



BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT

St Mary St Joseph Primary School

Prepared for:



Sydney
Catholic
Schools

May 2020

Ref.: 190330



BUILDING CODE OF AUSTRALIA ASSESSMENT St Mary St Joseph Primary School

Blackett Maguire + Goldsmith Pty Ltd have been engaged to undertake an assessment of the DA design documentation for the proposed development at St May St Joseph Public School located on Fitzgerald, Maroubra against the requirements of the Building Code of Australia 2019 (BCA).

REPORT OBJECTIVES

The objectives of this report are to:

- a) confirm that the DA architectural documentation has been reviewed by an appropriately qualified Building Surveyor and Accredited Certifier;
- b) confirm that the proposed building works can readily achieve compliance with the BCA
- c) accompany the Development Application submission to enable the Consent Authority to be satisfied that subsequent compliance with the fire & life safety and health & amenity requirements of the BCA, will not necessarily give rise to design changes to the building which may necessitate the submission of an application under Section 4.55 of the *Environmental Planning and Assessment Act 1979*.

It should be noted that it is not the intent of this report to identify all BCA provisions that apply to the subject development. The development will be subject further assessment following receipt of more detailed documentation at Construction Certificate stage.

REFERENCED DOCUMENTATION

Our assessment of the concept design documentation was based on the following:

- + Building Code of Australia 2019 (BCA)
- + Guide to the Building Code of Australia 2019 (BCA Guide)
- + Architectural plans prepared by *JDH Architects* as referenced in Appendix 4 of this report

PROJECT TEAM

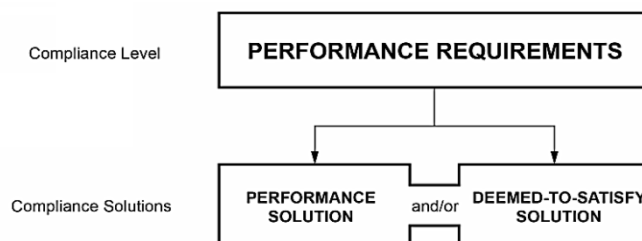
The following BM+G Team Members have contributed to this Report:

- + Brian Maguire - Project Team Leader
- + Josh Hagenson - Building Surveyor

ASSESSMENT METHODOLOGY

The Performance Requirements can only be satisfied by a:

- a) Performance Solution; or
- b) Deemed-to-satisfy Solution; or Complying with the Deemed-to-satisfy (DTS) Provisions; or
- c) A combination of (a) and (b).



In accordance with the above, we note that the proposed building design will achieve compliance with the BCA by way of a combination of compliance with the DtS provisions and also via Performance Solutions where appropriate, by the development and justification of Performance Solutions prepared by a C10 Accredited Fire Safety Engineer and/or an Accredited Accessibility Consultant at the Construction Certificate stage where required.



PROPOSED DEVELOPMENT

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by JDH Architects to undertake a BCA assessment of the proposed development which comprises of:

- + Demolition of existing Blocks A, B, demountable and the sports court.
- + Construction of a two storey (2) storey Homebase Building and Library Building This has been referred to in our report as the Main Building; and
- + Alterations and additions to the single existing storey building which has been referred to as Building D & E within the report.



Figure 1: Southern Elevation



Figure 2: Proposed Site Plan



BUILDING CLASSIFICATION

The following table presents a summary of relevant building classification items of the proposed development:

+ BCA Classification:	Main Building: Class 9b (School Assembly buildings) & Class (5 Administration) Building D & E: Class 9b (School Assembly buildings)
+ Rise in Storeys:	Main Building: Two (2) Building D & E: One (1)
+ Effective Height:	Main Building: Less than 12m Building D & E: Less than 12m
+ Type of Construction:	Main Building: Type B Building D & E: Type C
+ Climate Zone:	Zone 5
+ Floor Area / Volume Limitations	Main Building: 5,500m ² / 33,000m ³ Building D & E: 3,000m ² / 18,000m ³

FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features (Allotments and/or Buildings situated on the same allotments) are noted as follows:

BOUNDARY	DISTANCE TO FIRE SOURCE FEATURE
North	Main Building: >18m to the far side of Mons Av Building D & E: >3m to Block F
South	Main Building: >9m but <18m to Building D & E Building D & E: >3m to the boundary of Fitzgerald Av
East	Main Building: >18m to Block F Building D & E: >3m the existing Parish Building
West	Main Building: >18m to the far side of Malabar Rd Building D & E: >3m to boundary of Malabar Rd

* The above dimensions do not consider the inter-allotment boundary which the subject building is proposed to build upon.



SUMMARY OF KEY COMPLIANCE ISSUES

The following comprises a summary of the key compliance items identified in the report that will need to be addressed prior to issue of the Construction Certificate:

BCA CLAUSES		DESCRIPTION
1.	Spec. C1.1	Loadbearing external walls and columns in the Main Building which are exposed to a fire source feature are required to achieve an FRL in accordance with Table 4 of Spec C1.1.
2.	C3.2	The new building works are proposed to be adjacent to and encroaching over existing internal Torrens title allotment boundaries. A <u>Fire Engineered Performance Solution</u> is recommended to justify, unless there is an intention to consolidate the allotments.
3.	D1.10	Occupants discharging the Building are required to pass beneath the covered walkway before reaching open space. This departure is readily addressed with a <u>Fire Engineered Performance Solution</u> in this instance.
4.	D2.17	Upgrade of existing handrails is required to Building D & E and the internal stair adjacent Comms room within the main building requires handrails each side.
5.	D2.21	Door hardware and door furniture for sliding doors in a path of travel is to address the provisions in this clause and existing door hardware is to be upgraded to the degree necessary within Building D & E.



BUILDING CODE OF AUSTRALIA ASSESSMENT

SECTION B – STRUCTURE

Part B1 Structural engineering details prepared by an appropriately qualified structural engineer are to be provided to demonstrate compliance with Part B1. This will include the following Australian Standards (where relevant):

- + AS 1170.0 – 2002 General Principles
- + AS 1170.1 – 2002, including certification for balustrading (dead and live loads)
- + AS 1170.2 – 2002, Wind loads
- + AS 1170.4 – 2007, Earthquake loads
- + AS 3700 – 2018, Masonry code
- + AS 3600 – 2018, Concrete code
- + AS 4100 – 1998, Steel Structures and/or
- + AS 4600 – 2005, Cold formed steel.
- + AS 2159 – 2009, Piling
- + AS 1720.1 – 2010, Design of timber structure
- + AS/NZS 1664.1 and 2 – 1997, Aluminium construction
- + AS 2047 – 1999, Windows in buildings.
- + AS 1288 – 2006, Glass in buildings.

SECTION C – FIRE RESISTANCE AND COMPARTMENTATION

The building will comply with the relevant Deemed-to-satisfy requirements of the BCA, having regard to the following specific matters being addressed:

Clause C1.1 (Fire Resisting Construction) All building elements to the Main Building are to achieve the required FRL in accordance with Table 4 in BCA Specification C1.1 for Type B Construction as applicable to a Class 9b Building (See Appendix 1). In this regard the following is noted with respect to our assessment of the development:

- + Loadbearing external walls and columns which are exposed to a fire source feature which in this instance are the adjoining school buildings are to achieve the following FRLs:
 - 120/30/30 where they are located 3m to less than 9m
 - 120/30/- where they are located 9m to less than 18 m
 - -/-/- where they are located 18m or more
- + The floor between ground floor and first floor must achieve:
 - a resistance to the incipient spread of fire of not less than 60 mins; or
 - an FRL of 30/30/30;
 - have a fire-protective covering on the underside of the floor, including beams incorporated in it, if the floor is combustible or of metal;
- + All loadbearing internal walls are to be of concrete and/or masonry construction.
- + Internal columns on the First Floor level (i.e. the level immediately below the roof) do not require an FRL.
- + With the exception of the above, loadbearing internal walls and columns require an FRL of 120/-/-.

building elements to the Building B & E are more than 3m from a Fire Source Feature and as such do not require an FRL as specified within Table 5 in BCA Specification C1.1 for Type C Construction where relevant (See Appendix 2).

Clause C1.10 (Fire Hazard Properties) Fire hazard properties for all floor, wall and ceiling linings within the Main Building and Building D & E are to comply with BCA Specification C1.10 with regard to smoke development rates, critical radiant flux and group ratings. In this instance, the following fire hazard properties apply:

- + Floor linings and coverings must achieve a Critical Radiant Flux of not less than 2.2kW/m² and a maximum smoke development rate of 750 percent-minutes;
- + Wall and ceiling linings are to achieve a material group number as specified in the table below and Smoke Growth Rate Index of not more than 100 or an Average Specific Extinction Area less than 250 m²/kg.



- + Rigid and flexible ductwork must comply with the fire hazard properties in AS 4254 Parts 1 and 2.
- + Sarking material must achieve a Flammability Index of not more than 5.

Comments: Compliance is readily achievable. Details demonstrating compliance is achieved are to be provided at the Construction Design Certification stage.

Clause C1.14 – Ancillary Elements. Ancillary elements must not be fixed, installed or attached to the internal part or external face of an external wall that is required to be non-combustible unless it is one of the materials exempted by the sub-clause this clause.

Comment: In this instance test reports demonstrating compliance are required to be provided to BM+G at the Co Certification stage for the fixed vertical sunshade device, powder coated battens and the cladding materials.

Clause C2.2 (Compartmentation) The proposed development complies with the maximum floor area and volume limitations of 5,500m² / 33,000m³ for the Main Building and 3,000m² / 18,000m³ for the Building D & E

Comment: The proposal complies with the maximum floor area and volume limitations of this clause

C2.12 (Separation of Equipment) Equipment such as the following is required to be fire separated from the remainder of the building by construction achieving an FRL of 120/120/120:

- + Lift motors/control panels;
- + Emergency generators – emergency equipment in emergency mode;
- + Central smoke control plant;
- + Boilers;
- + Battery or batteries installed in the building that have a voltage exceeding 12 volts and a capacity exceeding 200KWh.
- + On-site fire pumps

Comments: It is understood that the main Building does not contain any batteries that exceed 24 volts with a capacity exceeding 10 ampere hours therefore no rooms are required to be fire rated by this clause.

Clause C2.13 (Electricity Supply) Any switchboard sustaining emergency equipment operating in emergency mode must be separated from the remainder of the building with construction achieving an FRL of 120/120/120 with any doors to be -/120/30 self-closing fire doors.

Comments: Compliance is readily achievable. Confirmation if the Mains Switch Room located adjacent the Rear 1 GLA in building D & E sustains emergency equipment.

Clause C3.2 (Protection of openings) Openings with a distance of less than 6m to a fire-source feature and 3m to the boundary are required to be protected in accordance with Clause C3.4.

Comments: In this instance it is evident that the school is occupying a series of adjoining allotments and accordingly the new building works is proposed to straddle the boundary between Lot 4370, 4916 (DB 752015) and Lot 1 (DP121298). In the assumption that the necessary Lot Consolidation will not be pursued we recommend this matter be the subject of a Fire Engineering Performance Solution, justifiable on the basis that it is most unlikely that the subject allotments will ever be sold as separate parcels of land.

Clause C3.12 / C3.13 (Openings in floors and ceiling for services / and openings in shafts) Services which pass through the First Floor level floor in Main Building are to not reduce the fire performance of the building element it penetrates or comply with the requirements of Clause C3.15.

Comments: Compliance is readily achievable.

Clause C3.15 Where service installations penetrate the walls or floors required to have an FRL with respect to integrity and insulation they are to be protected by fire seals (fire stopping system) having an FRL of the building element concerned. Fire Seals are to comply with the requirements of BCA Clause C3.15 and Specification C3.15.

Comments: Compliance is readily achievable.



SECTION D – ACCESS AND EGRESS

The proposal demonstrates that compliance with the Performance Requirements of Section D of the BCA is readily achievable, noting the following:

Clause D1.2 (Number of Exits) Each storey within the Main Building and the Building D & E are served by not less than two (2) exits thereby satisfying the minimum requirements for a Class 9b building, and satisfying the minimum requirements for a class 5 building.

Clause D1.4 (Exit Travel Distances) The travel distances to exits within the building are required to be not more than 20 metres to a single exit, or a point where travel in different directions where two or more exits are available. Where there is a point of choice of two exits, all points on the floor are required to be within 40 metres to one of the exits.

Comments: In this instance, compliance with the requirements of this clause has been achieved for the Main Building and Building D & E.

Note: Areas that have sliding doors in the paths of travel to exits need to appropriate door hardware and door furniture. See D2.21 below for further information.

Clause D1.5 (Distance between alternative exits) The travel distances between alternative exits within the Main Building and Building D & E comply with the DTS provisions of the BCA, being no more than 60m apart and no less than 9m apart when measured back through the point of choice.

Comments: Compliance is achieved. The architectural documentation shows that each alternative exit is not further apart than 60m and not closer than 9m.

Clause D1.6 (Dimensions of Exits and paths of travel to Exits) The unobstructed height throughout an exit or a path of travel to an exit must be not less than 2 metres, except for doorways which may be reduced to not less than 1980mm. In addition, the unobstructed width of an exit or a path of travel to an exit must be not less than 1 metre or the required exit width determined under D1.6. **Note:** All new doorways must have a minimum clear width of 850mm.

Comments: The Architectural documentation shows that compliance is readily achievable.

Clause D1.9 (Travel via non-fire isolated exits) This clause is applicable to the Main Building only. The travel distance to open space via the non-fire-isolated stairway or non-fire-isolated stairs does not exceed 80 m.

Comments: Compliance is achieved. The distance to open space from required non-fire isolated stairs does not exceed 20m.

Clause D1.10 (Discharge from Exits) The path of travel from open space to the road for the Main Building and Building D & E must have an unobstructed width of not less than the minimum width of the required exit or 1 m (whichever is the greater). Where the exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by on grade ramps and/or stairs that comply with BCA Clauses D2.13 and D2.17.

Comments: In this instance, occupants discharging the Building are required to pass beneath the covered walkway before reaching open space. This departure is readily addressed with a Fire Engineered Performance Solution in this instance

Clause D2.7 (Installations in Exits and Paths of Travel) The construction of Electrical Distribution Boards within the Main Building and Building D & E is to be in accordance with BCA Clause D2.7 with the enclosure bounded by a non-combustible or fire protective covering and smoke seals provided around the perimeter of the doors in each case.

Comments: Compliance is readily achievable.

Clause D2.13 (Treads and Risers) All stairs to and within the Main Building are to have solid risers, and are to have contrast nosings throughout in accordance with Clause 11.1 of AS1428.1-2009, Furthermore the stairs are required to be slip resistant in accordance with the requirements of Table D2.14 when tested in accordance with AS4586-2014. The following will apply:

- + Stairway must have not more than 18 and not less than 2 risers in each flight.
- + Goings and risers within the stair flights must be constant throughout.
- + Goings and risers are to be in accordance with BCA Table D2.13 as noted below:

	Riser (R)	Going (G)	Quantity (2R+G)
Maximum	190	355	700
Minimum	115	250	550



Clause D2.14 (Landings): Landings must 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; and
- + have a non-slip finish throughout or an adequate non-skid strip near the edge of the landing where it leads to a flight below.

Clause D2.15 (Thresholds): Doors must not have a ramp or step closer to the door than the width of the door leaf except where opening to open space, where the change in level may be a maximum of 190mm (applying generally to fire isolated exit doors only).

Comments: Compliance is readily achievable..

Note: See D3 below for thresholds throughout 'Accessible Spaces', including the interface at the balconies, and also the entry/exit doors.

Clause D2.16 (Barriers) Barriers to prevent falls (Balustrades) are to be provided to all stairways, floors, corridors, etc. where the fall to the level below is more than 1m in height. Barriers are to comply with Table D2.16a including the following:

- + Achieve a minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp and not permit a sphere of 125mm diameter to pass through.
- + Where the floor is more than 4m above the surface beneath the balustrade, any horizontal or near horizontal members between 150mm and 760mm above the floor must not include horizontal or near horizontal members that could facilitate climbing.
- + For windows where the floor is more than 4m above the surface beneath, the window sill must be a minimum of 865mm in height above the height of the floor surface.

Comments: Compliance is readily achievable. Noting that there is a change in level of more than 4m from the landing of Stairs 1 and 2 to the ground level below in the Main building special attention is required to ensure that the lower handrail does not constitute a climbable element enabling occupants to fall more than 4m.

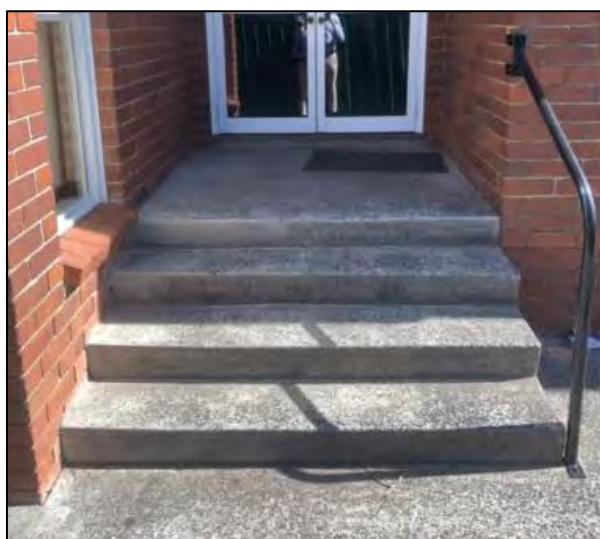
Clause D2.17 (Handrails) Handrails are required for stairs and ramps in the building and must be designed to include:

- + one handrail fixed at a height of not less than 865 mm; and
- + a second handrail fixed at a height between 665 mm and 750 mm

Furthermore, handrails will require extensions at the top of the stair (minimum of 300mm) and bottom of the stair (minimum of 300mm + 1 tread width) with either a 180° turn-down or be turned 90° back to the wall as per the diagram from AS1428.1-2009.

Comments: Compliance is generally achieved with the exception of the following:

- + The stairs located adjacent the Comms Room within the Main Building are to be provided with handrails each side of the stairs
- + Stair 1 and Stair 2 providing access to Building D & E are to be provided with handrails complying with this clause each side of the stair.





Clause D2.19 (Doorways and doors) Sliding doors located in a required exit must be able to be opened manually under a force of not more than 110N and open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. Refer to comments under Part D3 for accessibility requirements for the proposed sliding doors.

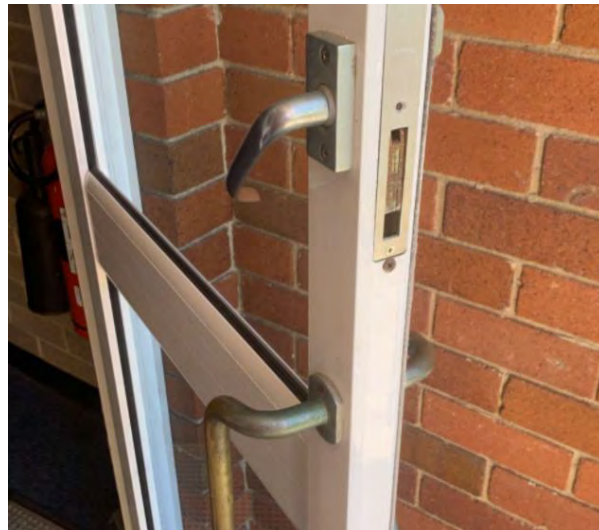
Comments: *Compliance is readily achievable.* The sliding door providing access to the Public Foyer in the Main Building is to conform to the requirements of this clause.

Clause D2.20 (Swinging doors): A swinging door in a required exit or forming part of a required exit must swing in the direction of egress.

Comments: *Compliance is achieved.* The architectural drawings show that all required exit door swing in the direction of egress.

Clause D2.21 (Operation of latch) Hinged doors in a path of travel to an exit must be readily openable without a key from the side that faces a person seeking egress and have a single handed downward action of pushing action on a single device located between 900mm and 1100mm from the floor.

Comments: *Compliance is readily achievable.* Sliding doors that are in a path of travel to an exit will need to be provided with a 'D' handle device located 900mm-1100mm above FFL which is capable of being operated using a single handed pushing action. Furthermore, Door hardware within Building D & E is to be upgraded to the degree necessary such the doors are operable using a single downward pushing action on a single device (see below image of existing door hardware).





Part D3 (Access for people with disabilities) Access for persons with a disability will be provided to the Main Building and Building D & E. In this instance, it is understood that an Accredited Access Consultant will be engaged to assess compliance for both Part D3 provisions and the DDA Access to Premises – Buildings Standards.

The following matters at a minimum will need to be addressed:

- + Access from the street to the principal pedestrian entrance of the building is to be provided in accordance with AS1428.1-2009.
- + All new doors to an within are required to have a clear width of not less than 850mm and comply with the circulation space requirements under AS 1428.1 - 2009.
- + Where an entry door is proposed to have multiple door leaves (except an automatic opening door) one of the door leaves must have a clear width of not less than 850mm.
- + The door thresholds to external areas cannot contain any step or change in level exceeding 3mm.
- + 30% luminance contrasts are to be provided to all new doorways e.g. contrasting between door leaf & jamb; or door leaf & wall; or architrave & wall; or door leaf & architrave and/or door jamb & adjacent wall.
- + All frameless glass panels or fully glazed doors on an accessway are to be clearly marking in accordance with AS 1428.1/AS1288. In this instance, all frameless glass panel or fully glazed doors, including glazing capable of being mistaken for a doorway or opening, shall be marked with a full width solid non transparent contrast line not less than 75mm wide is
- + Walking surfaces to be slip resistant and certification in respect to the slip resistance of any tiles and vinyl will be required at the Occupation Certificate stage to verify compliance with AS/NZS 4586.
- + Every accessible stairway in the building is required to satisfy requirements under Clause 11 of AS 1428.1 – 2009. This includes, contrast stair nosing's between 50 and 75mm deep across the full width of the path of travel. The strip may be set back 15mm from the front of the nosing and must possess a minimum luminance contrast of 30% to the background. The strip must not extend down the riser more than 10mm. This includes the fire EXIT stairs.
- + Handrails are required to both sides of non-fire isolated stairs with 300mm extensions (top) and 1 tread width +300mm extensions (bottom) and full 180 degree turn downs in accordance with Section 11 of AS1428.1-2009.
- + Tactile Ground Surface Indicators are to be provided to all stairs in a building (with the exception of fire isolated exit stairs) required to be accessible. In addition, tactile indicators will need to be provided to an accessway meeting a vehicular way adjacent to a pedestrian entry if there is no kerb or kerb ramp.
- + All door hardware, light switches and GPO's controls are to comply with Sections 13 and 14 of AS1428.1-2009 respectively.
- + Braille tactile signage is to be provided to all exits.

Comments: *Notwithstanding that a separate assessment is being undertaken by an accredited access consultant the following items are to be addressed:*

- + *The existing doorways providing access to Building D & E have a change in level greater the maximum 35mm permitted by AS1428.1-2009(refer D2.15)*
- + *The stairs adjacent the Comms Room in on the Ground Level of the Main Building require handrails each side(refer to D2.17)*
- + *Stairs 1 & 2 serving Building D & E require handrails each side of the stairs (refer to D2.17)*
- + *Nosing's and tactiles are to be provided to Stairs 1 & 2 of Building D &E.*

SECTION E – SERVICES AND EQUIPMENT



Clause E1.3 (Fire Hydrants) A fire hydrant system is required to be provided for the Main Building and Building D & E in accordance with AS2419.1-2005 (as the floor area exceeds 500m²).

Comments: Compliance is readily achievable. Drawings that show the location of fire hydrants are to be provided to determine specific compliance.

Clause E1.4 (Fire Hose Reels) Fire Hose Reels are required to serve the Library part of the Main Building only, and will need to be located within 4m of an exit.

Comments: Compliance is readily achievable. Drawings that show the location of the fire hose reel are to be provided to determine specific compliance.

Note: The existing fire hose reels located within Building D & E are not required.

Clause E1.6 (Potable Fire Extinguishers) Portable fire extinguishers (PFE) are required to be provided as listed in Table E1.6, to serve the building in accordance with AS 2444-2001.

Comments: Compliance is readily achievable.

Clause E2.2 A fire detection and alarm system is not required for the Main Building or Building D & E as neither building has a rise in storeys of more than 3.

Note: Notwithstanding the above, should a ducted air-handling system (other than non-ducted individual room units <1,000l/s) be designed to the new building, the system must be shut down automatically upon the activation of smoke detectors installed complying with Cl. 5 of Spec. E2.2a, i.e. AS1668.1-2015).

Comments: Compliance is readily achievable. Details demonstrating compliance are to be provided at the Construction Certificate stage.

Clause E3.3 (Warning Against use of Lifts in Fire): Signage stating “DO NO USE LIFT IF THERE IS A FIRE” is to be provided in the Main Building near the lift call button in letters not less than 10mm in height.

Comments: Compliance is readily achievable.

Clause E3.6 (Facilities for People with Disabilities): As the lifts are required to be provided for accessibility in the Main Building, they must be compliant with a lift specified under Table E3.6a (as appropriate) and the provisions of AS1735.12, with the primary matters as below:

- + Have minimum internal floor dimensions of 1400 x 1600mm.
- + Have doors with a minimum clear opening width of 900mm
- + Be fitted with a series of door opening sensory devices / passenger protection devices.

Comments: Compliance is readily achievable.

Clause E4.2 Emergency lighting is required to be provided to the Main Building and Building D & E in accordance with AS/NZS 2293.1-2018

Comments: Compliance is readily achievable..

Clause E4.5/E4.6 Exit and directional exit signage is required to be provided to the Main Building and Building D & E in accordance with AS2293.1-2018

Comments: Compliance is readily achievable.



SECTION F – HEALTH AND AMENITY

The proposal demonstrates that compliance with the DTS provisions of Section F of the BCA is readily achievable subject to the following:

Clause F1.1 (Stormwater drainage): Stormwater drainage must be installed as per AS 3500.3 - 2003.

Comments: Compliance is readily achievable. Specific compliance is to be demonstrated at the Construction Certificate stage.

Clause F1.5 (Roof coverings): A roof must be covered with

- + Concrete roof tiles complying with AS 2049 and fixed as per AS 2050.
- + Cellulose cement corrugated sheeting compiling with AS/NZS 2908.1 and installed as per AS/NZS 1562.2.
- + Metal roof sheeting comply with AS 1562.1
- + Plastic roof sheeting complying with AS/NZS 4256 parts 1, 2 3 and 5 and AS/NZS 1562.3.
- + Asphalt shingles complying with ASTM D3018-90 class A.

Comments: Compliance is readily achievable. Specific compliance is to be demonstrated at the Construction Certificate stage

Clause F1.6 (Sarking): Sarking must be installed to roof and walls for weatherproofing as per AS/NZS 4200.1 and 2.

Comments: Compliance is readily achievable. Specific compliance is to be demonstrated at the Construction Certificate stage.

Clause F1.7 (Waterproofing of wet areas): Wet areas in the building are required to comply with AS 3740.

Comments: Compliance is readily achievable.

Clause F1.13 (Glazed assemblies): Glazed assemblies in the external wall of the building are required to comply with AS 2047 requirements for resistance to water penetration. All other glazing installations are to comply with AS1288-2006

Comments: Compliance is readily achievable. Specific compliance is to be demonstrated at the Construction Certificate stage.

Part F2 (Sanitary and Other Facilities) A preliminary calculation of the maximum population number for students has been completed based on sanitary facilities noted within the Building D & E. The proposed sanitary facilities will allow for a maximum population of 150 Students: (75 Male and 75 Female).

Building D & E				
Occupant type		Facilities provided		Maximum Population
Students	Male	Closet Pans =	2*	75
		Urinals =	2*	
		Washbasins =	3	
	Female	Closet Pans =	4	75
Washbasins =		3		

Note 1: Refer to Clause C2.6 (below) regarding calculation of Closet Pans and Urinals.

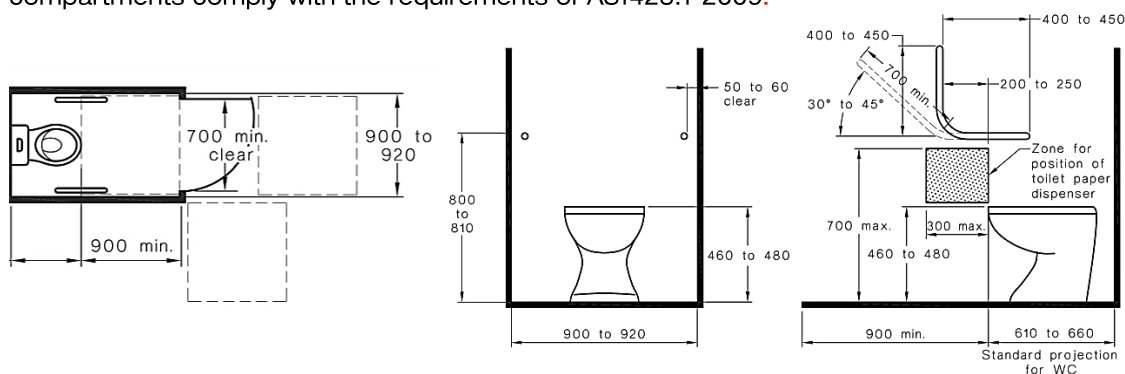


A preliminary calculation of the maximum population number for students has been completed based on sanitary facilities noted within the Main Building. The proposed sanitary facilities will allow for a maximum population of 425 Students: (75 Male and 350 Female) and 75 Staff (40 Male and 35 Female)

Main Building			
Occupant type		Facilities provided	Maximum Population
Employees	Male	Closet Pans = 2 Urinals = 2 Washbasins = 3	40
	Female	Closet Pans = 3 Washbasins = 3	35
Students	Male	Closet Pans = 2* Urinals = 2* Washbasins = 4	75
	Female	Closet Pans = 10	350

Clause F2.4 (Facilities for people with disabilities) The Access Consultant will need to review the proposed design and sanitary compartment layouts for accessible and ambulant sanitary facilities to confirm compliance with AS1428.1-2009. However, the following is noted with respect to the proposed sanitary facilities:

- + Particular attention will need to be given to ensure that the dimensions of the ambulant compartments comply with the requirements of AS1428.1-2009.



Ambulant Sanitary Facility requirements

Comments: Compliance is readily achievable.

Clause F2.6 (Interpretation: Urinals and Washbasins) The calculation of sanitary facilities referenced in Clause F2.3 (above) has incorporated the following:

- + The urinal troughs provided in the male student sanitary facilities on the ground floor and first floor levels has been counted as (2) urinals per trough, noting that the troughs have a total length of approximately 1650mm at each location and BCA Clause F2.6 permits each 600 mm length of a continuous urinal trough to count as a urinal.
- + Closet pans have been counted as urinals as permitted under in BCA Clause F2.6(a)(iii) – this is noted as surplus WCs may be counted as urinals to allow for a greater population.

Comments: Note

Part F3 (Room Heights) The minimum required floor to ceiling heights are as follows:

- + Any part that accommodates not more than 100 persons — 2.4 m; and
- + Any part that accommodates more than 100 persons — 2.7 m;
- + All bathrooms, sanitary compartments, kitchens, store rooms etc. – 2.1m;
- + Above a stairway, ramp, landing or the like — 2m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.

Comments: Compliance is readily achievable. Final Architectural Sections and Elevations will be required verify compliance with the above requirements.



Clause F4.1 (Natural Lighting) Natural light is required to be provided to all general-purpose classrooms within the Main Building. The windows to Homebases are to have an aggregate light transmitting area of at least 10% of the floor area of the room they serve.

Comments: *Compliance is readily achievable.*

Clause F4.4 (Artificial Lighting) Artificial lighting complying with AS/NZS 1680.0-2009 is required to the following rooms/spaces within the Main Building and Building D & E where natural light cannot be provided, and the periods of occupation or use will create undue hazard to occupants seeking egress in an emergency:

- + Rooms that are frequently occupied,
- + All spaces required to be accessible,
- + All corridors, lobbies, internal stairways, other circulation spaces; and
- + Paths of egress.

Comments: *Compliance is readily achievable.*

Clause F4.5 (Ventilation of Rooms): The building is required to be provided with:

- + Natural ventilation consisting of permanent openings, windows, doors or other devices which can be opened in and which achieves an open area not less than 5% of the floor area of the room; or
- + a mechanical ventilation or air-conditioning system complying with AS1668.2; or
- + A combination of the abovementioned natural ventilation and mechanical ventilation/air-conditioning

Comments: *Compliance is readily achievable.*

Clause F4.8 (Restriction of position of water closets and urinals) A room containing a closet pan or urinal must not open directly into

- + Kitchen or pantry;
- + Public dining room or restaurant;
- + Dormitory in a class 3;
- + A room used for public assembly (not being a room in an early child hood, primary school or open spectator stand;
- + Workplace normally occupies by more than 1 person.

Unless provided with an airlock, or unless the WC is provide with mechanical exhaust, and the door is screened from view.

Comments: *Compliance is readily achievable.*



SECTION J – ENERGY EFFICIENCY

The following energy efficiency design measures will be required to be implemented into the design of the Main Building and Building D & E to satisfy the requirements for Climate Zone 5. In this respect, we note that the following requirements of BCA Section J will apply to the building (of which the applicant may engage the services of an Energy Efficiency Consultant):

- + J1: Building Fabric - the external fabric to be designed and constructed to reduce heat flow
- + J3: Building Sealing - Doors, windows, roof lights i.e. to avoid leakage
- + J5: Air-conditioning and ventilation systems - operation, e.g. time switches; exhaust
- + J6: Artificial lighting and power - type and operation of lighting and power system
- + J7: Hot water supply - avoiding heat loss
- + J8: Access for maintenance - access to time switches, shading devices, etc.

CONCLUSION

In view of the above assessment we can confirm that subject to the above measures being undertaken that compliance with the Performance Requirements of the BCA is readily achievable. In addition, it is considered that such matters can adequately be addressed in the preparation of the tender documentation design documentation without giving rise to any inconsistencies with the development consent.

Should you wish to discuss please do not hesitate to contact me on 9211 7777.

Yours sincerely,

Brian J. Maguire (JP)
Accredited Certifier (BPB Accreditation No.0241)
Director – Blackett Maguire + Goldsmith



APPENDIX 1

TABLE 4 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS

BUILDING ELEMENT	Class of building—FRL: (in minutes)			
	Structural Adequacy/Integrity/Insulation			
	2, 3 or 4	5, 7a or 9	6	7b or 8
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—				
For loadbearing parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/-	120/ 30/-	180/ 60/-	240/ 60/-
18 m or more	-/-/-	-/-/-	-/-/-	-/-/-
For non- loadbearing parts—				
less than 1.5 m	-/ 90/ 90	-/120/120	-/180/180	-/240/240
1.5 to less than 3 m	-/ 60/ 30	-/ 90/ 60	-/120/ 90	-/180/120
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is—				
less than 18m	90/-/-	120/-/-	180/-/-	240/-/-
18m or more	-/-/-	-/-/-	-/-/-	-/-/-
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair shafts—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Fire-resisting stair shafts				
Non- loadbearing	-/ 90/ 90	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like—				
Loadbearing	60/ 60/ 60	120/-/-	180/-/-	240/-/-
Non- loadbearing	-/ 60/ 60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units—				
Loadbearing	60/ 60/ 60	120/-/-	180/-/-	240/-/-
Non- loadbearing	-/ 60/ 60	-/-/-	-/-/-	-/-/-
OTHER LOADBEARING INTERNAL WALLS				
and COLUMNS—	60/-/-	120/-/-	180/-/-	240/-/-
ROOFS	-/-/-	-/-/-	-/-/-	-/-/-



APPENDIX 2

TABLE 5 TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS

BUILDING ELEMENT	Class of building—FRL: (in minutes)			
	Structural Adequacy/Integrity/Insulation			
	2, 3 or 4	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/90/90	90/90/90	90/90/90	90/90/90
1.5 to less than 3 m	-/-/-	60/60/60	60/60/60	60/60/60
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire source feature</i> to which it is exposed is—				
Less than 1.5 m	90/-/-	90/-/-	90/-/-	90/-/-
1.5 to less than 3 m	-/-/-	60/-/-	60/-/-	60/-/-
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
COMMON WALLS and FIRE WALLS—	90/90/90	90/90/90	90/90/90	90/90/90
INTERNAL WALLS-				
Bounding public corridors, public lobbies and the like—	60/60/60	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy units—	60/60/60	-/-/-	-/-/-	-/-/-
Bounding a stair if required to be rated—	60/60/60	60/60/60	60/60/60	60/60/60
ROOFS	-/-/-	-/-/-	-/-/-	-/-/-



APPENDIX 3

PRELIMINARY LIST OF FIRE SAFETY MEASURES

Based on the preliminary assessment of the development, the following fire safety measures are required within the building:

MAIN BUILDING	
Statutory Fire Safety Measure	Design / Installation Standard
Emergency lighting	BCA Clause E4.2 and E4.4 & AS 2293.1-2018
Exit Signs	BCA Clause E4.5, E4.6, E4.8 & AS 2293.1-2018
Fire Blankets	AS 3504 – 1995 & AS2444 – 2001
Fire Hydrants	BCA Clause E1.3 and AS2419.1 - 2005
Fire Hose Reels (Non-classroom areas)	BCA Clause E1.4 & AS 2441 -2005
Mechanical Air handling (Automatic shutdown) (TBC)	BCA Clause E2.2 and AS1668.1-2015
Paths of Travel	EP&A Regulation Clause 186
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001

Building D & E	
Statutory Fire Safety Measure	Design / Installation Standard
Emergency lighting	BCA Clause E4.2 and E4.4 & AS 2293.1-2018
Exit Signs	BCA Clause E4.5, E4.6, E4.8 & AS 2293.1-2018
Fire Hydrants	BCA Clause E1.3 and AS2419.1-2005
Mechanical Air handling (Automatic shutdown) (TBC)	BCA Clause E2.2 and AS1668.1-2015
Paths of Travel	EP&A Regulation Clause 186
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001



APPENDIX 4

ARCHITECTURAL PLANS PREPARED BY JDH ARCHITECTS

Drawing No.	Revision	Date
DA00	1	16/04/2020
DA01	1	16/04/2020
DA02	1	16/04/2020
DA03	1	16/04/2020
DA04	1	16/04/2020
DA05	1	16/04/2020
DA06	1	16/04/2020
DA07	1	16/04/2020
DA08	1	16/04/2020
DA09	1	16/04/2020
DA10	1	16/04/2020
DA11	1	16/04/2020
DA12	1	16/04/2020



APPENDIX 5

BUILDING CODE OF AUSTRALIA TERMINOLOGY

Performance Solution

A Building Solution which complies with the Performance Requirements other than by reason of satisfying the DtS Provisions.

Building Code of Australia (BCA)

Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in New South Wales (NSW) under the provisions of the EP&A Act.

Climatic Zone

Is an area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Construction Type

The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—

- (i) certain Class 2, 3 or 9c buildings in C1.5; and
- (ii) a Class 4 part of a building located on the top storey in C1.3(b); and
- (iii) open spectator stands and indoor sports stadiums in C1.7.

Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

Deemed to Satisfy Provisions (DtS)

Provisions which are deemed to satisfy the Performance Requirements.

Exit

An exit means –

- i. Any of a combination of the following if they provide egress to a road or open space:
 - a. An internal or external stairway
 - b. A ramp;
 - c. A fire isolated passageway
 - d. A doorway leading to a road or open space
- ii. A horizontal exit or a fire isolated passageway leading to a horizontal exit

Effective Height

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

Fire Source Feature (FSF)

The far boundary of a road which adjoins the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

Fire Resistance Level (FRL)

The grading periods in minutes for the following criteria-

- (a) structural adequacy; and
 - (b) integrity; and
 - (c) insulation,
- expressed in that order.

Fire Source Feature (FSF)

The far boundary of a road which adjoins the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.