DESIGN CONFIDENCE

BCA Design Assessment Report

dwp

Kyeemagh Public School
Jacobson Avenue
Kyeemagh NSW 2216

ACCESSIBILITY | BUILDING REGULATIONS | FIRE ENGINEERING | MANAGEMENT SERVICES

CONTENTS

Project: Kyeemagh Public School
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The following report register documents the development and issue of this and each subsequent report(s) undertaken by Design Confidence (Sydney) Pty Ltd.

Revision History:

OUR REFERENCE	REMARKS	ISSUE DATE
P217_343-1 (BCA) NH	Report prepared to suit Concept Design documentation	20 June 2018
P217_343-2 (BCA) NH	Report updated to suit revised Concept Design documentation	03 July 2018
P217_343-2.1 (BCA) NH	Report updated to reference latest drawing	23 January 2019

1.0 INTRODUCTION

1.1 General

This BCA Design Assessment report has been prepared at the request of dwp and relates to the proposed development of Kyeemagh Public School, located at Jacobson Avenue, Kyeemagh NSW 2216.

1.2 Purpose of Report

The purpose of this report is to identify the extent to which the architectural design documentation complies with the relevant prescriptive provisions of the Building Code of Australia (BCA) Volume 1, edition 2016 amendment 1.

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.

1.3 Documentation Provided for Assessment

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

1.4 Report Exclusions

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

(i) Work Health & Safety Act and Regulations;

(ii) Worksafe Authority requirements;

(iii) Structural and Services Design Documentation;

(iv) The individual requirements of service authorities (i.e. Telecommunication Carriers, Sydney Water, Energy Providers);

(v) The Disability (Access to Premises - Buildings) Standards 2010;

(vi) The Disability Discrimination Act (DDA) 1992;

(vii) The Accessibility Provisions of the BCA; and

(viii) The Energy Efficiency Provisions of the BCA.

2.0 DEVELOPMENT DESCRIPTION

2.1 General

In accordance with the BCA, the assessment undertaken relates to the proposed development of Kyeemagh Public School.

For the purpose of the BCA the subject development may be described as contained below.

2.2 Building Description

Building Classification:	Class 5	Offices
	Class 9b	Primary School / Hall / Library
Storeys contained:	Two (2)	Main school building
	One (1)	Offices / Hall
Rise in Storeys:	Two (2)	Main school building
	One (1)	Offices / Hall
Type of Construction:	Type B	Main school building
	Type C	Offices / Hall
Effective Height:	<12m	
Floor Area:	~5,460m^2	Main school building
	~320m^2	Offices
	~500m^2	Hall
Volume	Unknown	

2.3 BCA Assessment – 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 buildings on the allotment have not been treated as having an air-handling system which recycles air from one (1) fire compartment (i.e. sole-occupancy unit) to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one (1) fire compartment to another fire compartment;

(ii) Exits have been treated as coinciding with one being open to the sky;

(iii) The buildings have been treated as containing primary school students;

(iv) The student occupant population has been treated as being evenly distributed throughout the school at any one time;

(v) The covered walkway connecting the offices and the hall has been treated as a Class 10a building/structure as it is a sterile space and would not constitute as increasing the fire load to either building parts;

(vi) The stage within the hall has been determined as having a floor area less than 50m^2;

(vii) The hall has been determined as accommodating ~320 occupants calculated in accordance with Clause D1.13 of the BCA;

(viii) The school is understood to accommodate a maximum of 600 students and 32 staff (with 50% gender split);

(ix) The hall has been treated as being directly associated with the school and not proposed to be use out of school hours. Hence, the number of required sanitary facilities for the school is determined inclusive of the hall;

3.0 BCA ASSESSMENT SUMMARY – CLASS 2-9 BUILDINGS

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 'Additional design input' 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 'additional design input', a detailed analysis and commentary is provided within Part 4 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			✓
C1.9	non-combustible building elements			✓
C1.10	fire hazard properties			✓
C1.14	ancillary elements			✓
C2.2	general floor area and volume limitations	✓		
C2.10	separation by lift shafts			✓
C2.12	separation of equipment			✓
C2.13	electricity supply system			✓
C3.2	protection of openings in external walls	✓		
C3.12	openings in floors and ceilings for services			✓
C3.15	openings for service installations			✓
C3.16	construction joints			✓
C3.17	columns protected with lightweight construction to achieve an FRL			✓

3.4 Section D - Access & Egress

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
D1.2	number exits required	✓		
D1.4	exit travel distances	✓		
D1.5	distance between alternative exits	✓		
D1.6	dimensions of exits and paths of travel to exits			✓
D1.9	travel by non-fire-isolated stairways or ramps	✓		
D1.10	discharge from exits			✓
D1.17	access to lift pits			✓
D2.7	installations in exits and paths of travel			✓
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			✓
D2.24	protection of openable windows			✓

3.5 Section E - Services & Equipment

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
E1.3	fire hydrants		✓	
E1.4	fire hose reels			✓
E1.6	portable fire extinguishers			✓
E2.2	general provisions			✓
E3.1	lift installations			✓
E3.3	warning against use of lifts in fire			✓
E4.2	emergency lighting requirements			✓
E4.5	exit signs			✓
E4.6	direction signs			✓

3.6 Section F - Health & Amenity

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
F1.0	weatherproofing of external walls			✓
F1.1	stormwater drainage			✓
F1.4	external above ground membranes			✓

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
F1.5	roof coverings			✓
F1.6	sarking			✓
F1.7	waterproofing of wet areas in buildings			✓
F1.10	damp-proofing of floors on the ground			✓
F2.3	facilities in class 3 to 9 buildings			✓
F2.5	construction of sanitary compartments			✓
F3.1	heights of rooms and other spaces			✓
F4.1	provision of natural light			✓
F4.2	methods and extent of natural lighting			✓
F4.4	artificial lighting			✓
F4.5	ventilation of rooms			✓
F4.8	restriction on location of sanitary compartments			✓

4.0 BCA DETAILED ASSESSMENT – CLASS 2-9 BUILDINGS

4.1 General

With reference to the 'BCA Assessment Summary' contained within Part 3.1 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 is required to be greater than the most critical action effect determined by B1.2 of the BCA, AS/NZS 1170.0-2002 and B1.4 of the BCA.
Cl. B1.2	The structural design of the building is required to be determined in accordance with the varying "actions" considerations contained within this clause (i.e. permanent actions, imposed actions, wind / snow / ice / earthquake actions).
Cl. B1.4	The structural resistance of materials and forms of construction are required to be determined in accordance with the following: (i) Masonry - AS3700-2011; (ii) Concrete construction - AS3600-2009; (iii) Steel construction - AS4100-1998 or AS/NZS4600-2005; (iv) Piling - AS2159-2009; (v) Glazed assemblies - AS2047-2014 (external) and AS1288-2006 (internal); and (vi) Metal roof sheeting – AS1562.1-1992.

4.3 Section C – Fire Resistance

Cl. Spec. C1.1	The building elements are required to incorporate the following fire resistance levels (FRL) and characteristics: **Main school building** ❑ *External walls (including any column and other building element incorporated therein)* (i) FRL of 120/120/120 (if loadbearing) or --/120/120 (if non-loadbearing), where located less than 1.5m from a fire-source feature (i.e. adjoining allotment boundary or far side of the road); (ii) FRL of 120/90/60 (if loadbearing) or --/90/60 (if non-loadbearing), where located more than 1.5m to less than 3m from a fire-source feature; (iii) FRL of 120/30/30 (if loadbearing) or --/--/-- (if non-loadbearing), where located more than 3m to less than 9m from a fire-source feature;

Cl. Spec. C1.1 *Cont'd*

(iv) FRL of 120/30/-- (if loadbearing) or --/--/-- (if non-loadbearing), where located more than 9m to less than 18m from a fire-source feature.

- ❑ *External columns*

  FRL of 120/--/-- for loadbearing columns, where located less than 18m from a fire-source feature (i.e. adjoining allotment boundary or far side of the road).

- ❑ *Other loadbearing internal walls, internal beams, trusses and the columns*

  FRL of 120/--/--.

- ❑ *Floors*

  (i) FRL of 30/30/30 for intermediate floor;

  (ii) Nil FRL for slab laid directly on the ground.

- ❑ *Roof*

  Nil FRL.

Office and hall building

- ❑ *External walls (including any column and other building element incorporated therein)*

  (i) FRL of 90/90/90, where located less than 1.5m from a fire-source feature (i.e. adjoining allotment boundary or far side of the road);

  (ii) FRL of 60/60/60, where located more than 1.5m to less than 3m from a fire-source feature;

  (iii) Nil FRL, where located 3m or more from a fire-source feature.

- ❑ *External columns*

  (i) FRL of 90/--/--, where located less than 1.5m from a fire-source feature;

  (ii) FRL of 60/--/--, where located more than 1.5m to less than 3m from a fire-source feature;

  (iii) Nil FRL where located 3m or more from a fire source feature.

- ❑ *Other loadbearing internal walls, internal beams, trusses and the columns*

  FRL of 120/--/--.

Cl. Spec. C1.1 *Cont'd*	❑ *Roof* Nil FRL. **General** ❑ *General notes* (i) External walls, the flooring and floor framing of lifts pits are required to be non-combustible; (ii) Building elements for the main school building (Type B construction) are required to achieve an FRL from both sides; (iii) Building elements for the office and hall building (Tye C construction) are only required to achieve an FRL from the outside; (iv) Any loadbearing internal wall (including shafts) is required to be of concrete or masonry. ❑ *Concessions* (i) Internal columns and internal walls other than fire walls and shaft walls within the storey immediately below the roof within the main school building, need not comply with Table 4 of Spec. C1.1, i.e. need not have an FRL. ❑ *Method of attachment not to reduce the fire-resistance of building elements* The method of attaching or installing a finish, lining, ancillary element or service installation to a building element must not reduce the fire-resistance of that element to below that required.
Cl. C1.8	Any lightweight construction to internal walls required to achieve an FRL or protection to steel columns required achieve an FRL are required to be tested for resistance in accordance with this clause.
Cl. C1.9	The following building elements and their components must be non-combustible – (i) External 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.

Cl. C1.10 The fire hazard properties for materials are as follows:

- ❑ *Floor linings and floor coverings*

  (i) A critical radiant flux not less than 2.2kW/m^2 for any floor materials;

  (ii) A maximum smoke development rate of 750 percent-minutes; and

  (iii) Group 1 or 2 for any portion of the floor covering that continues more than 150mm up a wall.

- ❑ *Wall linings and ceiling linings*

  A material used as a finish, surface, lining or attachment to a wall or ceiling is required to:

  (i) Be a Group 1 or Group 2 material for public corridors and ceilings in specific areas (i.e. classrooms);

  (ii) Be a Group 1 or Group 2 or Group 3 material for walls in specific areas (i.e. classrooms) and ceilings in other areas; and

  (iii) Have a smoke growth rate index of not more than 100 or an average specific extinction area less than 250m^2/kg.

- ❑ *Air-handling ductwork*

  Rigid and flexible ductwork is required to comply with the fire hazard properties set out in AS4254-2012 Parts 1 and 2.

- ❑ *Lift cars*

  Materials used as:

  (i) Floor linings and floor coverings must have acritical radiant flux not less than 2.2kW/m^2; and

  (ii) Group 1 or 2 material in accordance with AS5637.1 for any portion of the floor covering that continues more than 150mm up a wall.

- ❑ *Other materials*

  (i) Sarking-type materials are required to have a Flammability index not more than 5; and

  (ii) Other materials and insulation materials are required to have a Spread-of-Flame Index of not more than 9 and a Smoke-Developed Index of not more than 8 if the Spread-of- Flame Index is more than 5.

Cl. C1.14	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the elements permitted under this clause.
Cl. C2.12	If the lift motor and lift control panel are not contained within the lift shaft, then the equipment is required to be separated with construction achieving an FRL of 120/120/120 or -/120/120 (if non-loadbearing) and any access doorway protected with a self-closing fire door having an FRL of --/120/30 to non-combustible and required to have an FRL being not less than 60/60/60).
Cl. C2.13	(i) The main switch board within the building which sustains emergency equipment operating in the emergency mode must be separated by construction having an FRL of not less than 120/120/120 and doorway to it must be protected with a fire door having a minimum FRL of --/120/30; (ii) Electrical conductors within the building that supply a switch board covered under (i) above must be protected with construction having an FRL of 120/120/120, and be classified in accordance with AS/NZS 3013-2005 as WS53W or WS52W, as applicable; and (iii) In switch boards that supply the emergency equipment mentioned above the emergency equipment switch gear must be separated by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switch gear. (iv) For the purposes of the above, emergency equipment includes fire hydrant booster pumps and control & indicating equipment.
Cl. C3.12	Where a service passes through a floor required to have an FRL or (refer to Cl. C1.1), that service is required to protected by either a shaft in accordance with Cl. C1.1 or in accordance with Cl. C3.15.
Cl. C3.15	Any openings for service installations (electrical, mechanical, plumbing, etc.) that penetrates a building element which is required to have an FRL is required to be protected (i.e. fire seals).
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 are required to be protected in a manner identical with a prototype tested in accordance with AS1530.4-2015 to achieve the required FRL.
Cl. C3.17	Where a column is protected by lightweight construction to achieve the required FRL defined by Cl. C1.1 passes through a building element that is also required to have an FRL, it is required to be installed using a method and materials identical with the prototype assembly of the construction which has achieved the required FRL.

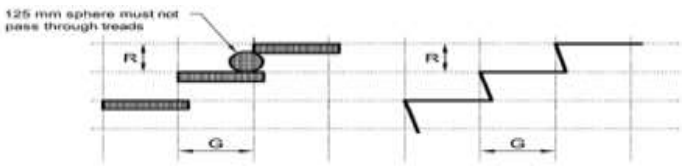
4.4 Section D – Access & Egress

Cl. D1.6	The first floor of the main school building is noted as accommodating a maximum of 1,280mm persons based on the combined aggregate width of the egress stairways provided. The path of travel to an exit and any required exit is to have an unobstructed height throughout of not less than 2m (except a doorway which can be 1980mm) and an unobstructed width not less than 1m (except a doorway).
Cl. D1.10	The discharge points of the exits are required to have unobstructed width of 1m or required aggregate egress width and be via a stairway, ramp or other incline having a gradient of no steeper than 1:8 or complying with AS1428.1-2009 (where required to be accessible for people with a disability).
Cl. D1.17	Access into the lift pit must – (i) Where the pit depth is not more than 3m, be through the lowest landing doors; or (ii) Where the pit depth is more than 3m, be provided through an access doorway complying with this clause.
Cl. D2.3	Required non-fire isolated stairways must be constructed in accordance with D2.2, or only of – (a) reinforced or prestressed concrete; or (b) steel in no part less than 6mm thick; or (c) timber that – (i) Has a finished thickness of not less than 44mm; and (ii) Has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii) Has not been joined by means of glue unless it has been laminated and glued with resorcinol phenol formaldehyde glue.
Cl. D2.7	(i) Gas or other fuel services are not permitted to be installed within the required exits; and (ii) Any services or equipment (being electrical meters, distribution boards or the like) installed within the hallway are required to be enclosed by non-combustible construction or a fire-protective covering (i.e. 1 layer of 13mm fire-protective grade plasterboard) with doorway(s) or opening(s) suitably sealed against smoke spreading from the enclosure.

Cl. D2.13

The going, riser and steepness dimension of the stairways are required to 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



(i) The risers and goings are required to be constant throughout the flight except variations of no greater than 5mm are permitted between adjacent risers or goings and no greater than 10mm are permitted between the smallest and largest goings or risers in a flight; and

(ii) The stair treads are required to have a surface or nosing strip achieving a slip-resistance classification of P3 or R10 in dry and P4 or R11 in wet tested in accordance with AS4586-2013.

Cl. D2.14

Stair landings are required to be a minimum of 750mm long with a gradient not steeper than 1:50 and a surface or nosing strip achieving a slip-resistance classification.

The surface or strip is required to achieve a slip-resistance classification of P3 or R10 in dry and P4 or R11 in wet tested in accordance with AS4586-2013.

Cl. D2.15

The threshold of any doorway is not permitted to incorporate a step or ramp at any point closer to the doorway than the width of the door leaf.

That is unless the doorway opens to a road or open space and the door sill is not more than 190mm above the finished surface of the ground.

Cl. D2.16

Balustrades are required to be constructed as follows:

(i) To a height not less than 865mm above the nosings of the stair treads or the floor of a ramp;

(ii) 1000mm above the floor of any access path, balcony, landing or the like;

(iii) Any opening does not permit a 125mm sphere to pass through it and for stairs, the space is measured above the nosings; and

(iv) For floors more than 4m above the surface beneath, any horizontal or near horizontal elements between 150mm and 760mm must not facilitate climbing.

Cl. D2.17	Handrails are required along one side of each stairway flight and ramp, unless otherwise required by Clause D3.3. The handrails are required to fixed at a height of not less than 865mm measured above the nosings of the stair treads or ramp and be continuous such that no obstruction on or above them will tend to break a hand hold.
Cl. D2.19	A doorway serving as a required exit or forming part of a required exit – (i) Must not be fitted with a revolving door, roller shutter or tilt-up door; (iii) Must not be fitted with a sliding door unless – a. It leads directly to a road or open space; and b. The door is able to be opened manually under a force of not more than 110N; and (iv) If fitted with a door which is power-operated – a. It must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source; and b. If it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.
Cl. D2.20	A swinging door in a required exit or forming part of a required exit must swing in the direction of egress unless – (i) It serves a building or part with a floor area not more than 200m2, it is the only required exit from the building or part and it is fitted with a device for holding it in the open position; or (ii) It serves a sanitary compartment or airlock (in which case it may swing in either direction).
Cl. D2.21	Any door in a required exit, forming part of a required exit or in the path of travel to a required exit are required to be readily operable without a key from the side that faces a person seeking egress and: (i) By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor; ▪ Be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and ▪ Have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm nor more than 45mm; or ▪ A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor.

Cl. D2.21 *Cont'd*	(ii) Is fitted with a fail-safe device which automatically unlocks the door upon activation of any smoke or any other detector deemed suitable in accordance with AS1670.1-2015 installed throughout the building. Where the hall accommodates more than 100 persons, it must be readily openable – (i) Without a key from the side that faces a person seeking egress; and (ii) By a single hand pushing action on a single device such as a panic bar located between 900mm and 1.2m from the floor.
Cl. D2.24	Window openings require protection, if the floor below the window is 4m above the surface beneath. Protection need not be provided where the lowest level of the window is 1.7m or more above the finished floor level. Protection can be in the form of the following: (i) Have a barrier not less than 865mm above the floor, with any horizontal or near horizontal elements between 150mm and 760mm must not facilitate climbing; (ii) The openable portion of the window must be protected with a device to restrict the window opening or a screen with secure fittings; (i) The device or screen must not permit a sphere greater than 125mm is permitted to pass through; (ii) Resist the outward horizontal action of 250N against the window or screen; and (iii) Have a child resistant release mechanism is able to be removed, unlocked or over ridden.

4.5 Section E – Services & Equipment

Cl. E1.3	The fire hydrant booster assembly is noted as not being located within sight of the main entry. Compliance is readily achievable via a performance-based assessment of the current site layout and the proposed location of the hydrant booster assembly. Fire hydrants complying with AS2419.1-2005 are required to serve the buildings. All portions of the building shall be within reach of a 10m hose stream, issuing from a nozzle at the end of a 60m length of hose laid on the ground, from an external dual pillar hydrant located not less than 10m from the building.

Cl. E1.3 *Cont'd*	A fire hydrant system is required to serve the building compliant with AS2419.1-2005. In this regard, the following is noted – (i) Internal hydrants are required to be located within 4m of non-fire-isolated exits, where coverage is not achieved by external on-site hydrants; (ii) Where located within the external wall of the building or affixed to the external wall of the building, the external dual pillar hydrant is required separated from the building with construction having an FRL of 90/90/90 for a distance of 2m either side or 3m above the upper hose connections.
Cl. E1.4	A hose reel system complying with AS2441-2005 is required to serve the non-classroom parts, i.e. hall and offices. All points on a floor are required to be in reach of a 4m hose stream at the end of a 36m hose length laid on the floor. Additional hose reels can be installed along the path of travel where additional coverage is required.
Cl. E1.6	Portable fire extinguishers complying with AS2444-2001 are required as follows: (i) To cover Class A fire risks in classroom parts; (ii) To cover Class B fire risks (if more than 50L excluding vehicle fuel tanks is stored); (iii) To cover Class F fire risks associated with cooking fats and oils; and (iv) To cover Class AE or E fire risks associated with emergency service switchboards.
Cl. E2.2	The buildings require the following smoke hazard management system: (i) Automatic shutdown of any air handling system (other than non-ducted individual room units with a capability not more than 1000l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 11 of AS/NZS1668.1-1998) on activation of smoke detectors complying with Clause 5 of Specification of E2.2a.
Cl. E3.1	The electric passenger lift installation or an electrohydraulic passenger lift installation is required to comply with Specification E3.1.
Cl. E3.3	Warning signage is required to be displayed near every call button for the passenger lift.
Cl. E4.2	Emergency lighting complying with AS2293.1-2005 is required to be installed throughout.

Cl. E4.5	Exit signage complying with AS2293.1-2005 is required to be install above or adjacent to any doorway(s) serving as required exit(s) from the building.
Cl. E4.6	If an exit is not readily apparent to persons occupying or visiting either the building, then exit signs complying with AS2293.1-2005 are required to be installed in appropriate positions in corridors, hallways, lobbies and the like, indicating the direction to a required exit.

4.6 Section F – Health & Amenity

Cl. F1.0	Weatherproofing of external wall(s) are required to comply with Verification Method FV1 (i.e. certificate of conformity).
Cl. F1.1	Stormwater drainage must comply with AS/NZS3500.3-2015.
Cl. F1.4	Waterproofing membranes for external above ground use (i.e. balconies) are required to comply with AS4654-2012.
Cl. F1.5	The roof must be covered with materials complying with the requirements of this clause.
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. F1.10	A floor laid directly onto ground or fill must be provided with a vapour barrier complying with AS2870-2011.
Cl. F1.13	The glazed assemblies in an external wall must comply with AS2047-2014 for resistance to water penetration.
Cl. F2.3	The number of required sanitary facilities for school has been determined in accordance with Table F2.3. A summary of the calculation of required sanitary facilities is included as Appendix 2.
Cl. F2.5	(i) The doors and partitions that separate adjacent compartments are required to extend 1.8m above the floor; and (ii) Doors to fully enclosed sanitary compartments must either: a. Open outwards; b. Slide; or c. Be readily removable from the outside of the sanitary compartment unless there is clear space of 1200mm between the closet pan and the doorway (i.e. lift-off hinges).

Cl. F3.1	Ceiling heights are required as follows: (i) Bathrooms, sanitary compartment, store room or the like – 2.1m; and (ii) Classrooms, corridors or spaces that accommodate less than 100 people and offices – 2.4m; and (iii) Classrooms, corridors or spaces that accommodate more than 100 people – 2.7m; (iv) Above a stairway, ramp, landing or the like – 2m.
Cl. F4.1	General purpose classrooms are required to have natural lighting. Refer to F4.2 for options.
Cl. F4.2	Natural lighting can be provided by either: (i) Window(s) having a light transmitting area (exclusive of framing members) of not less than 10% of the floor area of the room; or (ii) Roof light(s) having a light transmitting area (exclusive of framing members) of not less than 3% of the floor area of the room; or (iii) A combination of both. Natural light provisions can be further assessed as the design progresses.
Cl. F4.4	Where compliant natural lighting is not provided to non-habitable rooms, artificial lighting complying with AS/NZS1680.0-2009 is required to be installed.
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 means complying with AS1668.2-2012.
Cl. F4.8	Sanitary compartments must not open directly into - (i) A kitchen or pantry; or (ii) A room used for public assembly (i.e. any room within the secondary school) (iii) A workplace normally occupied by more than one person

5.0 CONCLUSION

5.1 General

Having regards to the above, the development is capable of complying with the BCA.

Report By

Nicolas Hurtado
Associate
For Design Confidence

Verified By

Luke Sheehy
Principal
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APPENDIX 1

The BCA Design Assessment was based upon the Architectural documentation prepared by dwp, namely:

DRAWING NUMBER	DESCRIPTION	DATE	REVISION
CS001	SITE PLAN	18.06.2018	F
CS002	GROUND FLOOR	29.06.2018	J
CS003	LEVEL 1	18.06.2018	F
CS101	ELEVATIONS	18.06.2018	B

APPENDIX 2

The number of required sanitary facilities is set out below:

	OCCUPANT POPULATION NUMBER		WC REQUIRED	URINAL REQUIRED	WASHBASIN REQUIRED
School (incl. Hall, Staff Offices, Main School Building)					
Students	**300**	Male	*5*	*4*	6
	300	Female	9	-	6
Employees	**16**	Male	*1*	*1*	*1*
	16	Female	2	-	*1*

- Sanitary facilities are not permitted to be shared between genders
- Sanitary facilities are not permitted to be shared between employee and students
- Accessible sanitary facilities may be counted towards each gender
- The hall has not been assessed as being occupied outside of school hours and hence has been assessed as being directly associated with the school

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