THE STAR

MODIFICATION 13 PLANNING SUBMISSION

NATIONAL CONSTRUCTION CODE (BCA) REPORT

PREPARED BY

mckenzie group

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13.01.17	A		Draft for Project Application	Lindsay Beard	Seb Howe	16.01.17
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EXECUTIVE SUMMARY

SEGL has commenced a five-year redevelopment journey to create a landmark, exemplar integrated resort. This proposed redevelopment will occur through the lodgement of two s75W modification applications to the original Major Project Approval (MP08_0098) with the Department of Planning and Environment (the Department).

Modification 14 (Mod 14) was determined in October 2017 and included approval for a range of upgrades to the existing site. These upgrades included the enclosure of the level 3 terrace to facilitate an expansion in gaming floor area and a new bar and restaurants, expansion of the level 3 pre-function space, changes to the Astral Hotel lobby and retail space, and alterations to internal vertical transportation, services and infrastructure, including the harbour heat rejection system.

Mod 13 is a modification to the development as approved under MP08_0098, up to and including Mod 14. This forms the basis for technical impact assessments.

Modification 13, proposes the development of a new Ritz-Carlton Hotel and Residential Tower in the northern portion of the site with associated podium treatment, as well as other transport, retail, food and beverage improvements across the site. It is Modification 13 that is the subject of this report.

As Accredited Certifiers, we have reviewed architectural design documents prepared by fjmt Architects and DWP (refer appendix A) for compliance with:

a. The National Construction Code (Building Code of Australia) 2016 Volume 1.
b. The relevant Standards referenced in the BCA 2016 Volume 1
c. *Environmental Planning and Assessment Act* 1979
d. *Environmental Planning & Assessment Regulation* 2000

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	Rationalisation of FRL's in Class 6 retail areas from 180 minutes to 120 minutes and in Class 7b storage areas from 240 minutes to 120 minutes.	CP1 & CP2
C2.14	Public corridors exceeding 40m in length are required to be divided into intervals of not more than 40m by smoke proof walls. The proposed corridors on a typical hotel plan exceeds 40m, corridors have been measured at being 41m.	CP2, DP4 EP2.2
C3.3	Protection of openings in adjoining compartments to be assessed on a performance basis.	CP2, CP8
D1.2	It is proposed to provide the retail units with a single exit in lieu of 2.	DP4
D1.4, D1.5	The following areas exceed the maximum allowable travel distance: **B4 Basement** ▪ Travel distance to a single exit 28m in lieu of 20m in apartment storage area ▪ Travel distance to a single exit 38m in lieu of 20m in car stacker.	

B3 Basement
- Travel distance to a single exit 30m in lieu of 20m from BOH hotel staff area

Hotel Entry Ground
- Travel distance to a single exit 38m in lieu of 20m

Level 7
- Travel distance to a point of choice 26m in lieu of 20m in hotel gym
- Travel distance to an exit after a point of choice 51m in lieu of 40m

Level 9
- Travel distance to a single exit 52m in lieu of 20m from residential pool area

Typical Residential High Levels
- Travel distance to an exit up to 11m in lieu of 6m

Typical Residential Mid Plan Levels
- Travel distance to an exit up to 9.5m in lieu of 6m

Typical Residential Low Plan Levels
- Travel distance to an exit up to 10m in lieu of 6m

Sky Lobby Level
- Travel distances to a point of choice up to 34m in lieu of 20m

Sky Lobby Mezzanine
- Travel distances to a point of choice up to 32m in lieu of 20m

Club Lounge

- Travel distance to a point of choice 26m in lieu of 20m from library

Typical Hotel Plan Levels
- Travel distance to an exit up to 11m in lieu of 6m

Separation of exits does not fully comply in the following areas:

Level 7
- Distance between alternative exits 100m in lieu of 60m

Level 9
- Distance between alternative exits 110m in lieu of 60m
- Distance between exits 6.5m in lieu of minimum 9m

D1.6	The aggregate egress widths from Levels 5 and 7 are to be assessed under the performance provisions of the BCA.	DP4, EP2.2
D1.7	The fire-isolated stairs discharge into an area that is not open for at least 1/3 of its perimeter.	DP4, EP2.2
D1.12	The non-required stairs connecting levels in the community room connect 4 storeys directly and 5 indirectly	EP2.2
D3.3	The area's within the car stacker area are not fully accessible. The accessibility of this area is to be assessed under the performance provisions of the BCA	DP1
E1.3	Fire hydrant pumping arrangement to be assessed under the performance provisions of the BCA.	EP1.3
E1.8, Spec	Due to there being several entrances to the building, and a change in floor	EP1.6

E1.8	heights to the fire control room, the access to the fire control room is to be documented as part of the alternate solution.	
E2.2	Due to there being several entrances to the building, the location of the FIP and mimic panels are to be assessed under the performance requirements	EP2.2
E2.2, Part G3, G3.8, Spec G3.8	The smoke hazard management and atrium to the community levels, and circulation drum adjoining sovereign gaming 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
E2.2, E2.3	The fire-isolated egress stair in the tower is proposed to only pressurise the portion serving the basement levels, whilst the residential levels of the tower will be served by a mechanical smoke exhaust system within the common corridor.	DP4, DP5, EP2.2
E3.3	Utilization of lifts as part of the egress strategy for the tower	DP7

The fire engineered solution relating to EP2.2 & EP1.6 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 WSP Fire Safety Engineering as documented in the Concept Fire Safety Strategy.

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.

Assessed By

Lindsay Beard

Senior Building Surveyor

1 INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

The subject site (the site) is located at 20-80 Pyrmont Street, Pyrmont, which is legally described as Lot 500 in DP1161507, Lot 301 in DP 873212 (SP56913), and Lot 302 in DP873212. The site also accommodates a light rail line (including 'The Star' light rail station) legally described as Lot 211 in DP 870336. The service road to the north of the site, comprising Lot 1 in DP 867854 and Lot 201 in DP 867855, is also part of the proposal under Modification 13.

The site is bounded by Pirrama Road to the north-east, Jones Bay Road to the north-west, Pyrmont Street to the south-west, Union Street to the south and Edward Street to the east. The location and configuration of the site is shown in **Figure 1** below.

The site is leased by SEGL from the Independent Liquor and Gaming Authority (ILGA). SEGL is a leading operator of integrated resorts that appeal to both local and international visitors. SEGL is the operator of The Star Sydney (The Star), with a casino licence to operate a casino through to the year 2093.

The site has a total area of 39,206 m^2 (excluding Lot 1 in DP 867854 and Lot 201 in DP 867855 to the north), and is occupied by the existing integrated resort which includes a multi-storey entertainment facility, gaming areas, retail spaces, multiple restaurants and bars, the Sydney Lyric Theatre, 480 hotel rooms/serviced apartments across three towers, and basement parking.

Figure 1 – Aerial Image of the Subject Site (base map source: maps.six.nsw.gov.au)

1.2 LEGAL DESCRIPTION AND OWNERSHIP

The site comprises the following lots as shown in the **Table 1** below.

Table 1 – Legal Description and Ownership

Details	Uses	Ownership
Lot 211 in DP 870336	The Light Rail Corridor	Owned by Rail Corporation New South Wales
Lot 500 in DP 1161507	The Star site	Owned by ILGA, leased by SEGL
Lot 301 in DP 873212	Astral Hotel	Owned by the ILGA, leased by SEGL
Lot 302 in DP 873212	Astral Residences divided into strata (Strata Plan - SP 56913);	Stratum owned by ILGA, leased by SEGL
Lot 1 in DP 867854	Service road	Owned by ILGA, leased by SEGL
Lot 201 in DP 867855	Service road	Owned by ILGA, leased by SEGL

Figure 2 – Legal Description of the site (base map source: maps.six.nsw.gov.au)

1.3 SCOPE OF WORKS

The proposed Modification 13 development comprises of the following:

NEW RITZ-CARLTON HOTEL AND RESIDENTIAL TOWER

- Demolition of part of the existing building in the northern portion of the site, including part of the Pirrama Road façade and part of the Jones Bay Road façade.
- Construction of a new Tower, 237.0 metres AHD (approximate, 234 metres from Pirrama Road);
- Residential uses across 35 levels, comprising:
  - A residential vehicular drop off lobby on Level B2
  - A residential lobby on Level 00 to be accessed from Jones Bay Road;
  - Residential communal space on Level 07 to be accessed via Level 08; and
  - 204 residential apartments located from Levels 05 to 06 and from Levels 08 to 38, featuring one-bedroom, two-bedroom and three-bedroom unit types *(Note – no Level 13)*
- Hotel uses across 31 levels, comprising:
  - A hotel arrival lobby on Level B2 to be accessed from the new Ritz-Carlton porte-cochere along Pirrama Road;
  - A hotel Sky Lobby for guest check-in on Level 39 and 40, featuring a restaurant, bar and lounge;
  - 220 hotel rooms located from Level 42 to 58 and from Level 60 to 61
  - A hotel spa and gym on Level 07
  - A VIP link to the Sovereign Room on Level 04 and 04 Mezzanine
  - A Ritz-Carlton Club lounge and terrace on Level 59
  - Hotel staff end-of-trip facilities on Level B3
  - Hotel staff arrival point on Level 00
  - Hotel back-of-house and plant on Level B2, 02, 03, 05, 41 and 42
- A Neighbourhood Centre consisting of the following proposed uses including street level cafe, library, learning / innovation hub, multipurpose function centre, practice rooms (functional use to be finalised in conjunction with a neighbourhood panel)
- A new car-parking stacker system below the new porte-cochere of the Ritz-Carlton Hotel, with a total capacity of 221 spaces, to serve the new hotel and apartments
- Vertical transport associated with the tower and podium; and
- A new drop-off / pick up area (short-term parking) on Jones Bay Road for the proposed apartments.

LEVEL 07

- A 'Ribbon' at Level 07 connecting the new Hotel and Residential Tower to the existing building along Pirrama Road, comprising:
  - Two pools and associated pool decks (one for the new Hotel, one for The Star); and
  - Two food and beverage premises with associated store rooms and facilities;
- Lift access from the Level 05 Terrace to Level 07;
- Residential communal open space associated with the new residential apartments, comprising pool and landscaped terrace at the base of the Tower adjacent to Jones Bay Road;
- Gym and associated change rooms and facilities for the residents;
- Gym and associated change rooms and facilities for hotel guests; and
- Landscaping treatments.
- Landscaping treatments.

LEVEL 05 TERRACE

- Three food and beverage outlets with external areas;

- Completion of the Vertical Transportation drum to connect with Level 05 Sky Terrace;
- Designated event spaces on the Terrace; and
- Landscaping treatment.

LEVEL 05 ASTRAL POOL AND SPA RECREATIONAL FACILITY UPGRADE

- New pool deck, pool, spa, gym and amenities upgrade for Astral Hotel and Residences.

TOWER TO SOVERIEGN LINK BY ESCALATOR AND LIFT

- Link from the Tower (across Level 04 and Level 04 Mezzanine) to the Sovereign Resort and MUEF at Level 03, connected via Lift G4, Lift VIP 1 and escalators.
- Extension of the lift service to stop at Level 00, 01 and 05 in addition to Level 3, 4 and 4M.

LEVEL 03 SOVEREIGN COLUMN FAÇADE TREATEMENT ALONG PIRRAMA ROAD

- New glazed detail to enclose exposed Level 03 Sovereign columns along the Pirrama Road façade.

VARIOUS RECONFIGURATION WORKS AROUND VERTICAL DRUM LEVEL 00 TO L5

- Revolving door at L00 main entrance landing Pirrama Road end
- Sliding door at L00 landing at stairs from Light Rail
- Reconfiguring of existing L1 and 2 void edge
- New escalators from L2 to L3 due to revised landing at Level 3
- Infill of L2 atrium void to main entrance at Pirrama Road

FAÇADE INTEGRATION WORKS

- Upgrades to the Pirrama Road and Jones Bay Road facades to integrate the new Ritz Carlton Hotel and Residential Tower with the existing building

INFRASTRUCTURE UPGRADES

Infrastructure upgrades, including:

- A new plant room located within the podium over Levels 03, 04, 05 and 06 of the proposed Hotel and Residential Tower;

- Relocation of the current Level 03 cooling towers (adjacent to the MUEF) to the Level 09 plant room above the Level 06 plantroom adjacent to the Astral Hotel;
- New capstone microturbine units and associated flues in the proposed plant room at Level 03 between the Darling Hotel and the Astral Residence Tower;
- New capstone microturbine units and associated flues in the new Level 03 plant room at the base of the Tower;
- Relocation of the existing main switch-room to the new plant room on Level 02, south of the demolition cut line;
- Relocation of the existing data recovery centre to the new plant room on Level B1 of the Darling Hotel;
- Relocation of diesel generator flues to the side of the new Level 09 plantroom, adjacent to Astral Hotel

LEVEL B2 TRANSPORT INTERCHANGE

- Upgrades to the Event Centre Loading Dock;
- Entry into Basement car stacker for the Tower apartments and Ritz-Carlton Hotel;
- New commuter bike parking and hire bike system;
- Upgrade of finishes to light rail station surrounds (but not within Light Rail corridor) and removal of existing wall barrier to the Pirrama Road frontage;
- Upgraded taxi-rank arrangements;
- Designated Star coach parking along Service Road in front of Light Rail station; and
- Realignment of kerbs and line-marking.
- *Note – no works within the Light Rail corridor*

TRANSPORT IMPROVEMENTS – OTHER LOCATIONS

- Reconfiguration of existing median strips on Jones Bay Road and addition of new median strip on Pyrmont Street with associated line-marking to enable a new right-hand turning lane into the Astral Hotel Porte-Cochere;
- New Pyrmont Street carpark entry and exit, associated line marking, changes to internal circulation, and reconstruction of the pedestrian footpath along Pyrmont Street; and
- Relocation of existing taxi-rank from Jones Bay to the Level B02 transport interchange.

SITE WIDE LANDSCAPE AND PUBLIC DOMAIN UPGRADES, INCLUDING:

- Upgrades to street frontages along Pirrama Road (for the Hotel Porte Cochere) and Jones Bay Road (for the residential entry);
- Upgrades to street frontage to Pyrmont Street, due to new car parking entry; and
- Upgrade to the entry forecourt of SELS building at the corner of Jones Bay Road and Pyrmont Street. (Note: no works within SELS building is proposed)

LEVEL 00 - RESTAURANT STREET

- Creation of a new destination Restaurant Street by:
  - Incorporating existing Balla & Black Food and Beverage premises on Level 00; and
  - Converting existing retail shops into new Food and Beverage tenancies

PIRRAMA ROAD AND JONES BAY ROAD – FOOD AND BEVERAGE TENANCIES

- A revised food and beverage tenancy at the existing Pizzaperta outlet along Pirrama Road;
- A new food & beverage tenancy at the Marquee street entry; and
- A small café outlet adjacent to the residential lift lobby at Jones Bay Road.
- A new food & beverage tenancy accessed off existing walkway from Jones Bay Road

FOOD AND BEVERAGE – OTHER LOCATIONS

- Reconfiguration of Harvest Buffet, including new escalators from Level 00 Food Court to Level 01; and
- Refurbishment of Bistro 80 into the interim Century tenancy. (Note: The Century tenancy post construction is proposed to be at the Jones Bay end of L00 – Restaurant Street

DARLING HOTEL CORNERS

- Upgrade of the corner plaza at the Union/Edward Street property entry to accommodate:
  - A new food and Beverage premises on Level 01 and 02;
  - A new entry foyer leading to the Food Court;
  - A relocated awning enclosure at street level;

- Upgrade of the corner plaza at the Union/Pyrmont Street property entry to accommodate:
  - A new awning enclosure at for the existing café;
  - New revolving door at entry to Darling Hotel
  - Eight (8) luxury display cases at Darling Hotel car park entry; and
  - Two car display areas at Darling Hotel car park entry.

SITE WIDE ACOUSTIC STRATEGY

- A site-wide acoustic monitoring strategy applied to assess impact of potential noise generating sources in Mod13.

SITE-WIDE LIGHTING STRATEGY

- A site-wide lighting strategy integrating and improving the existing lighting across the precinct, with new lighting the proposed Tower, Podium and Ribbon, including:
  - Internal lighting of Hotel and Residential spaces;
  - Illuminated highlights at the Sky Lobby and Club Lounge levels;
  - Integrated lighting on the eastern and western vertical façade slots and angled roof profile;
  - Podium external illumination from awnings, and under retail and lobby colonnades;
  - Landscape lighting on Level 07 open terraces and pool decks;
  - Feature lighting accentuating the wing-like profile of the Ribbon and vertical element;
  - Internal and external lighting to Food and Beverage outlet at Union/Edward Street corner;
  - Façade LED lighting to the heritage SELS Building

SPECIAL ACOUSTIC EVENTS AND SPECIAL LIGHTING EVENTS

- Approval for twelve (12) Special Acoustic Events per year at the Level 05 Outdoor or Under cover Event Space or the Level 07 Ribbon Pool Deck
- Approval for fifty-three (53) Special Lighting Event nights per year.for the use of permanent installation of moving projector lights on the rooftop of the Astral Hotel

SIGNAGE UPGRADES

- Consolidation of existing signage approvals and new signage, including:
  - Approved signs
  - Wayfinding signs;
  - Business identification (including for Food and Beverage outlets); and
  - Signage on the Tower and Podium.

STORMWATER UPGRADES

- Stormwater upgrade works, including increased pit inlets and pipe capacities at the low points along Pyrmont Street and Edward Street.

1.4 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 BUILDING ASSESSMENT DATA

Summary of Construction Determination: -

	Tower and ribbon
Classification	2, 3, 5, 6, 7a, 7b, 9b
Number of Storeys Contained	64
Rise In Storeys	63
Type of Construction	A
Effective Height (m)	>50m (approx. 209m)

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 B4	7a, 3	847	28	-
Basement B3	7a, 7b, 3, 2	847	28	
Basement 02 Hotel Lobby	3,6	1,140	38	-
Level 00 Residential Entry Ground Plan	6, 2, 9b	644	239	-
Level 02-05 Plant/ Community spaces	7b, 9b	613 (each level)	160	
Level 05 Sky terrace	9b		615	
Level 07 – Ribbon – function spaces, restaurant and bar	6, 9b	4,020	2,287	
Level 08 – Residential	2	700		
Level 09 -10, Residential gym and hotel change facilities	6, 9b	4,020 (each level)	559	-
Level 11-Level 38 – Residential apartments	9b	700 varies		
Level 39 – Sky lobby	9b, 5	770		109
Level 40- Sky lobby mezzanine	9b	636 varies		100
Level 41 – Plant	3 (Ancillary)	957		
Level 42 – Hotel BOH and Executive suites	3	957		
Level 43- 45 - Hotel Suites	3	987	-	-
Level 46-58 – Hotel Suites	3	987		
Level 59 – Club lounge and terrace	9b	618	618	
Level 60-61 - Presidential suites	3	587		
Level 62 - Roof plant	7b			

Level 63 – Rooftop Plant	7b			
Level 64 – Rooftop Plant	7b			
Estimated staff daily (Mod 13 general)	-	-	-	178
Estimated staff daily (Ritz Carlton)	-	-	-	138

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

3 STRUCTURAL PROVISIONS

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1 AS/NZS1170.2, AS/NZS1170.3 and AS/NZS1170.4 as applicable

Masonry is to comply with AS 3700-2011.

Concrete construction to comply with AS 3600-2009.

Steel construction is to comply with AS4100-1998, AS4600-2005, AS2327-2003.

Aluminium is to comply with AS1664.1-1997 or AS1664.2-1997

Piling is to comply with AS2159 -2009

Metal roofing is to comply with AS1562.1-1992

Glazing is to comply with AS1288-2006, and AS2047-2014.

Mod 14 included enabling works which will allow for the integration of the proposed tower and other new/upgraded areas proposed under Mod 13. This included column strengthening from basement levels through to level 1 will provide for the proposed level 5 terrace

Prior to the issue of the Construction Certificate structural certification is required for both the new development, and certifying that the existing building is capable of withstanding the proposed loads of the existing. This certification must also take into consideration earthquake requirements.

4 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 2016. The building is required to be Type A Construction and has been assessed as a united building with the existing building.

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
- Fire compartmentation of the building at each floor level.
- 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
   a. Retail/Restaurant/Bar: 180 minutes
   b. Gaming/Function:120 minutes
   c. Hotel/Apartments: 90 minutes

As several classifications are proposed to be located within the same fire compartments on the ribbon level and sky lobby, 180 minute fire resistance levels are to be adopted throughout these levels. However it is proposed to rationalise FRL's in Class 6 retail areas from 180 minutes to 120 minutes and in Class 7b storage areas from 240 minutes to 120 minutes. This is to be assessed under the performance provisions of the BCA by the fire engineer.

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.
2. 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.
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 typical hotel levels is up to 41m with no smoke-proof construction proposed is to be assessed under the performance provisions of the BCA. Smoke-proof construction if utilised is to comply with Specification C2.5 of the BCA.

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 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

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.

Travel distances and distances between alternative exits generally comply with the Deemed to Satisfy provisions of the BCA with the exception of the following areas:

B4 Basement
- Travel distance to a single exit 28m in lieu of 20m in apartment storage area
- Travel distance to a single exit 38m in lieu of 20m in car stacker.

B3 Basement
- Travel distance to a single exit 30m in lieu of 20m from BOH hotel staff area

Hotel Entry Ground
- Travel distance to a single exit 38m in lieu of 20m

Level 7
- Travel distance to a point of choice 26m in lieu of 20m in hotel gym
- Travel distance to an exit after a point of choice 51m in lieu of 40m

Level 9
- Travel distance to a single exit 52m in lieu of 20m from residential pool area

Typical Residential High Levels
- Travel distance to an exit up to 11m in lieu of 6m

Typical Residential Mid Plan Levels
- Travel distance to an exit up to 9.5m in lieu of 6m

Typical Residential Low Plan Levels
- Travel distance to an exit up to 10m in lieu of 6m

Sky Lobby Level
- Travel distances to a point of choice up to 34m in lieu of 20m

Sky Lobby Mezzanine
- Travel distances to a point of choice up to 32m in lieu of 20m

Club Lounge

- Travel distance to a point of choice 26m in lieu of 20m from library

Typical Hotel Plan Levels
- Travel distance to an exit up to 11m in lieu of 6m

Separation of exits does not fully comply in the following areas:

Level 7
- Distance between alternative exits 100m in lieu of 60m

Level 9
- Distance between alternative exits 110m in lieu of 60m
- Distance between exits 6.5m in lieu of minimum 9m

Other detailing issues that will be addressed through design will be:

- Door Hardware
- Exit door operation.
- 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 to be assessed on a performance basis by WSP fire engineering.

5.1 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.

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. This requires pools to be separated from adjoining bars and areas not directly associated with swimming.

5.2 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 2016. 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. 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 generally 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.

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.

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 carparking area is associated	**Number of accessible carparking spaces required**
CLASS 2	
No accessible carparking spaces required by the BCA. Where any adaptable apartments are proposed, accessible carparking spaces will need to be provided to comply with AS/NZS 2890.6-	

2009.		
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
CLASS 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.

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 the circulation space requirements compliant with AS 1428.1-2009 to the outside of the door and 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.

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

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

6 FIRE SERVICES & EQUIPMENT

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

- An automatic sprinkler system in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999 & AS2118.6-2012 throughout
- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005 Amdt 1,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005 Amdt 1,
- 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 1670.4-2015.
- 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 Amdts 1 & 2

The dry fire protection services supply for the Modification 13 development will be provided via extension of the base building fire control room located on Level 00, allowing the Modification 13 development to make use of the existing infrastructure. Alarm indications for the Modification 13 scope of work for Fire and Rescue NSW, will be available within the Fire Control Room to match fire and alarm indication of the remaining site.

6.1 FIRE HYDRANTS

Fire hydrants are required throughout in accordance with clause E1.3 of the BCA and AS 2419.1-2005 Amdt 1. Due to existing site conditions the fire hydrant pumping arrangement is to be assessed under the performance provisions of the BCA by the Fire Engineer.

6.2 FIRE HOSE REELS

A Fire Hose Reel System is required throughout to all non-residential portions of 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 AS2118.1-999 and AS2118.6-2012.

Location of pumps, tanks and FIP are within the existing building and will be upgraded to comply with current standard. Sprinkler water supply pipework will reticulate from the existing dual fire water supply within the B1 plant space to the new sprinkler pumps and alarm valves located within the new hotel tower plant levels located on Level 5 and Level 41 (provided with direct access to outside via a fire-isolated stair). New sprinkler system booster pumps will be provided to boost the sprinkler system water pressure within the new hotel.

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.

Extinguishers are to be accessible at all times to occupants and are not to be located in locked cupboards

7 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 1668.1-2015;
- Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2015
- Automatic Pressurisation to Fire Isolated Exits in accordance with the requirements of AS/NZS 1668.1-2015

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 1668.1-2015;
- 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

As the main FIP is located in the fire control room, a mimic panel is to be provided at the main building entry. Due to there being several entrances to the building, the access to the fire control room is to be documented as part of the alternate solution. 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 ribbon 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.

The fire-isolated egress stair in the tower is proposed to only pressurise the portion serving the basement levels, whilst the residential levels of the tower will be served by a mechanical smoke exhaust system within the common corridor.

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 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 and are to serve all levels served by passenger lifts
- 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.
  - 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

It is proposed to utilise lifts as part of the egress strategy for the tower, this is to be assessed against the performance provisions of the BCA by the Fire Engineer.

9 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 in each SOU:

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

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. The proposed design is capable of complying with the above requirements.

10 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 2013 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.
  - 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 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 prior to issuance of the Construction Certificate.

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 building will be located in a climate zone 5.

12 CONCLUSION

As Accredited Certifiers, we have reviewed architectural design documents prepared by fjmt Architects and DWP (refer appendix A) for compliance with:

a. The National Construction Code (Building Code of Australia) 2016 Volume 1.
b. The relevant Standards referenced in the BCA 2016 Volume 1
c. *Environmental Planning and Assessment Act* 1979
d. *Environmental Planning & Assessment Regulation* 2000

Mod 13 is a modification to the development as approved under MP08_0098, up to and including Mod 14. This has formed the basis for this technical assessment.

Having regard to the above, we confirm that that proposed development is capable of complying with the Building Code of Australia 2016.

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APPENDIX A

DESIGN DOCUMENTATION

APPENDIX A - DESIGN DOCUMENTATION

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

DOCUMENT NO.	Title	Date	Drawn By
AF0000	Cover Sheet	12.04.2017	Fjmt architects
AF10B2	General arrangement plans – B2 Hotel Entry Ground floor plan	12.4.2017	Fjmt architects
AF10B3	General arrangement plans – B3 Floor plan	12.4.2017	Fjmt architects
AS10B4	General arrangement plans – B4 Car Stacker Floor Plan	12.4.2017	Fjmt architects
AF0100	General/ Existing Site plan	12.4.2017	Fjmt architects
AF1000	General arrangement plans – Level 00 Residential Entry Ground Floor Plan	12.4.2017	Fjmt architects
AF1001	General arrangement plans – Level 01 Floor Plan	12.4.2017	Fjmt architects
AF1002	General arrangement plans – Level 02 Floor Plan	12.4.2017	Fjmt architects
AF1003	General arrangement plans – Level 03 Floor Plan	12.4.2017	Fjmt architects
AF1004	General arrangement plans – Level 04 Floor Plan	01.05.2017	Fjmt architects
AF1005	General arrangement plans – Level 05 Sky Terrace	12.4.2017	Fjmt architects
AF1006	General arrangement plans – Level 06 Floor Plan	21.06.2017	Fjmt architects
AF1007	General arrangement plans – Level 07 Pool terrace floor plan	22.03.2017	Fjmt architects
AF2008	General arrangement plans – Level 08 Floor Plan	12.4.2017	Fjmt architects
AF2009	General arrangement plans – Level 09 Floor Plan	12.4.2017	Fjmt architects
AF2010	General arrangement plans – Level 10 Floor Plan	19.5.2017	Fjmt architects
AF2011	General arrangement plans – Level 11 Floor Plan	12.4.2017	Fjmt architects
AF2012	General arrangement plans – Level 12 Floor Plan	12.4.2017	Fjmt architects
AF2014	General arrangement plans – Level 14 Floor Plan	19.5.2017	Fjmt architects
AF2015	General arrangement plans – Level 15 Floor Plan	12.4.2017	Fjmt architects
AF2016	General arrangement plans – Level 16 Floor Plan	12.4.2017	Fjmt architects

AF2017	General arrangement plans – Level 17 Floor Plan	19.5.2017	Fjmt architects
AF2018	General arrangement plans – Level 18 Floor Plan	12.4.2017	Fjmt architects
AF2019	General arrangement plans – Level 19 Floor Plan	12.4.2017	Fjmt architects
AF2020	General arrangement plans – Level 21 Floor Plan	12.4.2017	Fjmt architects
AF2021	General arrangement plans – Level 21 Floor Plan	19.5.2017	Fjmt architects
AF2022	General arrangement plans – Level 22 Floor Plan	12.4.2017	Fjmt architects
AF2023	General arrangement plans – Level 23 Floor Plan	12.4.2017	Fjmt architects
AF2024	General arrangement plans – Level 24 Floor Plan	12.4.2017	Fjmt architects
AF2025	General arrangement plans – Level 25 Floor Plan	12.4.2017	Fjmt architects
AF2026	General arrangement plans – Level 26 Floor Plan	19.5.2017	Fjmt architects
AF2027	General arrangement plans – Level 27 Floor Plan	19.5.2017	Fjmt architects
AF2028	General arrangement plans – Level 28 Floor Plan	19.5.2017	Fjmt architects
AF2029	General arrangement plans – Level 29-38 Floor Plan	12.4.2017	Fjmt architects
AF2039	General arrangement plans – Level 39 Hotel BOH Floor Plan	12.4.2017	Fjmt architects
AF2040	General arrangement plans – Level 40 Hotel Sky Lobby Floor Plan	12.4.2017	Fjmt architects
AF2041	General arrangement plans – Level 41 Hotel Sky Lobby Mezzanine Floor Plan	12.4.2017	Fjmt architects
AF2042	General arrangement plans – Level 42 Mid Level Plant Floor Plan	12.4.2017	Fjmt architects
AF2043	General arrangement plans – Level 43-45 Typical Hotel Floor Plan	12.4.2017	Fjmt architects
AF2046	General arrangement plans – Level 46-56 Typical Hotel Floor Plan	08.5.2017	Fjmt architects
AF2058	General arrangement plans – Level 58 Typical Hotel Floor Plan	12.4.2017	Fjmt architects
AF2059	General arrangement plans – Level 59 Club Lounge/ Sky Terrace Floor Plan	12.4.2017	Fjmt architects
AF2060	General arrangement plans – Level 60 Sky Villa Floor Plan	12.4.2017	Fjmt architects
AF2061	General arrangement plans – Level	12.4.2017	Fjmt architects

	61 Sky Villa Floor Plan		
AF2062	General arrangement plans – Level 62 Roof Plant Floor Plan	12.4.2017	Fjmt architects
AF2063	General arrangement plans – Level 63 Roof Plant Floor Plan	12.4.2017	Fjmt architects
AF2064	General arrangement plans – Roof Plan	19.5.2017	Fjmt architects
AF2065	General arrangement plans – Level 65 Roof Plan	19.52017	Fjmt architects
AF4001	Overall Elevations – Eastern Overall Elevation	12.4.2017	Fjmt architects
AF4002	Overall Elevations – Northern and Southern Overall Elevation	12.4.2017	Fjmt architects
AF4003	Overall Elevations – Western Overall Elevation	12.4.2017	Fjmt architects
AF4004	Overall Elevations – Southern Elevation	19.5.2017	Fjmt architects
AF4101	Overall Elevations –Section North South	12.4.2017	Fjmt architects
MOD13-AS10B4	Proposed Site Plan – Level B4	21.06.2017	Dwp
MOD13-AS10B3	Proposed Site Plan – Level B3	21.06.2017	Dwp
MOD13-AS10B2	Proposed Site Plan & GFA Diagram – Level B2	21.06.2017	Dwp
MOD13-AS10B1	Proposed Site Plan– Level B1	21.06.2017	Dwp
MOD13-AS1000	Proposed Site Plan – Level 00	21.06.2017	Dwp
MOD13-AS1001	Proposed Site Plan– Level 01	21.06.2017	Dwp
MOD13-AS1002	Proposed Site Plan– Level 02	21.06.2017	Dwp
MOD13-AS1003	Proposed Site Plan – Level 03	21.06.2017	Dwp
MOD13-AS1004	Proposed Site Plan– Level 04	21.06.2017	Dwp
MOD13-AS1005	Proposed Site Plan– Level 05	21.06.2017	Dwp
MOD13-AS1006	Proposed Site Plan– Level 06	21.06.2017	Dwp
MOD13-AS1007	Proposed Site Plan– Level 07	21.06.2017	Dwp
MOD13-AS1009	Proposed Site Plan– Level 09	21.06.2017	Dwp
MOD13-AS1011	Proposed Site Plan– Level 11	21.06.2017	Dwp

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APPENDIX B

DRAFT FIRE SAFETY SCHEDULE

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 Performance solution prepared by fire engineer
5.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2015 Performance solution prepared by fire engineer
6.	Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001
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 Performance solution prepared by fire engineer
9.	Exit Signs (non-illuminated)	BCA Clause E4.7
10.	Fire Control Rooms	BCA Spec. E1.8 Performance solution prepared by fire engineer
11.	Fire Dampers	BCA Clause C3.15, AS 1668.1 – 2015 & 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 Performance 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 – 2015 & AS 1668.2 – 2012 Performance solution prepared by fire engineer
20.	Paths of Travel	EP&A Reg 2000 Clause 186
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 – 2015 Performance solution prepared by fire engineer
24.	Required Exit Doors (power operated)	BCA Clause D2.19(d)
25.	Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 2015 Performance solution prepared by fire engineer
26.	Smoke and/or Heat Alarm System	BCA Spec. E2.2a & AS 3786 – 1993

	Essential Fire Safety Measures	Standard of Performance
27.	Smoke Dampers	AS/NZS 1668.1 – 2015
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 - 2015 Performance 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

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APPENDIX C

FIRE RESISTANCE LEVELS

APPENDIX C – FIRE RESISTANCE LEVELS

The table below represents the Fire resistance levels required in accordance with BCA 2016:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	**Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation***			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES				
and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

Table 3.9 REQUIREMENTS FOR CARPARKS

Building element				FRL (not less than) Structural adequacy/Integrity/Insulation
				ESA/M (not greater than)
Wall				
(a)	*external wall*			
	(i)	less than 3 m from a *fire-source feature* to which it is exposed:		
			Loadbearing	60/60/60
			Non-*loadbearing*	–/60/60
	(ii)	3 m or more from a *fire-source feature* to which it is exposed		–/–/–
(b)	*internal wall*			
	(i)	*loadbearing*, other than one supporting only the roof (not used for carparking)		60/–/–
	(ii)	supporting only the roof (not used for carparking)		–/–/–
	(iii)	non-*loadbearing*		–/–/–
(c)	*fire wall*			
	(i)	from the direction used as a *carpark*		60/60/60
	(ii)	from the direction not used as a *carpark*		as *required* by Table 3
Column				
(a)	supporting only the roof (not used for carparking) and 3 m or more from a *fire-source feature* to which it is exposed			–/–/–
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a *carpark*			60/–/– or 26 m^2/tonne
(c)	any other column not covered by (a) or (b)			60/–/–
Beam				
(a)	steel floor beam in continuous contact with a concrete floor slab			60/–/– or 30 m^2/tonne
(b)	any other beam			60/–/–
Fire-resisting lift and stair shaft (within the *carpark* only)				60/60/60
Floor slab and vehicle ramp				60/60/60
Roof (not used for carparking)				–/–/–
Notes:	1. ESA/M means the ratio of exposed surface area to mass per unit length.			
	2. Refer to Specification E1.5 for special requirements for a sprinkler system in a *carpark* complying with Table 3.9 and located within a multi-classified building.			