the storey below, for example the floor above the Class 7a areas are to have a FRL of not less than 120/120/120, the floors above the Class 6 area is required to have a FRL of not less than 180/180/180.	CRA

SECTION C: FIRE RESISTANCE		
	The Class 3 residential areas on levels 1-3 are required to have the same FRL's as the Class 6 retail portion given the atrium connecting the different classifications. This will be further considered at the CC stage of the development.	
C2.10: Separation of Lift Shafts	The lift shafts are to have the FRL as required by Table 3 of Specification C1.1 of the BCA. See Part 4 of this report for further information.	CRA
C2.11: Stairways and Lifts in One Shaft	As required the lifts and the fire-isolated stairways are located within their own shafts.	Complies
C2.12: Separation of Equipment	All lift motor rooms and any boilers contained within the building are to be enclosed in construction with a minimum FRL of 120/120/120, and doorways protected with self-closing -/120/30. If the pump room within the level 1 basement is to contain hydrant pumps the room is to achieve a minimum FRL of 120/120/120 , and the doorway is to open directly through an airlock into the fire-isolated stairway.	CRA
C2.13: Electricity Supply System	The electricity substation, and the switch room if the main switch room sustains emergency equipment required to operate in emergency mode, is required to be separated from the building with construction having a FRL of 120/120/120, and doorways protected with self-closing -/120/30.	CRA
C2.14: Public Corridors in Class 2 and 3 Buildings	The residential corridors on levels 3-25 exceed 40m in length therefore the corridors are to be separated into lengths of less than 40m with smoke proof walls and doorways complying with Clause 2 of BCA Specification C2.5. The smoke proof doors are to swing in both directions.	CRA
PART C3 – PROTECTION OF OPENINGS		
C3.0: Deemed-to-Satisfy Provisions	Noted	-
C3.1: Application of Part	Noted	-
C3.2: Protection of Openings in External Walls	There are no openings in external walls that required protection.	Complies
C3.3: Separation of External Walls and Associated Openings in Different Fire Compartments	At the CC stage consideration will need to be given to any required separation between fire compartments that arises as a result of any fire compartmentalisation. However the following openings have been identified at this stage: 1) The door from the southern elevation of the loading dock area and the retail tenancy 3; 2) The discharge doors from the fire-isolated stairways discharging to Hunter Street and retail tenancy 3; 3) The window in the eastern elevation of retail tenancy 3 and the conference centre; 4) The shutter opening from the loading dock area and the western elevation of retail tenancy 3. The above openings are required to be protected in accordance with BCA Clause C3.4 or a possible alternate solution can be considered at CC stage.	CRA/AS
C3.4: Acceptable Methods of Protection	Any openings required to be protected are to be protected with in accordance with this Clause.	CRA
C3.5: Doorways in Fire Walls	Any doorways in fire walls are to represent the FRL's of the fire walls in which they are located, i.e. in a 180/180/180 fire wall the doors are to achieve a FRL of not less than -/180/30. An alternate solution may be justifiable for any proposed glass doors associated with the conference/business centres and amenities areas that are within the fire wall.	CRA/AS
C3.6: Sliding Fire Doors	Where sliding fire doors are proposed, they are to comply with this Clause.	CRA

C3.7: Protection of Doorways in Horizontal Exits	No horizontal exits proposed.	Noted
C3.8: Openings in Fire-isolated Exits	The doorways opening into the fire isolated exits are required to be protected by -/60/30 self-closing fire doors, except for the final exit doors.	CRA
C3.9: Service Penetrations in Fire-isolated Exits	Fire-isolated exits may not be penetrated by any services except electrical wiring for lighting, intercom, and water supply pipes for fire services.	CRA
C3.10: Openings in Fire-isolated Lift Shafts	The lift doors are to have a FRL of no less than -/60/- and are to be in accordance with AS1735.11.	CRA
C3.11: Bounding Construction: Class 2, 3 and 4 Buildings	The doorways from all sole-occupancy units, and any other rooms, i.e. linen rooms, plant rooms, A/C rooms, garbage rooms, etc. that open into a residential public corridors/lobbies, are to be self-closing -/60/30 fire doors.	CRA
C3.12: Openings in Floors and Ceilings for Services	All services shafts are to have a FRL as specified in Part 4 of this report.	CRA
C3.13: Openings in Shafts	Access to any service shafts is to be through an access panel, or self-closing fire door, having a FRL of not less than -/60/30.	CRA
C3.15: Openings for Service Installations	Installations through fire rated walls, floors and other elements are to be protected via a method having a FRL relative to the wall they are penetrating.	CRA
C3.16: Construction Joints	Joints are to have the required FRL with respect to integrity and insulation relative to the building element they are joining. Structural Engineer to certify at CC stage.	CRA
C3.17: Columns Protected with Lightweight Construction to Achieve an FRL	It is considered that all columns will be of concrete construction and therefore will have sufficient fire resistance without the need for light weight construction to provide a FRL. Structural Engineer to certify at construction stage.	CRA
SPECIFICATION C1.1 – FIRE-RESISTING CONSTRUCTION		
2.0: General Requirements	Noted	-
2.1: Exposure to Fire-Source Features	The building is exposed to the western boundary. The remainder of the building is not exposed to any fire source features, however, all non-loadbearing elements within 3m of the western boundary and all load-bearing elements are to have a FRL as specified in Part 4 of this report as the building is required to be of Type A Construction.	Noted
2.2: Fire Protection for a Support of Another Part	Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL not less than that required by other provisions of this Specification; and if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required for the supporting part itself and for the part it supports.	Noted
2.3: Lintels	A lintel must have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall or is located in a non-loadbearing part of the Class 2 & 3 portion of the building.	CRA
2.4: Attachments Not to Impair Fire-resistance	All attachments proposed to the external façade of the building are to be of non-combustible materials that are permitted by this clause. Further details of the attachments to the external façade shown on design documentation to be provided for compliance assessment at CC stage.	CRA
2.5: General Concessions	If the A/C plant on the roof contains only air-conditioning chillers and is non-combustible the structure is not required to comply with Specification C1.1.	Noted
2.6: Mezzanine Floors:	This concession is not applicable as the mezzanines are	N/A

	Concession	stories.	
2.7:	Enclosure of Shafts	Fire rated shafts are required to be enclosed, at the top and bottom, with construction having a FRL required for the walls of a non-load-bearing shaft in the same building, unless the shaft extends beyond the roof covering, with the exception of fire isolated stair and lift shafts that are to have lids with a FRL regardless.	CRA
3.0:	Type A Fire-resisting Construction	Noted	-
3.1:	Fire-resistance of Building Elements	The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report	CRA
3.2:	Concessions for Floors	The basement level 6 floor, which is directly on the ground, and floors entirely within residential units (2 and 3 storey units) do not required a FRL.	Noted
3.3:	Floor Loading of Class 5 and 9b Buildings: Concession	This concession is available, to be further assessed at CC stage.	CRA
3.4:	Roof Superimposed on Concrete Slab: Concession	If the roof is super imposed on a concrete slab it will not need a FRL if the superimposed roof is non-combustible and the concrete slab roof complies with Table 3 of Specification C1.1.	Noted
3.5:	Roof: Concession	The roof is not required to achieve an FRL if it has a non-combustible roof covering. To be further assessed at CC stage.	CRA
3.6:	Rooflights	No roof lights currently proposed to development.	N/A
3.7:	Internal Columns and Walls: Concession	The loadbearing internal columns and walls, except fire walls and shaft walls, to the areas of building immediately below a roof may have a reduced FRL of 60/60/60 if the roof above complies with the concession granted by Clause 3.5 of Specification C1.1	CRA
3.9:	Carparks	This concession is noted; however it is not expected to be used due to the size of the building.	Noted

ECTION D: ACCESS AND EGRESS			
PART D1 – PROVISION FOR ESCAPE			
D1.0:	Deemed-to-Satisfy Provisions	Noted	-
D1.1:	Application of Part	Noted	-
D1.2:	Number of Exits Required	A sufficient number of exits are provided from each area.	CRA
D1.3:	When Fire-Isolated Stairways and Ramps are Required	The following stairways are required to be fire isolated: 1) Stairways 1, 2, 3 & 4; 2) The stairs/passageways on the mezzanine level, behind retail tenancy 3, discharging to the Hunter Street; 3) The passageway/fire escape adjacent to the pool store leading to the fire-isolated stairway; 4) The passageway/stairway from the southern end of level 27 and 28 leading to stairway 2.	CRA
D1.4:	Exit Travel Distances	The travel distance from the units in the south eastern corner of levels 12 to 25 to an exit or a point of choice to an alternative exit exceeds 6m. A possible alternate solution can be considered for excessive travel distance up to 9m. The travel distance from the plenums located on the eastern side of the carpark levels currently exceeds 40m. A possible alternate solution can be considered for the excessive travel distance from these areas given the limited use and population of these areas. The doors in the corridors on the residential levels are to have appropriate latching, and are to swing in both directions.	CRA/AS
D1.5:	Distance Between Alternative Exits	The distance between alternative exits complies.	Complies
D1.6:	Dimensions of Exits and Paths of Travel to Exits	The exits and paths of travel are to be a minimum 1m wide. As the conference centre has proposed seating for 165 people the aggregate exit width is required to be 1.75m.	CRA/AS

ECTION D: ACCESS AND EGRESS		
	The aggregate width is achieved with the exit stairway leading to Hunter Street via the ground floor, and the stairway leading to the fire-isolated passageway on the mezzanine level. All stairways other than fire-isolated stairways are required to be provided with handrails both sides in accordance with Clause 11.2 of AS1428.1-2009. Please ensure allowance is made of handrail extensions at the top and bottom of stairways. The width of all stairways is to be a minimum 1m clear between the handrails. It is recommended that the stairways be designed at 1050mm to allow for design tolerance. The Plenums within the basement carpark levels are proposed to be 850mm wide in lieu of the required 1m. A possible alternate solution can be considered given the minimal population of these areas.	
D1.7: Travel via Fire-Isolated Exits	It is considered that fire-isolated stairways 1 and 4 at the northern end of the building discharge within the building. This can form part of an Alternate Solution at the CC stage of the development. The plant room on level 27 must open directly into an airlock which opens into the fire-isolated passage way, unless the plant room is for the stair pressurisation system associated with the fire-isolated stairway, in this case the plant room may open into the fire-isolated stairway. If the “fire pump room” located within the basement carpark level 1 is to contain hydrant pumps, the door is to open directly through an airlock into the fire-isolated stairway.	CRA/AS
D1.9: Travel by Non Fire-Isolated Stairways or Ramps	The exit stairway from middle of the plant room on the mezzanine level, via the stairway associated with the conference centre exceeds 80m to the discharge point being Hunter Street exit on ground level. It is noted that a different interpretation may be considered being that the travel distance to the alternative exit via the loading dock to Hunter street complies, or a possible alternate solution may be considered at CC stage.	CRA/AS
D1.10: Discharge from Exits	Discharge points from exits are to be protected from being blocked by vehicles. The path of travel to a road is not to be steeper than 1:8 or 1:14 if required to be accessible, and is to have a handrails to both sides.	CRA
D1.11: Horizontal Exits	No horizontal exits proposed.	N/A
D1.12: Non-Required Stairways, Ramps or Escalators	There are no non-required stairways.	Noted
D1.13: Number of Persons Accommodated	Based on the floor areas of each area and the ratio give in BCA Table D1.13 the following population loads have been calculated: • Basement Levels – the population of the basement levels is calculated to be 110, however it is considered the transitory population from carpark levels, is calculated to be 100 people per storey moving through these areas. • Ground retail – less than 100 people per tenancy. • Conference centre – 165 people. • Assembly areas (other than conference centre) – less than 100 people. The population of the residential areas is considered to be less than 100 persons per stair shaft to the residential areas.	Noted
D1.14: Measurement of Distances	Information only.	Noted
D1.15: Method of Measurement	Information only.	Noted
D1.16: Plant Rooms, Lift Motor	A ladder may be provided to the plant room on the roof	CRA

ECTION D: ACCESS AND EGRESS		
Rooms and electricity network substations: Concession	in accordance with this Clause.	
D1.17: Access to Lift Pits	Access to the lift pit is assumed to be through the bottom landing doors as the pit is assumed to be less than 3m deep.	CRA
PART D2 – CONSTRUCTION OF EXITS		
D2.0: Deemed-to-Satisfy Provisions	Noted	-
D2.1: Application of Part	Noted	-
D2.2: Fire-Isolated Stairways and Ramps	It is assumed that the fire isolated stairways will be constructed of reinforced concrete and therefore comply. The structural engineer is to certify that the shaft will withstand a local failure at CC stage.	CRA
D2.3: Non-Fire-Isolated Stairways and Ramps	The non-fire-isolated stairways are to comply with this clause.	CRA
D2.4: Separation of Rising and Descending Stair Flights	Rising and descending stairs comply.	Complies
D2.7: Installations in Exits and Paths of Travel	Electrical and comms cupboards located in corridors and in the basement carpark are to be enclosed in non-combustible construction and smoke sealed.	CRA
D2.8: Enclosure of Space Under Stairs and Ramps	The linen store room on the ground floor is permitted to be located under a fire-isolated stairs and ramps, as the top of the store room may be considered the bottom of the shaft.	Noted
D2.9: Width of Stairways and Ramps	The stairways are to be a minimum of 1m wide measured clear of handrails.	CRA
D2.10: Pedestrian Ramps	Pedestrian ramps serving required exits are to be no steeper than 1:8 and have a handrail to at least 1 side. The 1:10 ramp from the loading dock area is to have a handrail to at least 1 side. If the ramp is accessible it is to be no steeper than 1:14 and have handrails both sides. All ramps are to have a non-slip finish.	CRA
D2.11: Fire-Isolated Passageways	The fire-isolated passageways are to have a FRL of no less than that required for the fire-isolated stairway that they serve. The FRL may be measured from the outside of the passageway only.	CRA
D2.12: Roof as Open Space	There are no exits discharging to a roof.	Complies
D2.13: Goings and Risers	Stair geometry to all stairs throughout the development to comply with Table D2.13.	CRA
D2.14: Landings	Landings are to comply with this Clause and have a non-slip finish.	CRA
D2.15: Thresholds	Clarification is required on the threshold between the switch room and the loading dock, and the between the retail lobby and retail tenancies 1and 2. The threshold of a doorway must not incorporate a step any closer to the doorway than the width of the door leaf, unless the door opens to open space, an external stairway or external balcony and the door sill is not more than 190mm above the finished floor level. Not all door thresholds have been indicated at this stage. Thresholds to comply with this clause.	CRA
D2.16: Balustrades or Other Barriers	Balustrades are required to be 1m above the floor of any balcony, path or the like. Details of the dimensions and configurations of the balustrading to the stairways and balconies have not been supplied at this stage. If the windows to the units are openable and more than 4m above the surface beneath the sill height is to be a minimum 865m above the finished floor level and any horizontal or near horizontal elements between 150mm and 760mm above the floor must not facilitate climbing.	CRA
D2.17: Handrails	Handrails are to be provided to a least one side of all stairways and both sides where required for disabled access. BCA2012 now requires handrails at least one side on internal stairways in a Class 2 or 3 sole-occupancy unit where the stairway provides a change in elevation of 1m or more.	CRA
D2.18: Fixed Platforms, Walkways	This concession applies to the A/C plant on the roof,	CRA

ECTION D: ACCESS AND EGRESS		
Stairways and Ladders	access to the plant room may comply with AS1657 in lieu of Clauses D2.13, D2.14, D2.16 & D2.17 of the BCA	
D2.19: Doorways and Doors	All required exit doors including the sliding exit doors from the ground level are to comply with this Clause, to be confirmed at CC stage.	CRA
D2.20: Swinging Doors	All swinging doors in a required exit for forming part of a required exit are to swing in the direction of egress. The following doors are not shown as swinging in the direction of egress. 1) The required exit doors from the café/interpretation centre; 2) At least 2 exit doors from the retail tenancies 1 and 2 leading to Marsden Street; 3) The required exit door from the retail tenancy 3; 4) The door leading into fire-isolated stairway 1 on level 3; 5) A door is not shown leading into fire-isolated stairway 1 on level 21-25, this door is to swing into the fire-isolated stairway. The double doors within the corridors on the residential levels are to swing both ways. This can be shown at CC stage.	CRA
D2.21: Operation of Latch	Latching mechanisms to required exit doors are to be readily openable with a single handed downward or pushing motion, as are the latches to doors in a path of travel and are to comply with this clause.	CRA
D2.22: Re-entry from Fire-Isolated Exits	Re-entry from the fire-isolated stairway to comply with this clause, to be confirmed at the CC stage.	CRA
D2.23: Signs on Doors	Required signage is to be located on all fire and smoke doors stating “Fire Safety Door, Do Not Obstruct, Do Not Keep Open” and the discharge door from the fire isolated stairways are to state “Fire Safety Door – Do Not Obstruct” in capital letters not less than 20mm in height.	CRA

PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
D3.0: Deemed-to-Satisfy Provisions	Noted	-
D3.1: General Building Access Requirements	Access is required from the pedestrian entrance to the following areas: a) To and within five (5) of the Class 3 serviced apartments on levels 1-7 are to be accessible; b) The entry doorways of all Class 2 & 3 apartments on levels 1-26; c) All common areas i.e. amenities areas , the pool, the gym including the courtyard and associated sanitary facilities, the roof terrace on level 12, the garbage rooms on each level, the common area on level 26; d) All retail tenancies; e) The staff rooms; f) The conference centre, including the courtyard, sanitary facilities and kitchen; g) The interpretation centre and associated café; h) The walkway and display associated with the archaeology; i) The plaza area j) All accessible carparking spaces.	**FI** **Refer to Part 5 of this report.**

D3.2: Access to Buildings	It is noted that 50% of the pedestrian entrances into the building are indicated as being accessible. Refer to Part 5 of the report regarding matters associated with access to and within areas to be accessible.	**FI** **Refer to Part 5 of this report.**
D3.3: Parts of Buildings to be Accessible	All stairways and accessible ramps are to comply with Clause 10 & 11 of AS1428.1-2009. Handrails are required to the both sides of the accessible ramp and the stairway in accordance with AS1428.1-2009. Fire isolated stairway to comply with clause 11.1(f) and (g) of AS 1428.1. The passenger lift is to comply with E3.6. Turning spaces in accordance with AS1428.1-2009 are required at 20m intervals along the accessways associated with the residential levels. A minimum 1540mm circulation/turning space at the western end of walkway associated with archaeology. Refer to Part 5 of the report regarding matters associated with access to and within areas to be accessible.	**FI** **Refer to Part 5 of this report.**
D3.5: Accessible Car Parking	1 accessible carparking space is required per 50 carparking spaces associated with the retail tenancies, and conference centre. Further information is required regarding the carpark allocation.	CRA
D3.6: Signage	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbols as appropriate must identify each sanitary facility and all accessible entrances where an entrance is not accessible.	CRA
D3.7: Hearing Augmentation	A hearing augmentation system is required if there is an inbuilt amplification system, other than one used for emergency purposes in the conference room.	CRA
D3.8: Tactile Indicators	Tactile indicators are required at the top and bottom of the stairway and ramp at the entrance to the building. Tactile indicators are to comply with AS/NZS1428.4.1	CRA
D3.10: Swimming Pools	Not less than 1 means of accessible entry/exit is required to the swimming pool in accordance with this Clause.	CRA
D3.11: Ramps	On an accessway a series of connected ramps must not have a combined vertical rise of 3.6m and a landing for a step ramp must no overlap a landing for another step ramp or ramp.	CRA
D3.12: Glazing on an Accessway	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	CRA

SECTION E: SERVICES AND EQUIPMENT		
PART E1 – FIRE FIGHTING EQUIPMENT		
E1.0: Deemed-to-Satisfy Provisions	Noted	-
E1.3: Fire Hydrants	The building is to be provided with fire hydrants in accordance with this clause and AS2419.1. Hydraulic engineer to certify at the CC stage. Regarding the location of the fire hydrant booster there is a technical non-compliance that may be resolved at the CC stage with an alternate solution. Clarification is required on the “fire pump room” if this room is to contain hydrant pumps, the room is required to have a door opening directly through an airlock into the fire isolated stair.	AS
E1.4: Fire Hose Reels	The fire hose reels associated with fire-isolated stairway 4 within the basement level 2-6 are approximately 5m of	CRA/AS

SECTION E: SERVICES AND EQUIPMENT		
	the exit door. Fire hose reels are required in accordance with AS2441. This can be shown at CC stage. Please be advised that an alternate solution to remove the Fire Hose Reels from the residential portions of the building may be justifiable if an internal fire hydrant system is installed.	
E1.5: Sprinklers	The entire building is to be provided with sprinklers due to the number of vehicles accommodated and the effective height.	CRA
E1.6: Portable Fire Extinguishers	The building is to be provided with extinguishers in accordance with this clause and AS2444.	CRA
E1.8: Fire Control Centres	A fire control room is shown to the ground floor adjacent to the interpretation centre. The fire control centre is to be in accordance with Specification E1.8. It is noted that the fire control centre is at RL10.2 and the nearest adjacent footpath is RL 9.26 (a rise of 940mm). There is graded access at less than 1:20 to the fire control centre door.	CRA
E1.9: Fire Precautions During Construction	Information only. Whilst the building is under construction there is to be not less than one fire extinguisher provided at all times to each storey. Once the building has reached an effective height of over 12m the hydrants and hose reels and booster connections must be operational to all levels except the 2 uppermost storeys under construction.	Noted
PART E2 – SMOKE HAZARD MANAGEMENT		
E2.0: Deemed-to-Satisfy Provisions	Noted	-
E2.1: Application of Part	Noted	-
E2.2: General Requirements (including Tables E2.2a and E2.2b)	The fire-isolated stairways to all levels are to be pressurised in accordance with AS1668.1. Under Clause E1.5 the entire building is to be sprinkler protected. The residential areas are to be provided with an automatic smoke detection and alarm system compliant with Specification E2.2a. The retail, and assembly spaces are to be provided with a zone smoke control system in accordance with AS1668.1. The air-conditioning to the Class 9b portion of Level 1 is to automatically shut down on fire trip. The carparking levels are to have a mechanical system in accordance with AS1668.2 and Section 5 of AS1668.1 except as modified by this clause in the BCA. All to be confirmed at the CC stage of the development.	CRA
PART E3 – LIFT INSTALLATIONS		
E3.0: Deemed-to-Satisfy Provisions	Noted	-
E3.2: Stretcher Facility in Lifts	At least one emergency lift is to have a stretcher facility. A measurement of the emergency lift indicates that it is capable of accommodating a stretcher facility.	CRA
E3.3: Warning Against Use of Lifts in Fire	Warning signage against using the lifts in the event of a fire must be provided in accordance with this Clause.	CRA
E3.4: Emergency Lifts	At least 2 emergency lifts are required to serve the storeys served by the passenger lifts, and at least 1 emergency lift is required in each shaft. The emergency lift is to comply with AS1735.2 or Appendix A of AS1735.1. It is noted there is one fire lift, and additional emergency lift is to be indicated. This may be shown at CC stage.	CRA
E3.5: Landings	Lift landing dimensions are to comply with this Clause	CRA
E3.6: Passenger Lifts	The lifts are to comply with AS1735.12. Lift dimensions comply.	CRA
E3.7: Fire Service Controls	Fire controls are required to the lifts.	CRA

SECTION E: SERVICES AND EQUIPMENT		
PART E4 – EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS		
E4.0: Deemed-to-Satisfy Provisions	Noted	-
E4.2: Emergency Lighting Requirements	Emergency lighting is to be installed in accordance with this Clause.	CRA
E4.3: Measurement of Distance	Information Only	Noted
E4.4: Design and Operation of Emergency Lighting	To comply with AS 2293.1-2005. Electrical engineer to certify at CC stage.	CRA
E4.5: Exit Signs	Exits signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary. Electrical engineer to certify at CC stage.	CRA
E4.6: Direction Signs	Where an exit is not readily apparent a directional sign is to be installed indicating the direction of egress being primarily within the carpark areas.	CRA
E4.7: Class 2 and 3 Buildings and Class 4 Parts: Exemptions	For Information Only	Noted
E4.8: Design and Operation of Exit Signs	To comply with AS 2293.1-2005. Electrical engineer to certify at CC stage.	CRA
E4.9: Sound Systems and Intercom Systems for Emergency Purposes	A SSISE is required in the building.	CRA

SECTION F: HEALTH AND AMENITY		
PART F1 – DAMP AND WEATHERPROOFING		
F1.0: Deemed-to-Satisfy Provisions	Noted	-
F1.1: Stormwater Drainage	Stormwater drainage to comply with AS 3500.3.2.	CRA
F1.5: Roof Coverings	The roof covering has not been indicated at this stage, however is to comply with this Clause.	CRA
F1.6: Sarking	The sarking is to comply with AS 4200.	CRA
F1.7: Water Proofing of Wet Areas in Buildings	Waterproofing to wet areas to comply with AS 3740.	CRA
F1.9: Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.	CRA
F1.10: Damp-proofing of Floors on the Ground	A vapour barrier in accordance with AS 2870 must be installed.	CRA
F1.11: Provision of Floor Wastes	In the residential units the bathrooms are to be graded to a floor waste.	CRA
F1.13: Glazed Assemblies	Glazed assemblies are to comply with AS 2047 and AS 1288.	CRA
PART F2 – SANITARY AND OTHER FACILITIES		
F2.0: Deemed-to-Satisfy Provisions	Noted	-
F2.1: Facilities in Residential Buildings (including Table F2.1)	Indicate the location of laundry facilities in each residential sole-occupancy unit that is not a serviced apartment.	CRA
F2.2: Calculation of Number of Occupants and Facilities	Noted	Noted
F2.3: Facilities in Class 3 to 9 Buildings (including Table F2.3)	Sanitary facilities are not required for patrons associated with the retail tenancies as it is considered there will be less than 600 people accommodated. It is considered there are sufficient sanitary facilities behind retail tenancy 4 on the ground floor for staff associated with the retail tenancies. All facilities have not yet been shown. To be confirmed at CC stage.	CRA
F2.4: Accessible Sanitary Facilities (including Table F2.4)	Numbers of facilities have not been indicated at this stage. To be confirmed at CC stage. The showers in the accessible sole occupancy units are required to be a minimum 1160mm wide x 1100mm deep. Where a low-level non-concealed cistern or flush valve is used, the grabrail shall be terminated at each side of the cistern.	CRA
F2.5: Construction of Sanitary	Where the pans to the bathroom areas are within 1.2m	CRA

SECTION F: HEALTH AND AMENITY		
Compartments	of the doorway with the doorway swinging inwards, the doors are to be removable from outside the bathroom.	
F2.6: Interpretation: Urinals and Washbasins	For information only	CRA
PART F3 – ROOM SIZES		
F3.0: Deemed-to-Satisfy Provisions	Noted	-
F3.1: Height of Rooms and Other Spaces	Habitable room heights are to be a minimum of 2.4m, to the kitchen, laundry and passageways 2.1m, in the residential areas of the building. The commercial, retail and assembly areas are to have a minimum ceiling height of 2.4m. The carparking area is to have a minimum ceiling height of 2.5m to meet the increased height for disabled access where accessible parking is available and 2.1 in other areas. To be confirmed at the CC stage of the development.	CRA
PART F4 – LIGHT AND VENTILATION		
F4.0: Deemed-to-Satisfy Provisions	Noted	-
F4.1: Provision of Natural Light	Natural light is required to all habitable areas within the residential units, and all bedrooms associated with the serviced apartments. Please provide clarification on which units are serviced apartments, and which units are residential units on levels 3-7.	CRA
F4.2: Methods and Extent of Natural Lighting	Natural light is to be provided through windows that have an aggregate light transmitting area of 10% of the floor area of the room.	CRA
F4.3: Natural Light Borrowed From Adjoining Room	Natural light may be borrowed through the balcony doors to service the studies within Class 2 units that are not provided with windows. The balcony doors are to have an aggregate light transmitting area of not less than 10% of the combined lounge room/kitchen and study. Further assessment will be required once the plans are updated indicating the size of the openings.	CRA/FI
F4.4: Artificial Lighting	Artificial lighting is to comply with AS1680.0	CRA
F4.5: Ventilation of Rooms	Natural or mechanical ventilation, complying with AS1668.1 is to be provided to the residential areas, mechanical ventilation is assumed to be provided to the ground floor level shops to comply with AS1668.2	CRA
F4.6: Natural Ventilation	Natural ventilation where proposed is to be via windows having an aggregate opening of not less than 5% of the floor area of the room.	CRA
F4.7: Ventilation Borrowed From Adjoining Room	Natural ventilation may be borrowed through the balcony doors to service the studies within Class 2 units that are not provided with windows. The balcony doors are to have a ventilating area of not less than 5% of the combined lounge room/kitchen and study. Further assessment will be required once the plans are updated indicating the size of the openings.	CRA/FI
F4.8: Restriction on Position of Water Closets and Urinals	It is assumed that all bathrooms, ensuites and WC's will be mechanically exhausted.	CRA
F4.9: Airlocks	It is assumed that all bathrooms, ensuites and WC's will be mechanically exhausted.	CRA
F4.11: Carparks	Ventilation complying with AS 1668.2-1991 is to be provided to the carpark.	CRA
PART F5 – SOUND TRANSMISSION AND INSULATION		
F5.0: Deemed-to-Satisfy Provisions	Noted	-
F5.1: Application of Part	Noted	-
F5.2: Determination of Airborne Sound Insulation Ratings	For Information Only	Noted
F5.3: Determination of Impact Sound Insulation Ratings	For Information Only	Noted
F5.4: Sound Insulation Rating of Floors	The floor separating the sole occupancy units must have a $R_w + C^t r$ (airborne) not less than 50 and an $L_{n,w} + C_1$ (impact) not more than 62 if it separates SOU's or SOU's from plant or other public areas. To be certified by an acoustic engineer at CC stage.	CRA
F5.5: Sound Insulation Rating of Walls	The walls separating the sole occupancy units must have a $R_w + C^t r$ (airborne) not less than 50, and an R_w	CRA

SECTION F: HEALTH AND AMENITY		
	not less than 50 where the wall separates a SOU and public area or plant room. Doors to SOU's are to also have an R_w not less than 30. To be certified by an acoustic engineer at CC stage.	
F5.6: Sound Insulation Rating of Services	If a soil or waste pipe passes through more than one unit the pipe must be separated from the rooms with construction that has a $R_w + C^{l}r$ (airborne) not less than 45 if adjacent to a habitable room, or 25 if adjacent to a kitchen or other room. To be certified by an acoustic engineer at CC stage.	CRA
F5.7: Sound Isolation of Pumps	For information only.	CRA

SECTION G: ANCILLARY PROVISIONS		
PART G1 - MINOR STRUCTURES AND COMPONENTS		
G1.0: Deemed-to-Satisfy Provisions	Noted	-
G1.1: Swimming Pools	Swimming pools in NSW are to be provided with safety fencing as required by the Swimming Pools Act 1992, and a water recirculation system in a swimming pool must comply with AS1926.3, with the exception of spas which must comply with AS1926.3 except that the specified distance between two outlets connected to a common line may be not less than 600mm. If the swimming pool is located indoors access is required to be restricted in accordance with the Swimming Pools Regulations.	CRA
NSW G1.101: Provision for Cleaning of Windows	As the building is greater than 3 storeys high provision for the cleaning of the windows in a safe manner is required. Thus provision for cleaning of windows to all elevations of the building will be required. Full details of means of window cleaning to be provided.	CRA
PART G3 - ATRIUM CONSTRUCTION		
G3.1: Atriums Affected by this Part	The atrium is considered to connect 4 stories as there is a portion of glass floor within level 3, therefore the atrium is required to comply with this Clause. Alternatively if the portion of glass floor on level 3 is removed, or the portion of glass floor is to achieve a minimum FRL of 120/120/120 the requirements of this part are not applicable.	**CRA/FI**

SECTION I: MAINTENANCE		
PART I1 – EQUIPMENT AND SAFETY INSTALLATIONS		
I1.0: Deemed-to-Satisfy Provisions	Noted	-
NSW I1.1: Essential Fire Safety Measures	Essential fire or other safety measures must be maintained and certified on an ongoing basis.	Noted

SECTION J: ENERGY EFFICIENCY (Class 3 and 5-9)		
PART J0 – ENERGY EFFICIENCY		
J0.1: Application of Section J	Noted	-
J0.2: Heating & Cooling Loads of SOU's to Class 2 & 4 parts	Not applicable in NSW.	Noted
J0.3: Ceiling Fans	Not applicable in NSW.	Noted
PART J1 – BUILDING FABRIC		
J1.0: Deemed-to-Satisfy Provisions	Noted	-
J1.1: Application of Part	This part is applicable to the Class 3, Class 6 retail areas, and Class 9b areas. The thermal envelope of the conditioned areas include all floors, walls and ceilings where shared with the outside and any unconditioned areas of the building such as the lift shaft, etc.	Noted
J1.2: Thermal Construction General	No details insulation must comply with AS4859.1 and be installed as per this clause. To be further assessed at CC Stage.	CRA
J1.3: Roof and Ceiling Construction	No details, the R-value as specified in Table J1.3 is to be provided, the minimum R-value will be 3.2 but may be increased based on adjustment factors of Table J1.3b. To be further assessed at CC stage.	CRA
J1.4: Roof Lights	No rooflights proposed.	CRA
J1.5: Walls	The walls forming part of the thermal envelope are to	CRA

SECTION J: ENERGY EFFICIENCY (Class 3 and 5-9)		
	comply with Table J1.5a. This will require an r-value of up to 2.8 in the walls. To be further assessed at CC stage.	
J1.6: Floors	The slab separating the ground floor retail area from the basement level carparks forms part of the thermal envelope of these areas, the floor will require an r-value of up to 2. To be further assessed at CC stage.	CRA
PART J2 – GLAZING		
J2.0: Deemed-to-Satisfy Provisions	Noted	-
J2.1: Application of Part	This part is applicable to the Class 3, Class 6 retail areas, and Class 9b areas. The thermal envelope of the conditioned areas include all floors, walls and ceilings where shared with the outside and any unconditioned areas of the building such as the lift shaft, etc.	Noted
J2.4: Glazing	Insufficient details of glazing proposed for use at this stage, to be further assessed at CC stage.	Noted
J2.5: Shading	Shading is to be considered were applicable.	Noted
PART J3 – BUILDING SEALING		
J3.0: Deemed-to-Satisfy Provisions	Noted	-
J3.1: Application of Part	This part is applicable to the Class 3, Class 6 retail areas, and Class 9b areas. The thermal envelope of the conditioned areas include all floors, walls and ceilings where shared with the outside and any unconditioned areas of the building such as the lift shaft, etc.	Noted
J3.2: Chimneys and Flues	No chimneys or flues proposed.	N/A
J3.3: Roof Lights	No rooflights proposed.	N/A
J3.4: External Windows and Doors	The windows and doors must be sealed, or the windows may comply with AS2047. Main entry doors to the retail areas are to be self-closing.	CRA
J3.5: Exhaust Fans	The exhaust fans to the sanitary facilities in the this portion of the building, and any other miscellaneous exhaust fans to other conditioned spaces, are to pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA
J3.6: Construction of Roofs, Walls and Floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air leakage by being enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	CRA
J3.7: Evaporative Coolers	Evaporative coolers are not proposed to be used in these buildings.	CRA
PART J4 – AIR MOVEMENT		
Deleted	Part J4 deleted in BCA2012	-
PART J5 – AIR-CONDITION AND VENTILATION SYSTEMS		
J5.0: Deemed-to-Satisfy Provisions	Noted	-
J5.2: Air-conditioning and Ventilation Systems	Air-conditioning and mechanical ventilation systems to comply with this clause, certification to be provided by mechanical engineer at the CC stage.	CRA
J5.3: Time Switch	Air-conditioning and mechanical ventilation systems to comply with this clause, certification to be provided by mechanical engineer at the CC stage.	CRA
J5.4: Heating and Chilling Systems	Air-conditioning to comply with this clause, certification to be provided by mechanical engineer at the CC stage.	CRA
J5.5: Miscellaneous Exhaust Systems	Exhaust systems to comply with this clause, certification to be provided by mechanical engineer at the CC stage.	CRA
PART J6 – ARTIFICIAL LIGHTING AND POWER		
J6.0: Deemed-to-Satisfy Provisions	Noted	-
J6.1: Application of Part	This part is applicable to all areas of the building.	Noted
J6.2: Artificial Lighting	Interior artificial lighting is to comply with this clause. Electrical engineer to certify at the CC stage.	CRA
J6.3: Interior Artificial Lighting and Power Control	Lighting controls are to be in accordance with this clause, which sets requirements on location of switching and sets limits on floor areas controlled by a switch.	CRA
J6.4: Interior Decorative and Display Lighting	Lighting falling under this clause is to be separately switched from other lighting, be under a manual switch	CRA

SECTION J: ENERGY EFFICIENCY (Class 3 and 5-9)		
	and controlled with a time switch.	
J6.5: Artificial Lighting Around the Perimeter of a Building	Perimeter lighting is to be controlled by a daylight sensor or time switch and where it exceeds 100W have an average light source density of 60 Lumens/W or be controlled by a motion sensor complying with Specification J6.	CRA
J6.6: Boiling Water and Chilled Water Storage Units	The power supply to a fixed boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.	CRA
PART J7 – HOT WATER SUPPLY		
J7.0: Deemed-to-Satisfy Provisions	Noted	-
J7.2: Hot Water Supply	The hot water supply systems must be designed and installed in accordance with Section 8 of AS3500.4.	CRA
J7.3: Swimming Pool Heating and Pumping	Any heating for a swimming pool must be in accordance with this clause which sets out requirements for heating sources.	CRA
J7.4: Spa Pool Heating and Pumping	Spa pool heating and pumping is required to be in accordance with this clause.	CRA
PART J8 – ACCESS FOR MAINTENANCE		
J8.0: Deemed-to-Satisfy Provisions	Noted	-
J8.1: Application of Part	This part is applicable to all areas except within the units.	Noted
NSW J8.2: Access for Maintenance	Access for maintenance must be provided to all services and their components including time switches, motion detectors, thermostats, outside air dampers, reflectors, lenses and diffusers of light fittings, heat transfer equipment and adjustable or motorised shading devices.	CRA
J8.3: Facilities for Energy Monitoring	A building with a floor area of more than 500m^2 must have an energy monitoring facility to record the consumption of gas and electricity. A building with a floor area of more than 2500m^2 must have the facility to individually record the consumption of air conditioning plant, artificial lighting, appliance power, central hot water supply, lifts, escalators and other ancillary plant .	CRA

SECTION J: ENERGY EFFICIENCY (Class 2)		
NSW PART J(A)1 – BUILDING FABRIC		
NSW J(A)1.0: Deemed-to-Satisfy Provisions	Reference to BCA2009 is required to meet BCA2012 provisions	Noted
NSW J(A)1.1: Application of Part	Applies to the new Class 2 portions where thermal insulation is required as a DA Condition.	Noted
NSW J(A)1.2: Compliance with BCA Provisions	To be included in the specification to AS/NZS4859.1 and Clause J1.2, for the new portion of the building. The installation is to be certified by an appropriate consultant.	CRA
NSW PART J(A)2 – BUILDING SEALING		
NSW J(A)2.0: Deemed-to-Satisfy Provisions	Noted	-
NSW J(A)2.1: Application of Part	This part is applicable to the Class 2 portions of the building, excluding any rooms where a building ventilation opening is necessary for the safe operation of a gas appliance and portions of the building that cannot be fully enclosed.	Noted
NSW J(A)2.2: Compliance with BCA Provisions	Compliance is to be achieved with Clauses J3.2, J3.4, J3.5 and J3.6.	Noted
J3.3: Roof Lights	No rooflights.	Noted
J3.4: External Windows and Doors	The windows and doors must be sealed, or the windows may comply with AS2047, doors are still to be sealed.	CRA
J3.5: Exhaust Fans	The exhaust fans to the sanitary facilities in the this portion of the building, and any other miscellaneous exhaust fans to other conditioned spaces, are to pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA
J3.6: Construction of Roofs, Walls and Floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air	CRA

SECTION J: ENERGY EFFICIENCY (Class 2)		
	leakage by being enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	
NSW PART J(A)3 – AIR-CONDITIONING AND VENTILATING SYSTEMS		
NSW J(A)3.0: Deemed-to-Satisfy Provisions	Noted	-
NSW J(A)3.1: Application of Part	Noted	-
NSW J(A)3.2: Compliance with BCA Provisions	Compliance is to be achieved with Clauses J5.2, J5.3, J5.4 and J5.5.	Noted
J5.2: Air-conditioning and Ventilation Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA
J5.3: Time Switch	Compliance required, design certification to be provided by Mechanical Engineer.	CRA
J5.4: Heating and Chilling Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA
J5.5: Miscellaneous Exhaust Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA
NSW PART J(A)4 – HOT WATER SUPPLY		
NSW J(A)4.0: Deemed-to-Satisfy Provisions	Noted	-
NSW J(A)4.1: Application of Part	Noted	-
NSW J(A)4.2: Compliance with BCA Provisions	The hot water supply system must comply with Clause J7.2.	Noted
J7.2: Hot Water Supply	The hot water supply systems must be designed and installed in accordance with Section 8 of AS3500.4.	CRA
NSW PART J(A)5 – ACCESS FOR MAINTENANCE		
NSW J(A)5.0: Deemed-to-Satisfy Provisions	Noted	-
NSW J(A)5.1: Application of Part	Noted	-
NSW J(A)5.2: Access for Maintenance	Access for maintenance must be provided to all services and their components.	CRA

ANNEXURE C

SECTION J INFORMATION

ANNEXURE C - ENERGY EFFICIENCY – SECTION J

C1 Introduction

BCA 2006 (now BCA2012) introduced requirements for Energy Efficiency for all buildings that contain conditioned spaces (heating or cooling).

This has an impact on the insulation of walls and ceilings in particular, and many existing standard types of construction no longer comply without insulation.

There are also controls on heating and cooling loads, and electrical loads.

The following is a summary of an assessment of the proposed building against the DTS provisions of the BCA, and outlines where further consideration is required by the designers or where specialised input from mechanical and electrical engineers is required.

In NSW the relevant Clauses of Section J are identified in NSW BCA Section J. This State variation is due to a BASIX certificate being required at the Development Application stage. This is so that there is not a doubling up of requirements on a residential building. The Class 7a portions of the building are required to comply with the national Section J requirements.

The BCA does outline one verification method being JV3 (JV1 & JV2 were deleted in the 2010 & 2008 BCA updates, respectively) which can also be used to demonstrate compliance with the performance requirements in lieu of the DTS provisions. This verification method requires detailed energy modelling to be carried out, however many of the items contained below may still be required to be satisfied.

C2 General Assessment Criteria

The building has been assessed against Section J based on the following assumptions.

(a) Climate Zone – The building is assumed to be Climate Zone 6 based on the BCA Climate Zone map.

(b) Conditioned Space – The conditioned space for the subject building includes all occupied floor areas provided with mechanical ventilation but excludes:

- Stairwells, lift shafts and other service shafts.
- Roof top plant room.
- Basement carpark level/s

Please note that a building is considered conditioned even if in the base building construction active heating or cooling is not proposed but it is likely to be conditioned in the future

(c) Envelope – for the purposes of Section J, means the parts of a building's fabric that separate a conditioned space or habitable room from the exterior of the building or a non-conditioned space. For example the envelope of the conditioned space is formed by the external walls and the internal walls/floor separating the basement level.

C3 Part J1 – Building Fabric

This Part applies to the building elements forming the envelope of the building:

(a) J1.2 – Thermal Construction

Insulation must comply with AS/NZS 4859.1 and be installed so that it overlaps adjoining insulation, forms a continuous barrier and does not affect the safe or effective operation of services or fittings.

Reflective insulation must be installed with the necessary airspace required to achieve the R value and be closely fitted against doors and windows and adequately supported by framing members.

Reflective insulation must be overlapped not less than 50mm and taped together.

Bulk insulation must be installed so that it maintains its position and thickness, and overlaps walls by 50mm where no insulation is provided in the walls.

(b) R Values Required

The subject building is required, under Clauses J1.3, J1.5 and J1.6 to obtain the following R Values for the elements as listed.

Item	R Value	Comment
Roof	3.2	Where exposed to the outside
Roof slab under plant room	1.6	Only for that part where a non conditioned space is located over the roof
Walls	2.8	Each part of the external wall that is part of the envelope.
Floors	2.0	Subject to the carpark below not being ventilated more than 1.5 air changes per hour.

Notes:

1. The roof construction shown is a concrete slab with suspended ceiling below which has a typical R Value of 0.58. Therefore insulation to the slab is required to achieve the above R Value.

(c) J1.4 – Rooflights

The rooflight(s) within the roof serves as part of the envelope of a conditioned space and therefore is required to comply with BCA Clause J1.4.

BCA Clause J1.4 requires that the total aggregate area of a rooflight, or rooflights, may be no more than 5% of the total floor area of the storey served unless the rooflights are required for compliance with the light and ventilation requirements of Part F4. Therefore, the rooflights would be allowed to have an area of not more than 150% of the minimum area required by F4.6 if they have a SHGC of not more than 0.29 and a u-value of not more than 2.9.

C4 Part J2 – Glazing

This Part applies to the glazed elements in the envelope of the building:

(a) No assessment of the glazing in the building has been undertaken using the glazing calculators, as insufficient detail has been provided at this stage for an accurate assessment.

C5 Part J3 – Building Sealing

It has been considered that the building will not be air-conditioned using only an evaporative cooler and as such the building is to be provided with the following (with the exception of permanent ventilation openings for the safe use of gas appliances):

(a) A seal to restrict air infiltration must be fitted to each edge of an external door, openable window or the like.

This does not apply to windows complying with AS2047, fire doors, or shutters used only for security.

(b) The main entrance to the building must have an airlock, self closing door, revolving door or the like.

(c) Miscellaneous exhaust fans must be fitted with a sealing device such as a self closing damper or the like.

(d) Roofs, ceilings, walls, floors and any openings such as windows and doors and the like must be constructed to minimise air leakage when forming part of the thermal envelope of the building. Linings and the like are to be tight fitting or sealed by caulking, skirting, architraves, cornices or the like.

(e) An evaporative cooler must be fitted with a self closing damper or the like.

C6 Part J4 – Air Movement

Deleted from BCA2012

C7 Part J5 – Air Conditioning and Ventilation Systems

The mechanical engineer/designer is to certify that the air-conditioning and ventilation systems, including any carpark ventilation systems, comply with Part J5 of the BCA, which includes the following requirements:

(a) An air conditioning unit or system must be capable of being inactivated when the sole occupancy unit (tenancy) or part of the building is not occupied (Clause J5.2(a)(i)).

(b) Where the air conditioning system has motorised outside air and return dampers are provided, they must close when the system is deactivated (Clause J5.2(a)(ii)).

(c) All supply and return ductwork must be insulated and sealed in accordance with Specification J5.2 (Clause J5.2(a)(iv)).

(d) When serving a sole occupancy unit of a class 3 building, not operate when any external door including a door opening to a balcony, patio, courtyard or the like is open for more than 1 minute (Clause J5.2(a)((iii)).

(e) Must have an outdoor air economy cycle if the capacity is over 35kWr (Clause J5.2(a)(vii)).

(f) When the air flow is greater than 1,000 l/s be designed so that the total fan power of the fans in the system is in accordance with Table J5.2 (Clause J5.2(a)(ix)).

(g) Any other mechanical ventilation system must be capable of being inactivated when the building or part is not occupied, and if serving a conditioned space, must comply with the requirements of Clause J5.2(b).

(h) A time switch must be provided in accordance with Specification J6 when the power supply to:

- An air conditioning system is more than 10kWr; or
- A ventilation system with an air flow of more than 1000 l/s; or
- Heating systems of more than 10kW.

(i) Heating and chilling systems must comply with the energy efficiency requirements and pumping limitations outlined in Clause J5.4 of the BCA.

(j) Miscellaneous exhaust systems (e.g. kitchen exhaust) with a flow rate of more than 1000 l/s must have a variable speed fan and capable of being controlled or turned off by the operator (Clause J5.5).

C8 Part J6 – Artificial Lighting and Power

The electrical engineer/designer is to certify the design of the lighting and power systems to Part J6 of the BCA, which includes the following requirements and is applicable to all areas of the building including the non-conditioned areas:

(a) The aggregate design illumination power load must not exceed the following:-

-Class 2 or Class 4 part - The lamp power density or illumination power density of artificial lighting must not exceed 5W/m^2 within a building and 4W/m^2 on a verandah or balcony of a building. The illumination power density may be increased by dividing it by the illumination power density adjustment factor for a control device in table J6.2b; and

-Buildings other than class 2 and Class 4 parts must not exceed the maximum illumination power density in table J6.2a (below) for the areas concerned unless adjustment factors are applicable due to dimming or motion detection as outlined in table J6.2b. These include:

Location	**Maximum Illumination Power Density (W/m²)**
Board room and conference room	10
Carpark - general	6
Carpark – entry zone (first 20m of travel)	25
Common Rooms, spaces and corridors in a class 2 building	8
Corridors	8
Control Room, switch room, and the like	9
Entry Lobby from outside the building	15
Kitchen and food preparation area	8
Plant room	5
Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks	18
Retail space including a museum and gallery whose purpose is the sale of objects	22
Storage with shelving no higher than 75% of the height of the aisle lighting	8
Storage with shelving higher than 75% of the height of the aisle lighting	10
Service area, cleaner's room and the like	5
Toilet, locker room, staff room, rest room and the like	6

The requirement for the maximum lamp/illumination power density does not apply to emergency lighting and signage and display lighting within cabinets and display cases.

(b) An occupant activated device such as a room security device, motion detector in accordance with Specification J6 or the like must be provided in the sole occupancy unit of a class 3 building (other than where the accommodation is provided for people with a disability or the aged, to cut power to the artificial lighting, air conditioner, local exhaust fans and bathroom heater when the occupancy is unoccupied. (Clause J6.3 (b)).

(c) Artificial lighting switches must be located in a visible position from the room being switched, and not operate an area of more than 250m² if the floor area is not more than 2,000m², or 1,000m² if the floor area of the space is more than 2,000m² (Clause J6.3 (c)).

(d) Artificial lighting in a building with a floor area of more than 250m² must be controlled by a time switch, or an occupant sensing device such as a security key card reader, or motion detector (Clause J6.3 (d)).

(e) Artificial lighting adjacent windows must be switched separately from other internal lighting (Clause J6.3 (e)).

(f) Interior decorative and display lighting to foyers or displays must be separately controlled by a manual switch and by a time switch if the lighting exceeds 7kW (Clause J6.4 (a)).

(g) Window display lighting must be controlled separately from other display lighting (Clause J6.4 (b)).

(h) Artificial lighting around a building must be controlled by either a daylight sensor or time switch in accordance with Specification J6, and when the total perimeter lighting load exceeds 100w, have a light source efficiency of not less than 60 lumens/w or be controlled by a motion detector in accordance with Specification J6 (Clause J6.5)).

(i) Power supply to any fixed boiling or chilled water storage units must be controlled by a time switch in accordance with Specification J6 (Clause J6.6)).

C9 Part J7 – Hot Water Supply

The hot water system must be designed and installed in accordance with Section 8 of AS/NZS 3500.4, which details requirements for the insulation of piping, heat traps, water storage containers and water flow rate efficiency, except if the hot water supply is provided by a solar hot water supply system in climate zones 1, 2 and 3.

Any heating for a swimming pool must be in accordance with Clause J7.3 which sets out requirements for heating sources. Spa pool heating and pumping is required to be in accordance with Clause J7.4.

C10 Part J8 – Access for Maintenance

Access for maintenance must be provided to all services and their components including time switches, thermostats, dampers, light fittings, heat transfer equipment and the like, and to adjustable or motorised shading devices (Clause J8.2).

A building with a floor area of more than 500m^2 must have an energy monitoring facility to record the consumption of gas and electricity (Clause J8.3).

A building with a floor area of more than 2500m^2 must have the facility to individually record the consumption of air conditioning plant, artificial lighting, appliance power, central hot water supply, lifts, escalators and other ancillary plant (Clause J8.3).