

CO-OP

BCA Design Assessment Report

Heffron Centre Heffron Park Matraville

ACCESSIBILITY | BUILDING REGULATIONS | FIRE ENGINEERING | MANAGEMENT SERVICES



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Project: Document Type: Report Number: Heffron Centre BCA Design Assessment Report P220_013-2 (BCA) LB

The following report register documents the development and issue of this and each subsequent report(s) undertaken by Design Confidence.

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Revision History:

OUR REFERENCE	REMARKS	ISSUE DATE
P220_013-1 (BCA) LB	Report issued based off 50% Design Documentation in DRAFT for review and comment	12 August 2020
P220_013-2 (BCA) LB	Report updated to reflect consultant feedback and issued as FINAL for DA submission	2 September 2020



EXECUTIVE SUMMARY

This BCA Design Assessment report has been prepared by Design Confidence at the request of CO-OP. With respect to the assessment undertaken, the following areas in particular need further review as the project develops –

Table 0	.1 – Items	for further	co-ordination

NO.	ITEMS FOR FURTHER CONSIDERATION	RESPONSIBILTY
1.	The following building elements and their components must be non-combustible –	Project Architect
	 External walls and common walls, including all components incorporated in them, including the façade covering, framing and insulation 	
	ii. The flooring and floor framing of lift pits;	
	iii. Non-loadbearing internal walls where they are required to be fire-resisting.	
2.	A test report from a Registered Testing Authority must be provided to certify that the façade / external walls achieve compliance with BCA FP1.4 and FV1.	All
3.	Preliminary calculations indicate there is a deficiency for gymnastics participants, however there is excess amenities within the multi-purpose area which may be able to accommodate this shortfall. See appendix 5 for initial calculations.	All
	Spatially facilities are capable of complying.	
	As the design progresses further input will need to be provided by the client on how these facilities will be managed to ensure separate facilities are provided for males and females.	

In addition to undertaking a detailed assessment of the design against the perspective requirements of the BCA a preliminary performance-based assessment has also been undertaken. The purpose of the assessment was to look at the incorporation of a performance-based design may add value in-lieu of complying with the prescriptive (DtS) provisions.

Table 2 on the following page lists scenarios where we believe the adoption of a performance design may add value to development –

Be advised that the adoption of performance solutions for fire safety matters may be subject to consultation with the NSW Fire Brigade as part of the Construction Certificate process under Clause 144 of the Environmental Planning & Assessment Regulation 2000.

Table 0.2	- Matters sub	iect to	a BCA	Performance	Solution
	141G11013 30C				301011011

NO.	DESIGN EFFICIENCIES	DTS CLAUSE	PERFORMANCE REQUIREMENT
FIRE S	AFETY		
1.	The building exceeds the maximum permissible floor area and volume of a Type A building (8,000m ² / 48,000m ³). The building is to be treated as a single compartment and not treated as a large isolated building.	C2.2	CP2 & CP9
2.	Omission the need for spandrels between ground and first floor.	C2.6	CP2



NO.	DESIGN EFFICIENCIES	DTS CLAUSE	PERFORMANCE REQUIREMENT
3.	Extended travel distance occur in the following locations:	D1.2	DP4 & EP2.2
	 (i) 28m to a point of choice in lieu of 20m from community change 4 		
	 (ii) Travel distances on the ground floor of up to 49m in lieu of 40m 		
4.	Extended distance between alternative exits on the ground floor of up to 75m in lieu of 60m.	D1.5	DP4 & EP2.2
5.	To enable attack fire hydrants to be located >50m from fire brigade hardstands	E1.3	EP1.3
6.	To enable fire hose reels to be located greater than 4m from exits.	E1.4	EP1.1
7.	To use an Occupant warning system to the development in accordance with AS1670.1-2018 Clause 3.22 in lieu of the requirements of a full Emergency Warning and Intercommunication System (EWIS).	E4.9	EP2.2 & EP4.2



1.0 INTRODUCTION

1.1 General

This BCA Design Assessment supports two Development Applications for the development of the Heffron Centre at Heffron Park, 417-439 Bunnerong Road, Maroubra. The Heffron Centre is a new indoor multi-purpose facility, gymnastics facility and Community and High-Performance Centre (CHPC) which forms a major part of the ongoing upgrade works in Heffron Park and enables the community to have access to high-quality sporting facilities into the future.

Randwick City Council is the proponent for both of the DAs.



Figure 1 - 3D render of proposed building

1.2 Background

Randwick City Council has been investigating the provision of new and improved community and elite sporting facilities at Heffron Park for some time. In 2019, Council entered into an Agreement for Lease and License with the South Sydney District Rugby League Football Club (the Rabbitohs) under a Public Private Partnership to accommodate administration, training and community facilities within a Community and High-Performance Facility (CHPC) to be delivered as one component of the Heffron Centre.

1.3 Site Description

The subject site is located within the south-western corner of Heffron Park, at 417-439 Bunnerong Road, Maroubra as illustrated in **Figures 1** and **2**. The site is legally known as Lot 7026 DP 1026884. The site is located on the western edge of Randwick LGA, and has a primary frontage to Bunnerong Road to the west. To the west of Bunnerong Road is Bayside LGA.

The site is Crown Land owned by the NSW Department of Primary Industries, with Randwick City Council acting as the Reserve Manager.

Heffron Park is the largest recreational park in Randwick and includes playing fields, tennis and netball courts, a cycling criterium track, and an aquatic and leisure centre. The park is bounded by Bunnerong Road to the west, Fitzgerald Ave to the north, Robey Street to the east and Jersey Road to the south.



The surrounding context of the site is predominately low and medium density residential, with Southpoint Shopping Centre and a number of smaller business premises and shop-top housing located immediately to the west of the site across Bunnerong Road, with Matraville Public School located 300m to the south-west and Champagnat Catholic College located 400m to the north.



Indicative Site Boundaries

Figure 2 - Aerial photograph of the site Source: NS Group



Figure 3 - Locational context of the site Source: Co-op Studio, annotation by Ethos Urban



1.4 Overview of proposed development

The Heffron Centre is subject to two separate Development Applications as follows:

- i. **Concept Development Application** which addresses the matters set out in Clause 6.12 of the Randwick Local Environmental Plan 2012, including seeking consent for land uses, indicative building envelopes and site access arrangements; and
- ii. **Detailed Development Application** which seeks consent for the construction and use of the Heffron Centre, including:
 - Demolition of existing buildings and structures within the site.
 - Site preparation works, including termination or relocation of site services and infrastructure, tree removal and the erection of site protection fencing.
 - Construction of the new Heffron Centre, including:
 - A Community and High-Performance Facility (CHPC).
 - An indoor multi-purpose sporting facility.
 - A local indoor gymnastics centre.
 - Installation of floodlighting to the Showcase Field.
 - Car parking for 143 spaces, including a combination of staff and visitor spaces, accessed via the existing signalised intersection of Bunnerong Road and Flint Street.
 - Building identification signage.
 - Public domain works within the site, including new landscaping and tree planting.

Full details of the proposed development are included in the Architectural Drawings prepared by Co-op Studio which accompany the Development Applications.

The construction of the Showcase Field is subject of an existing approval under Part 5 of the *Environmental Planning and Assessment Act 1979*, and accordingly is not within the scope of this Development Application.

1.5 Purpose of report

The purpose of this report is to identify the extent to which the architectural design documentation complies with the prescriptive provisions of the Building Code of Australia (BCA) Volume 1, edition 2019 Amendment 1.

1.6 Documentation Provided for Assessment

This assessment is based upon the Architectural documentation prepared by CO-OP Architects and listed within Appendix 1.

1.7 Report Exclusions

It is conveyed that this report should not be construed to infer that an assessment for compliance with the following has been undertaken –

- (i) Work Health & Safety Act and Regulations;
- (ii) WorkCover Authority requirements;



- (iii) Structural and Services Design Documentation;
- (iv) The individual requirements of service authorities (i.e. Telecommunication Carriers, Sydney Water, Endeavour Energy);
- (v) The Disability Discrimination Act (DDA) 1992;
- (vi) The Accessibility Requirements of the BCA, as contained within D3, E3.6, F2.4 and F2.9 of the BCA;
- (vii) The Energy Efficiency Provisions of the BCA, as contained with Section J of the BCA.



2.0 DEVELOPMENT DESCRIPTION

2.1 General

In accordance with the Building Code of Australia, the assessment undertaken relates to the construction of a new aquatic and leisure centre.

For the purpose of the Building Code of Australia (BCA) the subject development may be described as contained below.

2.2 Building Description

Table 3- Building Characteristics

DESCRIPTION OR REQUIREMENT				
Building Classification	Ground Floor	Class 9b (Sports Venue)		
	First Floor	Class 5 (Administrative office),		
Rise in Storeys		Two (2)		
Construction Type		Туре А		
Effective Height	<12m			
Climate Zone:	Climate Zone 5			

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

PROPOSED AQUATIC AND LEISURE CENTRE	APPROX. FLOOR AREA (M ²)	APPROX. VOLUME (M ³)	CALCULATED POPULATION
Ground Floor	6867m ²	~	546
First Floor	1237m ²	~	105

Notes:

- 1. The above population has been based on a population summary provided by CO-OP;
- 2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.

2.3 BCA Interpretation Notes

To provide the reader with additional context, the following information regarding the assessment methodology used in this assessment is provided below –

 The plant area located in the ground floor are directly related to the operation of the centre, hence they are an ancillary use to the principal use being a Class 9b;



- (ii) The merch shop on the ground floor has been considered a Class 6, however is less than 10% of the total floor area so therefore are considered to have a Class 9b classification;
- (iii) All fixtures and fittings have been treated as not being permanently fixed;
- (iv) It is understood that fuel gas cylinders are not proposed to be provided;
- (v) For A\$1670.1, A\$1670.3 and A\$1670.4; notwithstanding A4.0(5) of the BCA, until 1 May 2022 either the current edition or the previous editions of the documents listed in Table 1.8 of A\$1670.1, A\$1670.3 and A\$1670.4 may be used to meet the requirements of A\$1670.1, A\$1670.3 and A\$1670.4 as applicable.



3.0 BCA ASSESSMENT SUMMARY

3.1 General

The following table summarises the compliance status of the architectural design in terms of each *applicable* prescriptive provision of the BCA and indicates a capability for compliance with the BCA.

Although, it should be recognised that instances exist where 'Prescriptive noncompliance' occurs, or 'design detail' is required.

Such instances should not necessarily be considered BCA deficiencies; but matters, which need to be considered by the design team and any assessment authority at relevant stages of design and/or assessment.

For those instances of either 'prescriptive non-compliance' or 'design detail', a detailed analysis and commentary is provided within Part 4.0 of this report.

3.2 Section B: Structure

BCA CL	AUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
B1.1	resistance to actions			✓
B1.2	determination of individual actions			~
B1.4	materials and form of construction			~

3.3 Section C: Fire Resistance

BCA CL	AUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C1.1	fire resisting construction			√
C1.8	lightweight construction			√
C1.9	non-combustible building elements			~
C1.10	fire hazard properties			✓
C1.14	ancillary elements			✓
C2.2	general floor area & volume limitations	✓		
C2.6	Vertical separation		✓	
C2.10	separation of lift shafts			✓
C2.11	stairways and lifts in one shaft			✓
C2.12	separation of equipment			✓
C2.13	electricity supply system			✓
C3.2	protection of openings			✓
C3.4	methods of protection			√
C3.10	openings in fire-isolated lift shafts			~
C3.12	openings in floors and ceilings			✓



BCA CL	AUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C3.15	openings for service installation			√
C3.16	construction joints			√
C3.17	columns protected in lightweight construction			\checkmark

3.4 Section D: Access & Egress

BCA CL	AUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
D1.2	number exits required	√		
D1.4	exit travel distances		√	
D1.5	distance between alternative exits		1	
D1.6	dimensions of exits and paths of travel to exits			~
D1.9	travel by non-fire isolated stairways and ramps	\checkmark		
D1.10	discharge from exits			√
D1.13	number of persons accommodated			\checkmark
D1.16	Plant rooms			√
D1.17	access to lift pits			√
D2.3	non fire-isolated stairways and ramps			✓
D2.7	installations in exits and paths of travel			\checkmark
D2.8	Enclosure of space under stairs			√
D2.9	Stairway width			√
D2.13	goings and risers			
D2.14	landings			\checkmark
D2.15	thresholds			√
D2.16	balustrades			√
D2.17	handrails			√
D2.19	doorways and doors			√
D2.20	swinging doors	\checkmark		
D2.21	operation of latch			√
D2.23	signage			√



3.5 Section E: Services & Equipment

BCA CL	BCA CLAUSE		DOES NOT COMPLY	DESIGN DETAIL
E1.3	fire hydrants		✓	
E1.4	fire hose reels		✓	
E1.6	portable fire extinguishers			\checkmark
E2.2	general provisions			✓
E3.1	lift installations			✓
E3.3	warning against use of lifts			√
E4.2	emergency lighting			✓
E4.5	exit signs			√
E4.6	design and operation of exit signs			✓
E4.9	emergency and warning intercom system		~	

3.6 Section F: Health & Amenity

BCA CL	AUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
F1.1	storm water design			\checkmark
F1.4	external above ground membranes			~
F1.5	roof coverings			✓
F1.6	sarking			\checkmark
F1.7	waterproofing of wet areas			✓
F1.9	damp-proofing			✓
F1.10	damp-proofing of floors on the ground			\checkmark
F1.11	provision of floor wastes			\checkmark
F1.13	glazing			✓
F2.3	sanitary facilities			\checkmark
F2.5	construction of sanitary compartments			~
F3.1	height of rooms and other spaces			√
F4.4	artificial lighting			\checkmark
F4.5	ventilation of rooms			√
F4.8	position of water closets	✓		

3.7 Section G - Ancillary Provisions

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
G1.1	swimming pools			\checkmark
G1.101	provision for cleaning windows			\checkmark
G5.2	construction in bushfire prone areas			\checkmark
G6.1	occupiable outdoor areas			✓



4.0 BCA DETAILED ASSESSMENT

4.1 General

With reference to the 'BCA Assessment Summary' contained within Part 3 of this report, the following detailed analysis and commentary is provided.

This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA.

4.2 Section B – Structure

- CI. B1.1 The resistance of a building or structure must be greater than the most critical action effect determined by B1.2 & B1.4 of the BCA and AS/NZS 1170.0-2002.
- Cl. B1.2 The structural design of the building must be determined in accordance with the varying "actions" considerations contained within this clause (i.e. permanent actions, imposed actions, wind / snow / earthquake actions).
- Cl. B1.4 The structural resistance of materials and forms of construction must be determined in accordance with the following:
 - Masonry A\$3700-2018
 - Concrete construction AS3600-2018
 - Footings and slabs AS2870-2011
 - Steel construction AS4100-1998 or AS/NZS 4600-2005
 - Termite Risk Management AS3660.1-2014
 - Piling AS2159-2009
 - Glazed assemblies A\$2047-2014-amendments 1 & 2 (external), and/or A\$1288-2006 (internal)

4.3 Section C – Fire Resistance

Cl. The building elements are required to achieve the nominated FRLs as nominated within BCA Spec C1.1 as applicable, these FRLs have been summarised within Table A2.1 as contained within Appendix 2.

In addition to the FRLs contained within the Appendix A2 the following information details the construction methodology and concessions available to the subject building.

- General notes
 - Any loadbearing internal wall and a loadbearing fire wall (including shafts) is required to be of concrete or masonry or fire-protected timber;
 - (ii) A non-loadbearing internal wall required to achieve an FRL is required to be of non-combustible construction;
 - (iii) A shaft which is not for the discharge of hot products of combustion and not load-bearing is required to be of non-combustible construction;



Cl. C1.1 Cont'd	(iv)	The bottom of any shaft is required to be non- combustible and laid directly on the ground unless otherwise enclosed by construction having an FRL not less than that required for the walls; and		
	(∨)	Building elements are required to achieve an FRL from both sides.		
	□ <u>Co</u>	ncessions		
	(i)	In the storey immediately below the roof, the internal walls and internal columns other than fire walls and shaft walls need not achieve an FRL;		
	(ii)	A floor need not have an FRL if it is laid directly on the ground.		
	□ <u>Me</u> bui	thod of attachment not to reduce the fire-resistance of Iding elements		
	The ele red red	e method of attaching or installing a finish, lining, ancillary ment or service installation to a building element must not luce the fire-resistance of that element to below that juired.		
Cl. C1.8	Lightweight construction used in a wall system required to an FRL or a lift, stairway or service shaft (refer to Spec. C1.1 at must comply with this clause.			
	If lightwe any stee must be floor.	eight construction is used for the fire-resisting covering of I column/s (refer to BCA Spec C1.1 above), then any void filled solid, to a height of not less than 1.2m above the		
Cl. C1.9	The follo non-con	wing building elements and their components must be nbustible –		
	(i) Exter inclu	rnal walls, including all components incorporated in them uding the façade covering, framing and insulation;		
	(ii) The t	flooring and floor framing of lift pits;		
	(iii) Non- fire-r	-loadbearing internal walls where they are required to be esisting.		
Cl. C1.10	The fire h have be Append	nazard properties for materials proposed to be provided een summarised within Table A3.1 as contained within ix 3.		
Cl. C1.14	An ancil the inte required permitte	lary element must not be fixed, installed or attached to rnal parts or external face of an external wall that is to be non-combustible unless it is one of the elements ad under this clause.		



CI. C2.2 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			
		Α	В	С
5, 9b or 9c aged care building	Max floor area (m²)	8,000	5,500	3,000
	Max volume (m³)	48,000	33,000	18,000
6, 7, 8 or 9a (except for	Max floor area (m²)	5,000	3,500	2,000
patient care areas)	Max volume (m ³)	30,000	21,000	12,000

The building exceeds the maximum permissible floor area and volume of a Type A building (8,00m²/ 48,000m³).

It is proposed to be treated as a single building at this stage of design under the assumption and not treat as a large isolated building. The fire engineer is to confirm this approach. If it cannot be supported the building will need to be compartmentalised.

- Cl. C2.6 Openings in external walls (including externals walls not having an FRL of 60/60/60) above another opening in the storey next below are required to contain vertical separation via either of the following means:
 - The provision of spandrels within the external walls not less than 900mm in height and extend not less than 600mm above the finished floor level. The spandrels are required to non-combustible and have an FRL being not less than 60/60/60;
 - (ii) The provision of horizontal aprons/projections that project outwards from the external face of the wall not less than 1100mm beyond the affected openings and extend not less than 450mm (taken as being the most forward projecting openings). The horizontal projections are required to be noncombustible and have an FRL being not less than 60/60/60).

As the building is a Type A building and not proposed to be sprinkler protected, the building is required to address vertical separation in accordance with C2.6. This will require openings in the external walls to be adequately protected.

The fire engineer has confirmed that it is proposed to assess this non compliance against the performance provisions of the BCA via a performance solution to negate the requirement for spandrels throughout.

Please see appendix 6 for a standard vertical separation detail and area on the East Elevation which does not comply with DtS provisions.



Cl. C2.12 If the lift motors or control panels are provided within a separate room, then the room is required to be separated from the remainder of the building by construction having an FRL of not less than 120/120/120 and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than --/120/30.

Pump set/s for the fire hydrant system shall comply with AS2419.1-2005.

Cl. If the main switchboard sustains emergency equipment operating in emergency mode, then the switchboard shall be separated with construction achieving an FRL of 120/120/120 or /120/120 (if non-loadbearing) and any access doorway shall be protected with a self-closing fire door having an FRL of -/120/30.

> The emergency switchgear shall be separated from the nonemergency switchgear via a metal partition to minimise the spread of a fault from the non-emergency switchgear.

> For the purposes of the above, emergency equipment includes pump(s) for sprinklers and fire hydrant booster pumps.

CI. C3.2 The proposed building does not appear to be closer than 6m to any adjoining building, in addition to this there is no boundary that would be considered to be a fire source feature.

Therefore, there are no requirements for openings in external walls requiring protection in accordance with C3.4. Architect is to confirm boundary locations to ensure compliance.

- Cl. C3.4 It is not foreseen that any openings in external walls requiring protection in accordance with the methods detailed within this clause. However, in the event that any openings in external walls require protection, they must be provided via any of the following methods -
 - (i) External wall-wetting sprinklers used with windows that are automatically closing or permanently fixed in the closed position; or
 - (ii) Fire windows having an FRL -/60/- that are automatically closing or permanently fixed in the closed position; or
 - (iii) External wall-wetting sprinklers used with doors that are selfclosing or automatic closing; or
 - (iv) Self-closing fire door having an FRL of --/60/30; or
 - (v) Fire shutter achieving an FRL of --/60/--;



Cl. C3.10	 (i) The doorways providing access to the lift shaft shall be protected by/60/ fire doors complying with A\$1735.11- 1986 and remain closed except when discharging or receiving passengers or goods; and
	(ii) Any lift call button, indicator panel or other panel located within the wall of the fire-isolated lift shaft must be backed by construction having an FRL of/60/60 if it exceeds 35,000mm ² in area.
Cl. C3.12	Where a service passes through a floor required to achieve an FRL, that service is required to be protected by either a shaft which has been constructed in accordance with BCA Spec C1.1 (listed above) or in accordance with C3.15 (see below).
Cl. C3.15	Any opening(s) for service(s) (electrical, mechanical, plumbing, etc) that penetrate a building element which is required to be of fire-resisting construction is required to be protected (i.e. fire seal).
Cl. C3.16	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS1530.4-2005 to achieve the required FRL.
Cl. C3.17	Where a column protected by lightweight construction to achieve the required FRL defined by BCA Spec C1.1 (listed above) passes through a building element that is also required to have an FRL it must be installed using a method and materials identical with the prototype assembly of the construction which has achieved the required FRL.

4.4 Section D – Access & Egress

CI. D1.2 The ground floor is required to have a minimum number of two exits due to the number of occupants.

Based off the 50% Design Documentation the ground floor will be provided with more than 2 exits (at least 11 utilised).

The first floor is provided with two exits and considered compliant with the provisions of this clause.

- Cl. D1.3 Fire-isolated stairs are not required within the building given the there are no internal stairs connecting more than 2 consecutive storeys.
- Cl. D1.4 The locations of the proposed exits demonstrate that the travel distances to exits and points of choice to alternative exits are not within the required limitations.

The travel distances to exits should not exceed:

<u>Class 5-9</u>

(i) 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



Cl. D1.4 Cont'd	(ii)	exits shall be located to not be more than 60m apart and not closer than 9m		
	Our initial assessment has indicated the following travel dis are exceeded in the following areas:			
	(i)	28m to a point of choice in lieu of 20m from community change 4		
	(ii)	Travel distances on the ground floor of up to 49m in lieu of 40m		
	With for re	respect to the above BCA DtS variation, the following options esolution are provided –		
	(i)	Reconfigure floor plates to afford DTS travel distances; or		
	(ii)	Pursue a BCA Performance Solution / Fire Engineering Report which justifies that the current design complies with the relevant Performance Requirements.		
Cl. D1.5	Exits clos	shall be located to not be more than 60m apart and not er than 9m.		
	Base disto	ed off the proposed ground floor plans, there are extended ances between exits of up to 75m in lieu of 60m.		
	With for re	respect to the above BCA DtS variation, the following options esolution are provided –		
	(i)	Reconfigure floor plate to afford DTS distance between alternative exits; or		
	(ii)	Pursue a BCA Performance Solution / Fire Engineering Report which justifies that the current design complies with the relevant Performance Requirements.		
Cl. D1.6	Base	ed upon the projected population the aggregate exit width		

for each storey is as follows -

STOREY	POPULATION	AGGREGATE EXIT WIDTH REQUIRED	AGGREGATE EXIT WIDTH PROVIDED
Ground Floor	546	4.5m	12m
First Floor	105	1.25m	2m

Table 1 – Exit width

With respect to the above the following information is provided to assist with the ongoing development of the design, specifically the ground floor and level 1.

- Where used by the public the required exit or the path of (i) travel to an exit must not be less than 1m or more than 3m;
- Where used by the public the unobstructed width of each (ii) doorway must not be less than 1m or more than 3m (doors used by the public cannot be reduced by 250mm, hence 850mm clear is not acceptable in this instance);



Cl. D1.6	Where one or more paths of travel merge, the width of the
Cont'd	combined path of travel must be not less than the sum of the
	required widths of those paths of travel;

- (iii) The required widths of the paths of travel connecting the exits from the building to a public road or open space must not diminish in combined width until such time they reach open space or a road.
- (iv) At least half of the required number exits from each storey and at least half of the aggregate width of such exits must discharge through exits other than through the main entrance or the area immediately adjacent to the main entrance of the building.
- CI. D1.9 The distance from any point on the floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway must not exceed 80m.

Both stairways which have been counted as required non fireisolated stairways have been assessed as complying with the provisions of this clause.

It should be noted the third stairway adjacent to the ground floor merch storage has been assessed as a non-required stair.

- Cl. D1.10 The discharge points of the exits are required to have an unobstructed width of 1m (including gates) and be via a stairway, ramp or other incline having a gradient of no steeper than 1:8 or complying with AS1428.1-2009- amendment 2 (where required to be accessible for people with a disability). A preliminary assessment of the landscaping plans indicates the external pathways are capable of complying with the provisions of this clause.
- Cl. Population numbers have been provided by the client.
- D1.13
- CI. Access into the lift pit must be through the lift landing doors provided on the lowest level.
- CI. D2.3 Stairways are required to be constructed in accordance with the following
 - (i) Reinforced or prestressed concrete; or
 - (ii) Steel in no part less than 6m thick; or
 - (iii) Timber that has a finished thickness of not less than 44mm, has an average density of not less than 800kg/m3 at a moisture content of 12% and has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.



CI. D2.7 Gas or other fuel services must not be installed within the required exit.

Any services or equipment (being electrical meters, distribution boards or the like) installed within the path of travel are to be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

CI. D2.9 A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2m.

At this stage no ramps/ stairs within the building are proposed to be over 2m in width.

Cl. The going, riser and steepness dimension of the stairways must be designed within the following range.

RISER (R)		GOING (G)		SLOPE RELATIONSHIP (2R+G)	
Max	Min	Max	Min	Max	Min
190	115	355	250	700	550

The risers and goings are to be constant throughout the flight and the stair treads must also have a surface or nosing strip achieving a slip-resistance classification of P3 in dry and P4 in the wet tested in accordance with AS4586-2013.

Cl. Stair landings are to be a minimum of 750mm long and have a non-slip finish and a gradient not steeper than 1:50.

The surface or strip must achieve a slip-resistance classification of P3 in dry and P4 in wet tested in accordance with AS4586-2013.

Cl. Internal Doorways D2.15

(i) The threshold of any doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf.

- External Doorways
 - (i) The threshold of the external doorways leading from the foyer on ground floor & lower ground floor must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf great than 50mm; and
 - (ii) All other doorways can incorporate a step or ramp 190mm above the finished surface of the ground, this includes the balconies.



CI.	Balustrades must be constructed as follow -
D2.16	(i) To a height not less than 865mm above the nosings of the stair treads or the floor of a ramp and to a height of 1000mm above the floor of any access path, balcony, landing or the like;
	 (ii) Any opening does not permit a 125mm sphere to pass through it and for stairs, the space is measured above the nosings;
	 (iii) For floors more than 4000mm above the surface beneath, any horizontal or near horizontal elements between 150mm and 760mm must not facilitate climbing; and
	(iv) For balustrades in fire isolated stairways used primarily for emergency purposes openings between balustrades can be up to 300mm; or where rails are used, the bottom rail must be a maximum of 150mm above the stair nosings line or from the landing floor and the opening between rails must not be more than 460mm.
Cl. D2.17	Handrails must be fixed at a height of not more than 865mm measured above the nosings of the stair treads, ramp or landing and shall be continuous such that no obstruction on or above them will tend to break a hand hold.
Cl. D2.19	A doorway serving as a required exit or forming part of a required exit –
	(i) Must not be fitted with a revolving door;
	(ii) Must not be fitted with a roller shutter or tilt-up door unless –
	 It serves the Class 6 part with a floor area not more than 200m²; and The doorway is the only required exit from the building or part; and It is held in the open position while the building part is lawfully occupied; and (iii) Must not be fitted with a sliding door unless –
	 It leads directly to a road or open space; and The door is able to be opened manually under a force of not more than 110N; and
	(iv) If fitted with a door which is power-operated –
	 It must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source; and If it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.



Cl. D2.21	Any the ope egre	Any door in a required exit, forming part of a required exit or in the path of travel to a required exit are required to be readily operable without a key from the side that faces a person seeking egress and:			
	(i)	By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor;			
		 Be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and Have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm nor more than 45mm; or A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor. 			
	(ii)	Where the latch operation device referred to above is not located on the door leaf itself –			
		 Manual controls to power-operated adors must be at least 25mm wide, proud of the surrounding surface and located- Not less than 500mm from an internal corner; and For a hinged door, between 1m and 2m from the door leaf in any position; and For a sliding door, within 2m of the doorway and clear of a surface mounted door in the open position Braille and tactile signage complying with Clause 2 and 6 of Specification D3.6 must identify the latch operation. 			
	(iii)	Fitted with a fail-safe device which automatically unlocks the door upon the activation of any detection system deemed suitable in accordance with AS1670.1-2018 installed throughout the building.			



4.5 Section E – Services & Equipment

Cl. E1.3	A fire hydrant system complying with AS2419.1-2005 is required to serve the building.					
	Due to the size of the building it is proposed to permit attack fir hydrants to be located >50m from fire brigade hardstands via performance solution prepared by the fire engineer.					
Cl. E1.4	A hose reel system complying with AS2441-2005 is required to service the building, including:					
	(i) Hose reels are required to be located within 4m of an exit; and					
	(ii) All points on a floor are required to be in reach of a 4m hose stream at the end of a 36m hose length laid on the floor;					
	(iii) Additional hose reels can be installed along the path of travel where additional coverage is required.					
	A performance solution has been proposed by the fire engineer to permit hose reels to be located >4m from exits in some areas.					
Cl. E1.6	Portable extinguishers must be provided in accordance with Table E1.6 to cover risk classes throughout the building.					
	Portable fire extinguishers complying with AS2444-2001 are required as follows:					
	(i) To cover Class B (if more than 50L excluding vehicle fuel tanks is stored); and					
	(ii) To cover Class AE or E fire risks associated with emergency service switchboards; and					
	(iii) To cover Class F fire risks involving cooking oils and fats in kitchens.					
CI. E2.2	Automatic shutdown of any air handling system (other than non- ducted individual room units with a capability not more than 1000l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS/NZS1668.1) on activation of smoke detectors complying with Clause 6 of Specification of E2.2a.					
	The building is not required to be provided with any automatic smoke exhaust system or smoke and heat vents given the building is a sporting complex.					
Cl. E3.1	The electric passenger lift installation or an electrohydraulic passenger lift installation shall comply with this clause.					
Cl. E3.3	Warning signage "DO NOT USE LIFTS IF THERE IS A FIRE" will be required adjacent every lift call button with dimensions as detailed in this clause.					



- Cl. E4.2 Emergency lighting is required in accordance with AS2293.1-2005 throughout the building.
- CI. E4.5 Exit signage complying with AS2293.1-2018 are required installed above or adjacent to any doorways serving as required exits from the building and final doors from stairways.
- Cl. E4.6 If an exit is not readily apparent to persons occupying or visiting the building, then exit signs complying with AS2293.1-2005 must be installed in appropriate positions in corridors, hallways, lobbies and the like, indicating the direction to a required exit.
- Cl. E4.9 An emergency and warning intercom system for emergency purposes complying with A\$1670.4-2018 is required to serve the building given the building is over 1,000m².

4.6 Section F – Health & Amenity

- CI. F1.0 A test report from a Registered Testing Authority must be provided to certify that the façade / external walls achieve compliance with BCA FP1.4 and FV1.
- CI. F1.1 Stormwater drainage must comply with AS/NZS3500.3-2003.
- CI. F1.4 Waterproofing membranes for external above ground use (i.e. balconies and roof) must comply with A\$4654-2012.
- Cl. F1.5 Metal roof sheeting must comply with A\$1562.1-1992.
- Cl. F1.6 Any Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS4200-1994.
- CI. F1.7 Building elements in wet areas must be water-resistant or waterproof in accordance with Table F1.7 and comply AS 3740-2010.
- CI. F1.9 Damp-proof courses must consist of a material complying with AS/NZ2904-1995 or an impervious termite shield complying with AS3660.1-2000.
- CI. F1.10 A floor laid directly onto ground or fill must be provided with a vapour barrier complying with AS2870-2011.
- Cl. F1.13 Refer to B1.4 (above) for glazing requirements.
- CI. F2.3 Please refer to Appendix 5 as it details our preliminary assessment against the DtS provisions for sanitary facilities.

Preliminary calculations indicate there is a deficiency for gymnastics participants, there is excess amenities within the multi-purpose area which may be able to accommodate. Further advice will need to be provided on how these facilities will be managed to ensure separate facilities are provided for males and females.

At least one shower is to be provided or each 10 participants or part thereof, plans indicate this is capable of complying.



Cl. F2.5	(i) The door to a full enclosed sanitary compartment must –						
	Open outwards; orSlide; or						
	 Be readily removable from the outside of the sanitary compartment (i.e. lift-off hinges) 						
	Unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the hinge side edge of the doorway.						
	(ii) The doors and partitions that separate adjacent sanitary compartments must extend 1.8m above the floor.						
Cl. F3.1	Unobstructed ceiling heights are required as follows –						
	(iv) A bathroom, sanitary facilities, tea preparation room, store room, car parking areas or the like – 2.1m;						
	(v) A corridor, passageway or the like – 2.1m;						
	(vi) Above a stairway, ramp, landing or the like – 2m;						
	(vii) A corridor and part that serves / accommodates not more than 100 persons – 2.4m;						
	(iii) A corridor and part that serves / accommodates more than 100 persons – 2.7m.						
Cl. F4.4	Where complaint natural lighting is not provided, artificial lighting is to be installed in accordance with AS/NZS1680.0-2009.						
Cl. F4.5	Any habitable room, sanitary compartment, bathroom, laundry and any other room occupied by a person for any purpose must have either –						
	(i) Natural ventilation (i.e. opening(s) having an openable area of 5% of the room being served); or						
	(ii) Mechanical ventilation complying with AS1668.2-2012.						

- 4.8 Section G Ancillary Provisions
 - CI. G1.1 A water reticulation system in the swimming pool with a depth of water more than 300mm must comply with A\$1926.3.



5.0 CONCLUSION

5.1 General

Based upon our detailed review of the proposed architectural drawings, it is the opinion of this office that the subject development is capable of complying with the performance provisions of the BCA.

Compliance would be achieved via a mixture of adopting a performance-based approach as well as complying with the relevant deemed-to-satisfy requirements as outlined within the BCA, compliance via the performance-based approach could occur without significant changes to the proposed design.

The details of the proposed performance solutions are subject to the outcome of the fire engineering brief and analysis which will be carried out in accordance with the International Fire Engineering Guidelines.

The performance solutions for the building will be developed as part of the ongoing design and consultation with the design team.

Report By

Malo

Lindsay Beard Associate | Building Regulations For Design Confidence (Sydney) Pty Ltd

Verified By

1A

Luke Sheehy Principal For Design Confidence (Sydney) Pty Ltd



The BCA Design Assessment was based upon the architectural documentation prepared by CO-OP Architects, namely –

DESCRIPTION	DRAWING NUMBER	REVISION	DATE
Existing and Demolition – Site Plan	DA011	D	31.08.2020
Site Plan	DA012	D	31.08.2020
Site Sections	DA051	D	31.08.2020
Shadow Analysis	DA091	D	31.08.2020
Site Plan	DA112	D	31.08.2020
3D Axonometrics	DA095	D	31.08.2020
General Arrangement Plan – Ground Floor	DA201	D	31.08.2020
General Arrangement Plan – Level 1 Floor	DA202	D	31.08.2020
General Arrangement Plan - Roof	DA203	D	31.08.2020
Building Elevations – North & South	DA401	D	31.08.2020
Building Elevations - East & West	DA401	D	31.08.2020
Building Sections – A & B	DA501	D	31.08.2020
Building Sections – C & D	DA502	D	31.08.2020
Shadow Analysis	DA951	D	31.08.2020
Area Analysis	DA961	D	31.08.2020
Photomontages	DA971	D	31.08.2020
Photomontages	DA972	D	31.08.2020
Photomontages	DA973	D	31.08.2020



The Table below represents the Fire Resistance Levels (FRLs) required in accordance with BCA 2019:

Table A1 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

	CLASS OF BUILDING — FRL: (IN MINUTES)								
BUILDING ELEMENT	STRUCTURAL ADEQUACY/INTEGRITY/INSULATION								
	2, 3 OR 4 PART	5, 7A OR 9		7B OR 8					
EXTERNAL WALL (including element, where the dista	g any column and c nce from any fire-sc	other building element i burce feature to which i	ncorporated therein) or it is exposed is—	other external building					
For loadbearing parts—									
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240					
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180					
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90					
For non-loadbearing parts									
less than 1.5 m	-/ 90/ 90	-/120/120	-/180/180	-/240/240					
1.5 to less than 3 m	-/ 60/ 60	-/ 90/ 90	-/180/120	-/240/180					
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-					
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is—									
less than 3 m	90/–/–	120/-/-	180/-/-	240/-/-					
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-					
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240					
INTERNAL WALLS-									
Fire-resisting lift and stair s	shafts—								
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120					
Non-loadbearing	-/ 90/ 90	-/120/120	-/120/120	-/120/120					
Bounding public corridors, public lobbies and the like—									
Loadbearing	90/ 90/ 90	120/-/-	180/-/-	240/-/-					
Non-loadbearing	-/ 60/ 60	-/-/-	-/-/-	-/-/-					
Between or bounding sol	e-occupancy units-	_							
Loadbearing	90/ 90/ 90	120/-/-	180/-/-	240/-/-					
Non-loadbearing	-/ 60/ 60	-/-/-	-/-/-	-/-/-					
Ventilating, pipe, garbag	ge, and like shafts no	ot used for the discharg	e of hot products of cor	nbustion—					
Loadbearing	90/ 90/ 90	120/90/90	180/120/120	240/120/120					
Non-loadbearing	-/ 90/ 90	-/ 90/ 90	-/120/120	-/120/120					
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES									
and COLUMNS—	90/-/-	120/-/-	180/-/-	240/-/-					
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240					
ROOFS	90/ 60/ 30	120/60/30	180/ 60/ 30	240/90/60					



The table below represents the fire hazard properties for building materials applicable to this development.

FLOOR LININGS AND FLOOR COVERINGS CRITICAL RADIANT FLUX (CRF IN KW/M2							
Non-Sprinkler Protected Areas	2.2						
Sprinkler Protected Areas	1.2						
Fire-Isolated Exits & Fire Control Rooms	1.2						
Lift Cars	2.2						
WALL LININGS AND CEILING LININGS TESTED TO AS5637.1							
Fire-Isolated Exits & Fire Control Rooms	Group 1						
Public Corridors – Walls	Group 1 or 2						
Public Corridors – Ceilings	Group 1 or 2						
Specific Areas – Walls	Group 1, 2 or 3						
Specific Areas – Ceilings	Group 1, 2 or 3						
Other Areas – Walls	Group 1, 2 or 3						
Other Areas – Ceilings	Group 1, 2 or 3						
Lift Cars	Group 1 or 2						
NOTE	 In addition to achieving the group number above they too must comply with the following – a smoke growth rate index not more than 100; or an average specific extinction area less than 250m²/kg 						
OTHER MATERIALS OR ASSEMBLIES							
Fire-Isolated Exits & Fire Control Rooms	Spread-of Flame Index 0 Smoke-Developed Index 2						
Non-fire-isolated stairs & escalators and auditorium fixed seating	Spread-of Flame Index 0 Smoke-Developed Index 5						
Sarking-type material	Flammability Index 0 (fire control rooms) Flammability Index 5 (other areas)						
Other materials	Spread-of Flame Index 9 Smoke-Developed Index 8 (if the Spread-of Flame Index is more than 5)						



The proposed fire safety measures are to be provided throughout the building-

FIRE SAFETY MEASURES	PROPOSED STANDARD OF PERFORMANCE
Emergency Lighting	BCA 2019 Amendment 1 E4.2, E4.4 & AS/NZS2293.1- 2005
Emergency Warning and Intercom Systems (EWIS)	BCA 2019 Amendment 1 E4.9 & AS1670.4-2018
Exit signs	BCA 2019 Amendment 1 E4.5, E4.6 (NSW), E4.8 & AS/NZS2293.1-2005
Fire Hydrant System	BCA 2019 E1.3 & AS2419.1-2005
Fire Hose Reel System	BCA 2019 Amendment 1 E1.6 & AS2444.1-2005 & Fire Engineering Report prepared by Wood and Grieves
Mechanical Air Handling System (Automatic shut-down) – if any system installed is over 1,000L/s	BCA 2019 Amendment 1 Clause E2.2, AS/NZS 1668.1 – 2015& Fire Engineering Report prepared by Wood and Grieves
Paths of travel	EP&A Reg 2000 Clause 186 & Fire Engineering Report prepared by Wood and Grieves
Portable Fire Extinguishers	BCA 2019 Amendment 1 E1.6 & AS2444-2001



The number of required (DtS) sanitary facilities is set out below in Table A2 -

	Table	A2 –	Required	Sanitary	Facilities
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OCCUPANT POPULATION NUMBER			WC REQUIRED / PROVIDED		URINAL REQUIRED / PROVIDED		BASIN REQUIRED / PROVIDED		
South Sydney Rabbitohs	51	Male	36	2	4	4	4	4	6
		Female	15	2	5	n/a	n/a	2	5
Staff (First Floor)	105	Male	53	3	3	3	4	2	4
		Female	53	4	5	n/a	n/a	2	4
Gymnastics Facility Participants	90	Male	45	3	1	5	0	5	2
		Female	45	5	2	n/a	n/a	5	3
Gymnastics & Indoor Multi- Purpose Facility Spectators	360	Male	180	1	2	2	2	2	3
		Female	180	4	4	n/a	n/a	2	3
Indoor Multipurpose Facility Participants	30	Male	15	1	2	2	2	2	5
		Female	15	2	4	n/a	n/a	2	4
Ground Floor Staff	15	Male	8	1	2	0	0	1	3
		Female	8	1	3	n/a	n/a	1	3
Showers		120 people		12 Showers required and 13 provided					
		NRL Male		4 Showers required and 12 provided					
		NRL Female 2 Showers required and 10 prov			rovided				

The above includes the following -

- Green indicates excess and red indicates deficiency of facilities.
- Gymnastics change 01 has been counted towards male and gymnastics 02 has been counted towards female
- Public toilets have been counted towards gymnastics and multi-purpose spectators with unisex counted once towards each sex.
- Multi-purpose change has been counted towards female participants
- Community change 1 & 2 have been counted towards male participants of the multi-purpose facility
- Community change 3 has been counted towards ground floor male staff
- Community change 4 has been counted towards ground floor female staff





Standard Vertical Separation Details and area to comply.

Figure A6.1 – Area on Eastern elevation does not comply with DtS provisions



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