



BUILDING CODE OF AUSTRALIA REPORT

Residential Buildings R8 & R9, Hickson Road, Barangaroo South

Dated: **October 2012**

Prepared for: **Lend Lease Project Management & Construction**

Prepared by: **McKenzie Group Consulting (NSW) Pty Ltd
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Table of Contents

Executive Summary	3
1.0 Introduction	4
1.1 Overview of Proposed Development.....	4
1.2 Site Location	4
2.0 Building Assessment Data	4
3.0 Fire Resistance	5
4.0 Egress	5
5.0 Access for Persons with a Disability	5
7.0 Ventilation and Smoke Hazard Management	6
8.0 Lift Services.....	6
9.0 Sanitary Facilities.....	7
10.0 Sound Transmission.....	7
11.0 Energy Efficiency.....	7
Appendix A - Design Documentation	9
Appendix B - Draft Fire Safety Schedule.....	10

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22.08.12	A	10	Draft for PA	Brigitte Thearle		21.09.12
21.09.12	B	10	Final for PA	Brigitte Thearle		25.09.12
25.09.12	C	10	Final for PA	Brigitte Thearle		23.10.12



Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by PTW and FJMT (refer Appendix A) for residential buildings R8 and R9 located within the Barangaroo South site against the relevant provisions of the Building Code of Australia.

It is anticipated that due to the size and nature of the buildings, there will be alternate solutions that address non-compliances with the deemed to satisfy provisions of the BCA. The alternate solutions will be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.

Where items for which an alternate solution is prepared relate to Category 2 items under the Environmental Planning & Assessment Regulation 2000, approval will be required by the NSW Fire Brigade as part of the Construction Certificate process.

The proposed buildings have been assessed against the provisions for Access for People with Disabilities in Part D3 of the BCA. Compliance with these provisions is proposed to be achieved subject to further review of detailed design. Details of compliance with Part D3 of the BCA will be resolved as part of the Construction Certificate process.

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

Brigitte Thearle



1.0 Introduction

This report supports a Project Application (MP11_0002) submitted to the Minister for Planning pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act). The Application seeks approval for construction of two residential flat buildings (known as Buildings R8 and R9) and associated works at Barangaroo South as described in the Overview of Proposed Development section of this report.

1.1 Overview of Proposed Development

The R8 and R9 Project Application seeks approval for the construction and use of two residential flat buildings comprising 161 apartments, ground floor retail, allocation of car parking spaces from the Bulk Excavation and Basement Car Parking Project Application, and the construction of the surrounding ancillary temporary public domain and landscaping.

1.2 Site Location

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

1.3 Current Legislation

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

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

2.0 Building Assessment Data

Summary of Construction Determination: -

	Residential Building R8	Residential Building R9
Classification	7a, 6, 2	7a, 6, 2
Number of Storeys Contained	13	11
Rise In Storeys	11	9
Type of Construction	A	A
Effective Height (m)	>25m*	>25m*

* Note effective height is measured from the podium level

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

Part of Project	BCA Classification	Approx. Floor Area (m ²)	Assumed Population
R8 - Ground Floor Retail	6	945m ²	662
R8 - Levels 1-10	2	-	-
R9 - Ground Floor Retail	6	680m ²	476
R9 - Levels 1-8	2	-	-



Notes:

1. The above populations have been based on the floor areas and calculations in accordance with Table D1.13 of the BCA. The assumption is that the ground floor will contain restaurants (of which 30% will be back of house/kitchen) as this allows the highest population.
2. The residential buildings and the proposed basement are considered one building under the deemed to satisfy provisions of the BCA. It is proposed to assess the R8 and R9 Residential Buildings as separate buildings to the basement.

3.0 Fire Resistance

The buildings should be constructed generally in accordance with Part C of the Building Code of Australia. The buildings are required to be Type A Construction.

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

- Separation between the carpark levels and the retail portions
- Separation between the retail levels and the residential portions
- Fire compartmentation of the building at each floor level as appropriate.

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.

4.0 Egress

The egress provisions from the proposed building are provided by:

- Fire isolated stairways
- External perimeter doorways
- Required non-fire isolated stairways

The locations of the proposed exits would appear to indicate that the travel distances, distances between alternative exits and egress widths will comply with the BCA.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Details of Separation of rising & descending stairs
- Discharge from the Fire Isolated Exits
- Details of the egress provisions to the Road.

5.0 Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the retail portions of the building in accordance with the requirements of Part D of the BCA. Parts of the building required to be accessible will comply with the requirements of Part D of the BCA.



It is proposed to provide accessibility to the common residential areas and a minimum of 10% of the apartments as adaptable.

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc.

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 is proposed 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 will be located within 50m of an entrance that is accessible.

6.0 Fire Services & Equipment

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

- An automatic sprinkler system in accordance with the relevant provisions of Part E of the BCA.
- Fire hydrants in accordance with the BCA,
- Fire hose reels in accordance with BCA,
- Portable Fire Extinguishers in accordance with the BCA,
- Sound System & Intercom System for Emergency Purposes in accordance with the BCA
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with the BCA

A fire Control centre shall be provided in each building in accordance with Part E of the BCA.

7.0 Ventilation and Smoke Hazard Management

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

- Zone Smoke Control in accordance with the requirements of the BCA;
- Automatic Smoke Detection and Alarm System in accordance with the requirements of the BCA
- Automatic Pressurisation to Fire Isolated Exits in accordance with the requirements of the BCA

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with Part F of the Building Code of Australia.

8.0 Lift Services

The passenger lifts to be installed are to be: -

- fitted with warning signs, fire service controls in accordance with AS 1735.2
- Stretcher facilities are to be provided within the lifts with minimum dimensions of 600mm wide, 2000mm long and 1400mm high.
- An emergency lift with stretcher facilities in accordance with part E of the BCA and AS 1735.2.
- Be provided with the following: -
 - A handrail in accordance with AS 1735.12
 - Minimum internal floor dimensions as specified in AS 1735.12,
 - Fitted with a series of door opening sensory devices which will detect a 75mm diameter or across the door opening between 50mm and 1550mm above floor level,
 - Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12.



Where two or more passenger lifts are installed and serve the same storeys, at least two emergency lifts must be provided to serve those storeys and, if located within different shafts, at least one emergency lift must be provided in each shaft.

An emergency lift must be contained within a fire-resisting shaft in accordance with the requirements of Part C.

9.0 Sanitary Facilities

For the retail portions, facilities are required for patrons where the number of patrons exceeds 600. The sanitary facilities for the staff to the retail areas will generally be required at the rate of 1 WC per 20 males and 1 WC per 15 females. Urinals will be required to the male facilities at the rate of 1 per 50 occupants. Basins will be required for each sex at the rate of 1 per 30 occupants.

Sanitary facilities will be provided to the project as per the requirements of BCA Part F2.

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 AS1428.1-2001.

Each sole occupancy unit within the residential portion of the project will be provided with the following as required by Part F2 of the BCA:

- 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).

As the development contains more than 10 apartments, a closet pan and basin is to be provided at or near ground level for employees, which can be accessed without going through a sole occupancy unit.

10.0 Sound Transmission

The sound transmission and insulation requirements for the Class 2 portions shall be provided in accordance with Part F 5 of the BCA for the following elements:

- Floors
- Walls
- Services
- Pumps

11.0 Energy Efficiency

The Class 6 (retail) portions of the proposed development shall be provided with insulation, building sealing and services in accordance with NSW Part J of the BCA 2012 where conditioned.

The deemed-to-satisfy provisions of the BCA only apply to thermal insulation in a class 2 building where development consent or a Complying Development certificate specifies that the insulation is to be provided as part of the development.

The residential (Class 2) portions of the building are subject to BASIX, and a BASIX Certificate will be required prior to the issuance of the Construction Certificate for the works.

The proposed retail portion of the development shall comply with Part J of the BCA. 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.

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

Access is to be provided to all plant, equipment and components associated with the provision of the above energy requirements i.e.

- Adjustable or monitored shading devices
- Time switches and motion detectors
- Room temperature thermostats
- Plant thermostats such as boilers or refrigeration units
- Motorised air dampers and central valves
- Reflectors, Lenses and Diffusers of light fittings
- Heat transfer equipment



Appendix A - Design Documentation

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

Drawing No.	Title	Date	Drawn By	Revision
BR8ASKPA100	Ground Floor Plan	12.10.12	FJMT	09
BR8ASKPA101	Level 1 Floor Plan	12.10.12	FJMT	08
BR8ASKPA102	Level 2 Floor Plan	12.10.12	FJMT	06
BR8ASKPA103	Level 3 Floor Plan	12.10.12	FJMT	06
BR8ASKPA104	Level 4 Floor Plan	12.10.12	FJMT	06
BR8ASKPA105	Level 5 Floor Plan	12.10.12	FJMT	06
BR8ASKPA106	Level 6 Floor Plan	12.10.12	FJMT	07
BR8ASKPA107	Level 7 Floor Plan	12.10.12	FJMT	06
BR8ASKPA108	Level 8 Floor Plan	12.10.12	FJMT	06
BR8ASKPA109	Level 9 Floor Plan	12.10.12	FJMT	04
BR8ASKPA110	Level 10 Floor Plan	12.10.12	FJMT	04
BR8ASKPA111	Roof Plan	12.10.12	FJMT	04
BR8ASKPA112	Site Plan	12.10.12	FJMT	02
ASKPA100	Ground Floor Plan	12.10.12	PTW Architects	08
ASKPA101	Level 1 Floor Plan	12.10.12	PTW Architects	08
ASKPA102	Level 2 Floor Plan	12.10.12	PTW Architects	08
ASKPA103	Level 3 Floor Plan	12.10.12	PTW Architects	08
ASKPA104	Level 4 Floor Plan	12.10.12	PTW Architects	08
ASKPA105	Level 5 Floor Plan	12.10.12	PTW Architects	08
ASKPA106	Level 6 Floor Plan	12.10.12	PTW Architects	08
ASKPA107	Level 7 Floor Plan	12.10.12	PTW Architects	08



Appendix B - Draft Fire Safety Schedule

Essential Fire Safety Measures		Standard of Performance
1.	Access Panels, Doors	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 (Sprinklers)	BCA Spec. E1.5 & AS 2118.1 – 1999, AS 2118.6 – 1995 (Combined sprinkler & hydrant) Verification of alternate solution to BCA Performance Requirement EP1.4
5.	Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001 Verification of alternate solution to BCA Performance Requirement EP3.2
6.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005
7.	EWIS	BCA Clause E4.9 & AS 1670.4 - 2004
8.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
9.	Exit Signs (non-illuminated)	BCA Clause E4.7
10.	Fire Control Centres	BCA Spec. E1.8
11.	Fire Blankets	AS 2444 – 2001
12.	Fire Dampers	BCA Clause C3.15, AS 1668.1 – 1998 & AS 1682.1 & 2 – 1990
13.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8 and AS 1905.1 – 2005
14.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
15.	Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
16.	Fire Seals	BCA Clause C3.15 & AS 1530.4 – 1997
17.	Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999
18.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 1991
19.	Paths of Travel	EP&A Reg 2000 Clause 186
20.	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
21.	Pressurising Systems	BCA Clause E2.2 & AS/NZS 1668.1 – 1998 Verification of alternate solution to BCA Performance Requirement EP4.2
22.	Self-Closing Fire Hoppers	BCA Clause C3.13 & AS 1530.4 – 1997
23.	Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 1998 Verification of alternate solution to BCA Performance Requirement EP2.2
24.	Smoke and/or Heat Alarm System	BCA Spec. E2.2a & AS 3786 – 1993
25.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause C3.6, D2.23, E3.3

