



**BUILDING CODE OF AUSTRALIA
REPORT**

Revision: -

Brookvale Oval Redevelopment

Pittwater Road, Brookvale

**Prepared for: Manly Warringah Sea
Eagles
C/- Hassell Studio**

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Date	Rev No	Description	Assessed By	Approved By	Date Approved
26/07/2019	A	Draft – For Review	Paul Curjak	Paul Curjak	26/07/2019
11/10/2019	B	BCA Report	Michael Krogh	Paul Curjak	11/10/2019
21/10/19	C	BCA Report for DA Submission	Michael Krogh	Paul Curjak	21/10/19

Executive Summary

Development Overview

The proposal seeks development consent for a Centre of Excellence, a state-of-the-art facility to be used by professional sportsmen and women in conjunction with the community, and 3,000 covered seats to deliver an improved experience for spectators attending the site. The proposal will support the operations of the Manly Warringah Sea Eagles (MWSE) and ensure its viability into the future. The Project represents a significant investment into rugby league in the region, and is being jointly funded by the Federal Government, New South Wales State Government, and the MWSE. Once completed, the Project will:

- Consolidate the Manly Warringah Sea Eagles (MWSE) training and administration bases at one location.
- Provide improved training facilities for all players (from community to elite levels) to develop their skills as well as for professional players to have access to high performance training facilities.
- Provide spectators with additional covered seating that delivers the highest quality viewing and entertainment experience possible at MWSE home games.
- The proposed Centre of Excellence will have a footprint of approximately 1,800sqm, and span over 2 levels.
- A cantilevered roof will extend over the seating area.

Compliance Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Hassell Studio (refer appendix A) for compliance with the **Building Code of Australia 2019**.

The assessment of the design documentation has also revealed that the following additional information is required in order to assess BCA compliance within the development.

No.	Further Information / Review Required	Report Reference
1.	Services documentation (fire, electrical, mechanical, hydraulic) are to be provided for review	-
2.	Please provide details of the finishes to floors, walls and ceilings.	-
3.	In respect of combustibility of the external materials indicated so far, fire tests certificate/reports to be provided for podium façade, laminated timbers, and column cladding.	-
4.	Staff population is to be confirmed by the operator to determine required sanitary facilities	7.1
5.	Details of accessible braille and tactile signage complying with Specification D3.6 and clause D3.6 to be provided.	-
6.	Stormwater details to be provided for compliance with AS/NZS 3500.3	-
7.	Stair and handrail details to be provided for compliance with D2.13, D2.17 & AS1428.1-2009	-
8.	Final exit doors to external hardscape required to swing in the direction of egress.	-

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: -

No.	Alternative Solution Description	DTS Clause	Performance Requirement
Fire Safety Items			
1.	Exit Travel Distances Ground Floor <ul style="list-style-type: none"> ▪ Travel distance to a point of choice of up to 22m in lieu of 20m (Assuming the additional discharge door is implemented to allow egress to the external hardscape). Level 1 <ul style="list-style-type: none"> ▪ Travel distance to a point of choice of up to 22m in lieu of 20m. 	D1.5	DP4, EP2.2
2.	Travel via non-fire isolated stairway The central non-fire isolated stairway connects three storeys. A maximum of 2 storeys can be connected in a non-sprinkler protected building. In addition to above, the east and west non-fire isolated stairways indirectly connect three storeys via the central stairway.	D1.7	DP4, DP6
3.	Smoke Hazard Management Omission of smoke exhaust system to building	E2.2	EP2.2

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,

Paul Curjak
 Senior Building Surveyor

1.0 Introduction

The proposed development comprises of the construction of a new centre of excellence and grandstand extension to support:

- Rugby matches
- Football matches
- Junior clinics
- Functions and conferences
- Community events

The subject site is located on Pittwater Road, Brookvale and is legally described as Lot 1 DP 784268, Lot 1 on DP 114027, Lot B on DP966128, and Lot 6 on DB 785409.

The grandstand and centre of excellence is proposed at the northern end of the site and will utilise existing site access. An additional 10 parking spaces are proposed in addition to the existing parking arrangements on the westerns side of the stand.

This report is based upon the review of the design documentation listed in Appendix A of this Report

The report is intended as an overview of the relevant provisions of the Building Code of Australia – Volume One (2019) for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

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. For the purposes of this Report, BCA 2019 has been utilised as the version of the BCA applicable at the time of preparation this Report.

2.0 PRELIMINARIES

2.1 Building Assessment Data

Summary of Construction Determination: -

Part of Project	Warehouse Facility
Classification	9b
Number of Storeys	3
Rise In Storeys	3
Type of Construction	A
Effective Height (m)	9.12m

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

Part of Project	BCA Classification	Approx. Floor Area (m ²)	Approx. Volume (m ³)	Assumed Population
B01	9b			8

GROUND FLOOR			
	9b		Change Room #1 – 36 players Change Room #2 – 32 players Total 68 players + 5 coaching staff each Total 73
Ground Floor – change room			
Ground Floor – physical prep	9b		73 (gymnasium)
Ground Floor – rehabilitation area	9b		Hot spa – 5 Cold Plunge – 5 Circular - 6
Ground Floor – medical and rehab	9b		11
Ground Floor – flexible education space	9b		40 (general classroom)
Ground Floor – hp staff	9b		5 (office)
Ground Floor – plant	9b		5 (plant)
TOTAL			250
LEVEL 01			
Level 01 – membership & community	9b		318 (public hall / function)
Level 01 – boardroom & meeting / breakout function	9b		160 (based on seats)
Level 01 – NRL coaching	9b		105 (general classroom)
Level 01 – football office	9b		12 (office)
Level 01 – performance analysis / womens academy	9b		7 (office)
Level 01 – theatre	9b		50 (general classroom)
TOTAL			652 (380 person maximum at peak occupancy)
SPECTATOR STAND (3000 PAX)			
Ground	9b	-	3000

Notes:

1. The above populations have been assumed based on the size of the areas and intended use of the space. These populations can be further refined following directional from the operator.

2.2 Structural Provisions (BCA B1)

Any new structural works are to comply with the applicable requirements of Part B1 of the BCA and AS/NZS 1170.1:2002.

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

Structural certification is required to be provided prior to Construction Certificate, including confirmation of the Importance Level of the building.

3.0 FIRE PROTECTION

3.1 Fire Resistance (BCA C1.1)

The BCA stipulates three levels of fire resistant construction, which is based upon the rise in storeys and classification of the building. Each of these types of construction has maximum floor area and volume limitations as per BCA Table C2.2.

Based upon the rise in storeys and use of the Building, the building is required to be **Type A Construction** in accordance with Table 3 of Specification C1.1 of the Building Code of Australia 2019.

The maximum floor area and volume limitations of a fire compartment as nominated in the deemed to satisfy provisions are as follows:

Classification		Type of Construction		
		A	B	C
5, 9b or 9c aged care building	max floor area—	8 000 m ²	5 500 m ²	3 000 m ²
	max volume—	48 000 m ³	33 000 m ³	18 000 m ³
6, 7, 8 or 9a (except for patient care areas)	max floor area—	5 000 m ²	3 500 m ²	2 000 m ²

External Wall Cladding

As the building is of Type A construction the external walls, including any external and internal claddings & linings must be non-combustible as determined by AS1530.1-1994.

The following materials may be used wherever a non-combustible material is required:

- a) Plasterboard.
- b) Perforated gypsum lath with a normal paper finish.
- c) Fibrous-plaster sheet.
- d) Fibre-reinforced cement sheeting.
- e) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
- f) Sarking-type materials that do not exceed 1mm in thickness and have a flammability index not greater than 5.
- g) Bonded laminated materials where—
 - i. each lamina, including any core, is non-combustible; and
 - ii. each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2mm; and
 - iii. the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively.

The BCA does nominate that ancillary elements may be fixed to an external wall that is required to be non-combustible unless they comprise of the following:

- a) An ancillary element that is non-combustible.
- b) A gutter, downpipe or other plumbing fixture or fitting.
- c) A flashing.
- d) A grate or grille not more than 2 m² in area associated with a building service.
- e) An electrical switch, socket-outlet, cover plate or the like.
- f) A light fitting.
- g) A required sign.
- h) A sign other than one provided under (a) or (g) that—
 - i) achieves a group number of 1 or 2; and
 - ii) does not extend beyond one storey; and
 - iii) does not extend beyond one fire compartment; and
 - iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

3.2 Passive Fire Protection (BCA C1.1)

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

- Hydrant Pump rooms location (if applicable),
- Switchrooms
- Lift Motor Rooms
- Main switchboard sustaining emergency equipment in emergency mode

The above areas are to be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

3.3 Fire Hazard Properties (BCA C1.10 and BCA C1.12)

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. The following requirements apply:

Non-Sprinkler Protected Areas

- a) Floor Coverings – Critical radiant Flux not less than 1.2 kW/m²
- b) Wall and Ceiling Linings –
 - (a) Public Corridors - Material Group No. 1
 - (b) Fire-isolated exits - Material Group No. 1
 - (c) Specific areas – Material Group No. 1, 2
 - (d) Other areas – Material Group No. 1, 2, 3
- c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8

Rigid and flexible air handling ductwork must comply with AS4254 parts 1 & 2 2012.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

4.0 EGRESS PROVISIONS

4.1 Provisions for Escape (BCA D1)

The egress provisions from the proposed building are provided by:

- 2 x Non-Fire isolated stairs
- 1 x Centre Fire-isolated stair

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
-

The central non-fire isolated stairway connects three storeys. A maximum of 2 storeys can be connected in a non-sprinkler protected building.

In addition to above, the east and west non-fire isolated stairways indirectly connect three storeys via the central stairway.

4.2 Exit Travel Distances (BCA D1.4)

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 generally be satisfied.

The travel distances to exits should not exceed:

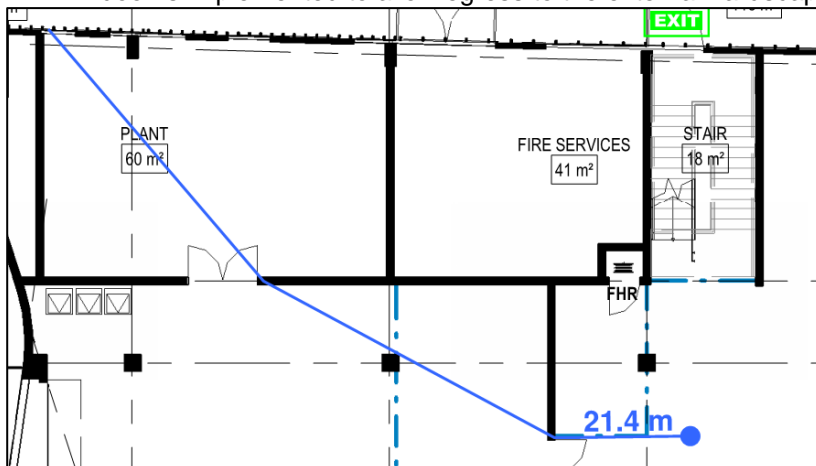
Class 9b

- 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

The locations of the proposed exits indicate that the deemed to satisfy requirements in terms of travel distances would be satisfied, with the exception of the following:

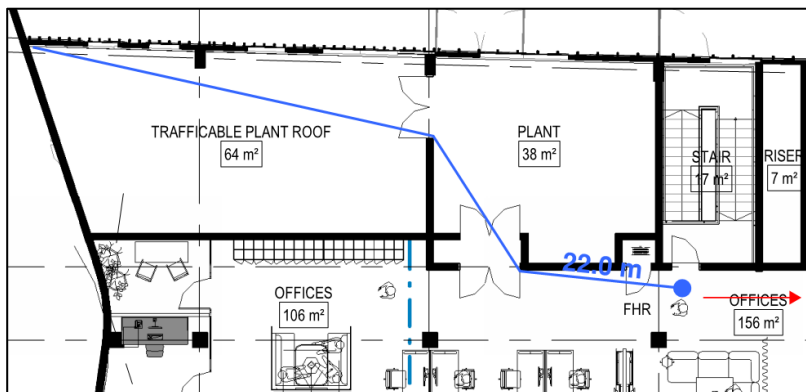
Ground Floor

- Travel distance to a point of choice of up to 22m in lieu of 20m (Assuming the additional discharge door is implemented to allow egress to the external hardscape).



Level 1

- Travel distance to a point of choice of up to 22m in lieu of 20m.



4.3 Dimensions of Exits (BCA D1.6)

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 AS1657:2013 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, 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 920 mm doors).

4.4 Travel via Fire Isolated Exits (BCA D1.7)

The BCA requires each fire isolated stairway to 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 in a storey 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 an unimpeded path of travel not more than 20m to a road or open space; or
- 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 of not less than 3m, and provides an unimpeded path of travel to a road or open space of not less than 6m.

Additionally, where the path of travel from the point of discharge requires occupants to pass within 6m of any part of the external wall of the same building (measured horizontally), that external wall must have a 60/60/60 FRL and have any openings protected internally for a distance of 3m above or below the path of travel.

4.5 Balustrading and Handrails (BCA D2.16 and BCA D2.17)

Generally

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

Class 9b Buildings

Balustrades in stairways in the building cannot have any gaps greater than 125mm.

Handrails are required on both sides of all stairways.

In a required exit serving an area required to be accessible, handrails must be designed and constructed to comply with Clause 12 of AS1428.1-2009

The balustrading and handrails details are to be provided as part of the Application for Construction Certificate.

Further review will be undertaken to ensure compliance as the design develops.

4.6 Slip Resistance

The requirements for slip resistance of stairway treads and ramp surfaces are as follows:

Table D2.14 SLIP-RESISTANCE CLASSIFICATION

<i>Application</i>	<i>Surface conditions</i>	
	<i>Dry</i>	<i>Wet</i>
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

5.0 ACCESS FOR PEOPLE WITH DISABILITIES

5.1 General Building Access Requirements (BCA D3.1)

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 2019. Parts of the building required to be accessible shall comply with the requirements of:-

- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4-2009 Tactile Ground Surface Indicators

Access for persons with a disability is to be provided as follows:-

To and within all areas normally used by the occupants, but as the uses of particular areas could be deemed inappropriate, confirmation is required as the appropriateness of the areas in question by the owners or tenant.

5.2 Provision for Access to Buildings

The BCA prescribes access to be provided to and within the building 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.

A door is considered to be accessible if it is automatic (open and closing) or is more than 850mm in clear opening width and contains the required door circulation space.

5.3 Provisions for Access within Buildings (BCA D3.3)

A building required to be accessible is required to be equipped with either a 1428.1:2009 compliant lift or 1428.1:2009 compliant ramp, (but the maximum vertical rise of a ramp must not exceed 3.6m).

Within the building the following are required;

- Door circulation space as per AS1428.1:2009 Clause 13.3;
- Doorways must have a clear opening of 850mm;
- Carpet pile height of not more than 11mm to an adjacent surface
- Any glazed capable of being mistaken for a doorway or opening must be clearly marked (or contain chair rail, hand rail or transom as per AS 1288:2006 requirements)

5.4 Car parking (BCA D3.5)

For any new proposed parking, accessible car parking spaces are required to comply with AS 2890.6:2009 at the rate of 1 per 100.

A 'shared zone' of minimum 5400mm x 2400mm is required adjacent to accessible car parking spaces, protected with a bollard.

5.5 Tactile Indicators (BCA D3.8)

Tactile indicators are required to be provided to warn occupants of all stairs and ramps regardless of public nature or private environment and where an overhead obstruction occurs less than 2.0m above the finished floor level.

5.6 Seating in Assembly Buildings (BCA D3.9)

The location of wheelchair seats must cater for a representative range of seating provided.

In an assembly building, when fixed seating is provided, the wheelchair spaces to the following are required to be provided

Number of fixed seats in a room or space	Number of wheelchair seating spaces	Grouping and location
Up to 150	3 spaces	1 single space; and 1 group of 2 spaces
151 to 800	3 spaces; plus 1 additional space for each additional 50 seats or part thereof in excess of 150 seats	Not less than 1 single space; and not less than 1 group of 2 spaces; and Not more than 5 spaces in any other group.
801 to 10000	16 spaces; plus 1 additional space for each additional 100 seats or part thereof in excess of 800 seats	Not less than 2 single spaces; and not less than 2 groups of 2 spaces; and not more than 5 spaces in any other group; and The location of spaces is to be representative of the range of seating provided
More than 10000	108 spaces; plus 1 additional space for each additional 200 seats or part thereof in excess of 10000 seats	Not less than 5 single spaces; and not less than 5 groups of 2 spaces; and not more than 10 spaces in any other group; and the location of spaces is to be representative of the range of seating provided.

5.7 Stairs (BCA D3.3 inter Alia AS1428.1)

The central non-fire isolated circulation stairway shall be constructed as follows:

- Stairs shall have opaque risers.
- Stair nosing shall not project beyond the face of the riser and the riser may be vertical or have a splay backwards up to a maximum 25mm.
- Stair nosing profiles shall-

- Have a sharp intersection;
 - Be rounded up to 5mm radius; or
 - Be chamfered up to 5mm x 5mm
- d) All stairs, including fire isolated stairs shall, at the nosing of each tread have a strip not less than 50mm and not more than 75mm deep across the full width of the path of travel. The strip may be set back a maximum of 15mm from the front of the nosing. The strip shall have a minimum luminance contrast of 30% to the background. Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall not exceed a difference of 5mm.

5.8 Provisions for Accessible Sanitary Facilities (BCA F2.4)

Unisex Accessible Sanitary Facilities

An accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only and provided in accordance with AS 1428.1:2009 and must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels and as per following.

Building Type	Minimum accessible unisex sanitary compartments to be provided
Assembly building	a) 1 on every storey containing sanitary compartments; and b) Where a storey has more than 1 bank of sanitary compartments containing male and female sanitary compartments, at not less than 50% of those banks.

Ambulant Facilities

At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1-2009 must be provided for use by males and females.

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 provided with a passenger lift or ramp complying with AS1428.1-2009

5.9 Signage (BCA D3.6)

As part of the detailed design package, specifications will need to be developed indicating:

- Sanitary Facility Identification Signs (note that they are to comply with BCA Specification D3.6 and include the use of Braille, Tactile, etc and be placed on the wall on the latch side of the facility);
- Directional / Way Finding signs to the Lifts, Sanitary Facilities, etc;
- Identify each door required by BCA Clause E4.5 to be provided with an exit sign, stating 'EXIT' and 'Level' number
- Hearing augmentation complying with BCA Clause D3.7

5.10 Swimming Pools (BCA D3.10)

Where pools exceed 40m in total perimeter, at least 1 means of accessible entry in the form of the following is required.

- a) Fixed or movable ramps (and an aquatic wheelchair) or
- b) Zero depth entry at a maximum gradient of 1:14 (and an aquatic wheel chair)
- c) Platform swimming pool lift (and an aquatic wheelchair) or
- d) A sling style swimming pool lift

Where the perimeter exceeds 70.0m in total, sling style lifts are not permitted.

6.0 FIRE SERVICES AND EQUIPMENT

The following section of this report describes the essential fire safety measures and the minimum performance requirements of those measures. A draft essential fire safety schedule can be found in Appendix B.

6.1 Fire Hydrants (BCA E1.3)

A Fire Hydrant system is required to serve the building in accordance with BCA Clause E1.3 and AS 2419.1-2005.

A booster assembly is required as part of the fire hydrant requirements. The booster is required to be attached to the building at the main entry. If remote from the building, then at the main vehicle entry or within sight of the main entry of the building within 20m of a hardstand area.

The Fire Hydrant locations providing coverage to the building are to be shown on the hydraulic services drawings for Construction Certificate.

6.2 Fire Hose Reels (BCA E1.4)

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

To be located within 4m of exits and provide coverage within the building based on a 36m hose length.

The Fire Hose Reel locations providing coverage to the building are to be shown on the hydraulic services drawings for Construction Certificate.

6.4 Fire Extinguishers (BCA E1.6)

The provision of portable fire extinguishers is required to BCA Clause E1.6 and AS2444-2001.

Table E.6 details when portable fire extinguishers are required:

Occupancy Class	Risk Class (as defined in AS 2444)
General provisions – Class 2 to 9 buildings (except within sole-occupancy units of a Class 9c building)	<ul style="list-style-type: none"> (a) To cover Class AE or E fire risks associated with emergency services switchboards. (Note 1) (b) To cover Class F fire risks involving cooking oils and fats in kitchens. (c) To cover Class B fire risks in locations where flammable liquids in excess of 50 litres are stored or used (not excluding that held in fuel tanks of vehicles). (d) To cover Class A fire risks in normally occupied fire compartments less than 500m² not provided with fire hose reels (excluding open deck carparks). (e) To cover Class A fire risks in classrooms and associated schools not provided with fire hose reels. (f) To cover Class A fire risks associated with Class 2 or 3 building or class 4 part of building.

Fire extinguishers are to be located in accordance with AS 2444-2001, often located with fire hydrants and/or fire hose reels.

The Fire Extinguishers details are to be provided as part of the Application for a Construction Certificate

6.5 Exit Signs and Emergency Lighting (BCA E4.2 and BCA E4.5)

Emergency Lighting and Exit Signs indicating exit location paths of travel to exits to be provided in accordance with AS2293.1-2005

The Emergency Lighting and Exit Sign locations within the building are to be shown on the electrical services drawings for Construction Certificate.

6.6 Smoke Hazard Management (BCA E2.2)

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

- Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2015.
- As the building has a fire compartment not more than 5000m² and the building has a rise in storeys of not more than 2, the building is required to be provided with Automatic Smoke Exhaust System in accordance with the requirements of BCA Spec E2.2a.

It is recommended that the omission of a smoke exhaust system to the building is addressed by the Fire Engineer as a Performance Solution on the basis that the third storey is only 84m².

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. 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.

6.9 Lift Services (Part E3)

The passenger lifts to be installed are to be: -

- fitted with warning signs, fire service controls in accordance with Clauses E3.3, E3.7, E3.9 and E3.10 of the BCA.
- Be provided with the following: -
 - A handrail in accordance with AS 1735.12;
 - Minimum internal floor dimensions as specified in Table E3.6b of the BCA i.e. 1,400mm x 1,600mm;
 - Minimum clear door opening complying with AS 1735.12;
 - Passenger protection system complying with AS 1735.12;
 - Have a set of buttons for operating the lift located at heights above level complying with AS 1735.12;
 - Lighting in accordance with AS 1735.12;
 - Automatic audible information within the lift car to identify the level each time the car stops; and
 - Audible and visual indication at each lift landing to indicate the arrival of the lift car.

7.0 HEALTH AND AMENITY

7.1 Sanitary Facilities (BCA F2.2 and BCA F2.3)

In calculating the number of sanitary facilities to be provided under F2.3, a unisex facility required for people with a disability may be counted once for each sex.

If not more than 10 people are employed, a unisex facility may be provided instead of separate facilities for each sex.

Below are the required number of sanitary facilities for 3,000 spectators only.

Sanitary Facilities Required for 3000 spectators			
	WC	Urinals	Basins
Male (1500)	3	15	9
Female (1500)	22	-	10
Accessible	1		1

7.2 Weatherproofing of External Walls (BCA FP1.4)

Performance Requirement FP1.4 which relates to the prevention of the penetration of water through external walls must be complied with. It is noted that there are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.

As such, a performance solution is to be prepared by a suitably qualified professional that demonstrates that the external walls of the proposed building comply with Performance Requirement FP1.4 which reads as follows:

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—

- a) unhealthy or dangerous conditions, or loss of amenity for occupants; and*
- b) undue dampness or deterioration of building elements.*

7.3 Room Heights (BCA F3)

The room heights throughout the building are generally required to be 2.4m except for corridors, passageways and amenities.

7.4 Light and Ventilation (BCA F4)

Artificial lighting is required to be provided throughout the building in accordance with AS/NZS 1680.0-2009.

Mechanical ventilation and air-conditioning is to be provided throughout the building in accordance with AS1668.2-2012.

8.0 ENERGY EFFICIENCY

The proposed development shall comply with Part J of the BCA. To achieve compliance, there are two options available:

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

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**.

Appendix A - Design Documentation

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

Drawing No.	Title	Date	Drawn By	Rev
A_0301	Proposed Site Plan	17.10.19	Hassell	L
A_0400	Demolition Plan	17.10.19	Hassell	E
A_1000	GA Plan – Lower Ground B00	17.10.19	Hassell	G
A_1001	GA Plan – Concourse Level 00	17.10.19	Hassell	L
A_1002	GA Plan – Upper Level 01	17.10.19	Hassell	L
A_1003	GA Plan – Roof Plan	17.10.19	Hassell	L
A_2000	GA Elevations	17.10.19	Hassell	G
A_3000	GA Sections	17.10.19	Hassell	L

Appendix B - Draft Fire Safety Schedule

No.	Measure	Particulars of Measure <i>(including where the requirement for the measure is set out or described i.e. in building plans or in a performance solution report)</i>
1.	Access Panels, Doors and Hoppers	BCA 2019 Clause C3.13
2.	Automatic Fail Safe Devices	BCA 2019 Clause D2.19 & D2.21
3.	Automatic Fire Detection and Alarm System	BCA 2019 Spec. E2.2a & AS 1670.1 – 2015
4.	Building Occupant Warning System	BCA 2019 BCA Spec. E2.2a & AS 1670.1 – 2015 – Clause 3.22
5.	Emergency Lighting	BCA 2019 Clause E4.2, E4.4 & AS 2293.1 – 2018
6.	Exit Signs	BCA 2019 Clauses E4.5, NSW E4.6 & E4.8 and AS/NZS 2293.1 – 2018
7.	Fire Control Centres and Rooms	BCA 2019 Spec. E1.8
8.	Fire Dampers	BCA 2019 Clause C3.15, AS/NZS 1668.1 – 2015 & AS 1682.1&2 - 1990
9.	Fire Doors	BCA 2019 Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8, Spec C3.4 and AS 1905.1 – 2015
10.	Fire Hose Reel Systems	BCA 2019 Clause E1.4 & AS 2441 – 2005 Amdt 1
11.	Fire Hydrant Systems	BCA 2019 Clause E1.3 & AS 2419.1 – 2005 Amdt 1
12.	Fire Seals protecting fire resisting components of the building	BCA 2019 Clause C3.12, C3.15, C3.16 & AS 1530.4 – 2014
13.	Lightweight Construction	BCA 2019 Clause C1.8, C3.17 & AS 1530.3 – 1999
14.	Mechanical Air Handling System (smoke exhaust)	BCA 2019 Clause E2.2, AS/NZS 1668.1 – 2015 NOTE – it is proposed to omit this serve via Performance Solution
15.	Portable Fire Extinguishers	BCA 2019 Clause E1.6 & AS 2444 – 2001
16.	Warning and Operational Signs	EP&A Reg 2000 Clause 183, BCA Clause D2.23

NOTE – additional performance solutions to fire services may be included during detailed design phase.

Appendix C - Fire Resistance Levels

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 within it) or other external building element, where the distance from any fire-source feature 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 <i>non-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
Bounding <i>public corridors</i> , public lobbies and the like—				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding <i>sole-occupancy units—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like <i>shafts</i> not used for the discharge of hot products of combustion—				
<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