



BUILDING CODE OF AUSTRALIA RESPONSE TO SUBMISSIONS (RTS)

**The Darling Exchange
North Plot of Darling Square**

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Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Kengo Kuma & Associates (refer appendix A) for compliance with the Building Code of Australia 2016.

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

DTS Clause	Description of Non-Compliance	Performance Requirement
C1.1, C2.9, Spec C1.1	The FRL of the building elements within class 6 areas are to be rationalised from 180 minutes to 120 minutes.	CP1 & CP2
C3.2	Openings within the external wall of the building will be located within 3m of a side or rear boundary along the north elevation.	CP2
Spec. C1.1 C12.4 C1.10	The proposed timber façade attachment contravenes clause C2.4 of specification C1.1 of the BCA as: - The material does not qualify for the exemption permitted by clause C1.10 nor does it have compliant fire hazard properties as prescribed in Specification C1.10. - It is located both near and directly above required exits which has the potential to make the respective exits unusable in a fire. - It may constitute an undue risk of fire spread via the façade of the building.	CP2 & CP4
D1.4	The following travel distances exceed the prescriptive requirements in BCA D1.4: ▪ 50m to an exit in lieu of 40m on mezzanine Retail F&B ▪ 50m to an exit in lieu of 40m on Level 5 bar/restaurant Performance Requirement DP1.4 and EP2.2 will be required to be addressed by a qualified Fire Engineer by way of Performance Solution.	DP1.4 & EP2.2
D1.6	Based upon population numbers for Level 5 aggregate egress widths have not been provided in accordance with the prescriptive requirements.	DP4, DP6 & EP2.2
D3.3	The proposed external non-fire isolated stair between ground and Level 1 library is proposed to have open or transparent risers. AS1428.1-2009 requires that risers to stairs are 'opaque'. A Performance Solution is required from an Access Consultant to address Performance Requirement.	DP1
E1.3	Fire Hydrant Booster is not within sight of the main entry and is not protected with fire rated construction 2m horizontally and 3m vertically from the booster inlets.	EP1.3

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E1.3	The distance between the fire hydrant booster assembly and fire brigade pumping appliances will be approximately 15m-20m when measured directly though the external seating area instead of 8m	EP1.3
F2.3	Sanitary facilities for Ground Floor retail Market / Foodhall will be provided in the adjacent building Darling Harbour, North East Plot. A Performance Solution is required from an Architect to address Performance Requirement FP2.1,	FP2.1

The fire engineered solution relating to EP2.2 & EP1.3 will need to be approved after consultation with the NSW Fire Brigade 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

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Introduction

This letter provides a response to submissions and assessment of the proposed amended development in relation to the State Significant Development (SSD) Development Application (DA) for the development of the North Plot and Square in Darling Square (SSD 7021).

The SSD DA was publicly exhibited for a period of 47 days from 17 March 2016 to 2 May 2016. During this time, ten (10) submissions were received from government agencies and the City of Sydney Council.

This letter should be read in conjunction with the original assessment prepared by McKenzie Group Consulting to support the development of the North Plot and Square (SSD 7021). This letter should also be read in conjunction with a concurrent s96 modification application to the North-East Plot (SSD 6626), with consequential amendments to this approval proposed in order to accommodate servicing and functions generated by the North Plot.

Proposed Amended Development

Since public exhibition of the proposal, generally minor amendments and improvements have been made to the proposed development. The final project design includes amendments made by Lend lease pursuant to Clause 55 of the Environmental Planning & Assessment Regulation, including changes to address matters raised in the submissions.

The following key amendments have been made to the proposal:

- minor increase in overall site area;
- minor increase in Gross Floor Area;
- changes to the external building design including a revision of the external stair, shifting of floor plates and resultant changes of revised internal planning;
- slight adjustment to the site boundary, increasing to accommodate the revised Darling Exchange building and public domain interface enhancements;
- revisions and enhancements to the proposed public domain treatments;
- revised loading and servicing strategy; and
- inclusion of fitout and operation of the child care facility.

The final proposal seeks approval for the following key development:

- Construction and use of a six (6) storey building (known as The Darling Exchange) containing the following uses:
 - Retail tenancies/market hall (such as market stalls, food and beverage premises and bar/restaurant operations);
 - Community uses (such as a library including IQ Hub and child care); and
 - Fitout and operation of the ground level and mezzanine market hall, the child care facility, and the food and beverage offering (bar/restaurant) within The Darling Exchange.
- Public domain improvements, including:
 - Creation of a new publically accessible square (The Square) with space for markets, outdoor events, passive and active recreation;

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- Provision of a timber canopy extending from The Darling Exchange along the western edge of The Square;
 - Provision of two kiosk-style retail pods below the canopy;
 - Creation of Little Hay Street, a new pedestrian only laneway between the North-East Plot and South-East Plot; and
 - Completion of general interface works to connect areas of new public domain with the existing public domain.
- Remediation as may be required; and
 - Extension and augmentation of physical infrastructure/utilities as required.

Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

In December 2012, following an extensive and rigorous Expressions of Interest and Request for Proposals process, Darling Harbour Live (a consortium comprising Lend Lease, Hostplus, Capella Capital, AEG Ogden and Spotless) and Lend Lease were announced by the NSW Government as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Plan include:

Delivering world-class convention, exhibition and entertainment facilities, including:

- Up to 40,000m² exhibition space;
- Over 8,000m² of meeting rooms space, across 40 rooms;
- Overall convention space capacity for more than 12,000 people;
- A ballroom capable of accommodating 2,000 people; and
- A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network (now The Goods Line) drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pymont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below.

Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013.

Concept Proposal (SSD 13_5878)

The Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

The Concept Proposal was modified on 26 November 2015 to increase the amount of non-residential GFA. This minor increase in GFA was allocated to the approved North-West Plot building to meet tenant requirements. In addition to the approval of SSDA2, the following approvals have been granted for various stages of Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building (student accommodation) and the provision of associated public domain works approved on 7 May 2014;
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014; and
- South-West development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.
- North-East development plot (SSDA7) – construction and use of a mixed use residential development and associated public domain works approved on 16 April 2015.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Sydney Hotel and provision of public domain works.

Approval was also granted for SSDA8 on 16 October 2015 which comprised the ICC Hotel fitout, external lighting and subdivision.

This report has been prepared to support a detailed Stage 2 SSD DA for the mixed use development and public domain works within Darling Square (SSDA 10), consistent with the Concept Proposal (SSDA 2).

Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the light rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to **Figure 1**). The Darling Square Site is: located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket; bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and irregular in shape and occupies an area of approximately 37,700m².

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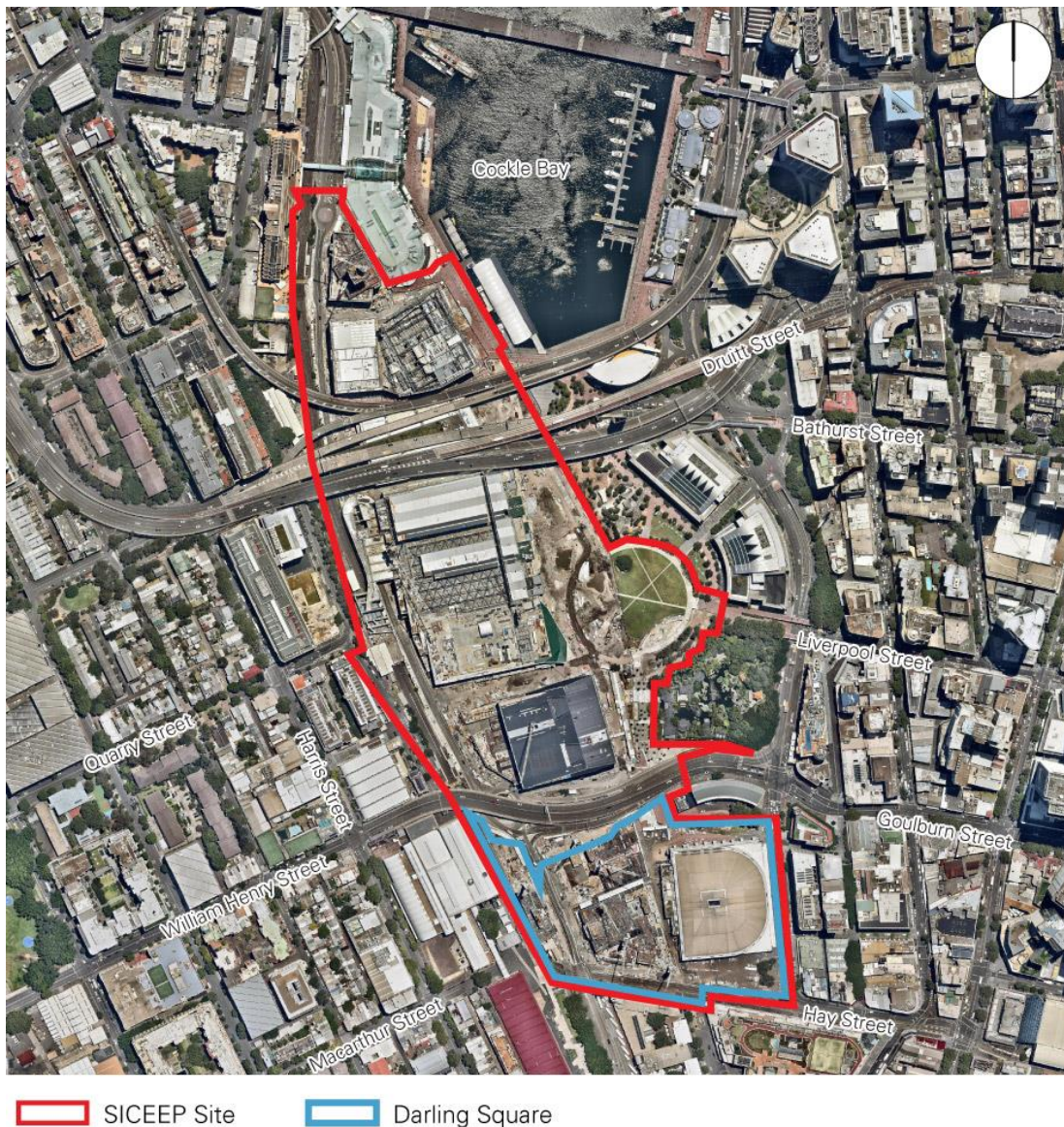


Figure 1 – Aerial Photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Darling Square Site (refer to Figure 2):

1. North Plot;
2. North East Plot;
3. South East Plot;
4. South West Plot;
5. North West Plot; and
6. Western Plot (Darling Drive).

The Application Site area relates to the North Plot and adjoining 'Square' as detailed within the architectural and landscape plans submitted in support of the DA.

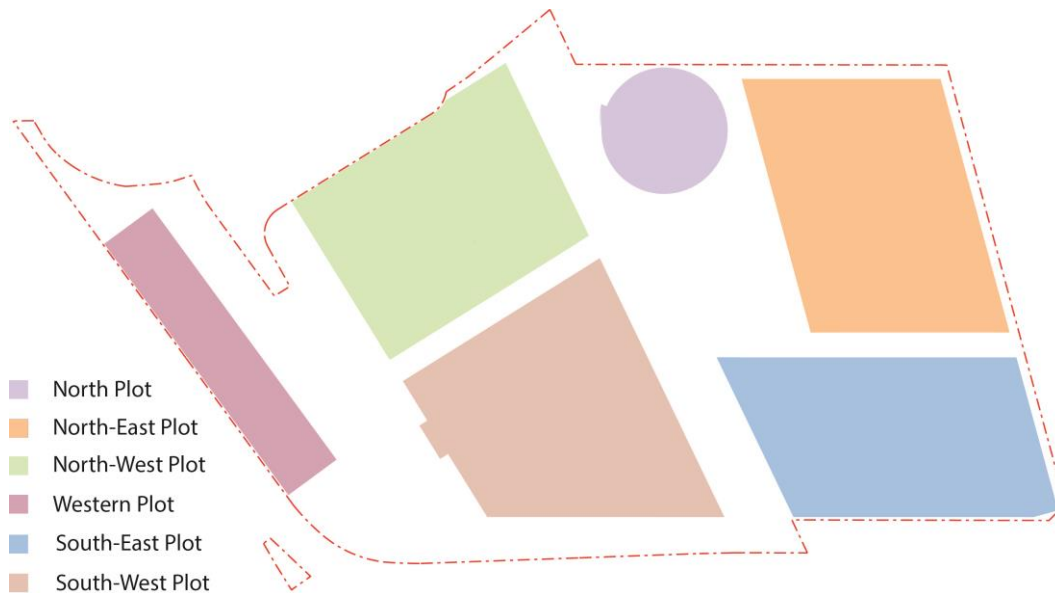


Figure 2 – Concept Proposal Development Plots

Planning Approvals Strategy

- The SICEEP Project has resulted in the lodgement of numerous SSD DAs for the various components of the redevelopment project. Future applications will continue to be lodged in accordance with the Concept Proposal SSD DA for the remaining development plots of the Darling Square Site.

1.1 Current Legislation

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

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

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2.0 Building Assessment Data

Summary of Construction Determination: -

Building Description	
Classification	6 & 9b
Number of Storeys Contained	7
Rise In Storeys	7
Type of Construction	A
Effective Height (m)	24.5m (RL27.95– RL3.45)

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

Part of Project	BCA Classification	Approx. Floor Area (m ²)	Assumed Population
Ground Floor – Food & Beverage	6	909 (-360m ²)	593 (495 Public & 98 Staff)
Mezzanine – Food & Beverage	6	590 (-55m ²)	210 (186 Public & 24 Staff)
First Floor – Library	9b	912 (-177m ²)	268 (Combined)
Second Floor – Library	9b	880 (-203m ²)	231 (Combined)
Third Floor – Childcare Centre	9b	953 (-46m ²)	60 (Combined)
Fourth Floor – Childcare Centre	9b	1094 (-124m ²)	60 (Combined)
Fifth Floor – Bar/Restaurant	9b	863 (N/A)	400 (Combined)
Total		6,201m²	1,822

Notes:

1. The above populations have been based on the numbers of people advised by Lend Lease.
2. The Library floor areas have been adjusted with a 30% allowance for ancillary areas such as corridors, shelving, racking layouts and storage areas and population calculation has not considered occupancy to the accessible terrace.

3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of Part B of the BCA & relevant Australian Standards as indicated in Table A1.3. Glazing is to comply with AS1288, and AS2047. Prior to the issue of the Construction Certificate structural certification is required to be provided.

4.0 Fire Resistance

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

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

- Fire compartmentation of the building at each floor level, excluding the Ground Floor & Mezzanine Level.

Fire resistance levels for building structural members are as follows:

- | | |
|----------------------------------|-------------|
| ▪ Retail & Bar/Restaurant Levels | 180 minutes |
| ▪ Library & Childcare | 120 minutes |

4.1 Protection of Openings

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

1. Any external opening within 3m of the fire source feature protected by -/60/- fire rated construction, or externally located wall wetting sprinklers, or an alternate solution be provided to verify CP2 of the BCA.
2. Penetrations through fire rated floors to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a fire rated shaft achieving an FRL of 180 minutes to Retail & Bar/Restaurant Levels, 120 minutes to the Library & Childcare.
3. Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, apartment separating wall etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving an FRL of 180 minutes to Retail & Bar/Restaurant Levels, 120 minutes to the Library & Childcare (or 120/120/120 where it is a room such as a substation);
4. Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

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

Fire source feature is defined as;

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

It is understood that the building will be located within 3m of the Northern site boundary therefore a Fire Engineered Alternative Solution will be required to address Performance Requirements CP2.

4.2 Vertical Separation of openings in external walls:

As the building is less than 25m in effective height spandrel protection is required. However, it is understood that sprinkler protection will be provided throughout the building which would therefore alleviate the requirement for spandrel protection.

4.3 Passive Fire Protection

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

- Lift motor rooms,
- Hydrant Pump rooms,
- Sprinkler Pump Rooms,
- Main Switch room

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

4.4 Fire Hazard Properties

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

Spec C1.1 Cl2.4 of the BCA states that a combustible material may be used as a finish or lining to a wall, roof, blind, awning or other attachment to a building element which has the required FRL if:

- (i) The material is exempted under BCA Clause C1.10 or complies with the fire hazard properties prescribed in Specification C1.10; and
- (ii) It is not located near or directly above a required exit so as to make the exit unusable in a fire; and
- (iii) It does not otherwise constitute an undue risk of fire spread via the facade of the building.
- (iv) The attachment of a facing or finish, or the installation of ducting or any other service, to a part of a building required to have an FRL must not impair the required FRL of that part.

A Fire Engineered Performance Solution addressing Performance Requirements CP2 & CP4 will be required to justify the use of the timber façade attachment. Each element of Spec C1.1 Cl2.4 must be fully addressed.

5.0 Egress

The egress provisions from the proposed building are provided by:

- Fire isolated stairways
- External perimeter doorways

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Discharge from the Fire Isolated Exits

- Details of the egress provisions to the Road.

5.1 Exit Travel Distances

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would be satisfied for all parts of the buildings. However upon design development a review of all fitout plans will be required to ensure compliance.

The travel distances to exits should not exceed:

Class 5-9

- 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m, and
- located so that alternative paths of travel do not converge within 6m of each other.

The following travel distances exceed the prescriptive requirements in BCA D1.4:

- 50m to an exit in lieu of 40m on mezzanine Retail F&B
- 50m to an exit in lieu of 40m on Level 5 bar/restaurant

Performance Requirement DP1.4 and EP2.2 will be required to be addressed by a qualified Fire Engineer by way of Performance Solution.

5.2 Dimensions of Exits

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657 in which case a 600mm clear width is required).

The following table summarises the exit widths required:

Floor Level	Exit Width Provided	Number of people (as provided)	Exit Width required
Ground Floor	9.6m	593	5.5m
Mezzanine	3.5m	210	2m
First Floor	3.5m	268	3m
Second Floor	3.5m	231	2.5m
Third Floor	3.5m	60	1m
Fourth Floor	3.5m	60	1m
Fifth Floor	3.5m	400	4m

At fifth floor level the aggregate escape width of 3.5m is insufficient for 400 occupants. A Fire Engineered Performance Solution addressing Performance Requirements DP6 & EP2.2 will be required.

Doorways are permitted to contain a clear opening width of 750mm with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e minimum 870 mm doors).

5.3 Fire Isolated Exits

Each fire-isolated stair 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; or
- To a point within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or
- Into a covered area that adjoins a road or open space, is open for at least 1/3 of its perimeter, has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m and provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.

Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m 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.

5.4 Balustrading and Handrail

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

Where it is possible to fall more than 4m to the finished floor below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing.

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

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

Any outdoor play spaces are required to comply with barriers in accordance with AS1926.1-2012

5.5 Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2015. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

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.

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

- Via the principle public entry and at least 50% of all other entrances
- From another accessible building connected by a pedestrian link.
- All areas used by the public.

Where the design is not amended, an Access Alternative Solution addressing Performance Requirement DP1 is required.

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

6.0 Fire Services & Equipment

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

- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1-2005
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Must be provided with-
 - a) stair pressurisation in accordance with clause E2.2 of the BCA and AS 1668.1-1998; or
 - b) a zone smoke control system in accordance with AS1668.1; or
 - c) an automatic smoke detection and alarm system in accordance with Specification E2.2a; or
 - d) a sprinkler system complying with Specification E1.5.

6.1 Fire Hydrants

A system of Fire Hydrants is required to be provided to BCA Clause E1.3 and AS 2419.1-2005. Design certification from a Hydraulic Consultant will be required prior to the issue of the Construction Certificate.

A booster assembly will be required as part of the fire hydrant requirements. The booster appears to be located adjacent to the fire pump room entry and would therefore be exposed to adjacent openings and not within sight of the main entry.

6.2 Fire Hose Reels

A Fire Hose Reel System is required to BCA Clause E1.4 and AS2441.1-2005.

To be located within 4m of exits and provide coverage within the building based on a 36m hose length. The hose reels currently indicated appear to be satisfactory.

6.3 Automatic Sprinkler Protection

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An Automatic Fire Suppression System is not necessarily required in the building but it is understood that a suppression system will be installed and should comply with Specification E1.5 and AS2118.1-1999

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

7.0 Ventilation and Smoke Hazard Management

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

- Automatic shutdown of any air handling system which does not form part of the smoke hazard management system, on the activation of-
 - i) Smoke detectors installed to comply with Clause 5 of Spec E2.2a; and
 - ii) Any other installed fire detection and alarm system including a sprinkler system complying with Specification E1.5.

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

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

8.0 Lift Services

The passenger lifts to be installed are to be: -

- fitted with warning signs, fire service controls in accordance with AS 1735.2
- An emergency lift with stretcher facilities in accordance with part E3.4 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.

9.0 Sanitary Facilities

Based on the current plans sanitary facilities have calculated per each individual use, therefore where floors have multiple uses and extend over multiple floors, the aggregate number of facilities may be provided over the multiple floors, once the total number of facilities have been provided.

The sanitary conveniences for Library (Level 1 and 2)) will be provided as part of the fit-out under a separate Development Approval.

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The sanitary conveniences for the Ground Floor market place will be provided within the neighbouring building – Darling Harbour, North East Plot. A Performance Solution should be provided by an Architect along with necessary legal easement.

Staff Facilities (Food & Beverage)	Occ. No.	Closet Pans	Urinals	Washbasins
Male	49	2*	2*	2*
Female	49	3*		2*
Unisex Accessible		1*		1*

Patron Facilities (Food & Beverage)	Occ. No.	Closet Pans	Urinals	Washbasins
Male	248	1*	5*	2*
Female	248	5*		2*
Unisex Accessible		1*		1*

Staff Facilities (Mezzanine Food & Beverage)	Occ. No.	Closet Pans	Urinals	Washbasins
Male	12	1*	1*	1*
Female	12	1*		1*
Unisex Accessible		1*		1*

Patron Facilities (Mezzanine Food & Beverage)	Occ. No.	Closet Pans	Urinals	Washbasins
Male	186	1*	3*	1*
Female	186	4*		2*
Unisex Accessible		1*		1*

Library Facilities (Levels 1 & 2)	Occ No.	Closet Pans	Urinals	Washbasins
Male Public	250	1*	4*	1*
Female Public	250	4*		1*
Unisex Accessible		2*		2*

Bar / Restaurant Facilities (Level 5)	Occ. No.	Closet Pans	Urinals	Washbasins
Male	200	1*	4	1*
Female	200	4*		2*
Unisex Accessible		1*		1*

*Notes:-

1. Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.
2. In addition to any accessible sanitary facility, ambulant facilities are required to be provided for use by male and female staff.
5. Facilities for use by children must have each sanitary compartment screened by a partition which, except for the doorway, is opaque for a height of at least 900 mm but not more than 1200 mm above the floor level.

10.0 Energy Efficiency

The proposed 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.

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

Due to special nature of the building some energy provisions may not be appropriate.

BCA ASSESSMENT – RESPONSE TO SUBMISSIONS (RTS)**The Darling Exchange****North Plot of Darling Square****Appendix A - Design Documentation**

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

Drawing No.	Title	Date	Revision	Drawn By
N_AD_PS01	Drawing List & Context Plan	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_PS02	Site Plan	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P01	Ground Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P02	Mezzanine	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P03	First Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P04	Second Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P05	Third Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P06	Fourth Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P07	Fifth Floor	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P08	Roof	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P09	Canopy	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_P10	Rooftop Landscape	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E01	South Elevation	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E02	North Elevation	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E03	East Elevation	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E04	West Elevation	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E05	Elevation Signage	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_E06	Elevation Canopy	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_S01	Section North/South	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_S02	Section East/West	21 Nov 2016	D	Kengo Kuma & Associates
N_AS_DS01	Section Typical Detail	21 Nov 2016	D	Kengo Kuma & Associates
N_AD_DS02	Typical Ground Floor Façade Types	21 Nov 2016	D	Kengo Kuma & Associates

BCA ASSESSMENT – RESPONSE TO SUBMISSIONS (RTS)

The Darling Exchange

North Plot of Darling Square

Appendix B - Draft Fire Safety Schedule

Essential Fire Safety Measures	Standard of Performance
1. Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
2. Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999,
3. Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2004
4. Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005
5. Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
6. Fire Dampers	BCA Clause C3.15, AS 1668.1 – 1998 & AS 1682.1 & 2 – 1990
7. Fire Doors	BCA Clause C3.10 and AS 1905.1 – 2005
8. Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
9. Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
10. Fire Seals	BCA Clause C3.15 & AS 1530.4 – 1997
11. Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 1991
12. Paths of Travel	EP&A Reg 2000 Clause 186
13. Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
14. Required Exit Doors (power operated)	BCA Clause D2.19(d)
15. Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 1998
16. Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause C3.6, D2.23, E3.3

Appendix B- Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2015:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

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

Table 3.9 REQUIREMENTS FOR CARPARKS

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