

BUILDING CODE OF AUSTRALIA ASSESSMENT REPORT

Crown Sydney Hotel Resort Barangaroo South, Sydney

For Crown Resorts Limited

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Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Wilkinson Eyre Architects (refer appendix A) for compliance with the Building Code of Australia 2013.

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA. The submission for Construction certificate will need to include verification from a suitably accredited fire engineer: -

DTS Clause	Description of Non-Compliance	Performance Requirement
C1.1, Spec C1.1	Reduction of the FRL's to the gaming and office portions above Level 4 to 90 minutes in lieu of 120 minutes, so as to allow all structure above Level 4 to achieve a consistent FRL of 90 minutes.	CP1, CP2
C3.3	Protection of openings in adjoining compartments to be assessed on a performance basis for levels 1 and 2.	CP2, CP8
C3.9	Assessment of level 23 egress transfer to be assessed on a performance basis.	CP8, DP5
D1.2, D1.4, D1.5, D1.7, D1.9, D2.4	The egress strategy, including utilising lifts for egress, access to exits, travel distances, aggregate egress widths, continuous egress paths and fire isolated exits are proposed to be assessed on a performance basis.	DP4, DP5, DP7, EP2.2
E2.2, Part G3, G3.8, Spec G3.8	The smoke hazard management and atrium to the podium levels is proposed to be assessed on a performance basis in lieu of complying with the deemed to satisfy provisions of Clauses E2.2, Part G3, G3.8 and Specification G3.8.	CP2, EP2.2

The fire engineered solution relating to EP2.2 will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process. The above items are proposed to be assessed by RAW Fire Safety Engineering as documented in the Concept Fire Safety Strategy.

The documentation will need further detailing such as door hardware, specifications, service design, as outlined in Appendix D of this report.

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

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Assessed By

Brigitte Thearle



1.0 Introduction

Site Location and Context

Barangaroo is located on the north western edge of the Sydney Central Business District (CBD), bounded by Sydney Harbour to the west and north; the historic precinct of Millers Point (for the northern half), The Rocks and the Sydney Harbour Bridge approach to the east; and a range of new development dominated by large CBD commercial tenants and the King Street Wharf/Cockle Bay precinct to the south.

The 22ha Barangaroo site is generally rectangular in shape and has a 1.4 kilometre harbour foreshore frontage, with an eastern street frontage to Hickson Road. The site has been divided into three distinct redevelopment areas (from north to south) – the Headland Park, Barangaroo Central and Barangaroo South, and has been subject to multiple investigations that detail the physical and natural characteristics of the site.

Purpose of Report

This report has been prepared on behalf of Crown Resorts Limited to accompany a State Significant Development Application (SSDA) for the Crown Sydney Hotel Resort at Barangaroo. The Hotel Resort is proposed in accordance with the approved Barangaroo Concept Plan (as modified) and is located within Barangaroo South.

Crown Sydney Hotel Resort Development

The Crown Sydney Hotel Resort development will comprise a single high rise building that will include a hotel, VIP gaming facilities and residential apartments. More specifically approval is sought for:

- construction and use of a hotel, VIP gaming facilities and residential apartment building with associated retail and restaurant uses and a basement car park to accommodate parking and servicing allocated to the proposed uses within the development, comprising a total Gross Floor Area of approximately 77,500m2 and a maximum building height of approximately 271 metres (RL 275);
- associated building signage: and
- provision of services and utilities required to service the building.

1.1 **Current Legislation**

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

The version of the BCA applicable to the development, is version that in place at the time of the application to the Certifying authority for the Construction Certificate.

2.0 **Building Assessment Data**

Summary of Construction Determination: -

	Crown Hotel, Sydney
Classification	2, 3, 5, 6, 7a, 7b, 9b
Number of Storeys Contained	78
Rise In Storeys	74
Type of Construction	A
Effective Height (m)	>50m

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





Part of Project	BCA Class	Approx. Floor Area (m2)	BCA Population	Population as Advised
Basement Level 3 Total	7a, 7b	7,985	267.00	-
Basement Level 2 Total	7a	8,530	285.00	-
Basement Level 1 Total	7a	8,410	281.00	-
Level 0 Total	3, 5, 6	3,435	1,661.00	1,891.00
Level 0 Mezzanine Total	3/5/6/9b	2,840	402.00	406.00
Level 1 Total	6, 9b	4,465	2,546.00	953.00
Level 1 Mezzanine Total	3/5/6/9b	1,825	61.00	-
Level 2 Total	6, 9b	4,550	2,571.00	2,226.00
Level 2 Mezzanine Total	3/5/6/9b	1,865	63.00	-
Level 3 Total	3/5/6/9b	4,230	3,339.00	3,010.00
Level 4 Total	3, 9b	3,035	2,154.00	371.00
Level 5 Total	3/5/6/9b	1,059	67.00	50.00
Levels 6-22: Residential	3	-	38.00	-
Level 23: Plant	3	1,313	-	-
Level 24 Total	5/6/9b	970	659.00	481.00
Level 25 Total	9b	689	147.00	297.00
Level 26 Total	9b	671	175.00	74.00
Level 27: Plant	3	1,065	36.00	-
Level 28: Plant	3	1,013	34.00	-
Level 29-33: Residential	3	-	10.00	-
Level 34 Total	3	422	19.00	50.00
Level 35-45: Residential	2	-	8.00	-
Level 46 Total	2	225	14.00	50.00
Level 47-50: Residential	2	-	9.00	-
Level 51-54: Residential	2	-	6.00	-
Level 55 Total	2	198	11.00	50.00
Level 56-62: Residential	2	-	2.00	-
Level 63: Plant	3	448	15.00	-
Level 64-65: Residential	2	-	2.00	-
Level 66-69: Residential	3	-	2.00	-

Notes:

- 1. The above BCA populations have been based on the floor areas and calculations in accordance with Table D1.13 of the BCA.
- 2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.

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3. The Carpark areas have been considered ancillary to the use for the purposes of population numbers

3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1.

Glazing is to comply with AS1288, and AS2047.

Prior to the issue of the Construction Certificate structural certification is required to be provided.

4.0 Fire Resistance

The buildings should be constructed generally in accordance with Table 3 & 3.9 of Specification C1.1 of the Building Code of Australia 2014. The building is required to be Type A Construction.

The building has been assessed on the basis of the following fire separation/ compartmentation within the development;

- Loading dock/storage separated from the remainder of the basement by construction achieving an FRL of 240/240/240.
- The remaining portions of the three basement levels being considered as one compartment
- Each level of the podium is considered as a separate compartment on the basis of the atrium being
 provided with bounding walls. Where the bounding walls do not comply with the deemed to satisfy
 provisions, they will be assessed on a performance basis.
- Fire compartmentation between the Mahogany Room and the Chairman's Club from the remainder of Levels 1 and 2 respectively with construction achieving an FRL of 180/180/180.
- Separation of the mezzanine plant rooms from the floors adjacent and below by construction achieving an FRL of 180/180/180.
- Fire compartmentation of the building at each floor level to level 5 and above,
- Bounding construction to the sole occupancy units to both the hotel and residential levels of 90 minutes,

Fire resistance levels for building structural members are as follows:

- Loading dock/storage Portions 240 minutes
- Car park levels 120 minutes
- Retail Portions
 180 minutes
- Commercial portion
 120 minutes

Where the building has parts of different classifications located alongside one another in the same storey, there are two options available to achieve compliance. The options are as follows:

- 1. Each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or
- 2. The parts of differing classifications must be separated in that storey by a fire wall having the higher FRL prescribed in Specification C1.1. Fire walls are required to have the following FRLs
 - Retail/Restaurant/Bar: 180 minutes
 - Gaming/Function:120 minutes
 - Hotel/Apartments: 90 minutes

As several classifications are proposed to be located within the same fire compartments on the podium levels (Levels 0 to and including Level 4), 180 minute fire resistance levels are to be adopted throughout these levels.

For levels above level 4 it is proposed to adopt 90 minute FRLs throughout. These will be assessed on a performance basis to CP1 and CP2.

4.1 **Protection of Openings**



The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:

- 1. Any external opening within 3m of the fire source feature protected by -/60/- fire rated construction, or externally located wall wetting sprinklers, or an alternate solution be provided to verify CP2 of the BCA.
- Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving the FRL applicable to the classification (refer above);
- 3. Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving the FRL applicable to the classification (refer above); (or 120/120/120 where it is a room such as a substation). This applies to doors serving as horizontal exits.
- 4. Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).
- 5. –/60/– fire doors to openings in fire isolated lift shafts that comply with AS 1735.11 and are set to remain closed except when discharging or receiving passengers, goods or vehicles

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

Where non-compliances with the above occur, these will be addressed on a performance basis to BCA Performance Requirements CP2 and CP8.

Fire source feature is defined as;

- (a) The far boundary of a road, river, lake or the like adjoining an allotment,
- (b) The side or rear boundary of the allotment,
- (c) The external wall of another building on the allotment which is not a class 10 building.

4.2 Public Corridors: Class 2 and 3 Buildings

Public corridors exceeding 40m in length to be divided into intervals of not more than 40m by smoke proof walls. The corridor on hotel levels 6-22 is up to 80m with no smoke-proof construction proposed. These corridors will need to be divided into portions not exceeding 40m by smoke-proof construction with smoke doors or be addressed as part of the alternate solution. Smoke-proof construction is to comply with Specification C2.5 of the BCA.



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4.3 Passive Fire Protection

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift motor rooms,
- Emergency power supply,
- Emergency generators,
- Electricity supply,
- Boilers or batteries,
- Hydrant Pump rooms,
- Sprinkler Pump Rooms,

To be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

4.4 Fire Hazard Properties

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

5.0 Egress

The egress provisions from the proposed building are provided by:

- Fire isolated stairways
- External perimeter doorways
- Required non-fire isolated stairways
- Horizontal exits to basement levels
- Fire isolated lifts

DP7

Where a lift is intended to be used in addition to the required exits to assist occupants to evacuate a building safely, the type, number, location and fire isolation must be appropriate to:

- a) The travel distance to the lift; and
- b) The number, mobility and other characteristics of occupants; and
- c) The function or use of the building; and
- d) The number of storeys connected by the lift; and
- e) The fire safety system installed in the building; and
- f) The waiting time, travel time and capacity of the lift; and
- g) The reliability and availability of the lift; and
- *h)* The emergency procedures for the building.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation (including all doors to VIP areas including lift lobbies and the Mahogany Room and Chairman's Club – automatically unlocking in the event of fire alarm.
- Stair construction
- Handrail and balustrade construction
- Details of the egress provisions to the Road.

The egress strategy, including utilising lifts for egress, access to exits, travel distances, aggregate egress widths, continuous egress paths and fire isolated exits are proposed to be assessed on a performance basis to BCA Performance Requirements DP4, DP5, DP7 and EP2.2.

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5.6 Balustrading and Handrail

Balustrading to a height of 1000mm with a maximum opening of 125mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm.

Where it is possible to fall more than 4m to the finished floor, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing between 150mm and 760mm above the FFL. This includes any walls adjacent to balustrading within a 1m zone of the balustrade.

Any windows with a sill height of less than 1.7m in bedrooms or 865mm in all other cases with a fall of more than 2m for windows, 4m for all other cases, openings are to be restricted or a protective barrier that does not allow a 125mm sphere to pass through.

Handrails should generally be provided at a minimum height of 865mm along side of all ramps and stairs.

Handrails are to be provided to each side of the stair, where the stair exceeds a width of 2m. Where an egress stair exceeds 2m in width, an additional handrail is required to ensure that the egress width of 2m is accounted.

The main public stairs and ramps should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

Swimming pool fencing is to be provided in accordance with the requirements of the Swimming Pool Act (1992) and Regulation (2008) and in accordance with AS1926.1 – 2012 and AS1926.2 – 2007.

5.6 Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2014. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

We have undertaken a review of the design documentation for the hotel, retail, commercial and function portions of the building against the access provisions within the BCA. The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details will be resolved as part of the design development process prior to the issuance of the Construction Certificate.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Parking shall be provided for people with disabilities in accordance with in accordance with Clause D3.5 of the BCA. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Clause D3.6 of the BCA.

General

Access to be provided to and within the building pursuant to AS1428.1-2009 as follows:

- Via the principle public entry and at least 50% of all other entrances
- From designated car parking spaces for the use of occupants with a disability.
- From another accessible building connected by a pedestrian link.
- All areas used by the public.

Note that entrances that are not accessible are to be located within 50m of an entrance that is accessible.

Our review of the drawings indicates compliance with the above provisions.

A hearing augmentation-listening system shall be installed throughout the building in accordance with the requirements of Clause D3.7 of the BCA.

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Where access to an area is not proposed due to access being inappropriate because of the particular purpose for which the area is used, or would pose a health or safety risk for people with a disability, an exemption is available under the provisions of the BCA. Where this exemption is sought, it is to be requested in writing with the reasons why access is inappropriate documented in the correspondence.

Where access does not strictly comply with the deemed to satisfy provisions, these items are to be rectified to comply or addressed through an alternate solution to comply with BCA Performance Requirements DP1 and DP2.

Carparking

Accessible carparking spaces are to be provided in accordance with AS/NZS 2890.6-2009. The following rates apply with regards to the provision of carparking spaces for people with disabilities:

Class of building to which the carpark or	Number of accessible carparking spaces
carparking area is associated	required

CLASS 2

No accessible carparking spaces required by the BCA.

CLASS 3

To be calculated by multiplying the total number of carparking spaces by the percentage of accessible sole-occupancy units to the total number of sole-occupancy units, calculated to the next whole figure.

CLASS 5

1 space for every 100 carparking spaces or part thereof.

CLASS 6

a)	Up to 1000 carparking spaces; and	1 space for every 50 carparking spaces or part thereof
b)	for each additional 100 carparking spaces or part thereof in excess of 1000 carparking spaces	1 space
CL	ASS 9b	
c)	Up to 1000 carparking spaces; and	1 space for every 50 carparking spaces or part thereof
d)	for each additional 100 carparking spaces or part thereof in excess of 1000 carparking spaces	1 space

It is noted that accessible carparking spaces are not required to be provided where a parking service is provided and direct access to any of the carparking spaces is not available to the public. As a result, accessible spaces will not be provided within the valet portions.

As the self-park carparking is shared across several classifications, the number of accessible carparking spaces provided will adopt the highest requirement (i.e. 1 accessible space per 50 carparking spaces). These spaces have been documented on the drawings and will comply with the requirements of AS/NZS 2890.1-2009.

The lift lobbies are required to have a minimum clear space of 1,500mm in front of the lift to enable occupants in a wheelchair to change direction as they come out of the lift. There are no specific BCA requirements to allow for a large volume of people in front of the lifts.

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Class 2 Residential

All common areas including entrance lobbies, pools, lounge areas etc. are required to be accessible and comply with the requirements of AS 1428.1-2009. While no Sole Occupancy Units are required to be accessible under the provisions of the BCA, access is to be provided to each Sole Occupancy Unit. This includes sufficient space to do a 180 degree turn at the end of a dead end corridor. Our review of the drawings indicates that the development is capable of complying with these parameters, with ongoing reviews being undertaken as part of the design development process.

Note all garbage chutes, mail areas etc. are required to be accessible.

Class 3 Hotel

Similar to the requirements for a Class 2 building/portion, all common areas are required to be accessible. Again, this includes lobbies, pools, lounges or the like.

Some sole occupancy units are required to be accessible in accordance with the requirements of AS 1428.1-2009 which includes the provision of a fully compliant accessible bathroom. Based on there being 350 hotel rooms proposed, 14 rooms are required to be accessible.

Fourteen rooms throughout the hotel portions of the development are proposed to be accessible as follows:

- 8 Standard King Rooms
- 2 Standard Queen/Queen Rooms
- 3 Suites
- 1 Villa.

The accessible rooms are proposed to be dispersed among the levels (1 per level on levels 6 through 9, 12, 13, two rooms on level 14 which are interconnecting, one suite on levels 15-16 and 18, two rooms on level 17 which are interconnecting and a villa on level 30). The accessible rooms provided are considered to be representative of the range of rooms available and not more than 2 required accessible sole-occupancy units are located adjacent to each other as required.

Class 6 & 9b Retail, Food & Beverage, Terraces, Gaming

Access is required and proposed to be provided to and within the retail, food and beverage, terraces and gaming to all areas that are normally used by the occupants.

6.0 Fire Services & Equipment

The following fire services will need to be provided throughout the building:

- An automatic sprinkler system in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999 throughout
- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Sound System & Intercom System for Emergency Purposes in accordance with AS 1670.4-2004.
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1-2005

A Fire Control Room shall be provided in accordance with Clause E1.8 of the BCA. The Fire Control Room is required to be located on the ground floor (with a change in level between the road and the floor of the fire control room of less than 300mm) with one entry direct from outside or from a fire isolated passageway and the other from the main entrance of the building. Where the location of the Fire Control Room does not comply with these requirements, it is to be assessed as part of the alternative solution prepared by the fire safety engineer to BCA Performance Requirement EP1.6.

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6.1 Fire Hydrants

A system of Fire Hydrants is required to be provided to BCA Clause E1.3 and AS 2419.1-2005. We will reply upon design certificate from a Hydraulic Consultant.

A booster assembly is required as part of the fire hydrant requirements. The booster is required to be located attached to the building at the main entry. If remote from the building, it shall be located at the main vehicle entry and within sight of the main entry of the building. The booster assembly is required to be within 20m of a hardstand area. Where the location of the booster does not meet these requirements, it will need to be assessed as part of the alternate solution to BCA Performance Requirement EP1.3.

Fire hydrants are to be provided within fire isolated stairs or where the exit is not fire isolated, within 4.0m of required exits.

As the building has an effective height of more than 25m, a fire hydrant ring main is to be provided in accordance with the requirements of AS 2419.1-2005.

6.2 Fire Hose Reels

A Fire Hose Reel System is required throughout the building to BCA Clause E1.4 and AS2441-2005.

Fire hose reels are to be located within 4m of exits and provide coverage within the building based on a 36m hose length. Coverage is required to be provided to all areas within sole occupancy units in addition to common areas.

Please note that fire hose reel coverage cannot pass through fire or smoke doors, and hose reels are only permitted to serve the levels on which they are located.

6.3 Automatic Sprinkler Protection

An Automatic Fire Suppression System is required throughout the building to Specification E1.5 and AS2118-1999.

Location of pumps, tanks, FIP, control valves and booster are to be provided.

An occupant warning system that is triggered upon activation of the sprinkler system should be provided in accordance with BCA Specification E1.5.

6.4 Portable Fire Extinguishers

Portable fire extinguishers are required to be installed in accordance with Table E1.6 of the BCA and AS 2444-2001. In addition, extinguishers are to be provided to the class 2 portions of the building in accordance with the below:

- an ABE type fire extinguisher is to be installed with a minimum size of 2.5 kg; and
 - extinguishers are to be distributed outside a sole-occupancy unit
 - (a) to serve only the storey at which they are located; and
 - (b) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10 m.

7.0 Ventilation and Smoke Hazard Management

Smoke hazard management shall be provided throughout the building by means of the following systems:

Throughout:

 Automatic Shutdown of Mechanical Systems that are not part of the smoke hazard management in accordance with the requirements of AS/NZS 1668.1-1998;

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- Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2004
- Automatic Pressurisation to Fire Isolated Exits in accordance with the requirements of AS/NZS 1668.1-1998

Carparking:

- Mechanical ventilation system in accordance with AS 1668.2 must comply with clause 5.5 of AS/NZS 1668.1 except that
 - a) fans with metal blades suitable for operation at normal temperature may be used; and
 - b) the electrical power and control cabling need not be fire rated.

All Non-Residential Areas (excluding carparking):

- Zone Smoke Control in accordance with the requirements of AS/NZS 1668.1-1998;
- Where the building is assessed as a large isolated building, Automatic Smoke Exhaust System activated by Automatic Smoke Detection & Alarm System in accordance with the requirements of BCA Spec E2.2b

Residential:

 Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2004 to common areas and AS 3786-1993

A fire indicator panel (FIP) is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Where the main FIP is located in the fire control room, a mimic panel is to be provided at the main building entry. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

The smoke hazard management and atrium to the podium levels is proposed to be assessed on a performance basis in lieu of complying with the deemed to satisfy provisions of Clauses E2.2, Part G3, G3.8 and Specification G3.8.

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with F4.5 Building Code of Australia and AS 1668 and AS/NZS 3666.1.

8.0 Lift Services

The passenger lifts to be installed are to be: -

- fitted with warning signs, fire service controls in accordance with Clauses E3.3, E3.7, E3.9 and E3.10 of the BCA
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high.
- At least two emergency lifts with stretcher facilities in accordance with part E3.4 of the BCA. The two
 emergency lifts shall be located in separate shafts
- Be provided with the following: -
 - A handrail in accordance with AS 1735.12
 - Minimum internal floor dimensions as specified in Table E3.6b of the BCA i.e. 1,400mm x 1,600mm,
 - Minimum clear door opening complying with AS 1735.12
 - Passenger protection system complying with AS 1735.12
 - Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12.

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- Lighting in accordance with AS 1735.12
- Automatic audible information within the lift car to identify the level each time the car stops
- Audible and visual indication at each lift landing to indicate the arrival of the lift car



9.0 Sanitary Facilities

The sanitary & other facilities within the development would generally consist of: -

Class 2 (Residential) Portions:

Each sole occupancy unit is provided with:

- A kitchen sink and facilities for preparation and cooking of food; and
- A bath or shower; and
- A closet pan and wash basin; and
- Clothes washing facilities (tub and space for washing machine); and
- Clothes drying facilities (either 7.5m of clothes line or space for a dryer).

A closet pan and washbasin is to be provided that is not accessible through a sole occupancy unit.

Class 3 (Hotel) Portions:

For each hotel portion, the following facilities are to be provided:

- (a) a bath or shower; and
- (b) a closet pan and washbasin,

for each 10 residents for whom private facilities are not provided, except that if one urinal is provided for each 25 males up to 50 and one additional urinal for each additional 50 males or part thereof, one closet pan for each 12 males may be provided.

Class 5, 6, 7, 9 Portions:

Sanitary facilities to these portions will be provided in accordance with the requirements of the BCA for their respective areas.

Please note the Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009. Where one accessible facility is provided on a storey, one may be deducted from the total required for the storey, not the total for each type of classification on the storey.

An accessible sanitary facility compliant with AS 1428.1-2009 is required to be provided to all levels that are required to be accessible and contain sanitary facilities. In addition, an ambulant facility for each sex that is compliant with AS 1428.1-2009 is also required to be provided at each bank of sanitary facilities that contain an accessible facility. Where multiple banks of sanitary facilities are provided to a storey, an accessible facility is required to be provided to at least 50% of the banks on that floor.

10.0 Sound Transmission & Insulation

The sound transmission and insulation requirements for the Class 2 and 3 portions shall be provided in accordance with Part F5 of the BCA 2014 for the following elements:

- A floor separating sole-occupancy units or a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification:
 - Rw + Ctr (airborne) not less than 50
 - Ln,w+CI (impact) not more than 62
- A wall separating sole-occupancy units
 - Rw + Ctr (airborne) not less than 50,
- A wall separating a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification
 - Rw (airborne) not less than 50,
- A wall separating a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or a sole-occupancy unit from a plant room or lift shaft.

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- Rw (airborne) not less than 50
- Discontinuous Construction
- A door assembly separating a sole-occupancy unit from a stairway, public corridor, public lobby or the like,
 - Rw not less than 30
- All walls required to have a impact sound insulation rating are of discontinuous construction

11.0 Energy Efficiency

The proposed development shall comply with Part J of the BCA. For the carpark and podium, to achieve compliance, there are two options available:

- 1. The building can comply with the deemed-to-satisfy provisions of the BCA, relating to the following areas:
 - Building Fabric
 - Glazing
 - Building Sealing
 - Air Conditioning & Ventilation Systems
 - Artificial Lighting & Power
 - Hot Water Supply
- 2. The building can be verified against a reference building as per Verification Method JV3. This requires that the proposed building and its services be shown to have an annual energy consumption of equal or less than the reference building which has been modelled as per the requirements of Part J of the BCA.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

It is noted that the JV3 methodology is not applicable to the Class 2 and 3 portions.

The class 2 portions of the building will be subject to BASIX.

Access for maintenance is to be provided to the building in accordance with the requirements of BCA Part J8.

The proposed site will be located in a climate zone 5.



Appendix A - Design Documentation

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

Document No.	Title	Date	Drawn By
00915-11-P-1000-TP	Level 0 Plan - Lobby	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1005-TP	Level 0 Plan – Mezzanine Level Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1010-TP	Level 1 Plan – Mahogany Room	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1015-TP	Level 1 Plan – Mezzanine Level Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1020-TP	Level 2 Plan – Chairman's Club	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1025-TP	Level 2 Plan – Mezzanine Level Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1030-TP	Level 3 Plan – Pool	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1035-TP	Level 3 Plan – Mezzanine Level Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1040-TP	Level 4 Plan – Spa	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1045-TP	Level 5 Plan Room – Podium Roof Full Extent	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1050-TP	Level 05 Plan – Offices/ Plant	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1060-TP	Level 06 Plan – Hotel Min.	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1070-TP	Level 07 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1080-TP	Level 08 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1090-TP	Level 09 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1100-TP	Level 10 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1110-TP	Level 11 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1120-TP	Level 12 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1130-TP	Level 13 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1140-TP	Level 14 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1150-TP	Level 15 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1160-TP	Level 16 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1170-TP	Level 17 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1180-TP	Level 18 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1190-TP	Level 19 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1200-TP	Level 20 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1210-TP	Level 21 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1220-TP	Level 22 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1230-TP	Level 23 Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1240-TP	Level 24 Plan – Crystal Club	01/09/2014	Wilkinson Eyre Architects



00915-11-P-1250-TP	Level 25 Plan – Sky Gaming	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1260-TP	Level 26 Plan – Sky Gaming	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1270-TP	Level 27 Plan – Sky Gaming/ Plant	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1280-TP	Level 28 Plan – Plant	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1290-TP	Level 29 Plan Typical Villa Floor Plan – Max	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1300-TP	Level 30 Plan 5 Villas Per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1310-TP	Level 31 Plan 5 Villas Per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1320-TP	Level 32 Plan 5 Villas Per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1330-TP	Level 33 Plan Typical Villa Floor Plan – Min	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1340-TP	Level 34 3 Apartments Level – Max	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1350-TP	Level 35 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1360-TP	Level 36 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1370-TP	Level 37 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1380-TP	Level 38 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1390-TP	Level 30 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1400-TP	Level 40 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1410-TP	Level 41 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1420-TP	Level 42 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1430-TP	Level 43 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1440-TP	Level 44 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1450-TP	Level 45 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1460-TP	Level 46 Plan 3 Apartments per Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1470-TP	Level 47 Plan 3 Apartments per Level - Min	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1480-TP	Level 48 Plan Residential Plant Level	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1490-TP	Level 49 Plan 2 Apartment Floor Plan – Max	01/09/2014	Wilkinson Eyre Architects





00915-11-P-1500-TP	Level 50 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1510-TP	Level 51 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1520-TP	Level 52 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1530-TP	Level 53 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1540-TP	Level 54 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1550-TP	Level 55 Plan 2 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1560-TP	Level 56 Plan 2 Apartment Floor Plan – Min	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1570-TP	Level 57 Plan 2 Apartment Floor Plan – Max	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1580-TP	Level 58 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1590-TP	Level 59 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1600-TP	Level 60 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1610-TP	Level 61 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1620-TP	Level 62 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1630-TP	Level 63 Plan 1 Apartment Floor Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1640-TP	Level 64 Plan 1 Apartment Floor Plan – Min	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1650-TP	Level 65 Plan Plant	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1660-TP	Level 66 Plan Super Villa	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1670-TP	Level 67 Plan Sky Villa – 1 st Floor	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1680-TP	Level 68 Plan Sky Villa – 2 nd Floor	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1690-TP	Level 69 Plan Sky Villa – 3 rd Floor	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1700-TP	Level 70 Plan Sky Villa – Plant	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1710-TP	Level 71 Plan Sky Villa – BMU	01/09/2014	Wilkinson Eyre Architects
00915-11-P-1800-TP	Roof Plan	01/09/2014	Wilkinson Eyre Architects
00915-11-S-2000-TP	Section AA	01/09/2014	Wilkinson Eyre Architects
00915-11-S-2003-TP	Section CC Hotel	01/09/2014	Wilkinson Eyre Architects
00915-11-S-2012-TP	Section GG	01/09/2014	Wilkinson Eyre Architects
00915-11-S-2013-TP	Section HH	01/09/2014	Wilkinson Eyre Architects



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00915-11-S-2014-TP	Section CC Atrium Section	01/09/2014	Wilkinson Eyre Architects
00915-11-E-3000-TP	West Elevation	01/09/2014	Wilkinson Eyre Architects
00915-11-E-3001-TP	East Elevation	01/09/2014	Wilkinson Eyre Architects
00915-11-E-3002-TP	North Elevation	01/09/2014	Wilkinson Eyre Architects
00915-11-E-3003-TP	South Elevation	01/09/2014	Wilkinson Eyre Architects



Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers	BCA Clause C3.13
2.	Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
3.	Automatic Fire Detection and Alarm System	BCA Spec. E2.2a & AS 1670 – 2004
4.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999
		Alternate solution prepared by fire engineer
5.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2004
6.	Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001
		Alternate solution prepared by fire engineer
7.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005
8.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
_		Alternate solution prepared by fire engineer
9.	Exit Signs (non-illuminated)	BCA Clause E4.7
10.	Fire Control Rooms	BCA Spec. E1.8
_		Alternate solution prepared by fire engineer
11.	Fire Dampers	BCA Clause C3.15, AS 1668.1 – 1998 & AS 1682.1 & 2 – 1990
12.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 – 2005
13.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
14.	Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
		Alternate solution prepared by fire engineer
15.	Fire Seals	BCA Clause C3.15 & AS 1530.4 – 1997
16.	Fire Shutters	BCA Spec. C3.4 & AS 1905.2 – 1989
17.	Fire Windows	BCA Spec. C3.4
18.	Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999
19.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 1991
20.	Paths of Travel	EP&A Reg 2000 Clause 186
		Alternate solution prepared by fire engineer
21.	Perimeter Vehicular Access	BCA Clause C2.4
22.	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
23.	Pressurising Systems	BCA Clause E2.2 & AS/NZS 1668.1 – 1998
24.	Required Exit Doors (power operated)	BCA Clause D2.19(d)
25.	Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 1998 Alternate solution prepared by fire engineer

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	Essential Fire Safety Measures	Standard of Performance
26.	Smoke and/or Heat Alarm System	BCA Spec. E2.2a & AS 3786 – 1993
27.	Smoke Dampers	AS/NZS 1668.1 – 1998
28.	Smoke Doors	BCA Spec. C3.4
29.	Stand-by Power System	BCA Clause G3.8
30.	Sound System & Intercom System For Emergency Purposes	BCA Clause E4.9 & AS 1670.4 - 2004 Alternate solution prepared by fire engineer
31.	Wall-Wetting Sprinklers	BCA Clause C3.4 & AS 2118.2 – 1995
32.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause D2.23, E3.3



Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2014:

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 <i>fire-source feature</i> 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	<i>_/</i> 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 <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—						
less than 3 m	90/_/_	120/—/—	180/—/—	240/_/_		
3 m or more	_/_/_	_/_/_	_/_/_	_/_/_		
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240		
INTERNAL WALLS—						
Fire-resisting lift and stair shafts—						
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120		
Non- <i>loadbearing</i>	<i>_/</i> 90/ 90	-/120/120	-/120/120	-/120/120		
Bounding <i>public corridors</i> , public lobbies	and the like—					
Loadbearing	90/ 90/ 90	120/—/—	180/_/_	240/_/_		
Non- <i>loadbearing</i>	-/ 60/ 60	_/_/_	_/_/_	_/_/_		
Between or bounding sole-occupancy ur	nits—					
Loadbearing	90/ 90/ 90	120/—/—	180/—/—	240/—/—		
Non- <i>loadbearing</i>	-/ 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- <i>loadbearing</i>	<i>_/</i> 90/ 90	_/ 90/ 90	-/120/120	-/120/120		
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES						
and COLUMNS—	90/_/_	120/_/_	180/_/_	240/_/_		
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240		
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60		

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Table 3.9 REQUIREMENTS FOR CARPARKS

Buildin	g elemei	nt		FRL (not less than) Structural adequacy/Integrity/Insulation		
				ESA/M (not greater than)		
Wall						
(a)	external wall					
	(i)	less t which	han 3 m from a <i>fire-source feature</i> to i it is exposed:			
			Loadbearing	60/60/60		
			Non-loadbearing	-/60/60		
	(ii)	3 m o it is e	r more from a <i>fire-source feature</i> to which xposed	_/_/_		
(b)	internal wall					
	(i)	<i>loadb</i> roof (<i>earing</i> , other than one supporting only the not used for carparking)	60//		
	(ii)	suppo carpa	orting only the roof (not used for rking)	_/_/_		
	(iii)	non-la	padbearing	_/_/_		
(C)	c) fire wall					
	(i)	from	the direction used as a <i>carpark</i>	60/60/60		
	(ii)	from	the direction not used as a carpark	as required by Table 3		
Columr	ı					
(a)	supporting only the roof (not used for carparking) and 3 m or more from a <i>fire-source feature</i> to which it is exposed		y the roof (not used for carparking) and 3 n a <i>fire-source feature</i> to which it is	_/_/_		
(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 <i>carpark</i>		other than one covered by (a) and one support a part of a building that is not park	60/–/– or 26 m ² /tonne		
(c)	any othe	er colu	mn not covered by (a) or (b)	60/—/—		
Beam						
(a)	steel floor beam in continuous contact with a concrete floor slab		m in continuous contact with a concrete	60/–/– or 30 m²/tonne		
(b)	o) any other beam		n	60/—/—		
Fire-res	sisting lif	ft and	stair shaft (within the <i>carpark</i> only)	60/60/60		
Floor s	lab and v	vehicle	e ramp	60/60/60		
Roof (not used for carparking)				_/_/_		
Notes:		1.	ESA/M means the ratio of exposed surface	e area to mass per unit length.		
		2.	Refer to Specification E1.5 for special requirements carpark complying with Table 3.9 and local	uirements for a sprinkler system in a ted within a multi-classified building.		



