

**Our Ref: D2015-069**

**03 December 2015**

**Medowie Christian School  
6B Waropara Road, Medowie**

**BUILDING CODE OF AUSTRALIA 2015**

**CAPABILITY STATEMENT FOR DA SUBMISSION**

Prepared for

**epm projects**

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## 0.0 Author and Reviewer

### Document acceptance

Author		Position	Date
Prepared by	Dean Morton	Director	03/12/2015

### Revision history

Revision No.	Reviewed by	Description	Date
R01	Dean Morton	Draft	28/09/2015
R02	Dean Morton	Draft revision 1	24/11/2015
R03	Dean Morton	Final	03/12/2015

## 1.0 Executive Summary

This report has been prepared so as to assess the architectural documentation as detailed in Part 6 in accordance with the Building Code of Australia Volume 1 (BCA) 2015 and adopted standards.

The proposed development is the construction of a two storey administration building associated with the current education facility use.

The assessment has revealed that the proposed development will be capable of achieving compliance with BCA 2015. The following matters will require further consideration during detailed design development at the construction stage of the project:

1. The building is to comply with Type C construction, note there are no requirements for fire rating or fire sealing of penetrations.
2. There stairs serving the first floor are to comply with clauses 11 and 12 of AS 1428.1 and have tactile indicators to AS/NZS 1428.4.1.
3. There are to be ambulant accessible cubicles complying with Section 16 of AS 1428.1 to both male and female sanitary compartments on the ground floor and a unisex facility to the first floor.
4. Ensure that access for disabled persons is compliant with respect to circulation spaces to corridors and doors generally.
5. The hydrant coverage is to be assessed by a hydraulic consultant to confirm compliance with AS 2419.1-2005 can be achieved.
6. Fire hose reels are to be provided to afford coverage throughout the building to AS 2441-2005.

## 2.0 Property Description

### 2.1 Location

The subject building is located at Waropara Road in Medowie and is bounded by commercial/special uses to the south and residential lots to the east and north. The site is taken to face to the west for the purpose of the report.

### 2.2 Building Description

<b><i>Use / Classification</i></b>	Class 5:	Office/administration
<b><i>Rise in Storeys</i></b>	The development will have a rise of two storeys	
<b><i>Floor Area</i></b>	The following are maximum floor areas of fire compartments applicable to the Class 5 uses.	
	Class 5 - Maximum floor area of	3000m <sup>2</sup>
	Class 5 portions do not exceed the maximum size of fire compartments in table C2.2 of the BCA 2015	
<b><i>Volume</i></b>	The following are maximum volumes of fire compartments applicable to the Class 5 uses.	
	Class 5 - Maximum volume of	18,000m <sup>3</sup>
	Class 5 portions do not exceed the maximum size of fire compartments in table C2.2 of the BCA 2015	
<b><i>Effective Height</i></b>	The building will have an effective height of 3.6m	
<b><i>Type of Construction</i></b>	The building requires Type C Construction.	
<b><i>Climate Zone</i></b>	For the purposes of Section J the climate zone is 5	
<b><i>Population</i></b>	The population as determined from table D1.13 is: <ul style="list-style-type: none"> <li>• First floor- 56 persons</li> <li>• Ground floor – 35 persons</li> </ul>	

## 3.0 Building Code of Australia Assessment

### 3.1 Fire Resistance and Stability (Section C, BCA)

#### Fire Resistance

The building is to comply with Clause C1.1 and Clause 2 & 3 of Specification C1.1, for a building required to have Type C construction. Refer to Table 5 of Specification C1.1 of the BCA for the specific Fire Resistance Levels [FRL's].

**Structural:** the ability to maintain stability and adequate load-bearing capacity as determined by AS 1530.4.

**Integrity:** the ability to resist the passage of flames and hot gases specified in AS 1530.4.

**Insulation:** The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.

FRL's are generally as follows.

Building component	Class 5
External walls- load bearing (0 > 1.5m from FSF)	90/90/90
External walls- load bearing (1.5 > 3.0m from FSF)	60/60/60
External walls- load bearing (<3.0m from FSF)	-/-/-
External walls non load bearing (0 > 1.5m from FSF)	n/a
External walls non load bearing (1.5 > 3.0m from FSF)	n/a
External walls non load bearing (<3.0m from FSF)	n/a
External column (within 3m of a FSF)	90/-/-
Shaft walls (lift and stairs)- load bearing	n/a
Shaft walls (lift and stairs)- non load bearing	n/a
Service shafts- load bearing	n/a
Service shafts- non load bearing	n/a
Common walls and fire walls	90/90/90
Walls bounding between SOU (load bearing)	-/-/-
Walls bounding between SOU (non load bearing)	-/-/-
Load bearing internal walls and columns	-/-/-
Loading bearing columns and walls in top most storey	n/a
Floors	n/a
Roofs	Class 5

**Note-** it is advised that there are no specific fire resistance levels to be obtained for any element of the proposed building, the building is not considered to be exposed to any fire source feature.

### **Lightweight construction & fire hazard properties**

The fire hazard properties of floor, wall and ceiling linings are to comply with Part C1.10 and Specification C1.10 of the BCA. All materials selected for use in the construction should be accompanied by a valid test report demonstrating compliance with defined fire hazard properties

### **Compartmentation & separation**

There is no proposed or require fire separation of compartmentation required for the proposed building/ the building is deemed to be a single fire compartment.

### **Protection of Openings**

There are no openings deemed to be exposed to a fire source feature requiring protection.

### **Vertical Separation of openings**

The building is to be of type C construction and as such there is no requirement for spandrel separation of openings.

### **Fire sealing of penetrations**

There are no service penetrations required to be sealed to the requirements of Clause C3.12 and C3.15 of the BCA

### **Electrical Supply**

Electrical equipment is to be separated from the building in accordance with Clause C2.13 of the BCA. Any main switchboard is to be constructed to achieve a fire resistance level of 120/120/120 with the door being –/120/30 fire rated, unless higher FRL's required by electricity supplier.

### **Protection of Equipment**

The following equipment is to be fire separated with construction complying with Clause C2.12 (d) of the BCA.

- (i) lift motors and lift control panels; or
- (ii) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.

Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.

## 3.2. Access and Egress (Section D, BCA)

### **Number of exits required**

It is noted that as the building requires a minimum of one exit to every storey and part of a storey as required in D1.2 of the BCA, the plans currently detail compliance in this regard.

### **Exit travel distances**

Exit travel distances to a required exit or a point of choice between exits generally comply with Clauses D1.4 and D1.5 of the BCA. In this regard travel distances does not to exceed 20m to a point in choice in travel and 40m to an exit.

### **Distance between alternative exits**

The distance between alternative exits generally comply with Clause D1.5 of the BCA. In this regard the distance between exits does not exceed 60m.

### **Travel via fire isolated exits**

There are no fire isolated exits required as the building is of two storeys only.

### **Dimensions of exits**

Exits and paths of travel to exits are to comply with D1.6 of the BCA. Generally exits widths are 1m in width clear of any obstruction including hand rails or other fixtures. Reductions in width are available at doorways to not less than 750mm clear.

The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space.

The required aggregate width based on the population determined in Section 2.2 of the report is required to be 1m. The plans generally detail compliance in this regard.

### **Construction of Stairways**

Goings and risers are to be designed to comply with the provisions of Clause D2.13 of the BCA and to generally achieve a minimum going of 250mm and maximum rise of 190mm.

There is to be no step or ramp within the width of the door leaf to a door threshold unless it is an external door in which the maximum step is not to exceed 190mm. The plans generally detail compliance in this regard.

### **Handrails**

Handrails will be provided to stairways as required by Clause D2.17 of the BCA, internal and external stairs they are to be provided both sides of the flight in accordance with AS 1428.1-2009.

Plans are to be detailed further for handrails to the internal and external stairs at the cc stage. Further it is advised that if the school has primary aged children who may utilize the stairs it is recommended to incorporate the additional handrail located at between 665mm-750mm AFFL and nosing line as is not technically required due to the building adopting a class 5 classification.

### **Balustrades**

Balustrades will be provided for all areas where it is possible to fall more than 1m from the floor level to a lower surface. In general balustrades are to have no gap that will permit a 125mm diameter sphere to pass through, balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm above the floor that facilitate climbing.

Compliance can be readily achieved and is to be further detailed at the construction certificate stage.

### **Egress Doors**

All exit doors will swing in the direction of egress and are required to be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA, the latches will be downward or pushing action on a single device located between 900-1100mm above floor level.

Any door automatic door acting as an exit door (final discharge door) will be required to be fitted with fail safe operation to open automatically on power loss.

### **Protection of openable windows**

There are no windows that require protection.

### **Access for people with a disability**

The proposed building is required to comply with the following:

- The Disability (Access to Premises — Buildings), Standards 2010;
- Part D3 of BCA;
- Australian Standard AS 1428.1-2009 , AS/NZS 1428.4.1-2009, AS/NZS 2890.6-2009

Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4, which requires access as follows:



**Class 5** – To and within all areas normally used by the occupants.

Items for further consideration:

- The lift is to have an internal car size of 1100 x 1400mm
- Lifts are to comply with AS 1735.12-1999
- The location of lift call buttons is not to be within 500mm of an internal corner
- Latch side and high side circulation spaces to be provided in accordance with AS 1428.1-2009
- Ensure corridor widths achieve compliance relevant to the direction of approach to the doorway and also dead end turning circles
- The internal stair is to be provided with handrails both sides to clauses 11 and 12 of AS 1428.1-2009 (including colour contrasting nosing's and opaque risers) and have tactile indicators to the top and bottom to AS/NZS 1428.4.1. Furthermore where the stair is unenclosed and results in a reduction in head height to the soffit of less than 2m there is to be warning indicators or barriers as per AS/NZS 1428.4.1.
- 1:20 plan and elevation views of the accessible w/c compartment are to be provided indicating critical dimensions at the cc stage.
- There is to be a path of travel from the allotment boundary to the principal pedestrian entry to the building.
- There is to be signage at external doors with illuminated exit signs complying with Clause D3.6 and Specification D3.6 including the word "EXIT" and indicate the level

It is noted that the plans generally detail compliance and that further review as plans are developed will be required.

### **3.3. Services and Equipment (Section E, BCA)**

#### **Hydrant Systems**

The building is required to be provided with a system of hydrant coverage in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1- 2005

Coverage can be readily achieved and is subject to design from a suitably qualified person.

#### **Hose Reel Systems**

The building will be provided with a fire hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441 - 2005. This system must cover the entire development.

Locations of fire hose reels are required to be located 4m from an exit. Coverage can be readily achieved and is subject to design from a suitably qualified person.

### **Portable Fire Extinguishers**

Fire extinguishers are to be provided in accordance the provisions of Clause E1.6 of the BCA and AS2444 - 2001.

### **Exit and Emergency Lighting**

Emergency lighting will be provided throughout the building in accordance with Part E4 of the BCA and AS 2293.1.2005

### **Lifts**

Compliance with Specification E3.1 is required for an electric or electrohydraulic lift installation.

Every passenger lift is to be provided with handrails, minimum internal floor dimensions (1100mm x 1400mm), clear door opening dimensions and car control buttons in accordance with AS1735.12 and be fitted with a series of sensory devices per clause E3.6 of the BCA.

### **Smoke Hazard Management**

The building is not required to be provided with any specific smoke hazard management services, eg smoke detection is not required, nor is any automatic shutdown of air handling systems.

## **3.4. Health and Amenity (Section F, BCA)**

### **Damp and Weatherproofing**

Adequate measures will be employed to ensure compliance Part F1 of the BCA is achieved in terms of weatherproofing.

### **Sanitary and Other facilities**

Facilities will be provided in accordance with the provisions of Clause/Table F2.3 of the BCA as follows:

<b>Population</b>	<b>Pans</b>	<b>Basins</b>	<b>Urinals</b>
<b>MALES</b>	<b>3</b>	<b>2</b>	<b>2</b>
<b>FEMALES</b>	<b>3</b>	<b>2</b>	

It is noted that a unisex accessible facility may be counted once for each sex. It is noted that the proposed number of sanitary facilities exceed the minimum number required.

### **Sanitary Facilities for People with Disabilities**

Facilities will be provided in accordance with the provisions of Clause F2.3 and AS1428.1 – 2009. In this regard there is a wheelchair accessible sanitary compartment to every floor containing sanitary facilities. Further there is an ambulant accessible cubicle not less than 50% of banks of toilets in addition to a wheel chair accessible compartment.

Compliance can be generally detailed and is subject to future detailed design development at the construction certificate stage.

### **Ceiling Heights**

The following minimum building ceiling heights must be maintained.

- Common kitchen, laundry or the like – 2.1m
- Corridor, passageway or the like – 2.1m
- Bathroom, shower, sanitary compartment or the like – 2.1m
- Habitable rooms including common areas – 2.4m
- Stairways – 2.0m

### **Natural and Artificial Lighting**

Natural or artificial lighting may be provided throughout the building in accordance with the provisions of Clause F4.4 of the BCA and AS1680.0.

Compliance can be readily achieved and is subject to detailed design development at the construction certificate stage.

### **Ventilation**

The building is required to be provided with ventilation in accordance with the provisions of Clause F4.5 of the BCA. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2-2012.

### **Sound Transmission and Insulation**

There are no provision of acoustic privacy for this class of building.

### **3.5. Ancillary Provisions (Section G, BCA)**

#### **Cleaning of Windows**

There are no provisions for window cleaning under this part as the building does not exceed 3 storeys.

### **3.6. Energy Efficient Construction (Section J, BCA)**

The following BCA Section J provisions are applicable to the building:

#### **Building Fabric**

Parts of the building forming an envelope to a conditioned space are to achieve the minimum construction requirements for insulation R-Values required by BCA Part J1

Please note that the development is located within Climate Zone 5. In general the external walls to the envelope are to achieve R2.8, internal walls bounding a non-conditioned space R1.8 and the roof/ceiling R3.2 (downwards).

#### **Glazing**

The energy efficiency of the selected glazing must comply with Part J2 of the BCA as appropriate to Climate Zone 5 and the orientation, exposure and shading of the window.

#### **Building Sealing**

Openings in the building such as doors, windows, exhaust fans and ventilation systems forming part of an envelope to a conditioned space must be sealed to the requirements of Part J3 of the BCA to prevent loss of conditioned air.

In that regard, all external doorways and windows must be fitted with a draft seal, exhaust fans to have dampers, there are to be tight fitting skirting boards, cornices and architraves. The requirement for seals does not apply to fire doors fitted between the fire-isolated stairways in the conditioned areas of the building.

#### **Air-conditioning and Ventilation System**

The design of all mechanical air-conditioning and ventilation systems must achieve compliance with Part J5 of the BCA with regard to input power and efficiency features.

#### **Artificial Lighting and Power**

The building is to maintain maximum lighting power levels and control systems as applicable. The design of lighting systems must comply with BCA Part J6. In general the lighting to the office areas is not to exceed 9W/m<sup>2</sup> and in store rooms 8W/m<sup>2</sup>.

### **Hot Water Supply**

Hot water supply systems will be installed in accordance with Part J7 of the BCA and AS/NZS 3500.4 and incorporate insulation to inlet and outlet lines of hot water storage units.

### **Access for Maintenance and Facilities for Monitoring of Energy Use**

The building is to have facilities for maintenance and energy monitoring in compliance with BCA Part J8 and the NSW variations.

## 4. Fire Safety and Other Measures

### 4.1. Proposed Fire Safety Measures

In terms of the proposed works the following fire safety measures are proposed to be installed;

Fire Safety Measure	Standard of Performance
Emergency lighting	BCA 2015 Clause E4.2 & E4.4, AS 2293.1-2005
Exit and directional signage	BCA 2015 Clause E4.4, E4.5, (NSW E4.6) & E4.8, AS 2293.1-2005
Fire hydrant systems	BCA 2015 Clause C2.12, E1.3, AS 2419.1-2005
Fire hose reel systems	BCA 2015 Clause E1.4, AS 2441-2005
Portable fire extinguishers	BCA 2015 Clause E1.6, AS 2444-2001
Warning and operational signs	BCA 2015 Clause D3.6, Specification D3.6

## 5. Conclusion

Following an assessment of the proposed building it is considered that the proposed building, can achieve compliance with the provisions of BCA 2015, without alteration that would necessitate an amendment to the development consent.

## 6. Referenced plans

Document	Revision	Date
DA0101 Site existing condition	B	2015.11.13
DA0102 Site demolition plans stage 1 DA	A	2015.11.13
DA0103 Site proposed plan stage 1 DA	E	2015.11.13
DA1100 Proposed external works stage 1 DA	B	2015.11.13
DA1101 Proposed ground floor stage 1 DA	J	2015.11.13
DA1102 Proposed first floor stage 1 DA	K	2015.11.13
DA1103 Proposed roof plan stage 1 DA	D	2015.11.13
DA2000 Proposed elevations stage 1 DA	F	2015.11.13
DA2001 Waropara Rd elevation stage 1 DA	B	2015.11.13
DA3000 Proposed sections stage 1 DA	D	2015.11.13