PHILIP CHUN
Building Compliance

Kellyville Park Centre of Excellence and Community Sports Hub Facility

Memorial Avenue, Kellyville NSW

BCA Assessment Report

Report prepared for:	HB Arch Architecture & Planning 134 Surrey Road Blackburn North VIC 3130 Attention: Gray Barton
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DOCUMENT ACCEPTANCE

	Name	Signed	Date
Prepared by	Athish Dulichan	-	28/02/2022

REVISION HISTORY

Revision No.	Prepared by	Description	Date
R01	Athish Dulichan	Final – Revised for comment	28/02/2022

1.0 CONTENTS

2.0 Brief and Scope

This report contains a design philosophy review concerning the capability of the design to meet Building Code of Australia 2019 Amendment 1 (BCA) requirements. We have reviewed the submitted architectural documentation provided to date. Where compliance with the deemed to satisfy provisions is not possible, a schedule of performance solutions will be required.

In our role as the registered certifier for the works, this report is considered as an assessment of the proposed building works for compliance clawith the relevant requirements of BCA 2019 Amendment 1, as required by Section 19(1)(c) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021. We have made every attempt to cover the main issues under Parts B, C, D, and E of Volume 1 of BCA 2019 Amendment 1 (including the NSW variations) as it applies to the current design. This assessment has been carried out within the role of a building surveyor.

3.0 Project Description

The proposed development will provide state of the art facilities which enable physical recreation opportunities in conjunction with improved facilities for staff, players and existing users of the site. The proposed development will be integrated with the existing recreational landscape of the site and complement the upgrades to the existing playing fields being undertaken by Council. The proposed development is defined as a Recreation facility (major), and includes the following components:

- Construction of high-performance Centre of Excellence in the north east of the site adjacent to Training Field 2:
  - Elite level gymnasium.
  - Medical and rehabilitation facilities.
  - Aquatic recovery and rehabilitation pools.
  - Lecture theatre and meeting rooms.
  - Player education and study areas.
  - Administration offices for the Parramatta Eels.
  - New female facilities including a dedicated female change room, cubicle toilets and showers.
  - Balcony and terrace area.
  - End of Trip Facilities and bicycle parking.
  - Refuse Area.
- Construction of a Community Facility, including a grandstand with approximately 1,500 seats in the centre of the site adjacent to the Main Playing Field 3:
  - Unisex changerooms and amenities.
  - Referee changeroom and amenities.
  - First Aid/Medical room.
  - Community gymnasium.
  - Café/kiosk.
  - Concourse terrace.
  - Multipurpose community function room with kitchen and amenities.
  - Refuse Area.
  - Bicycle parking.

3.1 Introduction

Parramatta National Rugby League Club Limited proposes to construct a new 2 storey Parramatta Eels Centre of Excellence (COE) and 2 storey Community Sports Hub. The COE includes an elite level gymnasium, medical and rehabilitation facilities, aquatic recovery and rehabilitation pools, lecture theatre and meeting rooms, player education and study areas, administration offices for the Parramatta Eels as well as change rooms and amenities for players. The Community Sports Hub Facility encompasses a spectator grandstand, player and referee change rooms and amenities for community sport, medical/first aid room, community gymnasium, multipurpose function room with kitchen and amenities as well as a Café/kiosk. In addition to existing parking facility an additional parking spaces will be provided to the east of the proposed facility.

The site is located at Kellyville Memorial Park, 8 Memorial Avenue Lot 60/DP 10702, Lot 1/DP 167535, Lot 10/DP 258947, Lot 123/DP 1113073 and Lot 1002/DP1132811 within The Hills Shire Council Local Government Area. The site is bounded by Stone Mason Drive and Memorial Avenue.

This report is the result of our review of the architectural drawings provided by HB Arch. This report seeks to benchmark building code compliance and form part of the State Significant Development application for this stage of the project. It must be noted that the level of detail in assessment is always limited by the level of available detail in the design drawings provided at that point in time. This is deemed a general report only to accompany the State Significant Development Application.

This assessment report overviews the design and provides information for the designers to incorporate into the design should there be clarifications or non-compliance issues. It will to the best of our capacity identify areas that do not meet Building Code of Australia 2019 Amendment 1 (BCA) requirements and will require revision, additional detail or performance solution prior to issue of the relevant construction certificate or progress to the next stage of design.

This report is an assessment or snapshot in time as opposed to an approval instrument and is not intended to be updated regularly but is an assessment tool at this stage of the process. The design will require additional detailed review at the next phase of design and prior to the issue of the Construction Certificate.

At that point in time the level of detail available will determine the number of additional non - compliances that can reasonably be detected. We have therefore reviewed the submitted documentation for general compliance with the deemed-to-satisfy provisions of the BCA and considered the application of performance solutions and needless to say that where compliance with the deemed to satisfy provisions is not possible, performance solutions will be required or the design needs to be amended to comply.

3.2 Scope and limitations

We have made every attempt to cover the main high level issues under Parts B, C, D and E at this stage of Volume 1 of the BCA which is the applicable version for the building. Areas of the building design will need further assessment and we have highlighted where we believe this is to occur. This assessment has been carried out within the role of a building certifier for the project.

as required by Section 19(1)(c) of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021. We have made every attempt to cover the main issues under Parts B, C, D and E of Volume 1 of BCA 2019 Amendment 1 (including the NSW variations) as it applies to the current design. This assessment has been carried out within the role of a building surveyor.

Methodology is principally inspection of the available documentation. This report does not include nor implies any detailed assessment of the building with respect to structural engineering or engineering services, material fire resistance levels or compliance with any Australian Standards. Therefore the following are excluded from this assessment

- structural adequacy of the building;
- fire-resistance ratings of any structural elements of the building;
- design basis and/or operating capabilities of electrical, mechanical, hydraulic, fire services and fire protection services;
- Disability Discrimination Act 1992 including the Disability (Access to Premises – Buildings) Standards 2010;
- requirements of other regulatory authorities and utilities including, but not limited to, Telstra and the like communications authority, Gas Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and any existing conditions of Development Consent issued by the Local Consent Authority.
- Assessment or modelling as required by Part J of the Building Code of Australia.

Furthermore the following are also excluded from this assessment

- Planning assessment relating the compliance reviews of the NSW Planning Legislation
- This report relates to Building A (Community Facility) and Building B (Centre of Excellence) only

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3.3 Other Requirements

There will be other criteria outside the BCA that will apply to the building and whilst some of these have been listed above will impact the buildings design and may include but not be limited to the following

- Utility requirements – Energy Authority, Telecom, Water, Gas and the like
- Fire and Rescue NSW requirements
- Heritage
- Archaeology
- Indigenous Impact
- Local Council requirements
- Planning Controls and Approvals
- Traffic
- Part J modelling and assessment

3.4 Documentation Available and Assessed

The design phase documentation assessed comprises of the following Preliminary – WIP drawings revision DD Set Draft 'D' issued by HB Arch dated 13/12/2021 downloaded from Dropbox on

PLAN NO.	TITLE.	DATE
1.01	LOCALITY PLAN	13/12/21
1.02	OVERALL SITE PLAN	13/12/21
1.03	OVERALL STAGING PLAN	13/12/21
1.04	LOWER GROUND LEVEL - OVERALL PLAN	13/12/21
1.05	GROUND LEVEL - OVERALL PLAN	13/12/21
A2.02	LOWER GROUND LEVEL REFERENCE PLAN - BUILDING A	13/12/21
A2.03	GROUND LEVEL REFERENCE PLAN -BUILDING A	13/12/21
A2.04	ELEVATIONS REFERENCE - BUILDING A	13/12/21
A2.11	LOWER GROUND LEVEL FLOOR PLAN - BUILDING A(1)	13/12/21
A2.12	LOWER GROUND LEVEL FLOOR PLAN - BUILDING A(2)	13/12/21
A2.13	GROUND LEVEL FLOOR PLAN -BUILDING A(1)	13/12/21
A2.14	GROUND LEVEL FLOOR PLAN -BUILDING A(2)	13/12/21
A2.15	ROOF PLAN - BUILDING A(1)	13/12/21
A2.16	ROOF PLAN - BUILDING A(2)	13/12/21
A2.17	LOWER GROUND LEVEL RCP -BUILDING A(1)	13/12/21
A2.18	LOWER GROUND LEVEL RCP -BUILDING A(2)	13/12/21
A2.19	GROUND LEVEL RCP - BUILDING A(1)	13/12/21
A2.20	GROUND LEVEL RCP - BUILDING A(2)	13/12/21
A2.27	THERMAL ENVELOPE & FIRE ZONE LOWER GROUND LEVEL - BUILDING A	13/12/21
A2.28	THERMAL ENVELOPE & FIRE ZONE GROUND LEVEL - BUILDING A	13/12/21
A2.29	ELEVATIONS - BUILDING A	13/12/21
A2.30	ELEVATIONS - BUILDING A	13/12/21
A2.31	ELEVATIONS - BUILDING A	13/12/21
A3.01	SECTION - BUILDING A	13/12/21
A3.02	SECTION - BUILDING A	13/12/21
A3.03	SECTION - BUILDING A	13/12/21
A3.04	SECTION - BUILDING A	13/12/21
A3.05	SECTION - BUILDING A	13/12/21
A3.06	SECTION - BUILDING A	13/12/21
A3.07	SECTION - BUILDING A	13/12/21
A3.08	SECTION - BUILDING A	13/12/21
A3.09	FACADE DETAILS	13/12/21
A3.10	FACADE DETAILS	13/12/21
B2.02	LOWER GROUND REFERENCE PLAN -BUILDING B	13/12/21
B2.03	GROUND LEVEL REFERENCE PLAN -BUILDING B	13/12/21
B2.04	ELEVATIONS REFERENCE - BUILDING B	13/12/21
B2.11	LOWER GROUND LEVEL FLOOR PLAN - BUILDING B(1)	13/12/21
B2.12	LOWER GROUND LEVEL FLOOR PLAN - BUILDING B(2)	13/12/21
B2.13	GROUND LEVEL FLOOR PLAN -BUILDING B(1)	13/12/21
B2.14	GROUND LEVEL FLOOR PLAN -BUILDING B(2)	13/12/21
B2.15	ROOF PLAN - BUILDING B(1)	13/12/21
B2.16	ROOF PLAN - BUILDING B(2)	13/12/21
B2.17	LOWER GROUND LEVEL RCP -BUILDING B(1)	13/12/21
B2.18	LOWER GROUND LEVEL RCP -BUILDING B(2)	13/12/21
B2.19	GROUND LEVEL RCP - BUILDING B(1)	13/12/21
B2.20	GROUND LEVEL RCP - BUILDING B(2)	13/12/21
B2.27	THERMAL ENVELOPE & FIRE ZONE LOWER GROUND LEVEL - BUILDING B	13/12/21
B2.28	THERMAL ENVELOPE & FIRE ZONE GROUND LEVEL - BUILDING B	13/12/21
B2.29	ELEVATIONS - BUILDING B	13/12/21
B2.30	ELEVATIONS - BUILDING B	13/12/21
B2.31	ELEVATIONS - BUILDING B	13/12/21
B3.01	SECTIONS - BUILDING B	13/12/21
B3.02	SECTIONS - BUILDING B	13/12/21
B3.03	SECTIONS - BUILDING B	13/12/21
B3.04	SECTIONS - BUILDING B	13/12/21
B3.05	SECTIONS - BUILDING B	13/12/21
B3.06	SECTIONS - BUILDING B	13/12/21
B3.07	SECTIONS - BUILDING B	13/12/21
B3.08	FACADE DETAILS	13/12/21
B3.09	FACADE DETAILS	13/12/21
B3.10	FACADE DETAILS	13/12/21

4.0 Performance Solutions

4.1 Fire safety performance solutions and performance-based assessment

Where compliance with the deemed to satisfy provisions is not readily achievable, performance-based assessment and performance solutions will need to be used to demonstrate compliance with the Building Code of Australia. These will be identified in general terms in the future assessment of design and will be informed by fire engineering.

The use of performance solutions comes about due to the generic and prescriptive nature of the Building Code of Australia with respect to the deemed to satisfy provisions and the inability for the document to be ultimately flexible for all building types and applications. This is the main reason the Building Code of Australia allows performance solutions, where meeting the performance requirements of the code, are deemed to also be compliant with the Building Code of Australia.

The following are the current performance solutions that have been for the **Centre of Excellence Building.**

NO.	DESCRIPTION OF PERFORMANCE SOLUTIONS	DEEMED TO SATISFY PROVISION
1.	Class 6 (Retail) FRLs to be rationalised from FRL 180/180/180 to FRL 120/120/120 at the Upper Level of the Centre of Excellence building.	Clause C2.8 and Specification C1.1
2.	To permit the use of wall wetting sprinklers on the glazed constructions as part of the fire wall between different fire compartments at the Lower and Upper levels of the COE building	Clause C2.7
3.	The following extended travel distances are observed at the Lower and Upper levels of the COE building: • Travel distance from the amenities on the ground level of the COE is approx. 52m to the nearest exit	Clauses D1.4 and D1.5

The following are the current performance solutions that have been for the **Community Sports Hub building.**

NO.	DESCRIPTION OF PERFORMANCE SOLUTIONS	DEEMED TO SATISFY PROVISION
1.	Class 6 (Retail) FRLs to be rationalised from FRL 180/180/180 to FRL 120/120/120 at the Upper Level of Community Sports Hub facility.	Clause C2.8 and Specification C1.1
~~2.~~	~~To fire separate the Class 7b rooms or permit a reduction of FRL of Class 7b component off the Community Facilities building~~	~~Clause C2.8 and Specification C1.1~~
3.	The following extended travel distances are observed at the Lower and Upper levels of the Sports Hub building: • The travel distance between alternative exits is 65m in lieu of 60m when measured clear of the roof line from Change 1.	Clauses D1.4 and D1.5

4.2 Non-Fire Safety Performance Solutions

Areas outside fire that may have variances from the Deemed-to-Satisfy (DtS) provisions and hence addressable by performance solutions that may also need to be considered are as follows:

BCA CLAUSE	PERFORMANCE REQUIREMENT	VARIANCE FROM DtS PROVISIONS	STATUS
N/A	BCA FP4.1	Weatherproofing of external walls and façade	Performance solution to be provided for the wall construction and waterproofing to ensure compliance. Assessment by the architects and designers required to validate that the walls will meet the performance requirements. Compliance readily achievable and detailed during the next phase of design.
BCA F2.4	FP2.1	An accessible WC is required at not less than 50% of banks for each storey.	Access Consultant has requested a Performance Solution be developed to address non-provision of an accessible WC at changeroom to the Change 1a and Change 2 banks of toilets adjacent the aquatic rehabilitation room.
BCA F2.2	FP2.1	Sanitary facilities are required to be provided on the basis of equal numbers of males and females	A performance will be required to permit an unequal gender distribution of 30 females and 40 males to Change 1 and Change 2 banks of toilets with no urinals.
Others may be required in due course as the design develops.			

BCA 2019 Amendment 1 Classifications and general definitions

According to the Building Code of Australia the following definitions assist in the classification of the building and the various other applicable requirements to the building complex.

4.3 Definitions – Class

2.2.1 Def – A3.1 Principles of classification

The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used.

2.2.2 Def – A3.2 Classifications

The different parts of the building are classified as follows as they relate to the complex:

***A Class 5 building** is an office building used for professional or commercial purposes.*

***A Class 6 building** is a shop or other building used for the sale of goods by retail or the supply of services direct to the public, including—*

(1) an eating room, café, restaurant, milk or soft-drink bar; or

(2) a dining room, bar area that is not an assembly building, shop or kiosk part of a hotel or motel; or

(3) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or

(4) a market or sale room, showroom, or service station.

***A Class 7 building** is a storage-type building that includes one or more of the following sub-classifications:*

(1) Class 7a — a carpark.

(2) Class 7b — a building that is used for storage, or display of goods or produce for sale by wholesale.

***Class 9:** a building of a public nature—*

(1) ……

(2)Class 9b — an assembly building, including a trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another Class;

4.4 Definitions – type of construction

The following definitions apply to assessment of the building with respect to type of construction:

Assembly building *– means a building where people may assemble for –*

(a) *Civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or*

(b) *Educational purposes in a school, early childhood centre, preschool, or the like; or*

(c) *Entertainment, recreational or sporting purposes including –*

i. *A discotheque, nightclub or a bar area of a hotel or motel providing live entertainment or containing a dance floor; or*

ii. *A cinema; or*

iii. *A sports stadium, sporting or other club; or*

(d) *Transit purposes including a bus station, railway station, airport or ferry terminal.*

The buildings Parramatta Eels to confirm in writing that the buildings would not be used for these purposes. This comes about due to the additional compliance requirements where a venue is considered as an Entertainment Venue under the Environmental Planning and Assessment Regulation 2000; '***entertainment venue*** means a building used as a cinema, theatre or concert hall or an indoor sports stadium.'

Note: Based on an assessment of the current design the venue is not deemed an *indoor* sports stadium as the stadium proposed is external to the building. Where the design is amended a reassessment will be required.

Effective height *– the vertical distance between the floor of the lowest storey included in the calculation of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).*

Rise in storeys *– the greatest number of storeys calculated in accordance with C1.2.*

C1.2 Calculation of rise in storeys

(a) The rise in storeys is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space—

(i) above the finished ground next to that part; or

(ii) if part of the external wall is on the boundary of the allotment, above the natural ground level at the relevant part of the boundary.

(b) A storey is not counted if—

(i) it is situated at the top of the building and contains only heating, ventilating or lift equipment, water tanks, or similar service units or equipment; or

(ii) it is situated partly below the finished ground and the underside of the ceiling is not more than 1 m above the average finished level of the ground at the external wall, or if the external wall is more than 12 m long, the average for the 12 m part where the ground is lowest.

4.5 Definitions – Non Combustibility – External Walls and Ancillary Elements

The following are the applicable clauses on façade / external wall construction as it relates to the application of non combustible materials and construction. It is imperative that the designers in all disciplines are across these requirements as they will impact most services and construction elements to the building. **Architect to provide details of the following prior to the issue of a construction certificate**.

C1.9 Non-combustible building elements

(a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:

(i) External walls and common walls, including all components incorporated in them including the BCA 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.

(b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in—

(i) a building required to be of Type A construction; and

(ii) a building required to be of Type B construction, subject to C2.10, in—

(A) a Class 2, 3 or 9 building; and

(B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.

(c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1.

(d) The requirements of (a) and (b) do not apply to the following:

(i) Gaskets.

(ii) Caulking.

(iii) Sealants.

(iv) Termite management systems.

(v) Glass, including laminated glass.

(vi) Thermal breaks associated with glazing systems.

(vii) Damp-proof courses.

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

(i) Plasterboard.

(ii) Perforated gypsum lath with a normal paper finish.

(iii) Fibrous-plaster sheet.

(iv) Fibre-reinforced cement sheeting.

(v) 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.

(vi) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5.

(vi) Bonded laminated materials where—

(A) each lamina, including any core, is non-combustible; and

(B)each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and

(C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

C1.14 Ancillary elements

An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one 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.

(i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that—

(i) meets the requirements of Table 4 of Specification C1.10 as for an internal element; and

(ii) serves a storey—

(A) at ground level; or

(B) immediately above a storey at ground level; and

(iii) does not serve an exit, where it would render the exit unusable in a fire.

(j) A part of a security, intercom or announcement system.

(k) Wiring.

(l) A paint, lacquer or a similar finish.

(m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).

5.0 Building General Characteristics

5.1 Class and Type of Construction of Building Portions

The existing building will be mixed use and include the following classifications. This applies across all of the building zone.

Building Use Matrix – Centre of Excellence

Building Use Matrix							
Storey	**General Use**	**BCA Class**	**General DtS FRLs**	**Floor Area (approx.)**	**Included in RiS**	**RL's**	**Type of construction**
COE – **Lower Level**	Gymnasium, medical and rehabilitation facilities, aquatic recovery and rehabilitation pools, lecture theatre and, player education offices and meeting and study areas, as well as change rooms and amenities for players.	5, 9b	120mins	**2900** m^2	**Y**	**63.6m**	Type B
COE – **Upper Level**	Administration offices, meeting rooms and social areas for the Parramatta Eels including amenities and ancillary plant areas.	5, 9b	120mins	**2200** m^2	**Y**	**67.6m**	
	Retail Store and Café	6	180mins				

Note: The Centre of Excellence building has a rise in storeys of 2 and will be documented so that it will comply with the requirements of Type B Construction (due to internal fire walls to reduce compartment sizes).

Building Use Matrix – Community Sports Hub

Building Use Matrix							
Storey	**General Use**	**BCA Class**	**General DtS FRLs**	**Floor Area (approx.)**	**Included in RiS**	**RL's**	**Type of construction**
Sports Hub – **Lower Level**	Player and referee change rooms and amenities for community sport, medical/first aid room.	9b	120mins	**1080** m^2	**Y**	**63.6m**	Type B
	Storage	7b	240mins				
Sports Hub – **Upper Level**	Spectator grandstand, community gymnasium, multipurpose function room with kitchen and amenities	9b	120mins	**1200** m^2	**Y**	**67.6m**	
	Café / Kiosk and Retail Tenancy	6	180mins				

Note: The Sports Hub building has a rise in storeys of 2 and will be documented so that it will comply with the requirements of Type B Construction.

6.0 Structure

The structural components of the building must comply with the applicable Australian Standards. The structural engineering components have not been part of this assessment. Whilst the building is to be essentially constructed of concrete and steel, the buildings structure is to be assessed against current Australian Standards.

All new works are to comply with BCA 2019 Amendment 1 where the structural engineers will need to ensure the structural requirements of BCA Clauses B1.1, B1.2, and B1.4 are considered in the buildings assessment design stage (including the importance level of the building). This will mean assessment according to all relevant parts of Section B of the Building Code of Australia and provision of detailed plans and design certification prior to the issue of a Construction Certificate.

Under Part B1 of the Building Code of Australia (BCA), a building or structure must be designed to withstand earthquake loads in accordance with AS1170.4-2007, as appropriate. Whilst earthquake loads have obvious implications to the structural design of a building or structure and any alterations to structural elements within an existing building or structure, it is important to note that within AS1170.4-2007, there is also an obligation for certain non-structural parts, components and their connections to be designed & constructed to withstand earthquake loads. All designers need to be aware of this.

Compliance should be benchmarked against, but not limited to, the following as appropriate:

B1.2 Determination of individual actions

The magnitude of individual actions must be determined in accordance with the following:

(a) Permanent actions:

(i) the design or known dimensions of the building or structure; and

(ii) the unit weight of the construction; and

(iii) AS/NZS 1170.1.

(b) Imposed actions:

(i) the known loads that will be imposed during the occupation or use of the building or structure; and

(ii) construction activity actions; and

(iii) AS/NZS 1170.1.

(c) Wind, snow and ice and earthquake actions:

(i) the applicable annual probability of design event for safety, determined by—

(A) assigning the building or structure an Importance Level in accordance with Table B1.2a; and

(B) determining the corresponding annual probability of exceedance in accordance with Table B1.2b; and

(ii) AS/NZS 1170.2; and

(iii) AS/NZS 1170.3 and AS 1170.4 as appropriate; and

(iv) in cyclonic areas, metal roof cladding, its connections and immediate supporting members must comply with Specification B1.2; and

(v) for the purposes of (iv), cyclonic areas are those determined as being located in wind regions C and D in accordance with AS/NZS 1170.2.

(d) Actions not covered in (a), (b) and (c) above:

(i) the nature of the action; and

(ii) the nature of the building or structure; and

(iii) the Importance Level of the building or structure determined in accordance with Table B1.2a; and

(iv) AS/NZS 1170.1.

The importance level of the building is to be determined by the structural engineer in accordance with Table B1.2a of the BCA. Input and written verification will be required from all relevant stakeholders.

B1.4 Determination of structural resistance of materials and forms of construction;

The structural resistance of materials and forms of construction must be determined in accordance with the following, as appropriate:

- Masonry (including masonry-veneer, unreinforced masonry and reinforced masonry): AS 3700.
- Concrete construction (including reinforced and prestressed concrete): AS 3600.
- Autoclaved aerated concrete: AS 5146.1.
- Post-installed and cast-in fastenings: AS 5216.
- Steel construction: Steel structures: AS 4100.
- Cold-formed steel structures: AS/NZS 4600.
- Composite steel and concrete: AS/NZS 2327.
- Aluminium construction: AS/NZS 1664.1 or AS/NZS 1664.2.
- Timber construction: Design of timber structures: AS 1720.1.
- Piling: AS 2159.
- Glazed assemblies: AS 2047 and AS1288
- Termite Risk Management: Where a primary building element is subject to attack by termites: AS3660.1
- Terracotta, fibre-cement and timber slates and shingles: AS 4597.
- Roof tiling: AS 2050.
- Cellulose cement corrugated sheets: AS/NZS 2908.1 with safety mesh installed in accordance with AS/NZS.
- Metal roofing: AS 1562.1.
- Particleboard structural flooring: AS 1860.2.

7.0 Fire Resistance

7.1 Building Element Fire Ratings

All work to the building will require that it is built to current BCA 2019 Amendment 1 requirements. The building will need to be constructed in Type B construction. Where compliance to the relevant BCA classification requirements is not met, a fire engineered performance solution is required to justify the deviation from the deemed to satisfy provisions of the BCA. Structural Engineer to certify compliance to BCA and fire engineering requirements prior to the issue of a Construction Certificate. Any structural beam/battens that require protection must a adopt a tested system or be included in the Fire Engineering Report.

7.1.1 Building Code of Australia Table 4 Requirements Type B Construction

The fundamental concept of fire rating for the building works will be as per the following table from Specification C1.1 of the BCA and applies to the different classifications as applicable below.

Building element	**Class of building—FRL: (in minutes)**	
	Structural adequacy*/*Integrity*/*Insulation	
	5, 7a or 9	**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 *loadbearing* parts—		
less than 1.5 m	120/120/120	240/240/240
1.5 to less than 3 m	120/ 90/ 60	240/180/120
3 to less than 9 m	120/ 30/ 30	240/90/60
9 to less than 18 m	120/ 30/–	240/60/--
18 m or more	–/–/–	--/--/--
For non-*loadbearing* parts—		
less than 1.5 m	–/120/120	--/240/240
1.5 to less than 3 m	–/ 90/ 60	--180/120
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—		
For *loadbearing* columns—		
less than 18 m	120/–/–	240/--/--
18 m or more	–/–/–	--/--/--
For non-*loadbearing* columns—		
For non-*loadbearing* columns—	–/–/–	
COMMON WALLS and FIRE WALLS—	120/120/120	240/240/240
INTERNAL WALLS—		
Fire-resisting lift and stair *shafts*—		

Loadbearing	120/120/120	240/120/120
Fire-resisting stair *shafts*—		
Non-*loadbearing*	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—		
Loadbearing	120/–/–	240/–/–
Non-*loadbearing*	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—		
Loadbearing	120/–/–	240/–/–
Non-*loadbearing*	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	120/–/–	240/–/–
ROOFS	–/–/–	–/–/–

Note: Any internal wall which is required to have an FRL with respect to integrity and insulation, except a wall that bounds a sole-occupancy unit in the topmost (or only) storey and there is only one unit in that storey, must extend to –

(i) The underside of the floor next above if that floor has an FRL of at least 30/30/30; or

(ii) The underside of a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or

(iii) The underside of the roof covering if it is non-combustible and, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or

(iv) 450 mm above the roof covering if it is combustible

7.1.2 General Floor Area and Volume Limitations

The fire compartmentation for the building has been assessed on the following basis for the Centre of Excellence building and Sports Hub building as Type B Construction. A fire wall has been constructed to reduce the overall compartment size of the Class 6 part of the building and a performance solution developed to rationalise the higher 180/180/180 FRL required for Class 6 down to 120/120/120 FRL.

We note that the Class 7b compartment noted in the Community Sport Hub exceeds ten percent of the floor area and may require fire separation from the Class 9b areas of the building. Separation of classifications in different stories is to be further detailed in subsequent design stages and once a fire engineered performance solution has been developed.

Fire walls are to be constructed in accordance with BCA C2.7(c) i.e. the connection of the fire wall to the underside of the roof covering due to the proposed roof structural batten

Design to be developed at dovetailed documentation stage and confirmation provided that volume does not exceed the values identified below.

Structural engineer to verify compliance of the buildings reinforced concrete and steel superstructure with respect to fire resistance levels.

Maximum Fire Compartment Sizes & Relevant FRL's – Centre of Excellence

BCA Class	Max Compartment Size	FRL	Max Volume	Comments
5, 9b	5,500m²	120/120/120	33,000m³	Compliance is readily achievable - current plans indicate three fire compartments. A fire wall has been incorporated in the design to reduce the size of the Class 6 component of the building.
6	3,500m²	180/180/180	21,000m³	
6	3,500m²	180/180/180	21,000m³	

Maximum Fire Compartment Sizes & Relevant FRL's – Sports Hub

BCA Class	Max Compartment Size	FRL	Max Volume	Comments
7b, 9b	5,500m²	120/120/120	33,000m³	Compliance is readily achievable compliance options include either a reduction in FRLS or fire separation of the Class 7b use from Class 9b areas. Design to be further detailed in subsequent design stages.
	3,500m²		21,000m3	
6	3,500m²	180/180/180	21,000m³	Compliance is readily achievable

A performance solution according to fire engineering is to be provided where compliance with the deemed to satisfy provisions of the BCA is not possible in terms of meeting the fire compartmentation parameters of C2.5 of the Building Code of Australia 2019 Amendment 1. This will be considered as the design progresses and will be finalised as part of the Pre-Construction Certificate submission phase when an FEBQ has been drafted and provided for assessment.

7.1.3 General Fire Rating And Separation of Equipment

Plant rooms and the like areas containing essential services will also need to be kept separated from the remainder of the building by construction with a minimum fire resistance level of 120/120/120. **FRL's to be noted on the drawings to plant rooms in both buildings (walls, floor and ceiling as required).**

This applies to the following

- lift motors and lift control panels, except that the separating construction between the lift shaft
- and the lift motor room need only be 120/–/–; or
- emergency generators or central smoke control plant; or
- boilers; or
- batteries (installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more); or
- main switchboard located within the building which sustains emergency equipment operating in the emergency mode

According to the local Energy Supply Authority, requirements for separation between the substation and the remainder of the building in some instances, may require a minimum fire resistance level of 180/180/180. This is to be verified by the electrical engineering team should the substation be necessary.

The 120/120/120 separation proposed to the services and equipment on the Ground level of the COE are to be assessed by the services engineers to validate the fire rated protection. As the design develops, a door schedule and fire compartment details are to be provided to nominate compliance.

Enclosures under stairs will require the enclosing walls and ceilings to have an FRL or 60/60/60 with the access to the space fitted with a --/60/30 fire door. Details to be provided for walls/floors/ceiling to identify the required FRL's on drawings.

7.2 External Wall Fire Resistance Levels and Protection of Openings

7.2.1 External Wall Fire Resistance Levels

As both buildings are of Type B construction, loadbearing external walls and associated columns within the external walls are required to be fire rated up to a distance of 18m from a fire source feature i.e. boundaries, adjacent buildings.

Fire source features in relation to the proposed development are not within 18m of the building. Architect and structural engineer to review and confirm compliance.

7.2.2 Openings to the Facade and Between Fire Compartments

The facade of the building is required to be reviewed for exposure to any fire source features and also between buildings and the different fire compartment openings as required by C3.2 and C3.3 of the BCA.

The building is set back from all boundaries by more than 3m; and protection of openings is N/A to the external perimeter of the fuel station due to their being no external walls.

7.2.3 Other areas that will require protection

In general terms the following will also need protection from the spread of fire and smoke in the building and will need to be considered in the next stages of design.

- Doorways in fire walls
- Openings in fire-isolated exits
- Service penetrations in fire-isolated exits
- Openings in fire-isolated lift shafts
- Openings in floors and ceilings for services
- Openings in shafts
- Openings for service installations
- Construction joints

8.0 Access and Egress

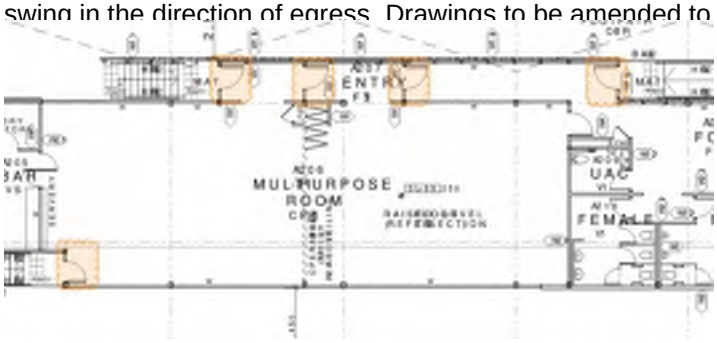
8.1 General parameters

The buildings' egress system will need to be generally designed using the following principles:

- Every storey to the building has at least two exits.
- Every fire compartment has at least two exits.
- In **Class 5 – 9 building,** no point on a floor must be more than 20 metres from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 metres.
- The **distance between alternate exits** is not to **exceed 60 metres for all other class 2 – 9 areas** nor be closer than **9 metres.**
- The distance of travel to an exit in a Class 9b open spectator stand building must not be more than 60m.
- **Widths of exits** and corridors will be **sufficient to allow egress for the population** occupying the building off the floors and out from each fire compartment as applicable. Including all paths of travel to be not less than 1000mm of clear egress width.
- **Access for disabled persons** will need to meet the requirements of D3 and AS1428.1-2009
- All **stairs connecting more than 2 levels will need to be fire isolated**.
- The construction of all exits including stairs and ramps are to be in accordance with Parts D2 and D3 of the BCA, with respect to treads, risers**,** landings, handrails and balustrades, nosings, tactile tiles, handrail extensions etc. Details to be provided for the tiered seating to social area including compliance to BCA H1.4 and H1.7. Stair to comply or a performance solution to be developed.
- Non-fire-isolated stairways to discharge not more than 20m to a door providing egress to a road or open space to meet the requirements of BCA D1.9. **Stair 1 and Stair 2 in the Centre of Excellence building exceed 20m. Drawings to be amended to achieve compliance.**
- The population of the two buildings will need to confirmed by the project architect/client. This has currently been estimated based on the amount of persons catered for by the sanitary facilities nominated on the drawings and consideration of BCA D1.13. The population therefore has been restricted to sustaining the populations required for the standalone buildings and exclude playing fields have not been factored into the design. **Architect and Client to confirm final population figures for the centre to allow for a detailed aggregate egress width and sanitary facilities check. The open spectator stands notes a population of 1504 spectator, this requires an aggregate egress width of not less than 13000mm.**

- BCA Clause D2.19 does not permit certain types of doors such as revolving or tilt up doors to be used as a required exit. Details to include if the door can be opened by a force less than 110N.
- Paths of travel to road must have an unobstructed width of the minimum required exit and not less than 1m – details to be identified in subsequent design stages.

- Multiple non-compliances were noted with door swings – all doors forming part of a required exit must swing in the direction of egress. Drawings to be amended to identify compliance



- Each tier in an open spectator stand must have not less than 2 stairways or ramps, each forming part of the path of travel to not less than 2 exits.
- Doors will need to identify compliance with BCA NSW D2.21. The tilt-up bifold doors identified to the balcony adjacent community gym will required to be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public, so the door can yield to pressure. **Details are to be provided for the top hung Bifold doors nominated on the drawings.**

- Compliance to BCA D2.21 will be required for all doors serving as a required exit of in the path of travel to a required exit generally. Please note that where more than100 persons are accommodated within the Class 9b areas of the building this will require the installation of panic bars in accordance with BCA NSW D2.21 below:

NSW D2.21 Operation of latch

(c) The requirements of (a) do not apply in a Class 9b building (other than a *school*, an *early childhood centre* or a building used for religious purposes) to a door in a *required exit*, forming part of a *required exit* or in the path of travel to a *required exit* serving a *storey* or room accommodating more than 100 persons, determined in accordance with D1.13, in which case it must be readily openable—

(i) without a key from the side that faces a person seeking egress; and

(ii) by a single hand pushing action on a single device such as a panic bar located between 900 mm and 1.2 m from the floor; and

(iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf; and

(iv) where the door is a door in a path of travel providing re-entry to the building from a balcony, terrace or the like, it may be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public, so the door can yield to pressure.

(d) The requirements of (a) and (c) do not apply to a door serving a Class 9b building used as an *entertainment venue* where the following provisions apply to a door or gate used by the public—

(i) on a door, the single device operating the latch or bolts must be a panic bar if those doors are to be secured; or

(ii) an *exit* door or gate used by the public as the main entrance may be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public so the door or gate can yield to pressure from within; or

(iii) a door from a balcony, terrace or the like, being a door in a path of travel providing re-entry to the building, may comply with the locking provision of (ii) above.

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The following issues will need assessment according to fire engineering and a performance solution sought for its justification – refer to attached mark-ups for further information

- Travel distance from the Gymnasium on the lower ground level of the COE is approx. 50m to the nearest exit when measured beyond the roof line
- Travel distance from the amenities on the ground level of the COE is approx. 60m to the nearest exit.

- The travel distance between alternative exits is 65m in lieu of 60m when measured clear of the roof line when egressing from Change 1.

Architect to note and amend plans to comply as follows:

- *A swinging door in a required exit or forming part of a required exit—*

  (a) must not encroach—

  (i) at any part of its swing by more than 500 mm on the required width (including any landings) of a required—

  (A) stairway; or

  (B) ramp; or

  (C) passageway,

  if it is likely to impede the path of travel of the people already using the exit; and

  (ii) when fully open, by more than 100 mm on the required width of the required exit, and

  the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door

  Design to be developed and detailed adequately in subsequent stages.

- Non-fire isolated stairs and ramps must be constructed in accordance with BCA Clause D2.2 or only of the following:

  a) Reinforced or prestressed concrete; or

  b) Steel in no part less than 6mm thick; or

  c) Timber that –

  i. Has a finished thickness of not less than 44mm; and

  ii. Has an average density of not less than 800kg/m3 at a moisture content of 12%; and

  iii. Has not been joined by means of glue unless it has been laminated and glued glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.

Architect and structural engineers to provide design certification prior to the issue of the relevant Construction Certificate.

8.2 Building Population Generally

The requirements of the Building Code of Australia are such that in general terms each floor needs to have adequate exits for the occupants. This is based on the level at which the storey is located and hence reflects the number of provided exits from each of those levels.

8.3 Access for Persons with Disabilities

Refer to Accessibility report for further information.

9.0 Service and Equipment

9.1 General fire equipment requirements

The following is a commentary on the services that will be required to the building, as per BCA Part E.

Fire Hydrants	Fire hydrants, pump room and boosters must be provided throughout to AS 2419.1-2005. We understand the fire hydrant system will include a new fire hydrant booster assembly adjacent Kennedy Avenue and Stone Mason drive. Fire Services drawings to be provided to identify compliance to BCA E1.3 and AS2419.1. Final locations of fire hydrants to be provided for assessment to allow for a coverage check.
Fire Hose-Reels	Fire hose-reels should be arranged to provide for full coverage to the buildings in accordance with AS 2441-2005. Fire hose-reels are to be located within 4 metres of an exit or adjacent to an internal fire hydrant.
Sprinklers	N/A based on current design
Portable Fire Extinguishers	Portable fire extinguishers are to be provided in accordance with BCA Table E1.6 and AS2444. General provisions—Class 2 to 9 buildings: 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 including that held in fuel tanks of vehicles). d) To cover Class A fire risks in normally occupied fire compartments less than 500 m^2 not provided with fire hose reels (excluding open deck carparks). e) To cover Class A fire risks associated with a Class 2, 3 or 5 building or Class 4 part of a building Specific provisions (in addition to general provisions) – a) Class 9a health-care building, including a Class 9a building used as a residential care building

9.2 Smoke hazard management

The smoke hazard management requirements are defined in the Building Code of Australia for the building and based on the component, the building use and effective height.

The following criteria apply to the buildings: -

General provisions

Buildings less than 25 metres in effective height	**Requirements**
Class 5, 6, 7b,8 or 9b buildings	
(a) Each *fire compartment*, other than one in a building described in (b), having a *floor area* of more than 2000 m^2 must be provided with— (i) an *automatic* smoke exhaust system complying with Specification E2.2b; or (ii) *automatic smoke-and-heat vents* complying with Specification E2.2c, if the building is single *storey*; or (iii) if the *floor area* of the *fire compartment* is not more than 5000 m^2 and the building has a *rise in storeys* of not more than 2— (A) an *automatic* smoke detection and alarm system complying with Specification E2.2a; or (B) a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5.	We understand that a smoke detection and alarm system is proposed for the building complying with AS1670.1-2018.

NSW Specific Provisions	Requirements
NSW Table E2.2b Specific provisions **Class 6 buildings - in fire compartments more than 2000 m²** The provisions of NCC Volume One Table E2.2b for Class 6 buildings are applicable in NSW. Class 9b buildings **Class 9b - Assembly buildings** The following provisions apply to all Class 9b assembly buildings: (a) **Automatic shutdown:** A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of— (i) smoke detectors installed complying with Clause 6 of Specification E2.2a; and (ii) any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5.	Automatic shutdown will be required upon the activation of smoke detectors installed complying with **Clause 6 of Specification E2.2a**

All smoke hazard management will need to comply with E2.2 (a) to (d) for the protection of ductwork through the fire and smoke walls to the building i.e. Fire and smoke dampers are required where the ducts pass through fire and smoke walls.

Whilst compliance is readily achievable, any variations from the above will need to be assessed and justified using fire engineering where possible and will be reviewed as part of design development phase.

9.3 Lift systems

The lift services designer will need to review and include the requirements from BCA Part E3, clauses E3.1 to E3.10 including BUT not limited to the following : –

Stretcher facility in lifts	Currently proposed as part of the design. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000 mm long x 1400 mm high above the floor level.
Accessible lifts	Required to the building in accordance with the Australian Standards and this includes BCA E3.6 and Tables E3.6a and E3.6b. E3.5 and E3.6 and address compliance to any Disability Discrimination Act (DDA) requirements.

9.4 Emergency Lighting, Exit Signs and Warning Systems

Exit Signage and Emergency Lighting	A system of emergency lights and exit signage will be installed in the building to AS2293.1-2018.

10.0 Health and Amenity

10.1 Weatherproofing

The buildings where housing occupants will need the construction of the external walls to be weatherproof and as there is no deemed to satisfy provisions that are available, will need a performance solution for the external cladding and wall system with respect to performance requirement FP1.4.

10.2 Sanitary facilities

The following criteria detail the required sanitary facilities to be provided to the building based on staff populations.

User Group	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number
Class 3, 5, 6 and 9 other than *schools*						
Male employees	1 — 20 > 20	1 Add 1 per 20	1 — 10 11 — 25 26 —50 >50	0 1 2 Add 1 per 50	1 — 30 > 30	1 Add 1 per 30
Female employees	1 — 15 > 15	1 Add 1 per 15	N/A	N/A	1 — 30 > 30	1 Add 1 per 30

HB Arch to advise the maximum population on the floor. The following populations are catered for based on the amenities provided to the following areas:

Centre of Excellence – Lower Ground Floor Level

Football Department – The sanitary facilities located on the lower ground floor adjacent to the football department cater for up to 50 persons as per the table below.

Class 3, 5, 6 and 9 other than schools	Pans	Urinals	Washbasins
Male employees	2	1	3
Allowable Population	**40**	**25**	**90**
Female employees	3		3
Allowable Population	**45**	**-**	**90**

Gymnasium – The sanitary facilities located on the lower ground floor cater for up to 60 persons as per the tables below. Following discussions with the Architect it has been understood that an inequal gender distribution is required of 30 females and 40 males contrary to BCA Clause F2.2. **A performance will be required to permit an unequal gender distribution of 30 females and 40 males to Change 1 and Change 2 banks of toilets with no urinals.**

Class 9b - sports venues or the like	Pans	Urinals	Washbasins
Male participants	2	5	4
Allowable Population	**40**	**50**	**40**
Female participants	3	-	4
Allowable Population	**30**	**-**	**40**

Centre of Excellence – Ground Floor Level

Open Work Social Area – The sanitary facilities located on the ground floor level cater for a maximum population of 100 persons.

Class 3, 5, 6 and 9 other than schools	Pans	Urinals	Washbasins
Male employees	3	2	3
Allowable Population	**60**	**50**	**90**
Female employees	5		3
Allowable Population	**75**	**-**	**90**

Staff – The staff of the retail, café and kitchen areas of the Centre of Excellence lobby are envisaged to be not more than 10 persons, the unisex accessible facility will be utilised. Design to be developed at dovetailed documentation stage and confirmation provided that not more than10 persons are employed.

Café / Retail patrons - based on the assumption that the café has a seating population of less than 20 compliance is readily achievable. However where the patron population exceeds 20 persons, additional sanitary facilities will be required. **Design to be developed at dovetailed documentation stage and confirmation provided that the total number of patrons accommodated for the café is less than 20 or identify additional amenities to cater for the shortfall in sanitary compartments.** Note: Sanitary facilities need not be provided for patrons if the total number of persons accommodated is not more than 20.

Community Sports Hub – Lower Ground Floor Level

Community Gym – The sanitary facilities located on the lower ground floor in both Change 1 and Change 2 have been allocated towards to the Community Gym. As per the table below this equates to a total of 80 participants

Class 9b - sports venues or the like	Pans	Urinals	Washbasins
Male participants	2	4	6
Allowable Population	**40**	**40**	**60**
Female participants	6	-	6
Allowable Population	**60**	**-**	**60**

Staff – Staff population have been calculated based on an assessment of BCA D1.13 for the community gym, office and medical office areas. For the purposes of meeting the required amount of sanitary facilities REF WC/Shower area has been allocated to staff. Staff have been dedicated 2 wash basins and 2 pans from each of toilets (with one pan allocated as a urinal for males). This equates to a total allowable staff number of 50 persons as per the table below, please refer to the attached allocation of sanitary facilities markup and table below.

Class 3, 5, 6 and 9 other than schools	Pans	Urinals	Washbasins
Male employees	1	1	2
Allowable Population	**20**	**25**	**60**
Female employees	2		2
Allowable Population	**30**	**-**	**60**

Community Sports Hub – Ground Floor Level

Staff – Staff population have been calculated based on an assessment of BCA D1.13 for the café, kiosk, kitchen and bar areas as well as the multi-purpose room. For the purposes of meeting the required amount of sanitary facilities the unisex accessible toilet located adjacent to the café has been allocated to male staff while the female staff have been dedicated one wash

basin and one pan from the multi-purpose room female bank of toilets. This equates to a total allowable staff number of 20 persons as per the table below, please refer to the attached allocation of sanitary facilities markup and table below.

Class 3, 5, 6 and 9 other than schools	Pans	Urinals	Washbasins
Male employees	1	0	1
Allowable Population	**20**	**10**	**30**
Female employees	1		1
Allowable Population	**15**	**-**	**30**

Café - Based on the assumption that the café has a seating population of less than 20 compliance is readily achievable. However where the patron population exceeds 20 persons, additional sanitary facilities will be required. **Design to be developed at dovetailed documentation stage and confirmation provided that the total number of patrons accommodated for the café is less than 20 or identify additional amenities to cater for the shortall in sanitary compartments.** Note: Sanitary facilities need not be provided for patrons if the total number of persons accommodated is not more than 20.

Multi-purpose room – The architectural drawings indicate a seated population of 144 persons. Taking into account that a deduction was made for a wash basin and pan from the female bank of the multi-purpose room sanitary facilities to cater for female staff – the remaining facilities in the multi-purpose room bank of toilets can cater for a total for total of 200 persons.

Class 9b - public halls, function rooms or the like	Pans	Urinals	Washbasins
Male patrons	2	2	3
Allowable Population	**300**	**100**	**400**
Female patrons	3	-	2
Allowable Population	**100**	**-**	**150**

Spectators of Grandstand – The architectural drawings indicate a seated population of 1504 spectators of the grandstand. The sanitary facilities bank located on the western portion of the building cater for a total of 1600 spectators to the grandstand.

Class 9b - sports venues or the like	Pans	Urinals	Washbasins
Male participants	0	0	0
Allowable Population	**0**	**0**	**0**
Female participants	0	-	0
Allowable Population	**0**	**-**	**0**
Male spectators or patrons	5	8	6
Allowable Population	**2000**	**800**	**900**
Female spectators or patrons	13	-	6
Allowable Population	**820**	**-**	**800**

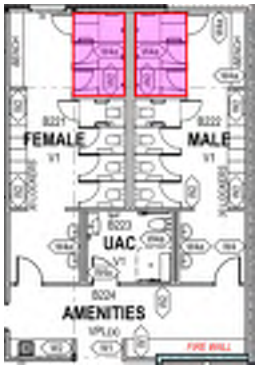
10.3 Showers – Class 9b Sporting Venues

BCA Clause F2.3(i) requires sporting venues to be provided with one shower for each 10 participants or part thereof. It has been understood that the Parramatta Eels players will utilise the Centre of Excellence building facilities while the General community and junior players will utilise the Community Sports Hub facility.

The showers proposed for the staff and participants of the **Centre of Excellence building** are as follows:

- **Ground Floor Amenities –** Male and Female – Each room is provided with 3 showers. This can cater for up to 30 participants in each room.

  60 Total participants across both gender toilets.



- **Change 1 on Lower Ground Floor –** Each change room is provided with 8 showers. This can cater for up to 80 participants in each room.

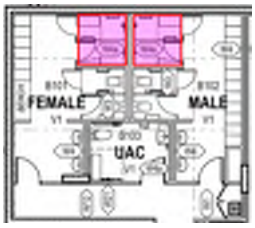
  80 Total participants for Change 1.

- **Change 2 on Lower Ground Floor –** Each change room is provided with 4 showers. This can cater for up to 40 participants in each room.

  40 Total participants across both gender toilets.

- **Amenities Lower Ground Floor –** Each room is provided with 2 showers. This can cater for up to 20 participants in each room.

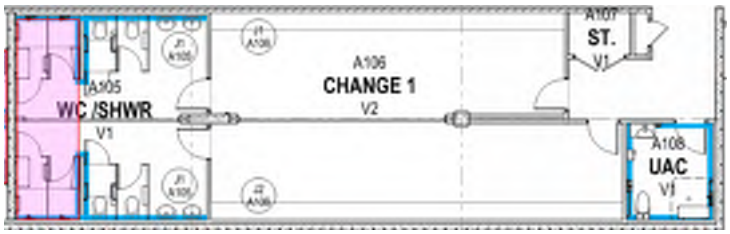
  40 Total participants across both gender toilets.



The showers proposed for the staff and participants of the **Community Sports Hub** buildings are as follows:

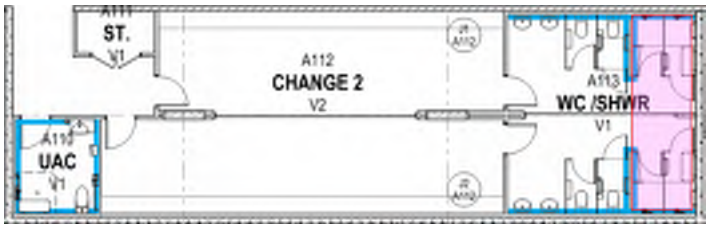
- **Change 1** – Each change room is provided with 2 showers. This can cater for up to 20 participants in each room.

  40 Total participants for Change 1.



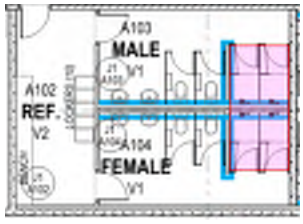
- **Change 2** - Each change room is provided with 2 showers. This can cater for up to 20 participants in each change room.

  40 Total participants for Change 2.



- **Referee Change area** - Male and Female rooms – Each change room is provided with 2 showers. This can cater for a total of 20 participants in each change room.

  40 total participants in Referee Change room.



Architect / Client to confirm the maximum population for the Centre of Excellence and Community Sports Hub Facility.

Notes:

1. Staff and students must not use the same facilities, hence separate staff facilities are required, client to confirm proposed number of staff and location of adequate sanitary facilities to cater for staff.
2. 1 of the cubicles in each of the male and female student sanitary facilities are required to be ambulant cubicles in accordance with BCA F2.4 and AS1428.1-2009 - further details required prior to issue of Construction Certificate.
3. An accessible sanitary facility can be counted once for each sex - this has not been included in the above calculation for a single side, as both sides of the change rooms may be utilised by a single sex at one time i.e. one side as Male home team and one side as male away teams. Note: the accessible facilities have NOT been counted towards each sex.

10.4 Facilities for Persons with Disabilities

The following need to be provided to the public banks of sanitary facilities all to which access for people with disabilities is required,

- minimum of one unisex closet pan and washbasin; and
- one ambulant WC within the male and female toilets.

All facilities for persons with disabilities need to comply with AS1428.1

10.5 Light and ventilation

Ventilation	Where natural ventilation in accordance with F4.6 is not provided, a mechanical ventilation or air-conditioning system complying with AS1668.2 Refer to Section 7.2 above regarding requirements for automatic shutdown (as applicable). Note: Kitchen consultant to confirm the power output of the kitchen equipment provided within the Community Sports Hub building serving the multi-purpose room. Where required the kitchen exhaust hood is to comply with AS/NZS 1668.1 and AS 1668.2. Design certification to be provided prior to the issue of a Construction Certificate.
Artificial Lighting	Where compliant natural light is not provided, artificial lighting must be provided in accordance with AS/NZS1680.0— (i) in required stairways, passageways, and ramps; and (ii) Class 3, 5, 6, 7, 8 and 9 buildings — to all rooms that are frequently occupied, all spaces required to be (iii) accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress.

10.6 Room Sizes and Heights

The ceiling minimum height of 2.4m is required to areas, except corridors, carparks, sanitary facilities and storage areas, where it may be 2.1m for areas with less than 100 persons. Areas for more than 100 persons require a minimum ceiling height of 2.7m. Compliance is readily achievable. Plant rooms need to be checked and the correct heights allowed in the design. Parts of the Class 9b building that accommodate more than 100 persons including the corridors that serve these areas. Architect to identify the heights of corridors serving the Gymnasium in the Community Sports Hub building

11.0 Special Use Buildings Provisions

11.1 Seating Area – BCA Clause H1.4 Requirements

In a seating area—

(a) the gradient of the floor surface must not be steeper than 1 in 8, or the floor must be stepped so that—

(i) a line joining the nosings of consecutive steps does not exceed an angle of 30° to the horizontal; and

(ii) the height of each step in the stepped floor is not more than 600 mm; and

(iii) the height of any opening in such a step is not more than 125 mm; and

(b) if an aisle divides the stepped floor and the difference in level between any 2 consecutive steps—

(i) exceeds 230 mm but not 400 mm — an intermediate step must be provided in the aisle; and

(ii) exceeds 400 mm — 2 equally spaced intermediate steps must be provided in the aisle; and

(iii) the going of intermediate steps must be not less than 270 mm and such as to provide as nearly as practicable equal treads throughout the length of the aisle;

(c) the clearance between rows of fixed seats used for viewing performing arts, sport or recreational activities must be not less than:

(i) 300 mm if the distance to an aisle is not more than 3.5 m; or

(ii) 500 mm if the distance to an aisle is more than 3.5 m.

11.2 Aisle lights - BCA Clause H1.7

In every enclosed Class 9b building, where in any part of the auditorium, the general lighting is dimmed or extinguished during public occupation and the floor is stepped or is inclined at a slope steeper than 1 in 12, aisle lights must be provided to illuminate the full length of the aisle and tread of each step.

12.0 Part J – Energy Efficiency

Part J1, J2 and J5 will not apply where it can be validated that the main purpose of the air-conditioning is to maintain specialised conditions for equipment or processes.

Architect and mechanical engineer to validate.

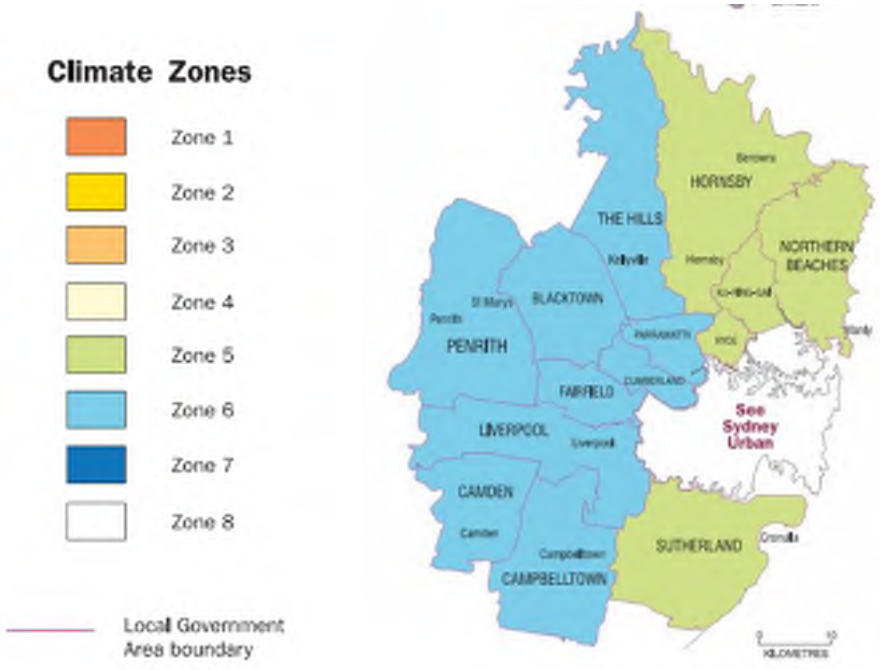
The new building must be designed in accordance with the requirement sof Part J of the BCA in terms of Energy Efficiency. The architectural drawings must note compliance with J0, J1, J2 and J3, details required prior to the issue of the Construction Certificate. Services drawings particularly the electrical, hydraulic and mechanical drawings must include compliance with Parts J5, J6, J7 and J8 of the BCA. The following components must be addressed in design.

Part J1 Building Fabric
Part J3 Building Sealing
Part J5 Air conditioning and ventilation systems
Part J6 Artificial Lighting and Power - whole building
Part J7 Hot Water Supply
Part J8 Facilities for energy monitoring.

Due to the complexities of the current Part J requirements, including the modelling requirements, a specialist report from a qualified energy efficiency consultant needs to be obtained for the design.

Note: the application of BCA Part J5 applies also to spaces provided with split systems – **Mechanical consultant to provide comment in future design phases to ensure compliance.**

The building is located in Climate Zone 6.



Relevant Definitions

***Envelope**, for the purposes of Section J, means the parts of a building's fabric that separate a conditioned space or habitable room from—*

a) the exterior of the building; or

b) a non-conditioned space including—

(i) the floor of a rooftop plant room, lift-machine room or the like; and

(ii) the floor above a carpark or warehouse; and

(iii) *the common wall with a carpark, warehouse or the like.*

***Fabric** means the basic building structural elements and components of a building including the roof, ceilings, walls and floors.*

***Conditioned space**, for the purposes of (BCA) Volume One, means a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by air-conditioning.*

Appendix A – Allocation of Sanitary Facilities Mark-Ups