



DESIGN CONFIDENCE

Bloompark Consulting

BCA Design Assessment Report

St Joseph's College
Physical Education &
Sports Precinct Project (PESPP)

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Project: St Joseph's College Physical Education & Sports Precinct Project
 Document Type: BCA Design Assessment Report
 Report Number: P217_362-2 (BCA) LS

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
P217_362-1 (BCA) LS	BCA Report prepared and issued based upon architectural drawings 06 February 2018	19 February 2018
P217_362-2 (BCA) NH	Report updated to suit updated design documentation for SSD submission	13 July 2018

EXECUTIVE SUMMARY

This BCA Design Assessment report has been prepared by Design Confidence at the request of Bloompark Consulting on behalf of St Joseph's College. With respect to the assessment undertaken the following areas in particular need further review as the project develops –

NO.	ITEMS FOR FURTHER CONSIDERATION	RESPONSIBILITY
1.	The subject new building will be located closer than 6m to the existing dormitory building, hence a level of upgrade will need to occur to this existing building. To enable us to comment on the extent of the upgrade an audit needs to be undertaken of the existing dormitory building specifically the external walls to determine whether they are loadbearing and what FRL they currently achieve. If the subject external walls are loadbearing, then the external walls are required to achieve an FRL of 90/90/90, this is to be achieved both sides of the wall. If the walls are loadbearing any existing opening located therein are to be upgraded where they are located within 6m of the new building. If the walls are non-loadbearing any existing opening located therein are to be upgraded where they are located within 3m of the new building.	Project Architect & Structural Engineer
2.	Sections and elevations are to be provided such that we can confirm that both the floor area and volume of the building is within the prescribed limits.	Project Architect
3.	Confirmation is required regarding the total volume of the building, specifically the ground floor and level 1, the maximum volume permitted is 48,000m ³	Project Architect
4.	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 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.	Project Architect
5.	To enable stair 2 to remain open on the ground floor and level 1 the flight passing through the lower ground floor is to be separated from the lower ground floor with construction achieving an FRL of not less than 90/90/90. The subject design already allows for the above to occur the walls which enclose the flight serving the upper levels just need to achieve the FRL detailed above. There can be no connection between the flight which serves the upper levels and the flight which serves the lower ground floor level.	Project Architect

NO.	ITEMS FOR FURTHER CONSIDERATION	RESPONSIBILITY
6.	Further information needs to be provided from the school pertaining to the projected number of occupants when the building functions as a sports centre.	Project Manager
7.	The subject building, specifically the ground floor and level have been considered an entertainment venue, this places additional requirements on building which the design team should be aware off.	All
8.	Further co-ordination needs to occur around the plant area / room located on the roof level, specifically the egress arrangements from this space.	All
9.	The stairway design for stairway 1 is to be designed such that if there is local failure it will not cause structural damage to, or impair the performance of the shaft it is located within.	Structural Engineer
10.	Architectural drawings are to be updated to include the following essential fire safety measures – i. Fire brigade booster assembly; ii. Location of the fire indicator panel; iii. Location of the sprinkler alarm valves; iv. Fire Hose reel enclosures / cabinets v. The location of the smoke and heat vents	Project Architect
11.	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
12.	All storerooms and the like located within the entertainment venue part, being the ground floor and level 1 are to be enclosed within construction achieving an FRL of 60/60/60.	Project Architect
13.	Additional requirements are applicable to the electrical engineer and he should make reference to BCA NSW H101.19 & NSW H101.20.	Electrical Engineer

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 below lists scenarios where we believe the adoption of a performance design may add value to development –

NO.	DESIGN EFFICIENCIES	RESPONSIBILITY
FIRE SAFETY		
1.	Protection of Openings – negate the need for any additional protective measures to both the existing and proposed openings	
2.	The fire wall and openings contained therein which separates the carpark from the levels above are to be transparent (glass) instead of the solid / masonry construction.	
3.	Stair 1 to be enclosed within construction which would restrict the passage of smoke (i.e. smoke separated) in lieu of being fire-rated and achieving an FRL of 120/120/120.	
4.	Extended travel distance occurs from the welding room within the lower ground floor level	
5.	Distance between alternative exits exceeds 60m on both the lower and ground floor	

NO.	DESIGN EFFICIENCIES	RESPONSIBILITY
6.	Look at reducing the required aggregate exit width from the ground floor.	
7.	Door swing and hardware requirements – look to permit certain doorways from the entertainment venue part to swing against the direction of egress and negate the need for panic bar hardware to be provided to every doorway.	
8.	Modification to the smoke and heat vents required to be provided above the stage area.	
	To assist with item 3 above the introduction of natural ventilation via smoke and heat vents and / or louvres within the external walls at high levels throughout the sports hall part may assist with permitted stair 1 to be transparent (glass) instead of the solid / masonry construction.	
ACCESSIBILITY		
9.	Refer to Access Design Assessment Report, as prepared by Design Confidence	
OTHER ITEMS		
10.	As the design develops Design Confidence will continue to advice on performance based design options which may be of benefit to the design team.	

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.

1.0 INTRODUCTION

1.1 General

This BCA Design Assessment report has been prepared at the request of Bloompark Consulting and relates to the new construction of a new sports court project.

This report is based upon, and limited to, the information depicted in the documentation provided for assessment, and does not make any assumptions regarding 'design intention' or the like.

1.2 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 2016.

1.3 Documentation Provided for Assessment

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

1.4 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 and F2.4 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 sports court project. The subject hall will be located within the confines of St Joseph's College Hunters Hill.

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

2.2 Building Description

Table 2 – Building Characteristics

DESCRIPTION OR REQUIREMENT		
Building Classification	Lower Ground Floor	Class 7a & 9b
	Ground Floor	9b
	Level 1	9b
Rise in Storeys	Sports Courts Project	Three (3)
Construction Type	Sports Courts Project	Type A
Effective Height	<12m (being 7.8m)	
Floor Area & Volume	Lower Ground Floor	~3,407 ²
	Ground Floor	~3,244m ²
	Level 1	~900m ²
Climate Zone:	Climate Zone 5	
Entertainment Venue:	Ground Floor	Entertainment Venue
	Level 1	Entertainment Venue

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 –

- (i) The subject building has been treated as an entertainment venue as defined by the Environmental Planning and Assessment Regulation 2000;
- (ii) The workshops and offices located within the lower ground floor are directly related to the operational of the school, hence they are an ancillary use to the principal use being a Class 9b, hence the reason they have also be treated as such;
- (iii) Stair 2 has been afforded a concession under D1.3 and is not required to be located within a fire-isolated shaft

- (iv) When being used as a banquet hall the required sanitary facilities has been based on a population of 2200 occupants (being a 50/50 split);
- (v) When being used as a sports hall the required sanitary facilities has been based on a population of (insert) occupants (being only male);
- (vi) All fixtures and fittings have been treated as not being permanently fixed;
- (vii) The subject stage has been treated as being a non-conventional stage for the purpose of Section H of the BCA;
- (viii) Flying scenery or the like is not proposed / provided above the stage
- (ix) It is understood that neither solid fuel burning stoves and open fire places will not be provided;
- (x) It is understood that fuel gas cylinders are not provided; and

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 non-compliance' 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 CLAUSE		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 CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C1.1	fire resisting construction			✓
C1.8	lightweight construction			✓
C1.10	fire hazard properties			✓
C2.2	general floor area & volume limitations		✓	
C2.6	vertical separation			✓
C2.7	separation by fire walls			
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			✓
C3.5	doorways in fire walls		✓	
C3.9	service penetrations in fire-isolated exits			✓
C3.10	openings in fire-isolated lift shafts			✓
C3.12	openings in floors and ceilings			✓
C3.13	openings in shafts			✓

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C3.15	openings for service installation		✓
C3.16	construction joints		✓
C3.17	columns protected in lightweight		✓

3.4 Section D: Access & Egress

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

3.5 Section E: Services & Equipment

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	ADDITIONAL DESIGN INPUT
E1.3	fire hydrants			✓
E1.4	fire hose reels			✓
E1.5	sprinklers			✓
E1.6	portable fire extinguishers			✓
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	sound systems and intercom systems for emergency purposes			✓

3.6 Section F: Health & Amenity

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
F1.1	storm water design			✓
F1.4	external above ground membranes			✓
F1.5	roof coverings			✓
F1.6	sarking			✓
F1.7	waterproofing of wet areas			✓
F1.9	damp-proofing			✓
F1.10	damp-proofing of floors on the ground			✓
F1.11	provision of floor wastes			✓
F1.13	glazing			✓
F2.3	sanitary facilities		✓	
F2.5	construction of sanitary compartments	✓		
F3.1	height of rooms and other spaces			✓
F4.4	artificial lighting			✓
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
G1.101	provision for cleaning windows			✓

3.8 Section H – Special Use Buildings

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
H101.2	fire separation		✓	
H101.6.1	stages		✓	
H101.8	load notices			✓
H101.11	platforms & steps			✓
H101.13	provision of guardrails			✓
H101.14	guardrails			✓
H101.16	storerooms		✓	
H101.19	electric mains installation			✓
H101.20	lighting			✓
H101.22	automatic smoke-and-vents			✓

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

Cl. 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: AS3700-2011; and
- ☐ Concrete construction: AS3600-2009; and
- ☐ Steel construction: AS4100-1998 or AS/NZS4600-2005; and
- ☐ Glazed assemblies: AS1288-2006 & AS2047-1999; and
- ☐ Metal roofing: AS1562.1-1992.

4.3 Section C – Fire Resistance

- Cl. C1.1**
- ☐ External Walls
FRL 120/60/30 (loadbearing) or --/--/-- (if non-loadbearing) if 3m or more from any fire-source feature (i.e. adjoining building on the allotment or adjoining allotment boundary).
 - ☐ External Columns
FRL 120/--/-- if loadbearing.
 - ☐ Internal Walls
 - (i) FRL 120/120/120 or FRL --/120/120 (for non-loadbearing) fire-resisting lift and stair shafts; and
 - (ii) FRL 120/90/90 or FRL --/90/90 (if non-loadbearing) for ventilating, pipe, garbage and the like shafts not used for the discharge of hot products of combustion.
 - ☐ Other loadbearing internal walls, beams, trusses and columns
FRL 120/--/--.

Cl.
C1.1
Cont'd

❑ Fire Walls

120/120/120

❑ Floors

- (i) --/--/-- when laid directly on the ground; and
- (ii) FRL 120/120/120 in all other instances.

❑ Roofs

- (i) FRL of --/--/-- is the roof covering is non-combustible

❑ General Notes

- (i) Any internal walls required to achieve an FRL are to be constructed in accordance with one of the following methods -
 - Extend to the underside of the floor next above; and
 - Extend to the underside of the roof covering.
- (ii) A non-loadbearing shaft which is not for the discharge of hot products of combustion and must be constructed from non-combustible materials; and
- (iii) A loadbearing internal wall and a loadbearing fire wall must be of concrete or masonry; and
- (iv) The external walls must be of non-combustible construction; and
- (v) The flooring and floor framing in any lift pit must be of non-combustible construction; and
- (vi) Any shaft required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft, except that this provision does not apply if -
 - The top of the shaft extends beyond the roof covering; other than one enclosing a fire-isolated stairway; or
 - The bottom of a shaft if it is non-combustible and laid directly on the ground.

❑ Additional Levels of Fire-Resistance – Entertainment Venue

As stated within Section 2.3 above, the building has been treated as an entertainment venue. Therefore, the following needs to occur –

- (i) All storerooms must be separated from the remainder of the building via construction achieving an FRL of 60/60/60

Cl. C1.8	Lightweight construction used in a wall system required to have an FRL or a lift, stairway or service shaft (refer to Spec. C1.1 above) must comply with this clause. If lightweight construction is used for the fire-resisting covering of any steel column/s (refer to BCA Spec C1.1 above), then any void must be filled solid, to a height of not less than 1.2m above the floor.
Cl. C1.10	The general materials of construction must have fire hazard properties compliant with the following – ❑ <u>Floor linings and floor coverings</u> (i) A critical radiant flux not less than 1.2kW/m²; and (ii) A critical radiant flux not less than 2.2kW/m² for any floor materials located within a fire-isolated stairway; and (iii) Group 1 or 2 for any portion of the floor covering that continues more than 150mm up a wall. ❑ <u>Wall lining and ceiling linings</u> (i) A material used as a finish, surface, lining or attachment to a wall or ceiling must be a Group 1 material in fire-isolated exits; and (ii) A material used as a finish, surface, lining or attachment to a wall or ceiling must be a Group 1 or Group 2 material in public corridors and ceilings of classrooms ; and (iii) A material used as a finish, surface, lining or attachment to a wall must be a Group 1 or Group 2 or Group 3 material in classrooms. ❑ <u>Air-handling ductwork</u> Rigid and flexible ductwork must comply with the fire hazard properties set out in AS4254-2012. ❑ <u>Lift cars</u> (i) Floor linings and floor coverings must have a critical radiant flux not less than 2.2kW/m²; and (ii) Wall and ceiling linings must be either a Group 1 or 2 materials. ❑ <u>Other materials</u> (i) Materials within the fire-isolated exits (other than sarking) are to have a smoke-developed Index not more than 2; (ii) Sarking type materials are to have a flammability index of 0 when located within a fire-isolated exit and not more than 5 in other locations; and (iii) Other materials & insulation materials are to have a spread-of-Flame index of not more than 9 and a smoke-developed index not more than 8 if the spread-of-flame is more than 5.

Cl.
Spec.
C1.10
Cont'd

□ Bench Seats

- (i) A material used to cover closed back upholstered seats are to have a spread-of-flame index more than 0 and a smoke-developed index not more than 5;
- (ii) Any material used as part of the fixed seating is to have a spread-of-flame index more than 0 and a smoke-developed index not more than 5.

Cl. C2.2

To ensure the subject building is within the maximum floor area and volume limitations prescribed within C2.2, the building is to be separated into two (2) separate / individual fire compartments.

The subject compartments are to be separated via construction achieving an FRL of not less than 120/120/120.

It is recommended that the compartmentation occur at the lower ground floor level, refer to Figure 1 below.

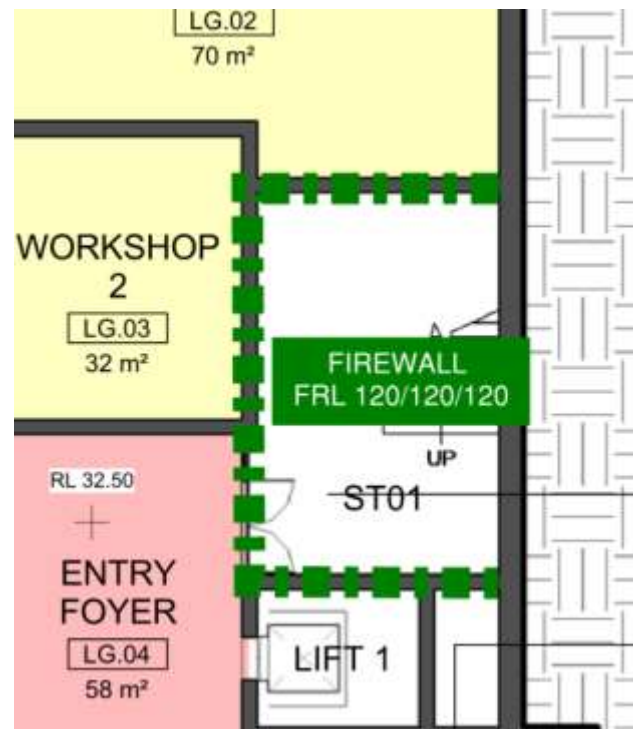


Figure 1 – Firewall location which separates the building into two separate compartments

C2.6	Windows and other openings within external walls must be separated from windows and openings located in the storey above via one of the following methods of construction may be utilised to achieve compliance – (i) a spandrel or a curtain wall not less than 900mm in height which extends a minimum of 600mm above the upper surface of the intervening floor and is made of non-combustible material having an FRL of not less than 60/60/60 (tested on both sides); or (ii) A non-combustible slab with an FRL of 60/60/60 that projects outward from the external face of the wall not less than 1100mm and along the wall not less than 450 beyond the openings concerned; or For the purpose of achieving compliance with the clause a window or other opening means any part of the external wall of a building that does not have an FRL of 60/60/60 (tested on both sides) or greater.
C2.7	As stated in C2.2 above a fire wall needs to be introduced at the lower ground floor to separate the lower level from the upper two levels. Be advised that the DTS requirements of the BCA require the subject wall shown in Figure 1 to be constructed as follows – (i) The passive / solid walls located between the two compartments is to achieve an FRL of not less than 120/120/120 and extend uninterrupted from the slab to slab; (ii) The doorway / opening which permits persons to pass through is to via a self-closing fire-rated doorsets that is tested to achieve an FRL of --/120/30 The design intent of this wall / doorway is for it to be transparent (glazed). This is achievable, however compliance would need to be demonstrated via performance based approach, which may be required, as a minimum the introduction of drenchers to both sides of the glazed construction and above the stairway doorway.
C2.10	The lift shafts are required to achieve an FRL of 120/120/120 or --/120/120 (if non-loadbearing).
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. Pumpset/s for fire services shall comply with AS2419.1-2005.

Cl.
C2.13 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.

C3.2 ☐ Existing Dormitory Building

The subject new building will be located closer than 6m to the existing dormitory building, hence a level of upgrade will need to occur to this existing building.

To enable us to comment on the extent of the upgrade an audit needs to be undertaken of the existing dormitory building specifically the external walls to determine whether they are loadbearing and what FRL they currently achieve.

If the subject external walls are loadbearing, then the external walls are required to achieve an FRL of 90/90/90, this is to be achieved both sides of the wall.

If the walls are loadbearing then any existing opening located therein are to be upgraded where located within 6m of the new building.

If the walls are non-loadbearing then any existing opening located therein are to be upgraded where located within 3m of the new building.

☐ Sports Court Project

The following openings were identified as being within 6m of another building located on the same allotment –

- (i) Lower Ground Floor – the roller shutter located at the southern end of the western wall is within 6m (being 5.1m) of the dormitory building.
- (ii) Ground Floor – the openings located within the western wall which bounds Sports Court 2 & 3 are within 6m (being 4.4m) of the dormitory building.

With respect to the above, in the event the subject openings listed above are located within walls which are not loadbearing (i.e. non-loadbearing) then compliance is achieved and recommendations listed below are not relevant.

C3.2 Ct'd	With respect to the above openings one (1) or more of the following resolutions is required – (i) In the event the walls are loadbearing re-design the subject elevation such that the openings are located greater than 6m from the adjoining building; (ii) Provide protection in accordance with Cl. C3.4 of the BCA (see clause below); or (iii) Pursue a BCA Alternative Solution with respect to this matter, demonstrating compliance with the Performance Requirements of the BCA.
Cl. C3.4	☐ <u>Windows</u> (i) External wall-wetting sprinklers with windows that are permanently fixed in the closed position or automatic closing; or (ii) Fixed fire windows having an FRL --/60/--; or (iii) Automatic closing fire shutters achieving an FRL --/60/-- ☐ <u>Doorways</u> (i) External wall-wetting sprinklers used with doors that are automatic or self-closing; or (ii) Fire doors having an FRL of --/60/30 that are self-closing or automatic closing.
C3.5	As discussed in C2.2 and C2.7 above a fire wall needs to be introduced at the lower ground floor level to divide the building into two separate compartments and any opening located within this wall is be a self-closing fire door which achieves an FRL of --/120/30. The design intent of this wall / doorway is for it to be transparent (glazed). This is achievable, however compliance would need to be demonstrated via performance based approach, which may be required, as a minimum the introduction of drenchers to both sides of the glazed construction and above the stairway doorway.
C3.10	(i) The doorways providing access to the lift shaft shall be protected by --/60/-- fire doors complying with AS1735.11-1986 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 35,000mm² 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 construction in accordance with BCA Spec C1.1 (listed above) or in accordance with C3.15 (see below).
Cl. C3.13	Any opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be protected by one of the following methods - (i) If it is in a sanitary compartment – a door or panel which together with its frame is non-combustible or has an FRL of not less than --/30/30; or (ii) A self-closing --/60/30 fire door or hopper; or (iii) An access panel having an FRL of not less than --/60/30; or (iv) If the shaft is a garbage shaft the door or hopper is to be of non-combustible construction.
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

Cl. D1.3 The subject building is not protected with a sprinkler system, therefore the maximum number of storeys a stairway can connect / be open is two (2). With respect to this the following points are made –

☐ Stair 1

It connects three levels and therefore is required to be located within a fire-isolated shaft. The enclosure of the stair within such as shaft detracts from the design intent which was for the stairway to be separated from the remainder of the building, however the separation would be via the use of glazing.

The use of glazing to enclose the stairway is possible, however it however compliance would need to be demonstrated via performance-based approach.

☐ Stair 2

Stair 2 can remain open provided it is to be completely separated from the lower ground floor with construction achieving an FRL of not less than 90/90/90.

Cl. D1.4 The following exit travel distance compliance departures occurs –

☐ Lower Ground Floor

The total travel distance from within the welding bay (LG.12) is greater than 40m to an exit (being ~43m);

With respect to the above the following options for resolution are proposed –

- (i) Provide a new doorway within an external wall which bounds the welding bay; or
- (ii) Adopt a performance-based approach justifying that the current design complies with the relevant performance requirements.

☐ Roof Plant

The total travel distance from the furthest part of the roof plant level is greater than 20m to an exit (being ~35m);

With respect to the above, the following options for resolution are proposed –

- (i) Modify the roof plant level so that the distance to the exit (i.e. top of stair tread) is less than 20m; or
- (ii) Adopt a performance-based approach justifying that the current design complies with the relevant performance requirements.

Cl. D1.5 The following exit travel distance compliance departures occur –

❑ Lower Ground Floor

The overall distance between alternative exits serving the lower ground level (specifically the south-eastern corner) is greater than 60m (being ~65m).

❑ Ground Floor

The overall distance between alternative exits serving the lower ground level (specifically the south-eastern corner) is greater than 60m (being ~62m).

Cl. D1.5
Ct'd

With respect to the above the following options for resolution are proposed –

- (i) Provide additional doorways / exits on both the lower and ground floors, the exit/s are to be located within the (south-eastern corner); or
- (ii) Adopt a performance based approach justifying that the current design complies with the relevant performance requirements.

Cl. D1.6 Based upon the projected population the aggregate exit width for each storey is as follows –

STOREY	POPULATION	AGGREGATE EXIT WIDTH REQUIRED	AGGREGATE EXIT WIDTH PROVIDED
Lower Ground Floor	200 persons	2m	2m
Ground Floor	2200 persons	22m	11.5m
Level 1	200 persons	2m	2m

Table 1 – Exit width

With respect to the above, a shortfall exists with respect to aggregate exit width currently provided to that what is required, hence the following options for resolution are proposed –

- (i) Provide additional doorways throughout the ground floor such that a total aggregate exit width of 22m is provided; or
- (ii) Adopt a performance based approach justifying that a reduced aggregate egress width be provided from the ground floor and that compliance will still be achieved with the relevant performance requirements.

To justify the above an in-depth fire engineering analysis would need to be undertaken and may require the implementation of other fire safety measures.

	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 travel to an exit must not be less than 1m or more than 3m; - Where used by the public the unobstructed width of each 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); - Where one or more paths of travel merge, the width of the combined path of travel must be not less than the sum of the required widths of those paths of travel;
Cl. D1.6 Cont'd	- 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; - 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.
Cl. D1.7	Refer to D1.3 above.
Cl. D1.10	For compliance to be determined with this clause this office requires the proposed landscaping drawings which include provision of hardscape areas (pathways and the like). Once received, this office will provide advice relating to the – (i) Required widths of external pathways; and (ii) Which external pathways need to be accessible for the purpose of persons with a disability.
Cl. D1.13	Reference should be made to the projected / proposed occupant loads detailed within Section 2.3. The client / end user is to provide confirmation that the numbers specified are true and correct.
Cl. D1.16	It is noted that plant equipment is proposed to be located on the roof, it is unclear at this point in time on whether the plant room will be enclosed / roofed. If enclosed / roofed then a non-compliance will occur as ladder access to a plant room is only permitted when the floor area is not more than 100sqm.

	If the space is open / unroofed then no non-compliance exists as the space would not be considered a room / storey and therefore not form part of the building
Cl. D1.17	Access into the lift pit must be through the lift landing doors provided on the lowest level.
Cl. D2.2	Stair 1 is to be constructed in accordance with the following – (i) Be of non-combustible materials; (ii) Designed so that if there is a local failure it will not cause structural damage to, or impair the fire-resistance of the shaft.

Cl. D2.3 Stair 2 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.

Cl. 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.

Cl. D2.8 The store areas located underneath stair 2 is required to be constructed as follows –

- (i) The enclosing walls / ceilings are to achieve an FRL of not less than 60/60/60;
- (ii) The doorway opening into the store room is required to be a self-closing fire door achieving an FRL of --/60/30.

Cl. 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.

The above requirement will be applicable to the external stairways as these are currently wider than 2m and an aggregate exit width in excess of 2m is required.

Cl. D2.13 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. D2.14	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. D2.15	❑ <u>Internal Doorways</u> (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. ❑ <u>External Doorways</u> (ii) 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 (iii) All other doorways can incorporate a step or ramp 190mm above the finished surface of the ground, this includes the balconies.
Cl. D2.16	Balustrades must be constructed as follow - (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

The following doorways form part of the entertainment venue, hence they are required to swing in the direct of egress –

(i) Ground Floor –

- Change Rooms 1 & 2
- Accessible Bathrooms
- Umpires First Aid Room
- Sports equipment / furniture store 1

(ii) Level 1 –

- Staff rooms
- Change rooms
- Storage rooms and the like
- Classrooms

(iii) Additionally, the sports equipment / furniture store 2 must be provided with doorways as roller shutters are not permitted within an entertainment venue.

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.

- Doorway and doors must not be fitted with a collapsible gate, accordion door, turnstile or ridged barrier;
- Siding doors are not permitted to be installed unless they lead directly to a road or open space and forms a main entrance, and are capable of swinging in the direction of egress when pressure is applied to the inside face of the door and that the door is provided with signage that clearly indicates to persons seeking egress, the potential for swinging the door open in an emergency

Cl.
D2.21

Be advised that due to the building have a multitude of users, specific door hardware requirements are applicable for each use, these are detailed below –

□ Lower Ground Floor

(i) Any door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily operable without a key from the side that faces a person seeking egress; and

(ii) By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor and

- 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

Cl.
D2.21
Cont'd

- (iii) A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor; or
- (iv) Alternatively, any door in a required exit, forming part of a required exit or in the path of travel to a required exit must be fitted with a fail-safe device which automatically unlocks the door upon the activation of any detector system deemed suitable in accordance with AS1670.1-2004 installed throughout the building.

Furthermore, It is recommended that a door schedule be provided to this office for review.

□ Ground Floor & Level 1

The following doorways relate to any doorway used by the public, this includes the sanitary compartments located on the ground floor.

- (i) If a door is secured, then the device on the door operating either the latch or bolts must be panic bar;
- (ii) Panic bars may be omitted to main entrance doorways provided the doors are 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 from within.

Furthermore, It is recommended that a door schedule be provided to this office for review.

Cl.
D2.23

Self-closing fire doors to the fire-isolated exits, (stairs and passageways), must be provided with signage stating, "FIRE DOOR – DO NOT OBSTRUCT – DO NOT HOLD OPEN", on the side of the door that faces a person seeking egress.

The smoke doors provided in public corridors must also be provided with signs as above, on both sides.

Automatic fire or smoke doors held open by automatic hold open devices must be provided with signage stating, "FIRE DOOR – DO NOT OBSTRUCT" on either both sides of the doorway or the wall adjacent to the doorway.

Doors discharging from fire-isolated exits must be provided on each side with signage stating, "FIRE SAFETY DOOR – DO NOT OBSTRUCT".

In each instance, the lettering must not be less than 20mm high and be in a colour that contrasts with the background.

4.5 Section E – Services & Equipment

Cl. E1.3	A fire hydrant system complying with AS2419.1-2005 is required to serve the building. It is requested that the proposed location of the fire hydrant booster assembly be shown on the architectural drawings to assist in determining compliance with location / position.
Cl. E1.4	A fire hose reel system complying with AS2441-2005 is required to serve the building.
Cl. E1.5	A sprinkler system is required to be installed throughout the lower ground floor level, including the workshops, offices and all other ancillary spaces. The sprinkler system is to comply with BCA Spec E1.5, AS2118.1-1999.
Cl. E1.6	Portable fire extinguishers complying with AS2444 are required to be provided throughout the building. Public corridors serving the units must be provided with powder (ABE) type fire extinguishers, with a minimum size of 2.5kg and distributed to only serve the storey where they are located and so that there is 10m maximum distance from the unit doorway to the nearest extinguisher.
Cl. E2.2	The following smoke hazard management systems are required – ☐ <u>Carpark</u> The Class 7a carpark is required to be provided with a mechanical ventilation system complying with AS1668.2 and clause 5.5 of AS/NZS1668.1, expect that – ▪ Fans with metal blades suitable for operation at normal temperature may be used; and ▪ The electrical power and control cabling need not be fire rated. ☐ <u>General</u> The air-handling system must automatically shut down on the activation of an automatic smoke detection and alarm system complying with Clause 5 of Specification E2.2a of the BCA & AS1670.1-2004 and any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5 of the BCA. ☐ <u>Stage</u> The stage has a floor area less than 150smq but more than 50sqm, hence it is to be provided with smoke and heat vents complying with NSW H101.22.

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.
Cl. E4.5	Exit signage designed in accordance with AS2293.1-2005 must be provided above or adjacent to any external doorways and doorways leading to & from fire-isolated exits serving as required exits from the building.
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	A sound system and intercom system for emergency purposes complying with AS1670.4-2004 is required to serve the building.

4.6 Section F – Health & Amenity

Cl. 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.
Cl. F1.1	Stormwater drainage must comply with AS/NZS3500.3-2003.
Cl. F1.4	Waterproofing membranes for external above ground use (i.e. balconies and roof) must comply with AS4654-2012.
Cl. F1.5	Metal roof sheeting must comply with AS1562.1-1992.
Cl. F1.6	Any Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS4200-1994.
Cl. F1.7	Building elements in wet areas must be water-resistant or waterproof in accordance with Table F1.7 and comply AS 3740-2010.
Cl. 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.
Cl. 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.
Cl. F2.3	(i) Compliance with respect to sanitary facilities cannot be determined until the additional information requested is provided, notwithstanding this please refer to Appendix 2 as it details our preliminary assessment; (ii) At least one shower is to be provided or each 10 participants or part thereof

Cl. F2.5	(i) The door to a full enclosed sanitary compartment must – ▪ Open outwards; or ▪ Slide; 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 throughout the building must not be less than the following – (i) Public corridors, classrooms, lecture theatre and the like – 2.7m; and (ii) Offices and the like – 2.4m; and (iii) Sanitary facilities and the like – 2.1m; and (iv) Stairways, ramps and landings – 2.0m.
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

Cl. G1.101	The windows located 3 or more storeys above the street level shall be able to be cleaned from wholly within the building or by a method complying with Occupational Health and Safety Act 2000 and Regulations made under the Act.
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4.9 Section H – Special Use Buildings

Cl. H101.2	The entertainment venue building part (being the ground floor and level 1) are to be separated from the remainder of the building via construction achieving an FRL of not less than 60/60/60. Compliance with the above will be inherently achieved with the above, subject to compliance with BCA C2.2 and C2.7.
Cl. H101.6.1	The stage, when in use, must be provided with access to not less than two (2) exits.

Cl. H101.8	A load notice articulating the distributed and concentrated load for which the stage floor has been designed for is to be provided adjacent to the stage.
Cl. H101.11.1	The following is applicable to the bench seating located on level 1 which overlooks sports court 1, the maximum seats in each row must not exceed – (i) Eight (8) where there is an aisle at one end only of the row; (ii) Sixteen (16) where there are aisles on both sides of the row
Cl. H101.11.3	When chairs are proposed to be used in the sport court area they must be secured together in groups of not less than 4 and not more than 16.
Cl. H101.11.6	The following is applicable to the bench seating located on level 1 which overlooks sports court 1, specifically the aisles and cross-overs – (i) each aisle must have a width of at least 1000 mm and each cross over must have a width of at least 1500 mm; and (ii) the floor of each aisle must not have a grade of more than 1 in 8 at any part; and (iii) If there is a step from a row to an aisle or from a landing to an aisle, the step must not project into the aisle.
Cl. H101.11.7	The following is applicable if steps are located within the aisles which are located as part of the bench seating which form part of level 1 – (i) the platforms and steps must extend for the full width of the <i>aisle</i>; and (ii) if there are no intervening steps between levels of platforms, the height of the platform riser must not be more than 200 mm; and (iii) if there are one or more intervening steps between levels of platforms – ▪ each riser must be at least 100 mm but not more than 200 mm high; and ▪ each going must be at least 250 mm deep; and ▪ risers and goings must be uniform. (iv) goings which are more than 450 mm deep at platform level must not have a grade of more than 1 in 50; and (v) at the entrance from the <i>aisle</i> to each row there must be a clear level floor space, extending the full width of the aisle.

Cl. H101.11.8	The bench seating located on level 1 must be designed to comply with the following – (i) each platform must be at least 700 mm deep; and (ii) each seating space must be at least 450 mm wide, measured along the front of the platform or bench seat; and (iii) each seating space must be numbered consecutively; and (iv) at the entrance from the <i>aisle</i> to each row there must be a clear level floor space, extending the full width of the <i>aisle</i>, of at least 300 mm, measured from the back of the row in front; and (v) any going projecting in front of a seat adjacent to an <i>aisle</i> must be protected by a guardrail; and (vi) in the case of stepped platforms with bench seats, there must be at least 300 mm between the back of each seat and the front of the platform behind, or the front of the bench seat behind, whichever is the closer.
Cl. H101.13	The subject stairways forming part of the aisles that serve the auditorium are required to be provided with guard rails, advice pertaining to their installation will be provided upon receipt design documentation relating to their construction.
Cl. H101.16	The storerooms must be separated from other parts of the building by construction having an FRL of at least 60/60/60.
Cl. H101.19	The electrical engineer is to confirm that the design of the electrical system complies with the following – (i) the main switchboard containing the main isolation switch must be – ▪ be located in a position that is readily accessible to authorised persons, and to the fire brigade in the event of an emergency; ▪ be enclosed within construction achieving an FRL not less than 60/60/60; (ii) the final sub-circuit originating at the switchboard or distribution board must be by means of circuit breakers; (iii) if the mains supply provided for the entertainment venue / auditorium is in common with that of another part of the building (i.e. level 1), then – ▪ the entertainment venue / auditorium must be served by a separate and independent sub-main from the main switchboard; and ▪ each sub-main, the consumers main and the supply authority's conductors within the building must be protected against fire by means of –

Cl. H101.19	A) mineral-insulated metal-sheathed cables or other cables that provide at least 2 hours' fire protection; or B) heavy-duty PVC conduit or metallic pipe, concrete encased in walls or slabs with a minimum of 50 mm cover; or C) Heavy-duty PVC conduit or metallic pipe, buried at least 500 mm below ground level, for underground cabling.
Cl. H101.20	The electrical engineer is to confirm that the design of the artificial lighting system complies with the following – (i) Any switch controlling the lighting system must not be accessible; (ii) Where, during normal use, general lighting may be dimmed or switched off, an override switch to switch on all the general lighting instantaneously must be installed in the auditorium in a position accessible to management; (iii) If lamps are utilised in the general lighting and they are of a type that will not relight immediately after the restoration of the primary electricity supply to those lamps, then the following is required – ▪ a time delay or other suitable means must be provided to maintain the emergency lighting for a period not less than that necessary to allow the general lighting lamps to restrike; or ▪ lamps of a type that will provide immediate lighting must be installed and A) arranged in such a manner as to ensure visual conditions not inferior to those required to be provided by the emergency lighting; or B) Capable of being switched in common with the general lighting and of being controlled also by the override switch required by (i) above. (iv) Where general lighting is to be either dimmed or extinguished when the public is in attendance and where the floor is stepped or at an inclination greater than 1 in 12, aisle lights must be provided to illuminate the length of each aisle and the tread of each step therein; (v) Where an aisle light is installed in a seat frame, it must be supplied at a voltage of not more than 32 volts AC or 115 volts DC; (vi) Aisle lighting must be provided with an alternative electricity supply that – ▪ is capable of being automatically energised in the event of failure of the primary lighting electricity supply; and ▪ complies with the provisions applying to emergency lighting.

Cl. H101.22	The automatic smoke-and-heat vent system required to be provided above the stage must be – (i) be capable of automatic operation by the inclusion of a heat sensing device designed to activate the system at a temperature of not more than 71°C; and (ii) be capable of being released manually from positions at each side of the stage and of being fully activated from either position; and (iii) have a notice, prominently displayed at each position referred to in (b), clearly indicating the method of activation; and (iv) (d) have an openable area of not less than 1/10 of the total area of the stage.
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Report By



Luke Sheehy
Principal
For Design Confidence (Sydney) Pty Ltd

Verified By



Nicolas Hurtado
Associate
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APPENDIX 1

The BCA Design Assessment was based upon the Architectural documentation prepared by TKD Architects, namely –

DESCRIPTION	DRAWING NUMBER	REVISION	DATE
Cover Sheet and Site Location Plan	AR.DA.0000	A	01.06.2018
Proposed Site Plan	AR.DA.1101	A	01.06.2018
Proposed Lower Ground Floor Plan	AR.DA.2101	A	01.06.2018
Proposed Ground Floor Plan	AR.DA.2102	A	01.06.2018
Proposed First Ground Floor Plan	AR.DA.2103	A	01.06.2018
Proposed Roof Plan	AR.DA.2104	A	01.06.2018
Proposed Healy Gym	AR.DA.2201	A	01.06.2018
Proposed Sub-station	AR.DA.2203	A	01.06.2018
Proposed Elevations	AR.DA.3001	A	01.06.2018
Proposed Sections	AR.DA.3101	A	01.06.2018

APPENDIX 2

The number of required sanitary facilities is set out below in Table A2 –

Table A2 – Required Sanitary Facilities

Occupant Population Number				WC Required / Provided	Urinal Required / Provided	Basin Required / Provided
Sports – Participants	90	Male	90	5	9	9
		Female	N/A	-	-	-
Sports – spectators or patrons	148	Male	74	1	1	1
		Female	74	3	-	2
Public Hall	2200	Male	1100	6	14	7
		Female	1100	15		7

The above includes the following -

- The unisex accessible sanitary facility has been counted once for each sex



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