CITY PLAN SERVICES

Building Code of Australia
Assessment Report

1 Alfred Street, 19 – 31 and 31A Pitt Street
Sydney NSW 2000

Client: Wanda
Report:152779 – Tower B & Basement
Date: 26.10.16

Report Revision History

Revision	Date Issued	Prepared by	Reviewed by	Verified by
01 Draft	30/09/16	**Scott Reid** *Senior Building Regulations Consultant*	**Brendan Bennet** *Managing Director*	**Brendan Bennett** *Managing Director*
02	19/10/16 Review following Fire Engineering comments			
03	25/10/16			
04	26/10/16 Plan Schedule update only			

This document is preliminary unless approved by a Director of City Plan Services

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CERTIFICATION
This report has been authorised by City Plan Services, with input from a number of other expert consultants, on behalf of the Client. The accuracy of the information contained herein is to the best of our knowledge not false or misleading. The comments have been based upon information and facts that were correct at the time of writing this report.

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1. Executive Summary

The development, the subject of this report, is for the construction of a new mixed use development located at 1 Alfred Street, 19 – 31 and 31A Pitt Street Sydney. The development will comprise a sixty one storey residential tower known as Tower A and a twenty eight storey hotel tower known as Tower B. Both towers will sit above a six level basement which will contain carparking, storage facilities and BOH hotel uses. Retail tenancies are to be provided on the on the Ground and Lower Ground Floors of Tower A and on the Ground Floor of Tower B. This report relates to Tower B and the basement. Tower A is the subject of a separate report and development application.

This report has been prepared, on behalf of Wanda Group to establish compliance to the Building Code of Australia 2016 (BCA).

The following non-compliance's with the deemed-to-satisfy provisions of the BCA, in relation to the proposed building work, have been identified and are proposed to be dealt by justification against the performance requirements of the BCA in accordance with BCA Clause A0.2.

C1.1 & Specification C1.1 – Fire-resisting construction	The fire-resistance levels of the slabs and walls within the Ground Floor retail portion will be reduced to 90/90/90 in lieu of 180/180/180. Beams and columns will achieve a FRL of 180/-/-
D1.2 – Number of exits required	The following areas do not have access to 2 exits and require a performance solution: i. 6 x retail tenancies on Ground Floor.
D1.4 – Travel distances to exits	The following travel distances to exits and distance to a point of choice exceed the limits imposed above: **Basement 6** i. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 5** ii. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 4** iii. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 3** viii. Distance to a point of choice from staff kitchen exceeds 20m (43.5m); Revision sketch by Crone dated 29.9.16 indicates compliance with dts. ix. Distance to a point of choice from Switch room B exceeds 20m (20.5m) x. Distance to a point of choice from Retail EOTM and Retail EOTF exceeds 20m (34.5m). Revision sketch by Crone dated 29.9.16 indicates distance to a point of choice of 30m. **Ground Mezzanine** xii. Distance to a point of choice from pool plant area exceeds 20m (24.5m).

Level 3 Mezzanine

xiii. Distance to a point of choice from the furniture store exceeds 20m (29m).

xiv. Distance to a point of choice from Meeting Room 2 exceeds 20m (25m).

Level 4

xv. Distance to point of choice from VIP Banquet exceeds 20m (28m).

Level 5

xvi. Distance to a point of choice from Air Handling Plant exceeds 20m (26.2m).

Levels 6 – 13

xvii. Distance to a point of choice from Bay 10 exceeds 6m (10m).

Levels 14 – 19

xviii. Distance to a point of choice from Bay 10 exceeds 6m (10m).

Levels 20 – 21

xix. Distance to a point of choice from Bay 7 exceeds 6m (10m).

Level 22

Distance to a point of choice from Bay 5 exceeds 6m (10m).

D1.5 – Distance between alternative exits

The distance between the following alternative exits exceed the limits imposed:

Basement 6

i. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m).

Basement 5

ii. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m).

Basement 4

iii. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m).

Basement 2

iv. Distance between alternative exits (western fire stair and northern fire stair exceeds 60m (61m).

Other matters to be noted.

D1.10 – Discharge from exits

Bollards may be required adjacent to the discharge point of the fire stairs exiting to the through site link.

2. Introduction

2.1 General

The development, the subject of this report, is for the construction of a new mixed use development located at 1 Alfred Street, Sydney. The development will comprise a sixty one storey residential tower known as Tower A and a twenty eight storey hotel tower known as Tower B. Both towers will sit above a six level basement which will contain carparking, storage facilities and BOH hotel uses. The two towers and basement form a single building for the purposes of the BCA. Retail tenancies are to be provided on the Ground and Lower Ground Floors of Tower A and on the Ground Floor of Tower B. This report relates to Tower B and the basement. Tower A is the subject of a separate report.

2.2 Purpose of the Report

This report has been prepared, on behalf of Wanda Group to establish compliance to the Building Code of Australia 2016 (BCA). The provisions of Part D3 – Access for People with a Disability, of the BCA have not been considered as part of this report. A separate report has been prepared with regard to access for people with a disability.

2.3 Report Basis

This report is based on:

a) Architectural plans prepared by Crone as identified in the attached Appendix 1.

b) The Building Code of Australia 2016, inclusive of NSW variations (See Note 1).

c) Environmental Planning and Assessment Act 1979.

d) Environmental Planning and Assessment Regulation 2000.

Note 1: Building Code of Australia (BCA) 2016 was adopted in NSW on 1 May 2016. The amendment of the BCA in force at the date of lodgement of a Construction Certificate is the version called up by Clause 98 of the Environmental Planning & Assessment Regulation 2000 for the purpose of the building design. Therefore comments may be subject to changes to comply with updated versions of the Building Code of Australia.

2.4 Exclusions & Limitations

This report does not consider the following except where specifically mentioned;

a) Structural design.

b) The Disability Discrimination Act 1992 (access for people with disabilities has been assessed in accordance with Part D3 of the BCA, however additional measures may be required to be provided subject to the Disability Discrimination Act 1992)

c) Disability (Access to Premises – Building) Standards 2010.

3. Building Code of Australia Assessment

3.1 Classification (A3.2)

The proposed building consists of:

Basement 6 - 4	Class 7a - Carpark
Basement 3	Class 3 – BOH Hotel and Class 7a – Carpark
Basement 2	Class 3 – BOH Hotel, Class 7a - Carpark and Class 7b - storage
Basement 1	Class 3 – BOH Hotel, Class 7a – Carpark and Class 8 – Sub-station
Ground Floor	Class 3 – Hotel, Class 6 – Retail and Class 7a - Carpark
Ground Mezzanine	Class 3 - Plant
Level 1	Class 9b – Pool, Gymnasium, Spa and Fitness Cafe
Level 2	Class 5 - Office
Levels 3	Class 9b – Ballroom/Function
Level 3 Mezzanine	Class 9b – Meeting rooms
Level 4	Class 6 - Restaurant
Level 5	Class 3 - Plant
Level 6 to 22	Class 3 - Hotel
Level 23	Class 6 - Restaurant
Level 24	Class 6 - Bar
Level 25	Class 6 - Bar

Notes

i. Storage areas on Basement Level 4 do not occupy more than 10% of the floor area of this storey and can be considered as a Class 7a – Carpark being the major use.
ii. The Fitness Café on Level 1 occupies less than 10% of the floor area of this storey and can be considered as part of the 9b - Pool/Gymnasium being the major use.

3.2 Effective Height (A1.1)

The proposed building will have an effective height of more than 50m (194.88m).

Towers A and B and the basement form a single building for the purposes of the BCA. The entire building must be considered in determining the effective height of a building. In this case the floor level of the lowest storey included in the rise in storeys and the floor level of the topmost storey are within Tower A.

3.3 Rise in Storeys (C1.2)

The proposed building will consist of a rise in storeys of sixty one (61).

The entire building must be considered in determining the rise in storeys.

3.4 Type of Construction (C1.1)

Type A construction in accordance with Specification C1.1 of the BCA, is the applicable type of construction.

4. Building code of Australia Assessment

4.1 Structure (BCA Section B)

BCA Clause	Title	Assessment and Comment	Status
B1.1	Resistance to actions	The resistance of the building must be greater than the most critical action effects resulting from different combinations of actions.	Note
B1.2	Determination of individual actions	The building is to be designed and constructed to accommodate the magnitude of individual actions generally covering; (a) Permanent actions (b) Imposed actions (c) Wind, snow and ice and earthquake actions (d) Other specified actions A structural engineer is to provide design certification at the Construction Certificate stage that the building has been designed to the relevant structural standards and maintain appropriate supervision during construction to certify that the structure has been constructed in accordance with the design.	The proposed building is capable of complying
B1.4	Determination of structural resistance of materials & forms of construction	The structural resistance of the following materials and forms of construction must be determined; (a) Masonry (b) Concrete construction (c) Steel construction (d) Composite steel and concrete (e) Aluminium construction (f) Timber construction (g) Piling (h) Glazing assemblies (i) Termite risk management (j) Roof construction (k) Particleboard structural flooring (l) Garage doors (m) Lift shafts A structural engineer is to provide design certification at the Construction Certificate stage that the building has been designed to the relevant structural standards and maintain appropriate supervision during construction to certify that the structure has been constructed in accordance with the design.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
B1.5	Structural Software	Structural software used in computer aided design is to comply with the requirements of this provision. Structural engineer to provide design certification at the Construction Certificate stage.	Not applicable
B1.6	Construction of buildings in flood hazard areas	A Class 2, 3, 4, 9a or 9c building is required to comply with the ABCB standards for Construction of Buildings in Flood Hazard Areas. *The City of Sydney has identified that development on the site is subject to flood related development controls. The proposed residential building must comply with the ABCB standards for Construction of Buildings in Flood Hazard Areas.* Civil engineer design certification is to be provided at the Construction Certificate stage where applicable.	The proposed building is capable of complying

4.2 Fire Resistance (BCA Section C)

BCA Clause	Title	Assessment and Comment	Status
C1.1	Type of construction required	The type of fire resisting construction applicable is Type A construction. Type A construction is the most fire resistant of the types of construction.	Note
C1.2	Calculation in rise in storeys	The rise in storeys is the sum of the greatest number of storeys at any part of the external wall of the building. The building contains a RIS of sixty one (61).	Note
C1.8	Lightweight construction	Any proposed lightweight construction shall be designed and installed to comply with the provisions of Specification C1.8 and satisfy the relevant tests.	The proposed building is capable of complying
C1.10	Fire hazard properties	Proposed floor materials, floor coverings, wall and ceiling lining materials are to be selected to comply with the required fire hazard properties of Specification C1.10 & C1.10a. Evidence of compliance (test certificates) shall be obtained from the supplier or manufacturer.	The proposed building is capable of complying
C2.2	General floor area and volume limitations	In Class 5 and 9b parts of the building, the fire compartments are limited to 8,000m^2 in floor area and 48,000m^3 in volume. In Class 6, 7b and 8 parts of the building, fire compartments are limited to 5,000m^2 in floor area and 30,000m^3 in volume.	The proposed building complies

BCA Clause	Title	Assessment and Comment	Status
		Floor area and volume limits do not apply to the Class 3 – Hotel or Class 7a – Carpark parts of the building. None of the fire compartments in the building exceed the limits imposed.	
C2.7	Separation by fire walls	A fire wall may be used to separate the different classes on a storey as follows subject to C2.8 below: ▪ **Basement 3** – separation of Class 3 Hotel BOH and Class 7a – Carpark with fire wall with a FRL of 120/120/120; ▪ **Basement 2** – separation of Class 3 - BOH and Class 7a – Carpark with fire wall with a FRL of 120/120/120; ▪ **Basement 2** – separation of Class 3 – BOH and Class 7b – Storage with fire wall with a FRL of 240/240/240; ▪ **Basement 2** – separation of Class 7a – Carpark and Class 7b – Storage with fire wall with a FRL of 240/240/240; ▪ **Ground Floor** – separation of Class 3 – Hotel and 7a – Carpark ramp with fire wall with a FRL of 120/120/120; ▪ **Ground Floor** - separation of Class 3 – Hotel and Class 6 –Retail with fire wall with a FRL of 180/180/180; ▪ **Ground Floor** - separation of Class 7a – Carpark ramp and Class 6 –Retail with fire wall with a FRL of 180/180/180. Fire walls are to be constructed in accordance with the requirements of this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
C2.8	Separation of classifications in the same storey	If a building has parts of different classifications located alongside one another in the same storey, ▪ each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or ▪ the parts must be separated in that storey by a fire wall. Each of the levels identified in C2.7 above comprise different classifications. The following options are available: i. Separate the classifications with a fire wall; or	**Performance Solution**

BCA Clause	Title	Assessment and Comment	Status
		ii. The highest FRL is to be applied throughout a particular level. **There may be opportunities to reduce the higher FRLs by way of a performance solution. The structural engineer should be consulted with regard to any performance solution to reduce the FRL of structural elements.**	
C2.9	Separation of classifications in different stories	The floors between parts of different classifications must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey as follows: **Slab separating Basement 3 and Basement 2:** ▪ 120/120/120 above carparking including bicycle storage and vehicular movement areas in Basement 3; ▪ 120/120/120 above Switch Room B; ▪ 90/90/90 above BOH – Hotel in Basement 3. **Slab separating Basement 2 and Basement 1:** ▪ 240/240/240 above storage areas in Basement 2; ▪ 120/120/120 above carparking and vehicular movement areas in Basement 2; ▪ 120/120/120 above Switch Room A in Basement 2. **Slab separating Basement 1 and Ground Floor:** ▪ 240/240/240 above Sub-station in Basement 1; ▪ 90/90/90 above BOH – Hotel in Basement 1. ▪ 90/90/90 above Residential ancillary uses in Basement 1. **Slab separating the Ground Floor and Ground Mezzanine:** ▪ 180/180/180 above Ground Floor Retail; ▪ 120/120/120 above Ground Floor Carpark ramp ▪ 90/90/90 above Ground Floor Hotel Lobby. **Slab separating the Ground Mezzanine and Level 1:** ▪ 90/90/90	**Performance Solution**

BCA Clause	Title	Assessment and Comment	Status
		Ground Floor Slab separating Level 1 and Level 2: ▪ 120/120/120. **Slab separating Level 2 and Level 3:** ▪ 120/120/120 above Office on Level 2. **Slab separating Level 3 and Level 3 Mezzanine:** ▪ 120/120/120. **Slab separating Level 3 Mezzanine and Level 4:** ▪ 120/120/120. **Slab separating Level 4 and Level 5:** ▪ 180/180/180. **Slabs separating Levels 5 to Level 22:** ▪ 90/90/90. **Slabs separating Levels 23 to Level 25:** ▪ 180/180/180. **There may be opportunities to reduce the higher FRLs by way of a performance solution. The structural engineer should be consulted with regard to any performance solution to reduce the FRL of structural elements.**	
C2.10	Separation of lift shafts	The lift shafts are required to be separated from the rest of the building with walls having an FRL of not less than that required by Table 3 of Specification C1.1.	The proposed building is capable of complying
C2.11	Stairways and lifts in one shaft	The stairs and lifts shaft are located in different shafts.	The proposed building complies
C2.12	Separation of equipment	The following rooms are required to be fire separated from the remainder of the building by 120/120/120 FRL construction: ▪ Lift motor rooms and lift control panels. ▪ Emergency Generators. ▪ Central smoke control plant. ▪ Boilers. ▪ Battery rooms.	The proposed building is capable of complying
C2.13	Electricity supply system	Switch Rooms A and B will be required to sustain emergency equipment operating in emergency mode and are required to be fire separated from the remainder of the building by 2 hr fire resisting construction.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		Construction should achieve an FRL of 120/120/120, doorways are required achieve an FRL of -/120/30 and to be self-closing and all penetrations in enclosures are to be appropriately fire stopped. All switchboards in the electrical distribution system, which sustain the electricity supply to the emergency equipment, must provide full segregation by way of enclosed metal partitions designed to prevent the spread of any fault from non-emergency equipment switchgear to the emergency equipment switchgear. Construction documentation should demonstrate compliance.	
C3.2	Protection of openings in external walls	The building does not contain any openings in external walls which are required to be protected.	Not applicable
C3.3	Separation of external walls and associated openings in different fire compartments	The building does not contain separate fire compartments which are exposed to each other.	Not applicable
C3.4	Acceptable method of protection	Windows requiring protection must be protected by one of the means; ▪ External wall-wetting sprinklers with windows that are automatically or permanently fixed in the closed position. ▪ -/60/- fire windows (Automatic or permanently fixed in the closed position) ▪ -/60/- automatic fire shutters ▪ Doorways which require protection can be protected externally with wall wetting sprinklers with doors that are self-closing or automatic closing, or ▪ -/60/30 fire doors which are self-closing or automatic closing. Fire doors, fire windows and fire shutters are required to comply with Specification C3.4.	Note
C3.8	Openings in fire isolated exits	The fire-isolated exits are required to be protected by -/60/30 self-closing fire doors. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
C3.9	Service penetrations in fire isolated exits	Service are not to penetrate through fire isolated exits unless permitted by this clause.	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		Construction documentation should demonstrate compliance.	capable of complying
C3.10	Fire isolated lift shafts	The lift doors are required to be -/60/- fire doors and comply with this provision. A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35 000 mm^2 in area. Construction documentation should demonstrate compliance	The proposed building is capable of complying
NSW C3.11	Bounding construction	Doors from sole occupancy units opening into enclosed public corridors are required to be protected by -/60/30 self-closing fire doors. A doorway from any other room not within a SOU, must be protected by -/60/30 self-closing fire doors if it opens to a public corridor, public lobby or the like within the residential portion of the building. Doorways for garbage room enclosure within the public corridors would also be required to comply with the above requirements. Construction documentation to demonstrate compliance.	The proposed building is capable of complying
C3.12	Openings in floors and ceilings for services.	Fire separation between floors is required to be maintained where services penetrate though floors unless the services are located in fire rated shafts. Construction documentation to demonstrate compliance.	The proposed building is capable of complying
C3.15	Openings for service installations	Services that penetrate a building element that is required to have an FRL must be protected utilising one of the options listed under this clause. Where polybutyelene (plastic) pipes are proposed for domestic water supply, or UPVC pipes and fire collars for mechanical sub-ducts, they must be supported by the appropriate test data from a registered laboratory demonstrating compliance with C3.15 (a).	The proposed building is capable of complying
C3.16	Construction joints	Construction joints in building elements required to be fire resistant are required to be protected in accordance with this clause.	The proposed building is capable of complying

4.3 Fire-Resisting Construction (Specification C1.1)

BCA	Title	Assessment and Comment	Status

Clause			
2.1	Exposure to fire source features	The requirements of this provision apply to the subject building.	Note
2.2	Fire protection for support of another part	When determining FRL's applicable to a particular building element, the requirements of this clause are required to be complied with.	The proposed building is capable of complying
2.3	Lintels	Lintels are to be protected as required by the requirements of this clause.	The proposed building is capable of complying
2.4	Attachment not to impair fire resistance	Any attachments such as louvers over windows, external wall cladding to the façade or any type of combustible material must comply with this requirement and not be installed directly above or near an exit, will not constitute a risk of fire spread via the façade and must comply with C1.10 above.	The proposed building is capable of complying
2.5	General concessions	Non-combustible structures on the roof are not required to be fire resisting if it only contains: ▪ Lift motor equipment; ▪ Hot water or other tanks; ▪ Ventilating ductwork, ventilating fans and motors; ▪ Air-conditioning chillers; ▪ Window cleaning equipment; ▪ Other service units that are non-combustible and do not contain flammable or combustible liquids or gases.	Note
2.6	Mezzanine floors: concession	The building does not contain mezzanine's that are subject to this provision.	Not applicable
2.7	Enclosure of shafts	The shafts are to be enclosed at the top and bottom in accordance with the requirements of this clause.	The proposed building is capable of complying
3.1	Fire resistance of building elements	Generally building element listed in Table 3 are required to achieve an FRL of 120 minutes. In addition, the following requirements apply; ▪ External walls, common walls and the flooring and floor framing of lift pits must be non-combustible ▪ a loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be of concrete or masonry; and ▪ a non-loadbearing -	**Performance solution**

		i. internal wall required to be fire-resisting; and ii. lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, must be of non-combustible construction; and Residential: 1½ hrs Gymnasium & Pool: 2 hrs Retail: 3 hrs Storage areas – Basement 2: 4 hrs Sub-station: 4 hrs **There may be opportunities to reduce the FRL of the retail and storage areas by way of a performance solution. The structural engineer should be consulted with regard to any performance solution to reduce the FRL of structural elements.**	
3.5	Roof: Concession	The roof is not required to achieve a FRL as the roof covering will be non-combustible and the building: (a) has a sprinkler system complying with Specification E1.5 installed throughout; and (b) is of Class 3.	Concession applies
3.7	Internal wall and column concession	Internal columns, internal walls (other than fire walls and shaft wall) immediately below the roof are permitted to achieve an FRL of 60/60.	Concession applies

4.4 Access & Egress (BCA Section D)

BCA Clause	Title	Assessment and Comment	Status
D1.2	Number of exits required	The building is in excess of 25m in effective height and each level is required to be provided with 2 exits. **The following areas do not have access to 2 exits and require a performance solution:** **i. Retail tenancies on Ground Floor**	**Performance Solution.**
D1.3	When fire isolated exits are required	Every required exit serving a building must be fire isolated if the exit stair connects and/or pass through more than 3 consecutive storeys. Fire-isolated exits are provided as required.	The proposed building is capable of complying
D1.4	Exit travel distances	**Class 3 part -** The entrance doorway of any sole-occupancy unit must be not be more than 6m from an exit or from a point from which travel in different directions is available or 20m from a single exit serving the storey at the level of egress to a road or open space.	**Performance Solution.**

BCA Clause	Title	Assessment and Comment	Status
		No point on the floor of a room which is not in a sole-occupancy unit must be more than 20m from an exit or from a point at which travel in different directions to 2 exits is available. Travel distances in the Class 2 portion are in accordance with these requirements. **Class 6, 7a, 7b, 8 and 9b parts -** No point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40m. **The following travel distances to exits and distance to a point of choice exceed the limits imposed above:** **Basement 6** i. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 5** ii. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 4** iii. Distance to a point of choice from southern storage room exceeds 20m (30m); **Basement 3** iv. Distance to a point of choice from staff kitchen exceeds 20m (43.5m); Revision sketch by Crone dated 29.9.16 indicates compliance with dts. v. Distance to a point of choice from Switch room B exceeds 20m (20.5m) vi. Distance to a point of choice from Retail EOTM and Retail EOTF exceeds 20m (34.5m). Revision sketch by Crone dated 29.9.16 indicates distance to a point of choice of 30m. **Ground Mezzanine** vii. Distance to a point of choice from pool plant area exceeds 20m (24.5m). **Level 3 Mezzanine** viii. Distance to a point of choice from the furniture store exceeds 20m (29m). ix. Distance to a point of choice from Meeting Room 2 exceeds 20m (25m).	

BCA Clause	Title	Assessment and Comment	Status
		Level 4 x. Distance to point of choice from VIP Banquet exceeds 20m (28m). **Level 5** xi. Distance to a point of choice from Air Handling Plant exceeds 20m (26.2m). **Levels 6 – 13** xii. Distance to a point of choice from Bay 10 exceeds 6m (10m). **Levels 14 – 19** xiii. Distance to a point of choice from Bay 10 exceeds 6m (10m). **Levels 20 – 21** xiv. Distance to a point of choice from Bay 7 exceeds 6m (10m). **Level 22** xv. Distance to a point of choice from Bay 5 exceeds 6m (10m).	
D1.5	Distance between alternative exits	Exits that are required to serve as alternative means of egress must not be more than 45m apart in a residential building and not more than 60m in all other parts. Exits required as alternative means of egress must be located not less than 9m apart and located so that the alternative paths of travel do not converge such that they become less than 6m apart. **The distance between the following alternative exits exceed the limits imposed:** **Basement 6** i. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m). **Basement 5** ii. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m). **Basement 4** iii. Distance between alternative exits (western fire stairs and northern fire stairs) exceeds 60m (62.5m). **Basement 2** iv. Distance between alternative exits (western fire stair and northern fire stair exceeds 60m (61m).	**Performance Solution.**

BCA Clause	Title	Assessment and Comment	Status
NSW D1.6	Dimensions of exits and paths of travel to exits	A required exit or path of travel to an exit are required to be a minimum unobstructed height of not less than 2m and minimum width of 1m. Each level is provided with sufficient aggregate egress width to accommodate the population. A design population of 250 people has been provided for Level 3 which includes the ballroom. The aggregate egress width of 3m on this level can accommodated 300 people. Population numbers are provided in Annexure 2.	The proposed building is capable of complying
D1.7	Travel via fire isolated exits	A doorway from a room must not open directly into a stairway, passageway or ramp that is *required* to be fire-isolated unless it is from - (a) a public corridor, public lobby or the like; or (b) a sole-occupancy unit occupying all of a storey; or (c) a sanitary compartment, airlock or the like. Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to a road or open space; Where a path of travel from the point of discharge of a fire-isolated *exit* necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have an FRL of not less than 60/60/60 and any openings protected internally in accordance with C3.4, for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.	The proposed building is capable of complying
D1.10	Discharge from exits	The discharge point of the fire isolated exits is required to be connected to the road by a minimum 1 m wide path and where there is a change of level, the path must contain a complying stair or ramp. The BCA also specifies that exits must not be blocked at a point of discharge and where necessary suitable barriers must be provided to prevent vehicles from blocking the exit or access to it. **Bollards may be required adjacent to the discharge point of the fire stairs exiting to the through site link.**	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
D1.16	Plant rooms and lift rooms: concession	A ladder may be used in lieu of a stairway to provide egress from - (a) plant room with a floor area of not more than 100 m^2; or (b) all but one point of egress from a plant room or a lift machine room with a floor area of not more than 200 m^2. A ladder permitted in accordance with the above - (a) may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or (b) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (c) must comply with AS1657 for a plant room and electricity network substation.	Note
D1.17	Access to lift pits	Access to lift pits must, where the pit depth is not more than 3m, may be through the lowest landing doors; or where the pit depth is more than 3 m, be provided through an access doorway complying with the following: (a) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (b). (b) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (c) Access to the doorway must be by a stairway complying with A1657. (d) In lieu of D2.21, doors fitted to the doorway must be - iii. of the horizontal sliding or outwards opening hinged type; and iv. self-closing and self-locking from the outside; and v. marked on the landing side with the letters not less than 35 mm high: **DANGER LIFTWELL** **ENTRY OF UNAUTHORIZED PERSONS PROHIBITED** **KEEP CLEAR AT ALL TIMES** Details are to be provided with the construction documentation.	The proposed building is capable of complying
D2.2	Fire-isolated stairways and ramps	A stairway or ramp (including any landings) that is required to be within a fire-resisting shaft must be constructed of non-combustible materials and so that if there is local failure it will not cause	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		structural damage to, or impair the fire-resistance of, the shaft. Details are to be provided with the construction documentation.	
D2.3	Non-fire isolated stairs and ramps	Non fire isolated stairs are required to be designed in accordance with the requirements of this provision. Details are to be provided with the construction documentation.	The proposed building is capable of complying
D2.4	Separation of rising and descending stair flights	If a stairway serving as an exit is required to be fire-isolated there must be no direct connection between - (a) a flight rising from a storey below the lowest level of access to a road or open space; and (b) a flight descending from a storey above that level Any construction that separates or is common to the rising and descending flights must be - (a) non-combustible; and (b) smoke proof in accordance with Clause 2 of Specification C2.5. Rising and descending flights are separated as required.	The building complies
D2.7	Installation in exits and paths of travel	Existing and/or proposed services or equipment comprising electricity meters, distribution boards, central telecommunication distribution boards / equipment, electrical motors or other motors serving equipment in the building, can be installed in the existing corridors or the like leading to a required exits if the services or equipment are enclosed with non-combustible construction or appropriate fire-protective covering and doorways suitably sealed against smoke spread from the enclosure. Gas or other fuel services are not permitted in a required exit. NB: The internal part of a SOU is excluded from this provision. Details are to be provided with the construction documentation.	The proposed building is capable of complying
D2.8	Enclosure of space under stairs and ramps	The space below the required fire-isolated stairways must not be enclosed to form a cupboard or similar enclosed space.	The proposed building is capable of complying
D2.9	Width of stairways	The required width of a stairway must be measured clear of all obstructions such as handrails, projecting parts of balustrades or other	Note

BCA Clause	Title	Assessment and Comment	Status
		barriers and the like and extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosings of the treads or the floor of the landing.	
D2.11	Fire-isolated passageways	Fire-isolated passageways are not proposed.	The proposed building is capable of complying
NSW D2.13	Goings & risers	Goings and risers are to be designed to comply with this clause, including opening sizes, going and riser dimensions and non-slip finish or non-skid nosings with highlight strips to each nosing. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
D2.14	Landings	Landings are to have a maximum gradient of 1:50 and must – i. be not less than 750mm long and where this involves a change in direction, the length is measured 500mm from the inside edge of the landing; and ii. Have a surface with a slip resistance classification P3 – Dry or P4 – Wet when tested in accordance with AS 4586; or iii. Have a strip at the edge of the landing with a slip resistance classification P3 – Dry or P4 – Wet when tested in accordance with AS 4586, where the edge leads to a flight below. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
NSW D2.15	Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway then the width of the door leaf unless – i. In a building required to be accessible, the doorway opens to a road or open space and is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or ii. In other cases the doorway opens to a road or open space, external stair landing or external balcony and the door sill is not more than 190mm above the finished surface to which the doorway opens. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
NSW D2.16	Balustrades and other barriers	Balustrades are to be designed to comply with this clause.	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		Construction documentation should also demonstrate compliance.	capable of complying
D2.17	Handrails	Handrails are required along at least one side of the stairways or ramps, or on both sides of stairs or ramps with a total width of more than 2m. In a required exit serving an area required to be accessible, handrails are required to comply with Clause 12 of AS1428.1-2009. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
D2.18	Fixed platforms, walkways, stairways & ladders	A fixed platform, walkway, stairway, ladder and any going and riser, landing handrail or barrier which is attached may comply with AS 1657 if it only serves machinery rooms, boiler houses, lift machine rooms, plant rooms and the like.	Note
NSW D2.19	Doorways and doors	A doorway serving as a required exit or forming part of a required exit must not be fitted with a revolving door, roller shutter or tilt-up door. Sliding doors must also not be fitted unless it leads directly to a road or open space and the door provided is capable of being opened manually under a force of not more than 110 N. A doorway serving as a required exit or forming part of a required exit is fitted with a door which is power-operated - (a) it must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and (b) if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
D2.20	Swinging doors	A swinging door in a required exit or forming part of a required exit must not encroach at any part of its swing by more than 500mm on the required width (including any landings) of a required stairway, ramp or passageway if it is likely to impede the path of travel of the people already using the exit; and when fully open, by more than 100 mm on the required width of the required exit. The measurement of encroachment in each case is to include door handles or other furniture or attachments to the door.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		The door must swing in the direction of egress unless it serves a building or part with a floor area of not more than 200m^2, it is the only required exit and it is fitted with a device for holding it in the open position; or it serves a sanitary compartment or airlock (in which case it may swing in either direction); and must not otherwise impede the path or direction of egress.	
NSW D2.21	Operation of latch	All the doors in the required exits, or doors forming part of the required exits, must be readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900mm and 1.1m from the floor. The handle must be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch and has a clearance between the handle and the back plate or door face at the centre of the grip section of not less than 35mm and not more than 45mm. The above provision does not apply to sole occupancy unit doors in Class 2 buildings or doors fitted with a fail-safe device which automatically unlocks the door upon the activation of any sprinkler or detection system installed in the building. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
D2.22	Re-entry from fire-isolated exits	Doors of a fire-isolated exit must not be locked from the inside of a fire-isolated exit serving any storey above an effective height of 25 m, throughout the exit. This requirement does not apply to a door fitted with a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and— (a) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (b) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
D2.23	Signs on doors	A sign, to alert persons that the operation of certain doors must not be impaired, must be	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		installed where it can readily be seen on, or adjacent to the following; ▪ A required fire door providing direct access to a fire-isolated exit, ▪ A required smoke door, ▪ A fire door forming part of a horizontal exit; ▪ A smoke door that swings in both directions; ▪ door leading from a fire isolated exit to a road or open space, Signage is required to be in capital letters not less than 20 mm high in a colour contrasting with the background and state— (a) for an automatic door held open by an automatic hold-open device - **FIRE SAFETY DOOR- DO NOT OBSTRUCT** or (b) for a self-closing door - **FIRE SAFETY DOOR** **DO NOT OBSTRUCT** **DO NOT KEEP OPEN** or (c) for a door discharging from a fire-isolated exit— **FIRE SAFETY DOOR- DO NOT OBSTRUCT.** Construction documentation should demonstrate compliance.	capable of complying
D2.24	Protection of openable windows	A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in a bedroom in a Class 2, 3 or 4 building or a Class 9b early childhood centre. Where the lowest level of the window opening is less than 1.7 m above the floor the openable portion of the window must be protected with; ▪ a device to restrict the window opening; or ▪ a screen with secure fittings. A device or screen must not permit a 125 mm sphere to pass through the window opening or screen and resist an outward horizontal action of 250 N against the following; ▪ window restrained by a device; or ▪ screen protecting the opening; and ▪ have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		A barrier with a height not less than 865 mm above the floor is required to an openable window when a child resistant screen release mechanism provided and for openable windows 4m or more above the surface beneath A barrier covered must not permit a 125 mm sphere to pass through it and have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. Construction documentation should also demonstrate compliance.	

4.5 Services & Equipment (BCA Section E)

BCA Clause	Title	Assessment and Comment	Status
E1.3	Fire hydrants	A fire hydrant system must be provided in accordance with this clause to serve the whole building and must also be installed in accordance with AS2419.1. Where internal hydrants are provided, they must only serve the storey in which they are located. The fire brigade booster assemblies shall be located so that they meet the following requirements: (a) They are readily accessible to firefighters. (b) They are operable by fire brigade pumping appliances located within 8 m. (c) If within, or affixed to, the external wall of the building, the booster shall be— (i) within sight of the main entrance to the building; and (ii) separated from the building by a construction with a fire resistance rating of not less than FRL 90/90/90 **for a distance of not less than 2 m each side of and 3 m** above the upper hose connections in the booster assembly.	The proposed building is capable of complying
E1.4	Fire hose reels	A hose reel system must be provided to serve the retail and the pool/gymnasium portions of the building. Hose reels must be installed within 4m of an exit and must be installed in accordance with AS2441. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E1.5	Sprinklers	A sprinkler system must be installed throughout the whole building and must comply with Specification E1.5. **The location of the sprinkler booster assembly and the sprinkler valve room should be provided.**	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
E1.6	Portable fire extinguishers	Portable fire extinguishers are to comply with this provision and sections 1, 2, 3 and 4 of AS2444. Portable fire extinguishers in the Class 2 – residential part of the building must be – i. An ABE type extinguisher; and ii. A minimum size of 2.5kg; and iii. Distributed outside a sole-occupancy unit - A. To serve only the storey at which they are located; and B. So that the distance from the doorway of the sole-occupancy unit to the nearest extinguisher is not more than 10m. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E1.8	Fire control centres	The building has an effective height of more than 50m. The fire control centre must be in a separate room which is located and constructed in accordance with Specification E1.8. The fire control room is to be located on the Ground Floor of Tower A.	The proposed building is capable of complying
E1.9	Fire precautions during construction	In a building under construction - (a) not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required exit or temporary stairway or exit; and (b) after the building has reached an effective height of 12 m - i. the required fire hydrants and fire hose reels must be operational in at least every storey that is covered by the roof or the floor structure above, except the 2 uppermost storey's; and ii. any required booster connections must be installed.	The proposed building is capable of complying
E2.2	Smoke hazard management	**General Requirements** An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must -	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		▪ be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1-2015; or ▪ incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and ▪ be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with Clause 4.10 of AS/NZS 1668.1-2015; and for the purposes of this provision, each SOU in the Class 2 part is treated as a separate fire compartment. Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 1668.1-2015 serving more than one fire compartment (other than a car park ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS/NZS 1668.12015 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits. **Fire-isolated exits** The fire-isolated stairways and passageways serving the tower and basement must be provided with an automatic air pressurisation system for fire-isolated exits in accordance with AS/NZS1668.1-2015. The automatic air pressurisation system must be applied to the whole exit. **Residential** The Class 3 part of the building must be provided with an automatic smoke detection and alarm system complying with Specification E2.2a & as1670.2004 and AS3786-1993. The detection system is required to activate a building occupant warning system installed in accordance with Spec E2.2a (Clause 6) & of AS1670.1-2015 (Clause 3.22). **Retail, Level 1 Pool/Gymnasium, Level 2 Offices, Level 3 Ballroom, Level 3 Mezzanine Meeting rooms, Level 4 All Day Dining, Level 23 Restaurant and Level 24 Bar** must be provided with a zone smoke control system in accordance with AS/NZS 1668.1-2015.	

BCA Clause	Title	Assessment and Comment	Status
E3.2	Stretcher facility in lifts	A stretcher facility must be provided in at least one emergency lift required in E3.4 below accordance with the requirements of this clause and must be able to accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E3.3	Warning against use of lifts in fire	Warning signs must be displayed near every call button for a passenger lift or group of lifts except a small lift such as a dumb-waiter or the like that is for the transport of goods only. Signage is to be in accordance with this clause and must comply with the details and dimensions of Figure E3.3.	The proposed building is capable of complying
E3.4	Emergency lifts	At least two emergency lifts must be provided. An emergency lift is to be provided in each of the shafts. The emergency lifts must have a rating of at least: i. 600kg if not provided with a stretcher facility; or ii. 900kg where provided with a stretcher facility. The emergency lifts must comply with Spec E3.1.	The proposed building is capable of complying
E3.5	Landings	Access and egress to and from liftwell landings must comply with the DTS provision of Section D. Access to the two fire-isolated exits must be maintained on Level 57 (Penthouse).	The proposed building is capable of complying
E3.6	Passenger lifts	Passenger lifts must be provided with accessible features in accordance with Table E3.6b. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E3.7	Fire service controls	Fire service controls are required to every lift serving any storey above an effective height of 12m. Fire service controls are required to comply with the requirements of this provision. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E3.9	Fire service recall operation switch	Each group of lifts must be provided with one fire service recall control switch where fire service controls are required by E3.7. Fire recall operation switches are to comply with the requirements of this provision.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		Construction documentation should demonstrate compliance.	
E3.10	Lift car fire service drive control switch	Lift car fire service drive control switch required by E3.7 must be activated from within the car and the switch must comply with the requirements of this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E4.2	Emergency lighting requirements	Emergency lighting must be provided in accordance with this clause. Emergency lighting is required to comply with AS2293.1-2005. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E4.5	Exit signs	An exit signage must be provided in accordance with this clause. Exit signage is required to comply with AS2293.1-2005 and be clearly visible at all times. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
NSW E4.6	Direction signs	If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
E4.9	Sound systems and intercom systems for emergency purposes	A sound system and intercom system for emergency purposes complying where applicable with AS1670.4-2015 must be installed in the building. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

4.6 Health & Amenity (BCA Section F)

BCA Clause	Title	Assessment and Comment	Status
F1.0	Deemed to satisfy provisions	Performance requirement FP1.4, for the prevention of the penetration of water through external walls, is required to be complied with. Details are to be provided with construction documentation.	The proposed building is capable of complying
F1.1	Stormwater drainage	Stormwater drainage is required to be designed to comply with AS/NZS3500.3-2015.	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		Construction documentation should demonstrate compliance.	capable of complying
F1.4	External above ground membranes	Waterproofing membranes for external above ground use must comply with AS4654.1-2012 & AS4654.2-2012. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.5	Roof coverings	Lightweight metal roof sheeting is to comply with AS1562.1. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.6	Sarking	Sarking-type materials used for weatherproofing of roofs and walls are required to comply with AS/NZS 4200 Parts 1 and 2. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.7	Waterproofing of wet areas in buildings	Waterproofing of wet areas are required to comply with this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.9	Damp-proofing	Damp proof course is required to be provided to walls to comply with this clause.	The proposed building is capable of complying
F1.10	Damp-proofing of floor on ground	Damp-proofing is required to be provided in accordance with the requirements of this provision.	The proposed building is capable of complying
F1.11	Provision of floor wastes	The floor of each bathroom and laundry in the residential sole occupancy units are to be provided with a floor waste.	The proposed building is capable of complying
F1.13	Glazed assemblies	Glazed assemblies to comply with AS 2047 as applicable.	The proposed building is capable of complying
F2.1	Facilities in residential buildings	The residential portion of the building is to be provided with appropriate facilities in accordance with Table F2.1. Generally provision of the following facilities within each unit will comply. ▪ A bath or shower; and ▪ A closet pan & wash basin. Sanitary facilities are provided as required.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
F2.3	Facilities in Class 3 to 9 buildings	The required number of sanitary facilities is provided in Annexure 3.	The proposed building is capable of complying
F2.4	Facilities for people with disabilities	Unisex sanitary compartments must be provided on every storey containing sanitary facilities and where a storey has more than 1 bank of sanitary compartments, at not less than 50% of these banks in accordance with AS1428.1-2009. In addition to the unisex sanitary compartment, each bank of toilets must be provided with a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 and must be provided for use by males and females. An accessible unisex sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels. The circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with Table F2.4(a) and Table F2.4(b) must comply with the requirements of AS 1428.1; and Access to unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only. Where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible, Accessible unisex showers must be provided where required by Table F2.4(b) Notes: Where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations; An accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not required by D3.3(f) to be provided with a passenger lift or ramp complying with AS 1428.1. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
F2.5	Construction of sanitary compartments	The construction of sanitary compartments is required to comply with this requirement. Doorways located less than 1.2m from the closet pan are required to swing outwards, slide or be capable of being removed from the outside (lift off hinges).	The proposed building is capable of complying
F2.6	Interpretation: Urinals and washbasins	A urinal may be - an individual stall or wall-hung urinal; or each 600 mm length of a continuous urinal trough, or a closet pan used in place of a urinal. A washbasin may be an individual basin or a part of a hand washing trough served by a single water tap.	Note
F3.1	Height of rooms and other spaces	The following minimum ceiling height requirements are to be provided; **Residential portion of the hotel** Hotel suites and rooms: 2.4m Bathrooms: 2.1m Corridors and passageways: 2.1m **Retail and restaurants** Generally 2.4m Corridors and passageways 2.1m **Ballroom including corridors and passageways** 2.7m	The proposed building is capable of complying
F4.1-4.3	Provision of natural light	Natural lighting must be provided in all habitable rooms of the residential units. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F4.4	Artificial lighting	Artificial lighting is to be provided in accordance with AS/NZS1680.0 and in accordance with this clause to the common room.	The proposed building is capable of complying
F4.5-4.7	Ventilation of rooms	Ventilation is to be provided by natural or mechanical means in accordance with this provision and Clause F4.6. The building has adequate openings to achieve compliance with natural ventilation.	The proposed building is capable of complying
F4.8	Restriction on the position of water closets and urinals	A room containing a closet pan or urinal must not open directly into a room used for public assembly or a workplace normally occupied by more than one person.	The proposed building is capable of complying
F4.9	Airlocks	If the room containing a closet pan or urinal must not open directly into rooms identified in F4.8	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		above then an airlock of not less than 1.1 m^2 and fitted with self-closing doors at all access doorways or the room containing the closet pan or urinal must be provided with mechanical ventilation and the doorway to the room adequately screened from view. Mechanical ventilation of the bathrooms is to be provided.	capable of complying
F5.1	Application of part	The sound insulation requirements of F5.2, F5.3, F5.4, F5.5, F5.6 & F5.7 only apply to the **Class 3 accommodation component of the building.**	Note
F5.2	Determination of airborne sound insulation ratings	A form of construction required to have an airborne sound insulation rating must - (a) have the required value for weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) determined in accordance with AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements; or (b) an acceptable form of construction under Spec F5.2.	The proposed building is capable of complying
F5.3	Determination of impact sound insulation ratings	A floor in a building required to have an impact sound insulation rating must - (a) have the required value for weighted normalised impact sound pressure level ($L_{n,w}$) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or (b) comply with Specification F5.2. A wall in a building required to have an impact sound insulation rating in the Class 2 part must be of discontinuous construction. For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and (a) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (b) for other than masonry, there is no mechanical linkage between leaves except at the periphery**.** Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F5.4	Sound insulation rating of floor	1. A floor in a Class 2 building must have an $R_w + C_{tr}$ (airborne) not less than 50 and an $L_{n,w}$ (impact) not more than 62 if it separates— i. sole-occupancy units; or ii. a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		lobby or the like, or parts of a different classification. Construction documentation should demonstrate compliance.	
F5.5	Sound insulation of walls	The walls in the Class 2 part of the building must; (a) have an $R_w + C_{tr}$ (airborne) not less than 50 if it separates SOU's; and (b) have an $R_w + C_{tr}$ (airborne) not less than 50 if it separates a SOU from a plant room, public corridor, public lobby or the like; and (c) have complying discontinuous construction if it separates a bathroom, sanitary compartment, laundry or kitchen in one SOU from a habitable room (other than a kitchen) in another, or a SOU from a plantroom. A door may be incorporated in a wall that separates a SOU from a stairway, public corridor, public lobby or the like, provided the door assembly has an R_w not less than 30. The doors opening to the external balconies are not required to have sound insulation rating. Where a wall required to have sound insulation has a floor above, the wall must continue to the underside of the floor above or a ceiling that provides the sound insulation required for the wall. Where a wall required to have sound insulation has a roof above, the wall must continue to the underside of the roof above or a ceiling that provides the sound insulation required for the wall. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F5.6	Sound insulation rating of services	Services that serves or pass through more than one SOU must achieve the required ratings specified by this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F5.7	Sound isolation of pumps	A flexible coupling must be installed at the point of connection between service pipes in a building and any circulating or other pump. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

4.7 Ancillary Provisions (BCA Section G)

BCA Clause	Title	Assessment and Comment	Status
G1.1	Swimming Pools	Where required by the Swimming Pool Act 1992 and the Swimming Pools Regulation 2008, swimming pool fencing is required to be installed in accordance with AS1926.1-2012 & AS1926.2-2007. A water recirculation system in a swimming pool with a depth of water more than 300 mm must comply with AS 1926.3-2010. The hotel pool is considered to be an internal pool for the purposes of the Swimming Pool Act 1992, the Swimming Pools Regulation 2008 and AS1926. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
NSW G1.101	Provision for the cleaning of windows	The method of provision for the cleaning of windows is required to be in accordance with this clause (windows 3 or more storeys above the ground). Details are to be provided with the construction documentation submitted with the construction certificate.	The proposed building is capable of complying

4.8 Energy Efficiency – (BCA Section J – Class 6 and 9 buildings)

The assessment is based on buildings located within Climate Zone 5.

4.8.1 External fabric (Part J1)

BCA Clause	Title	Assessment and Comment	Status
J1.1	Application of part	The Deemed-to-Satisfy Provisions of this Part apply to building elements forming the envelope of the building.	Note
J1.2	Thermal Construction - General	Required insulation, reflective insulation and bulk insulation is to be installed in accordance with this clause and AS/NZS 4859.1.	The proposed building is capable of complying
J1.3	Roof and Ceiling Construction	A roof or ceiling that is part of the envelope must achieve the Total R-Value specified in Table J1.3a for the direction of heat flow. Climate Zone 5 requires a minimum total R-Value of 3.2 measured downwards. A roof that - (a) is required to achieve a minimum Total R-Value; and	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		(b) has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and (c) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see Specification J1.3 Figure 2(c) and (f)), must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the metal sheet roofing and its supporting member. Detail of the roof construction and Total R-Value is to be provided with the construction documentation to demonstrate compliance.	
J1.4	Roof Lights	The rooflights are not proposed.	N/A
J1.5	Walls	Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a. Generally walls are required to achieve a total R-Value of 2.8. Any internal wall forming part of the *envelope* must achieve the total R-value in Table J1.5b. Generally walls are required to achieve a total R-Value of 1.0 or 1.8. A wall that - (a) is required to achieve a minimum Total R-Value; and (b) has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and (c) does not have a wall lining or has a wall lining that is fixed directly to the metal frame, must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the external cladding and the metal frame. Detail of the wall construction and Total R-Value is to be provided with the construction documentation to demonstrate compliance.	The proposed building is capable of complying
J1.6	Floors	(a) A floor that is part of the envelope of the building, including a floor above or below a car park or a plant room - i. must achieve the Total R-Value specified in Table J1.6; and ii. with an in-slab heating or cooling system, must be insulated around the vertical edge of its perimeter with insulation having an R-Value of not less than 1.0. iii. The minimum Total R-Value required in (i) may be reduced by R0.5 provided	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		R0.75 is added to the Total R-Value required for the roof and ceiling construction. Floor construction is deemed to have the thermal properties listed in Specification J1.6. Documentation to demonstrate compliance is to be provided.	

4.8.2 External Glazing (Part J2)

BCA Clause	Title	Assessment and Comment	Status
J2.1	Application of part	The Deemed-to-Satisfy Provisions of this Part apply to building elements forming the envelope of the building.	Note
J2.4	Glazing	Glazing must be designed in accordance with J2.4 to achieve the aggregate air-conditioning energy value. A glazing calculator results are to be provided with the construction documentation to demonstrate compliance.	The proposed building is capable of complying
J2.5	Shading	Required shading must be designed in accordance with the requirements of this condition. The construction documentation is to identify id shading is required and details to demonstrate compliance.	The proposed building is capable of complying

4.8.3 Building Sealing (Part J3)

BCA Clause	Title	Assessment and Comment	Status
J3.1	Application of part	The Deemed-to-Satisfy Provisions of this Part apply to building elements forming the envelope of the building.	Note
J3.2	Chimneys and flues	Solid fuel burning appliances are not proposed and the requirements of this provision do not apply.	N/A
J3.3	Roof Light	Roof lights are not proposed.	N/A
J3.4	Windows and doors	Windows and doors forming part of the envelope are required to be sealed to restrict air infiltration. The requirements of this provision do not apply to, (a) Windows complying with AS2047, (b) A fire or smoke door, (c) Roller shutter doors.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		The bottom edge of a swing door required to be sealed must have a draft protection device and the other edges of doors or windows must have a foam or rubber compression strip, fibrous seal or the like. An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than where the conditioned space has a floor area of not more than 50 m^2. The construction documents are to have details demonstrating compliance.	
J3.5	Exhaust Fans	A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a; (a) conditioned space; or (b) a habitable room in climate zone 4, 6, 7 & 8. The construction documents are to have details demonstrating compliance.	The proposed building is capable of complying
J3.6	Construction of roofs, walls and floors	Roofs, ceilings, walls, floors and any openings are required to be designed and constructed to minimize air leakage in accordance with this clause. The construction documents are to have details demonstrating compliance.	The proposed building is capable of complying
J3.7	Evaporative Coolers	Evaporative coolers are not proposed.	N/A

4.8.4 Air Conditioning and Ventilation Systems (Part J5)

BCA Clause	Title	Assessment and Comment	Status
J5.2	Air Conditioning and Ventilating system	Any proposed air-conditioning systems and mechanical ventilation systems must; (a) Be capable of being deactivated when the SOU or part of the building served is not occupied; and (b) N/A (c) N/A (d) When the air flow rate is greater than 1000 L/s, be designed so that the total fan power of the fans in the system is in accordance with Table J5.2, except as permitted. The construction documents are to have details demonstrating compliance.	The proposed building is capable of complying
J5.3	Time Switch	The mechanical ventilation system and air conditions system design would is required to be provided with a time switch in accordance with	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
		Spec J6. The requirement does not apply to an air-conditioning system that serves only one SOU. The construction documents are to have details demonstrating compliance.	capable of complying
J5.4	Heating and chilling systems	Heating a space other than via water, must be (a) A solar heater; or (b) A gas heater; or (c) An oil heater if reticulated gas is not available at the allotment boundary; and (d) A heat pump heater; or (e) A heater using reclaimed heat from another process such as reject heat from refrigeration plant; or (f) A combination of 2 or more Package air-conditioning equipment with a capacity of not less than 65 kWr, including a split unit and a heat pump, must have an energy efficiency ratio complying with Table J5.4c when tested in accordance with AS/NZS 3823.1.2 at test condition T1.	The proposed building is capable of complying
J5.4	Miscellaneous exhaust system	A miscellaneous exhaust system with an air flow rate of more than 1000 L/s, that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory is required to be design to comply with this clause. The construction documents are to have details demonstrating compliance.	The proposed building is capable of complying

4.8.5 Artificial Lighting and Power (Part J6)

BCA Clause	Title	Assessment and Comment	Status
J6.2	Artificial lighting	Artificial lighting is to be designed in accordance with this provision.	The proposed building is capable of complying
J6.3	Interior artificial lighting and power control	Artificial lighting and power control are to be designed and provided in accordance with this provision.	The proposed building is capable of complying
J6.4	Interior decorative and display lighting	Interior decorative and display lighting, such as for foyer mural or art display, must be controlled in accordance with this clause.	The proposed building is capable of complying
J6.5	Artificial lighting around the	Artificial lighting around the perimeter of a building must be designed to comply with this clause.	The proposed building is

BCA Clause	Title	Assessment and Comment	Status
	perimeter of a building		capable of complying
J6.6	Boiling water and chilled water storage units	Power supply to a boiling water or chilled water storage unit is required to be controlled by a time switch in accordance with Spec J6.	The proposed building is capable of complying

4.8.6 Hot Water Supply and Swimming Pool and Spa Pool Plant (Part J7)

BCA Clause	Title	Assessment and Comment	Status
J7.2	Hot Water Supply	A hot water supply system for food preparation and sanitary purposes, other than a solar hot water supply system in climate zones 1, 2 and 3, must be designed and installed in accordance with Section 8 of AS/NZS 3500.4.	The proposed building is capable of complying
J7.3	Swimming pool heating and pumping	Swimming pool heating and pumping must be designed to comply with this clause.	The proposed building is capable of complying

4.8.7 Facilities for Energy Monitoring (Part J8)

BCA Clause	Title	Assessment and Comment	Status
J8.3	Facilities for energy monitoring	1. A building or sole-occupancy unit with a floor area of more than 500m^2 must have the facility to record the consumption of gas and electricity.	The proposed building is capable of complying

5. Fire Safety Schedule

The following table is a list of the required fire safety measures for this development. This list is to be treated as a guide as to what the buildings are considered to require.

NO:	Fire Safety Measures (As set out under clause 166 of EP&A Regulations)	Currently Implemented	Proposed implementation	Standard of Performance
1	Access panels, doors & hoppers to fire resisting shaft	NO	YES	BCA2016 C3.13 & AS1905.1-2005, AS 1905.2-2015
2	Automatic fire detection and alarm system	NO	YES	BCA 2016 E2.2, Spec E2.2a & AS 1670.1-2015 Amdt 1, AS 3786-1993 Amdt 1, 2, 3 & 4 or AS 3786-2014 Amdt 1. AS/NZS 1668.1-2015
3	Automatic fire suppression system	NO	YES	BCA 2016 E1.5, Spec E1.5 & AS 2118.1-1999 Amdt 1, AS 2118.6-2012
4	Building occupant warning system	NO	YES	BCA 2016 Spec E2.2a (Clause 6) & of AS 1670.1-2015 (Amdt 1) (Clause 3.22)
5	Emergency Lifts	NO	YES	BCA 2016 E3.4 & Spec E3.1
6	Emergency lighting	NO	YES	BCA 2016 E4.2, E4.3, E4.4 & AS 2293.1 – 2005 Amdt 1 & 2 BCA 2016 Spec E1.8 Clause 12 (Emergency lighting for fire control room)
7	Sound systems & intercom systems for emergency purposes	NO	YES	BCA 2016 E4.9 & AS 1670.4-2015
8	Exit signs	NO	YES	BCA 2016 E4.5, E4.6, E4.8 Spec E4.8 & AS 2293.1-2005 Amdt 1 & 2
9	Exit signs (non-illuminated)	NO	YES	BCA 2016 Clause E4.7
10	Fire control centres and rooms	NO	YES	BCA 2016 E1.8 & Spec E1.8
11	Fire dampers	NO	YES	BCA 2016 C3.12, C3.15 & AS/NZS 1668.1-2015, AS 1668.2-2012 Amdt 1, AS 1682.1-1990, AS 1682.2-1990
12	Fire doors	NO	YES	BCA 2016 Spec C3.4 & AS/NZS 1905.1 – 2015

NO:	Fire Safety Measures (As set out under clause 166 of EP&A Regulations)	Currently Implemented	Proposed implementation	Standard of Performance
13	Fire rated lift landing doors	NO	YES	BCA 2016 C3.10 & AS 1735.11-1986
14	Fire Hose reel systems	NO	YES	BCA 2016 E1.4 & AS 2441-2005 Amdt 1.
15	Fire hydrant systems	NO	YES	BCA 2016 E1.3 & AS 2419.1-2005 Amdt 1
16	Fire seals protecting openings in fire resisting components of the building	NO	YES	BCA 2016 C3.12, C3.15 & Spec C3.15 AS 4072.1-2005 Amdt 1 AS 1530.4.-2014
17	Mechanical air handling system	NO	YES	BCA 2016 E2.2, Table E2.2(a), Table E2.2(b), Spec E2.2a & AS/NZS 1668.1-2015 Class 7a carpark building mechanical ventilation systems - BCA 2016 E2.2, Table E2.2a and clause 5.5 of AS/NZS 1668.1-2015
18	Portable fire extinguishers	NO	YES	BCA 2016 E1.6 & AS 2444-2001
19	Pressurising system	NO	YES	BCA 2016 Clause E2.2 & AS/NZS 1668.1-2015
20	Smoke detectors & heat detectors	NO	YES	BCA 2016 E2.2, Spec E2.2a & AS1670.1-2015
21	Warning and operational signs	NO	YES	EPA Regulation (reg 183), BCA 2016 E3.3 (lifts), BCA 2016 D2.23 Signs on exit doors
22	Zone smoke control system	NO	YES	BCA 2016 E2.2 & AS/NZS 1668.1-2015

6. Conclusion

The design as proposed is capable of complying with the Building Code of Australia, and will be subject to construction documentation that will provide appropriate details to demonstrate compliance. This report has identified areas of non-compliance with the deemed-to-satisfy provisions and indicates the design intent to demonstrate compliance with the Performance Requirements of the BCA. Whilst the performance based solutions are to be design developed, it is my view that the solutions will not impact on the current design.

Scott Reid
Senior Building regulations Consultant

(For and on behalf of City Plan Services P/L)

Appendix 1

Assessed plans prepared by Crone and Kengo Kuma and Associates – Chairman Issue 28.09.16.

Plan Title	Drawing No	Revision	Date
COVER PAGE	0001	6	20.10.16
SITE PLAN	0101	1	20.10.16
SURVEY PLAN	0200	1	20.10.16
DEMOLITION PLAN	0201	1	20.10.16
BASEMENT 6 - RESIDENTIAL	1000	7	20.10.16
BASEMENT 5 - RESIDENTIAL	1001	7	20.10.16
BASEMENT 4 - RESIDENTIAL	1002	7	20.10.16
BASEMENT 3 – HOTEL BOH	1003	6	20.10.16
BASEMENT 2 – HOTEL BOH	1004	6	20.10.16
BASEMENT 1 – LOADING & BOH	1005	7	20.10.16
LOWER GROUND TOWER A	1006	7	20.10.16
GROUND – LOBBY + RETAIL	1007	7	20.10.16
GROUND MEZZANINE - MEP	1008	7	20.10.16
LEVEL 01 – POOL & SPA	1009	7	20.10.16
LEVEL 02 – EXECUTIVE OFFICE	1010	7	20.10.16
LEVEL 03 – GRAND BALLROOM	1011	7	20.10.16
LEVEL 03 MEZZANINE – MEETING ROOMS	1012	7	20.10.16
LEVEL 04 – ALL DAY DINING	1013	7	20.10.16
LEVELS 05 – PLANT	1014	7	20.10.16
LEVEL 06 –HOTEL STANDARD	1015	7	20.10.16
LEVEL 07 –HOTEL STANDARD	1016	7	20.10.16
LEVEL 08 –HOTEL STANDARD	1017	7	20.10.16
LEVEL 09 –HOTEL STANDARD	1018	7	20.10.16
LEVEL 10 –HOTEL STANDARD	1019	7	20.10.16
LEVEL 11 –HOTEL STANDARD	1020	7	20.10.16
LEVEL 12 –HOTEL STANDARD	1021	7	20.10.16

LEVEL 13 –HOTEL STANDARD	1022	7	20.10.16
LEVEL 14 –HOTEL STANDARD	1023	7	20.10.16
LEVEL 15 – HOTEL SUITE	1024	7	20.10.16
LEVEL 16 – HOTEL SUITE	1025	7	20.10.16
LEVEL 17 – HOTEL SUITE	1026	6	20.10.16
LEVEL 18 – HOTEL SUITE	1027	6	20.10.16
LEVEL 19 – HOTEL SUITE	1028	6	20.10.16
LEVEL 20 – HOTEL PREMIER SUITES	1029	6	20.10.16
LEVEL 21 – HOTEL PREMIER SUITES	1030	6	20.10.16
LEVEL 22 – HOTEL PRESIDENTIAL SUITE	1031	6	20.10.16
LEVEL 23 – CLUB RESTAURANT	1032	6	20.10.16
LEVEL 24 – CLUB BAR	1033	6	20.10.16
LEVEL 25 – CLUB ROOFTOP BAR	1034	7	20.10.16
LEVEL ROOF	1035	8	20.10.16
EAST ELEVATION	2000	6	20.10.16
NORTH ELEVATION	2001	6	20.10.16
WEST ELEVATION	2002	6	20.10.16
SOUTH ELEVATION	2003	6	20.10.16
SECTION A - A	3000	4	12.10.16
SECTION B - B	3001	2	12.10.16

Your ref
Our ref 2477747
File ref

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Rain Li
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11 October 2016

Dear Rain

Wanda Sydney Tower B
National Construction Code (NCC) – Part J Compliance – JV3

Arup have been engaged by Wanda One Sydney as the Sustainability Consultant for Tower B - Stage 2 DA at 1 Alfred St, Sydney.

National Constriction Code (NCC) Compliance for the building envelope can be demonstrated via two paths:

- Deemed to Satisfy (DtS) provision – Part J
- Alternative Solution – JV3 Verification for Part J.

Alternative Solution – JV3 Verification for Part J provides greater flexibility on building façade design. Based on Crone and KKAA design for Stage2 DA, Tower B will use JV3 to demonstrate NCC Part J compliance for envelope, including Part J1, J2 and J3.

The following table outlines the targeted envelope performance (including glazing and opaque components) for JV3 compliance.

Glazing Vision panel:

	Min. Total System U-value ($W.m^2/K$)	**Total System SHGC**
Lobby Glazing	5.5	0.6
Retail (storefront glazing)	5.5	0.6
Hotel Room (Class 3)	3.2	0.34
Others (e.g. ballroom, and rooftop bar)	3.2	0.3

Other envelope component:

Element	Total R-Value (K.m²/W)
External Walls (generally)	2.80
External Walls (South)	2.30
Ceilings/Roofs	4.2
Internal Walls	1.80
Suspended Slabs	2.00

Yours sincerely

Gladys So
Senior Engineer