METRO BUILDING CONSULTANCY

ARMIDALE SECONDARY COLLEGE - NEW MULTI-PURPOSE HALL

BUILDING CODE OF AUSTRALIA VOL 1 2019
FINAL CONCEPT DESIGN REVIEW

JUNE 2020

Report prepared for	NBRS Architecture Level 3, 4 Glen Street, Milsons Point NSW 2061 Attention: Macella Salzmann
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CONTENTS

DOCUMENT ACCEPTANCE

Company	Name	Signed	Date
Metro Building Consultancy	Sean Moore		19/06/20

REVISION HISTORY

Description	Prepared by	Revision No.	Date
BCA 2019 Report (Gym)	Sean Moore	R07	19/06/20
BCA 2019 Report (Gym)	Sean Moore	R06	11/06/20
BCA Report (Zone 8)	Sean Moore	R05	23/04/20
BCA Report (Arch Zone 8)	Sean Moore	R04	08/11/19
BCA Report (Architectural)	Sean Moore	R03	05/09/19
BCA Report (Services, Civil, Landscaping Drawings)	Sean Moore	R02	26/08/19
BCA Report (Architectural)	Sean Moore	R01	16/07/19

1.0 Introduction

Introduction
NBRS Architecture has requested Building Code of Australia 2019 advice in relation to the BCA compliance of the architectural design documents for the proposed new Gymnasium building at Armidale Secondary College located at Butler Street, Armidale NSW 2350

The architectural drawings submitted to date has been reviewed for compliance with the Deemed-to-Satisfy provisions of the Building Code of Australia 2019 excluding Section B structure, Part G5 bushfire, NSW Part H101 entertainment venues and Section J energy efficiency. This report is for the exclusive use of NBRS Architecture and cannot be used for any other purpose without the prior permission of Metro Building Consultancy. The report is only valid in its entire form.

Documentation available and assessed
The preliminary concept design drawings prepared by NBRS Architecture and provided to Metro Building Consultancy on 15/06/20 have been assessed for compliance to the Building Code of Australia 2019. The list of drawings reviewed is as per the table in Appendix A of this report.

Application of Building Code of Australia 2019
Clause 6.28(2) of the Environmental Planning and Assessment Act states that the BCA that is applicable to the project is the one in force at the time of the date of invitation to tender. Assuming that the gym documented in the drawings provided was not part of the original tender the BCA that is applicable to the project will have to be BCA 2019 as it will be the one in force at the time of the tender date.

> **6.28 Crown subdivision, building, demolition, and incidental work** (cf previous s 109R)
> (2) Crown building work cannot be commenced unless the Crown building work is certified by or on behalf of the Crown to comply with the *Building Code of Australia* in force as at—
> (a) the date of the invitation for tenders to carry out the Crown building work, or
> (b) in the absence of tenders, the date on which the Crown building work commences, except as provided by this section.

Note that BCA 2019 Amendment 1 will be introduced on 01/07/20 but is not expected to contain changes that have a significant impact on the proposed scope of works.

2.0 Use and class of building

The following table lists the proposed use of the new gymnasium building.

No of Storeys	Use	Classification	Approx. floor area & volume
1 Storey	Gymnasium, General Learning Spaces and ancillary storage.	Class 9b	2,795m2 & 17,899m3

The client is required to confirm that the building will not be used as an Entertainment venue which means a building used as a cinema, theatre or concert hall or an indoor sports stadium.

3.0 Construction and fire resistance ratings

It has been confirmed that the fire compartment size does not exceed 18,000m3 (17,899m3) and therefore the building is required to comply with the BCA Type C Construction requirements as stated in Appendix B of this report.

Exposure of the proposed works to a fire source feature
A part of a building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that has an FRL of not less than 30/–/–.

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Fire-source feature means—
(a) the far boundary of a road, river, lake or the like adjoining the allotment; or
(b) a side or rear boundary of the allotment; or
(c) an external wall of another building on the allotment which is not a Class 10 building.

The external walls (including the high level external walls) of the proposed Type C construction Gymnasium Building are not located within 3m of the external walls of the adjacent Class 9b Zone 8 'Ag' Building and there no fire rated external walls are required.

Fire protection for a support of another part
The BCA states that where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part, subject to must:

(i) have an FRL not less than that required by other provisions of this Specification; and

(ii) if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required—

(A) for the supporting part itself; and
(B) for the part it supports; and

(iii) be non-combustible—
(A) if required by other provisions of this Specification; or
(B) if the part it supports is required to be non-combustible.

The following building elements need not comply with the 'fire protection for a support of another part' requirements:

- An element providing lateral support to a concrete external wall that could collapse as complete panels (e.g. tilt-up and pre-cast concrete).
- A roof providing lateral support in a building of Type B construction.
- A column providing lateral support to a wall where the column is a steel column, other than one in a fire wall or common wall, in a building that contains only 1 storey.
- An element providing lateral support to a fire wall or fire-resisting wall, provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall.

Lightweight construction
Lightweight construction required to have an FRL must comply with Specification C1.8 of the Building Code of Australia.

Fire Hazard Properties
All new floor, wall and ceiling linings are to comply with the requirements of Clause C1.10 and Specification C1.10 of Building Code of Australia 2019.

Provide the laboratory test results for the fire hazard indices of the proposed timber flooring prior to the completion of the design.

Performance of external walls in fire
Concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, must comply with BCA Specification C1.11.

Compartmentation
The Building Code of Australia 2019 requirement for the proposed Type C Class 9b building is that the maximum floor area of each fire compartment must not exceed 3000 m^2 and the maximum volume must not exceed 18,000m^3.

The floor area is approximately 2,795m2 and the proposed volume of the building is stated to be 17,899m3 and therefore the building is required to comply with the BCA Type C Construction requirements.

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Battery Rooms
Any rooms that contain a proposed battery or batteries that have a total voltage of 12 volts or more and a storage capacity of 200 kWh or more (i.e. hardwired UPS) must be fire separated from the remainder of the building by construction that achieves an FRL of at least 2 hours.

Battery system means one or more chemical cells connected in series, parallel or a combination of the two for the purpose of electrical energy storage.

Electricity supply
If the main switchboard within the building sustains emergency equipment operating in the emergency mode (eg a fire indicator panel) it must be separated by construction having an FRL of not less than 120/120/120 and have any door protected with a self-closing fire door having an FRL of not less than -/120/30.

Openings for service installations
Where an electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrates a building element (other than an external wall or roof) that is required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, that installation must be fire rated in accordance with the requirements of BCA Specification C3.15.

4.0 Egress

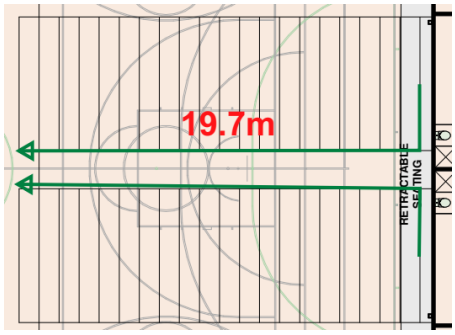
Principles
The building's egress systems should be designed to ensure compliance with the following principles:

- The maximum distance of travel to an exit will be 40 metres, and to a point of choice will be 20 metres, the distance between alternate exits is not to exceed 60 metres.
- The distance between alternate exits is to be not less than 9 metres.
- The construction and discharge of exits, landings, thresholds, balustrades and handrails are required to meet the requirements of the BCA.
- All paths of travel are to be a minimum of 1000mm in clear width.
- Exit doors should swing in the direction of travel i.e. outwards and should have a minimum clear width of 750mm (850mm for accessible doors complying with AS1428.1 2009).
- All doors are required to be free passage from the side that a person is seeking egress.
- The threshold of all doors (both sides) must be flush or provided with a threshold or kerb ramp.
- Handrails along stairs and ramps are required to have a minimum height of 865-1000mm. (The recommended height the handrail is 900mm.)
- Balustrades are required to have a minimum height of 865mm along stair flights and 1m along landings and walkways where the drop is greater than 1m.
- The balustrade provisions apply to the tops of all new retaining walls that form part of or are directly associated with a delineated path of access to a building from the road, or a delineated path of access between buildings.
- Balustrades are not permitted to have an opening greater than 125mm.
- Electrical, comms or mechanical distribution boards installed along a path of travel to an exit are required to be enclosed by non-combustible construction or a fire protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

Number of exits
The building is required to be provided with at least one exit per storey and if the storey accommodates more than 50 persons two exits are required. The current design shows multiple exits along the south west portion of the building.

Exit travel distances
The BCA states that no point on a floor must be more than 20m 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 40m.

The travel distance from the top of the retractable seating to a point from which travel in different directions to 2 exits is available will have to be continually assessed as the design is developed in order to confirm that it does not exceed 20m.



Distance between alternative exits
The BCA states that the exits that are required as alternative means of egress must be distributed as uniformly as practicable within or around the storey served.

Dimensions of exits and paths of travel
The BCA states that all paths of travel are required to have a minimum clear width of 1m.

It is proposed that the gymnasium will cater for up to 1200 persons at full capacity which requires an aggregate exit width is 10.5m as a portion of the egress involves a change in floor level by a stairway. The available aggregate egress width is 12.76m and is compliant with these requirements.

The aggregated exit width achieved will be assessed as the design is developed.

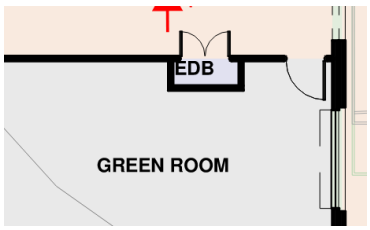
Discharge from exits
The path of travel from the discharge point of the proposed exits to the road must have an unobstructed width throughout of not less than 1m to a road or open space.

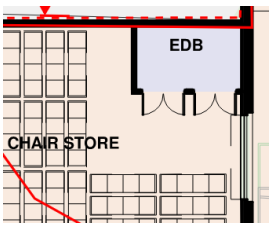
If an exit discharges to open space that is at a different level than the public road to which it is connected a path of travel to the road must be a ramp not steeper than 1:8 at any part or not steeper than 1:14 if required by required by part D3 of the BCA or a stairway complying with the deemed-to-satisfy provisions of the BCA.

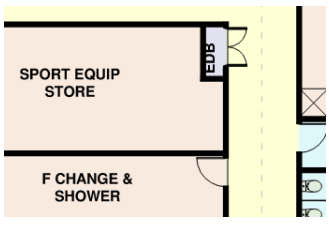
The discharge point of alternative exits must be located as far apart as practical.

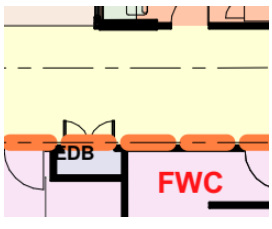
Installations in exits and paths of travel
Electrical, comms or mechanical distribution boards installed along a path of travel to an exit are required to be enclosed by non-combustible construction or a fire protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

The below Electrical Distribution boards located in the gymnasium are required to comply with the above requirements.









Enclosure of space under stairs and ramps

The space below the stairs to the retractable seating must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door.

Stairs

The proposed stairs are required to be provided with risers and goings that have a constant dimension throughout the flight and with a handrail with a height of 865-1000mm.

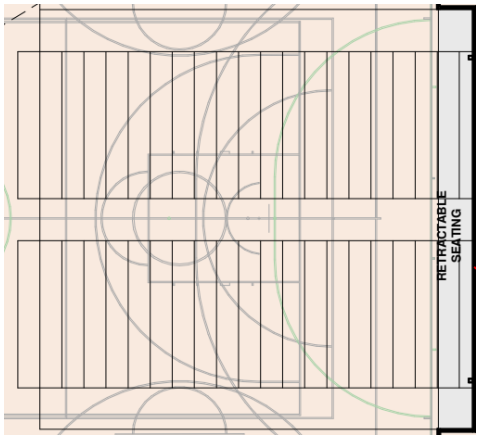
The BCA states that risers are not permitted to have any openings that would allow a 125mm sphere to pass through between the treads eg the retractable seating stairs.

The treads or nosing strips of the proposed external stairs must have a slip-resistance classification not less than P4 when tested in accordance with AS 4586 2013.

The treads or nosing strips of the proposed internal stairs must have a slip-resistance classification not less than P3 when tested in accordance with AS 4586 2013.

The BCA states that in a Class 9b building, not more than 36 risers (ie the retractable seating stairs) are permitted in consecutive flights without a change in direction of at least 30°.

The compliance of all the stairs including the retractable seating stairs will be continually assessed as the design is developed.



Landings

Proposed landings are required to have a maximum gradient of 1:50 and must be not less than 750mm long, and where this involves a change in direction, the length is measured 500mm from the inside edge of the landing.

The edge of any proposed landings or the nosing strips of the proposed new landings must have a slip-resistance classification not less than P4 when wet and P3 when dry when tested in accordance with AS 4586 2013.

The compliance of all the stair landings including the retractable seating stair landings will be continually assessed as the design is developed.

Door thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless it is provided with a threshold ramp or step ramp in accordance with AS1428.1 2009.

The BCA states that as the gym is required to be accessible the doorways only used as exit doors (ie not accessible entrances) are not permitted to be provided with a step in the door threshold.

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Balustrades

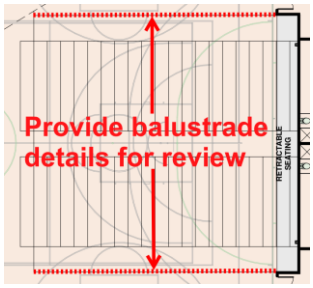
A balustrade with a minimum height of 1m is required to be provided to protect a fall of more than 1m eg 1100mm.

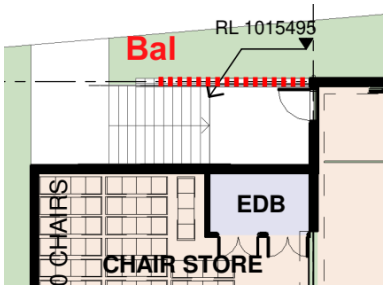
A balustrade with a minimum height of 865mm is required to be provided alongside any stairs or ramps that protect a drop of more than 1m.

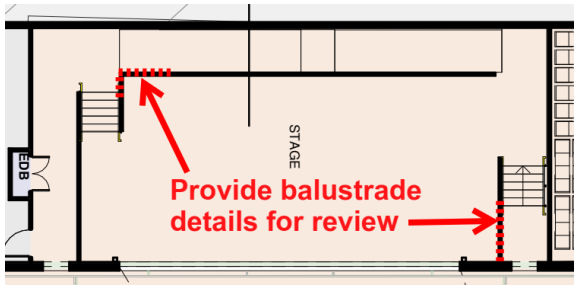
A balustrade with a minimum height of 865mm is required to be provided alongside landings to stairs or ramps that protect a drop of more than 1m and that have a length not exceeding 500mm. Where the landing length exceeds 500mm the balustrade is required to have a minimum height of 1m.

The balustrades to all communication stairs and protecting drops of more than 1m are required to not have any openings greater than 125mm and a construction tolerance should be added e.g. 100mm.

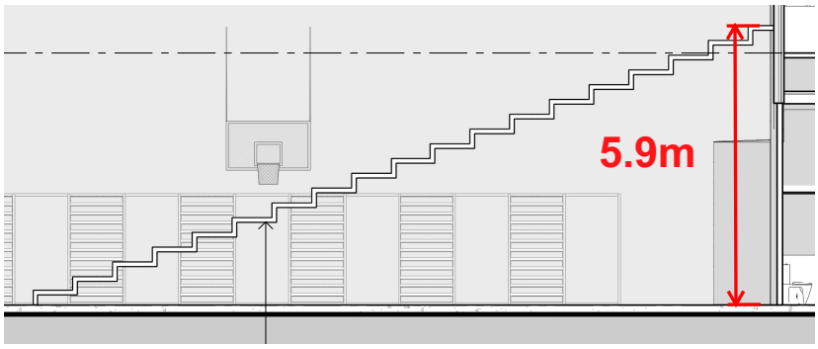
Balustrades are required in the following locations.







As the balustrades that protect the top of the retractable seating protect a fall of more than 4m the balustrade is not permitted to have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitates climbing.



The compliance of the balustrades including those to the retractable seating stairs will be continually assessed as the design is developed.

Handrails

Proposed handrails along stairs and ramps are required to have a height of 865-1000mm. The recommended height for handrails is 900mm.

Handrails are required to be continuous between stair flight landings and have no obstruction on or above them that will tend to break a handhold i.e. the handrails to the retractable seating stairs.

The handrail details are required to be provided to enable assessment against these requirements.

Fixed platforms, walkways, stairways, and ladders

A fixed platform, walkway, stairway, ladder and any going and riser, landing, handrail or barrier attached thereto may comply with AS 1657 2018 in lieu of BCA Clauses D2.13, D2.14, D2.16 and D2.17 if it only serves machinery rooms, boiler houses, lift-machine rooms, plant-rooms and the like.

The final design documents are required to include details of any AS1657 ladders etc that are required to access to the plant room / space.

Doorways & doors
The roller shutter doors provided to the outdoor equipment store is required to be able to be held in the open position while the room is lawfully occupied.

Swinging Doors
A swinging door in a required exit or forming part of a required exit is required to swing in the direction of egress.

Door hardware
The door hardware to all proposed swing doors must be readily openable without a key from the side that faces a person seeking egress by:

- a single hand downward action on a single device which is located between 900 mm and 1.1 m 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 35 mm and not more than 45mm or

- a single hand pushing action on a single latch operation device which is located between 900 mm and 1.2 m from the floor.

The roller shutters provided to the Green Room and Chair Store are only permitted if the rooms are otherwise inaccessible to persons at all times when the door is locked.

5.0 Services and Equipment

The following is a status of the services required to be provided to the proposed building.

Fire Hydrants
The proposed Gymnasium has a floor area that exceeds 500m^2 and is required to be provided with fire hydrant coverage in accordance with BCA Clause E1.3 and AS2419.1 2005.

Fire Hose-Reels
Fire hose reel coverage is required to be provided to the Gymnasium as the floor area exceeds 500m2 and is required to be provided with coverage in accordance with E1.4 and AS2441 2005.

Portable Fire Extinguishers
Portable fire extinguishers must be provided to all areas of new works in accordance with BCA Clause E1.6 and AS 2444 2001.

Smoke hazard management - Automatic shutdown of any air-handling system
The NSW Variation of the BCA states that Class 9b assembly buildings (e.g. schools) are required to 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/NZS 1668.1 2015) on the activation of smoke detectors installed complying with Clause 5 of BCA Specification E2.2a and any other fire detection and alarm system.

Clause 6 of BCA Specification E2.2a states that detectors must be spaced not more than 20m apart and not more than 10m from any wall, bulkhead or smoke curtain and have a sensitivity in accordance with AS1670.1 2015.

This requirement is required to be applied to the proposed gym if all or a part of it is provided with a ducted air handling system.

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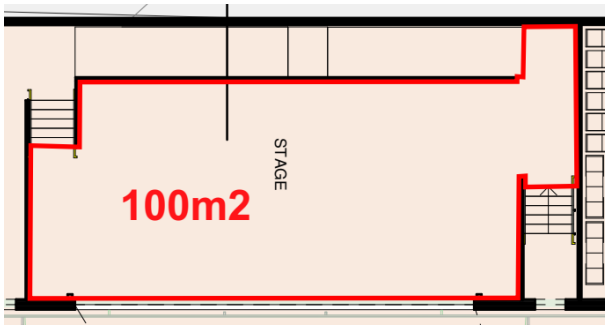
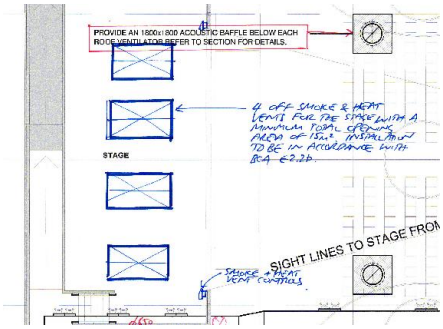
Smoke hazard management – Stage
A building or part of a building used as an assembly building which has a stage with a floor area of more than 50 m2 and not more than 150 m2 must, over the stage, be provided with:

- an automatic smoke exhaust system complying with Specification E2.2b (including Figure 2); or
- roof mounted automatic smoke-and-heat vents complying with NSW H101.22 in a single storey building.

The requirement of NSW H101.22 'Automatic smoke-and-heat vents for stages' are as follows:

> An automatic smoke-and-heat vent system required by NSW Table E2.2b "Stages and backstage" must—
> (a) 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
> (b) be capable of being released manually from positions at each side of the stage and of being fully activated from either position; and
> (c) have a notice, prominently displayed at each position referred to in (b), clearly indicating the method of activation; and
> (d) have an openable area of not less than 1/10 of the total area of the stage.





Emergency Lighting and Exit Signs
Exit signs and an emergency lighting system must be provided and must be in accordance with the BCA Clause E4.2, E4.4, E4.5, E4.6, E4.8 and AS 2293.1 2018.

EWIS
The BCA states that an emergency warning and intercom system complying where applicable with AS 1670.4 2015 must be installed in a Class 9b building used as a theatre, public hall, or the like, having a floor area more than 1000m2.

6.0 Health and Amenity

Damp & weatherproofing
The roof and external walls of the proposed buildings are required to comply with BCA Performance Requirement FP1.4.

Where a wall cladding is proposed it is required to have a CodeMark Certificate of Conformity confirming compliance to BCA FP1.4.

Provide the CodeMark Certificate of Conformity for review prior to the completion of the design.

Stormwater drainage
The proposed stormwater drainage must comply with AS/NZS 3500.3 2018.

Roof coverings
The proposed roofs must be covered with:

- concrete roofing tiles complying with AS 2049 2002 and fixed, except in cyclonic areas, in accordance with AS 2050 2018, as appropriate; or
- terracotta roofing tiles complying with AS 2049 2002 and fixed, except in cyclonic areas, in accordance with AS 2050 2018; or
- cellulose cement corrugated sheeting complying with AS/NZS 2908.1 2000 and installed in accordance with AS/NZS 1562.2 1999; or
- metal sheet roofing complying with AS 1562.1 2018; or
- plastic sheet roofing designed and installed in accordance with AS/NZS 4256 Parts 1, 2, 3 1994 and 5 1996 and AS/NZS 1562.3 1996; or
- terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597 1999, except in cyclonic areas.

Waterproofing of wet areas

Building elements in bathroom or shower room, a sink compartment, a laundry or sanitary compartment must—
(i) be *water resistant* or *waterproof* in accordance with BCA Table F1.7; and
(ii) comply with AS 3740 2010.

Where a wall hung urinal is installed—
(i) the wall must be surfaced with impervious material extending from the floor to not less than 50 mm above the top of the urinal and not less than 225 mm on each side of the urinal.
(ii) the floor must be surfaced with impervious material and graded to a floor waste

In a room with timber or steel framed walls and containing a urinal—
(i) the wall must be surfaced with an impervious material extending from the floor to not less than 100 mm above the floor surface; and
(ii) the junction of the floor surface and the wall surface must be impervious.

Damp-proofing

Moisture from the ground must be prevented from reaching—
(i) the lowest floor timbers and the walls above the lowest floor joists; and
(ii) the walls above the damp-proof course; and
(iii) the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.

Where a damp-proof course is provided, it must consist of—
(i) a material that complies with AS/NZS 2904 1995; or
(ii) impervious sheet material in accordance with AS 3660.1 2000 or 2014.

Damp-proofing of floors on the ground

If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870 2011, except damp-proofing need not be provided if—
(a) weatherproofing is not *required*; or
(b) the floor is the base of a stair, lift or similar *shaft* which is adequately drained by gravitation or mechanical means.

Subfloor ventilation

Subfloor spaces must be provided with openings in *external walls* and internal subfloor walls in accordance with BCA Table F1.12 for the climatic zones given in BCA Figure F1.12 and have clearance between the ground surface and the underside of the lowest horizontal member in the subfloor in accordance with BCA Table F1.12.

Glazed assemblies

The following glazed assemblies in an external wall, must comply with AS 2047 2014 requirements for resistance to water penetration:

- Windows.
- Sliding and swinging glazed doors with a frame, including French and bi-fold doors with a frame.
- Adjustable louvres.

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- Window walls with one-piece framing

Toilets - Students
Note that the staff and students cannot share toilet facilities

Further details of the proposed school student population are required so that an assessment can be made of the number of toilets required.

The proposed facilities can cater up to 250 male students and 250 female students.

When the building has a population of more than 250 male students and 250 female students' access must be provided to other student toilet facilities provided elsewhere on the campus.

Toilets - Staff
Note that the staff and students cannot share toilet facilities.

The proposed facilities can cater up to 5 male staff and 5 female staff.

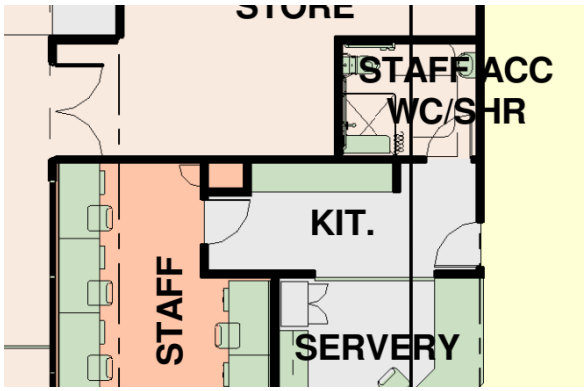
When the building has a population of more than 5 male staff and 5 female staff access must be provided to other staff toilet facilities provided elsewhere on the campus.

Showers
The BCA states that Class 9b theatres and sporting venues must be provided with one shower for each 10 participants or part thereof.

Construction of sanitary compartments
Sanitary compartments must have doors and partitions that separate adjacent compartments and extend to a height of not less than 1.8m above the floor.

The door to a fully enclosed sanitary compartment must open outwards or slide or be readily removable from the outside of the sanitary compartment.

Restriction on location of sanitary compartments
The BCA states that sanitary compartments must not open directly into a kitchen. The schematic design drawing are required to show a revised layout / entry for the accessible toilet off of the kitchen.



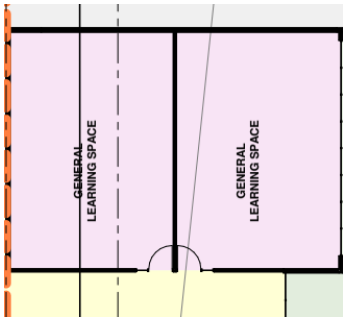
Room Sizes
The BCA states that the ceiling height in a theatre, public hall or other assembly building or part that accommodates more than 100 persons must be not less than 2.7m.

The BCA states that all classrooms, offices and the kitchen are required to have a minimum ceiling height of 2.4m.

The BCA states that the storerooms and sanitary compartments are required to have a minimum ceiling height of 2.1m.

Natural lighting
The BCA states that natural light complying with BCA clause F4.2 is required to be provided to all general-purpose classrooms in secondary schools.

Provide further details including wall elevations and window schedules of the general learning spaces for review.



Light and Ventilation
Artificial lighting must be provided to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, other circulation spaces and paths of egress. The artificial lighting system must comply with AS/NZS 1680.0 2009.

All areas of the buildings, except the storerooms, must be provided with natural ventilation complying with BCA Clause F4.6 or mechanical ventilation complying with AS 1668.2 2012.

Natural ventilation requires an opening of size no less than 5% of the floor area of the room.

The compliance of the proposed natural ventilation will be assessed as the detailed design drawings are developed.

The BCA states that a commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1 2015 and AS 1668.2 2012 where—

(a) any cooking apparatus has—
(i) a total maximum electrical power input exceeding 8 kW; or
(ii) a total gas power input exceeding 29 MJ/h; or

(b) the total maximum power input to more than one apparatus exceeds—
(i) 0.5 kW electrical power; or
(ii) 1.8 MJ/hour gas,
per m2 of floor area of the room or enclosure

7.0 Class 9b Buildings

The BCA states that the requirements of Part H1 of the BCA apply to every enclosed Class 9b building or part of a building which—

- is a school assembly, church or community hall with a stage and any backstage area with a total floor area of more than 300 m2; or
- otherwise, has a stage and any backstage area with a total floor area of more than 200m2; or
- has a stage with an associated rigging loft.

Confirmation is required to be provided as to whether the stage has an associated rigging loft. If it does then the schematic design report will include the additional requirements of BCA Part H1.

In addition to the above requirements, the BCA states that the following requirements of BCA clause H1.4 and H1.7 applies to every open or enclosed Class 9b building.

Seating Area
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—

- a line joining the nosings of consecutive steps does not exceed an angle of 30° to the horizontal; and
- the height of each step in the stepped floor is not more than 600mm; and
- the height of any opening in such a step is not more than 125mm; and

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

- exceeds 230mm but not 400mm — an intermediate step must be provided in the aisle; and
- exceeds 400mm — 2 equally spaced intermediate steps must be provided in the aisle; and
- the going of intermediate steps must be not less than 270mm and such as to provide as nearly as practicable equal treads throughout the length of the aisle; and

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

- 300 mm if the distance to an aisle is not more than 3.5m; or
- 500 mm if the distance to an aisle is more than 3.5m.

Further details of the retractable tiered seating are required to be provided to enable further assessment of these requirements.

Aisle Lights
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.

Further details of the compliance of the aisle and tread of each step of the retractable tiered seating is required to be provided to enable further assessment of these requirements.

8.0 Energy Efficiency

Building Fabric
The BCA 2019 Section J Building Fabric requirements apply to building elements forming the envelope of a Class 9b building.

Envelope means the parts of a building's fabric that separate a conditioned space or habitable room from:

- the exterior of the building; or
- a non-conditioned space including—
  - the floor of a rooftop plant room, lift-machine room or the like; and
  - the floor above a carpark or warehouse; and
  - the common wall with a carpark, warehouse or the like

Conditioned space 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.

Air-conditioning means a service that actively cools or heats the air within a space, but does not include a service that directly

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(a) cools or heats cold or hot rooms; or
(b) maintains specialised conditions for equipment or processes, where this is the main purpose of the service.

The proposed building is required to comply with the building fabric requirements of Part J1 of the Building Code of Australia 2019.

Building Sealing
The BCA 2019 Section J Building Sealing requirements apply to building elements forming the envelope of a Class 9b building other than:

- a building in climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; or
- a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or
- a building or space where the mechanical ventilation required by Part F4 provides sufficient pressurisation to prevent infiltration

Envelope means the parts of a building's fabric that separate a conditioned space or habitable room from:

- the exterior of the building; or
- a non-conditioned space including—
  - the floor of a rooftop plant room, lift-machine room or the like; and
  - the floor above a carpark or warehouse; and
  - the common wall with a carpark, warehouse or the like

Conditioned space 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.

Air-conditioning means a service that actively cools or heats the air within a space, but does not include a service that directly
(a) cools or heats cold or hot rooms; or
(b) maintains specialised conditions for equipment or processes, where this is the main purpose of the service.

The proposed building is required to comply with the building sealing requirements of Part J3 of the Building Code of Australia 2019.

Ventilation Systems, Artificial Lighting, Hot Water Supply
The design stage services consultants are required to incorporate the BCA 2019 Section J requirements into the design documents.

9.0 Conclusion

The design documentation provided to date has been assessed in respect to the deemed to satisfy provisions of the Building Code of Australia 2019 excluding Section B structure, Part G5 bushfire, NSW Part H101 entertainment venues and Section J energy efficiency.

The design is at a point where the design can be developed, the development is capable of complying with the relevant standards.

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APPENDIX A – DRAWINGS REVIEWED

Gym architectural drawings prepared by NBRS Architecture

Drawing name	Drawing name
20059-A-WD-02[4] – SITE ANALYSIS	20059-A-WD-03[4] – SITE PLAN
20059-A-WD-15[6] – GYM-FLOOR PLAN	20059-A-WD-20[5] – GYM-ROOF PLAN
20059-A-WD-30[4] – GYM ELEVATIONS 1	20059-A-WD-31[4] – GYM ELEVATIONS 2
20059-A-WD-40[6] – SECTIONS NORTH	20059-A-WD-41[6] – SECTIONS EAST
20059-A-WD-42[6] – SECTIONS WEST	20059-A-WD-80[5] – ROOM SCHEDULE
20059-A-WD-01[1] – LOCATION PLAN AND FENCING STRATEGY	

Gym Landscape drawings prepared by NBRS Architecture

Drawing name	Drawing name
20059-NBRS-LSK000(A)-LANDSCAPE CONCEPT PLAN	20059-NBRS-LSK002(A)-LANDSCAPE PLANTING
20059-NBRS-LSK001(C)-LANDSCAPE DESIGN PRINCIPLES	

Hydraulic Services Plans Prepared by Marline Services Engineers

Drawing name	Drawing name
MARL-GHY-DWG-FHC dated 12/06/20	MARL-GHY-DWG-H-002 dated 12/06/20
MARL-GHY-DWG-H-001 dated 12/06/20	

Electrical Services Plans Prepared by Marline Services Engineers

Drawing name	Drawing name
MARL-GEL-DWG-E-200 dated 12/06/20	MARL-GEL-DWG-E-400 dated 12/06/20
MARL-GEL-DWG-E-300 dated 12/06/20	

Mechanical Services Plans Prepared by Marline Services Engineers

Drawing name	Drawing name
MARL-GME-DWG-M-200	MARL-GME-DWG-M-201

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APPENDIX B – TYPE C CONSTRUCTION REQUIREMENTS

Building Element	Fire Resistance Level in minutes Structural adequacy/Integrity/Insulation Required for Class 5 to 9
External wall (including any column and other building element incorporated therein) or other external building element, where the distance from any fire source feature to which it is exposed is -	
Less than 1.5m	90/90/90
1.5 to less than 3m	60/60/60
3m or more	-/-/-
External column not incorporated in an external wall, where the distance from any fire source feature to which it is exposed is -	
Less than 1.5m	90/-/-
1.5 to less than 3m	60/-/-
3m or more	-/-/-
Common wall and fire walls	90/90/90
Internal walls bounding a stair if required to be rated	60/60/60
Roofs	-/-/-

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