Our Ref: J130671

Farrell Coyne Projects Pty Ltd
Suite 3 & 4, 18 Hickson Road
WALSH BAY NSW 2000

Email: juha@farrellcoyne.com.au

Attn: Juha Havukainen

Dear Juha,

Re: MLC Senior School Centre
Development Application Submission
BCA Capability Report

Please find enclosed our BCA Capability Report for inclusion with the Development Application submission.

Should you require any further information please do not hesitate to contact the undersigned.

Yours faithfully

Mariusz Para
for Vic Lilli & Partners

BCA CAPABILITY REPORT

FOR

Project:	**45 Park Road, Burwood**
Prepared For:	**Farrell Coyne Projects P/L**
Prepared By:	**Vic Lilli and Partners**
Date:	**12 March 2014**
Our Ref:	**J130671**

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1.0 – Executive Summary

This report has been prepared so as to assess the architectural design and documentation as prepared by BVN Donovan Hill Architects in accordance with the Building Code of Australia (BCA) 2013 and relevant adopted standards.

The proposal being the subject of the development application relates to the construction of new learning building and extension to the existing middle school located at MLC School Burwood.

This report will provide the consent authority with a BCA analysis to assist in the determination of the development application.

2.0 – Report Summary

2.1 – Basis of Assessment

Building Location

The subject building is to be located at MLC School site in Burwood, the site is bounded by Park Road to the east, Rowley Street to the south and Grantham Street to the west

The site is within the jurisdiction of Burwood City Council for the purposes of the development consent authority.

Basis of Report

This BCA Capability Report has been prepared on the basis of the following-

(i) Architectural Plans as noted within Section 6 of this report.

(ii) Building Code of Australia (BCA) 2013, including NSW Variations and relevant Australia Standards;

(iii) Environmental Planning and Assessment Act, 1979, and Regulations.

(iv) Disability (Access to Premises - Buildings) Standards 2010

2.2 – Report purpose

This report has been prepared to identify the extent of compliance achieved by the architectural documentation depicting the proposed basement and teaching spaces against the relevant provisions of the Building Code of Australia (BCA) 2013.

This report has been prepared for submission with the Development Application to Burwood City Council for the approval of the works at the subject property.

2.3 – Report methodology

The report intends to broadly identify aspects of compliance with the BCA to the extent that compliance can be achieved with the BCA by means of either deemed-to-satisfy or performance based approaches. The outcome of which is to support the proposed design such that alteration to accommodate compliance with the BCA will not be required and a future amendment to the development consent would not be required on this basis.

2.4 – Exclusions

This report does not imply, nor make reference to structural design or operating capability or design of any electrical, fire hydraulic or mechanical services or compliance with the Disability Discrimination Act 1992.

2.5 - Building Description

Use/Classification	Classification being: - • Class 9b - School
Rise in Storeys	Maximum rise of four (4) storeys
Floor Area and Volume Limitations	The proposed building will be compliant within the following limitations: • floor area maximum 8000m^2 • volume maximum 48,000m^3 It is noted the compartment limitations will not be exceeded.
Effective Height	The building will have an effective height of 12 meters.
Type of Construction (BCA)	Type A Construction required.
Population	Population numbers were provided by BVN Donovan Hill Architects and were advised by MLC. Basement – 75-in accordance with Table D1.13 of the BCA Level 00 – 260 Level 01 – 288 Level 02 - 283

3.0 - Building Code of Australia Assessment

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

Item	Comment
Fire Resistance	The buildings are to be constructed to comply with the provisions of Table 3 of Specification C1.1. Floors are to be fire rated to achieve a FRL of 120/120/120 minutes minimum. Roof for sprinkled buildings shall have non-combustible covering.
Compartmentation and Separation	Fire compartmentation to form separate fire compartments is not proposed or required as the total floor area/volume does not exceed the maximum limits for type A construction and separate classifications are not present within the building.
Protection of Openings	Adequate levels of separation are provided between site boundaries and proposed openings.
Separation of equipment	The following equipment is to be fire isolated from the building with construction having an FRL not less than 120/120/120, doors accessing the spaces are to be self-closing –/120/30 fire doors: • Lift motors and lift control panels • Emergency generators or central smoke control plant • Boilers • Batteries

3.2 – Access & Egress (Section D, BCA)

Item	Comment
Number of exits required	The number exits to the proposed building will comply with the provisions of Clause D1.2 of the BCA with. • The building requires a minimum of 2 exits from each storey.
Fire Isolated Exit	Stairs/Exits passing through > 2 storeys (no sprinklers) or > 3 storeys (sprinklers) are required to be contained within fire isolated shafts. Note: For the stair to be non-fire-isolated the building has to be sprinkled and stairways shall only connect Level 00 to 02. Separate fire-isolated stairway shall connect Basement with Level 00. Exits are to be isolated with shaft walls achieving an FRL as indicated to Specification C1.1 If proposed, alternative design should be equivalent to the BCA DtS-compliant benchmark design.
Exit travel distances.	Generally, exit travel distances are able to be achieved in compliance with the provisions of Clause D1.4 of the BCA, with the exception of the following areas: **Main Building:** • Complies. **Middle School:** • The egress travel distance to the point of choice is 26m in lieu of 20m, however distance to one of the exits does not exceed 40m. The non-compliance with the Deemed to Satisfy Provisions will be subject to an alternative solution to address the relevant Performance Requirements of the BCA, as advised by the Client.
Distance between alternative exits.	The distance between alternative exits generally comply with Clause D1.5 of the BCA.

Dimensions of exits.	The aggregative egress width required for the Main Building ground, first and second floors were calculated at 3m as per Clause D1.6 of the BCA and it appears that 3.0m (width of stairs) of aggregative width is provided. The design complies with the clause. The aggregative exit widths were based on population numbers provided by BVN Donovan Hill Architects and were advised by MLC.
Egress Doors.	All doors acting as exits shall swing in the required direction and are required to be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA. Note: Basement door shall swing in the direction of egress. Sliding doors shall be fitted with a fail-safe device which automatically unlocks the door upon the activation of sprinkler system or detection system in accordance with AS 1670.1
Access for people with Disabilities	Disabled access is to be provided throughout the building and to all areas normally accessed by the occupants. The proposed lift is to comply with AS 1735.12 and Table E3.6b of the BCA in this regard to facilitate access between levels. All internal and external stairs shall comply with clause 11 and 12 of AS 1428.1-2009 and include tactile indicators in accordance with AS 1428.4.1-2009. It is recommended that a separate report from a suitable qualified access consultant would be suggested to demonstrate compliance with all mentioned applicable provisions.

3.3 – Services and Equipment (Section E, BCA)

Item	Comment
Hydrant Systems	The building is required to be provided with a hydrant system in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1.2005 Compliance of the design is to be confirmed by a suitable hydraulic engineer at the Construction Certificate stage.
Hose Reel Systems	The building will require a hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441. Fire hose reel coverage shall be provided to basement level only. Compliance of the design is to be confirmed by a suitable hydraulic engineer at the Construction Certificate stage.
Sprinklers	The development will require the sprinkler system to comply with Specification E1.5 of the BCA and AS 2112.1-1999
Smoke Hazard Management	the following smoke hazard management will be required in accordance with Table E2.2a and its relevant specification: • Automatic fire sprinkler system compliant with Spec E1.5 and AS 2118.1-1999, • Automatic shutdown of mechanical ventilation compliant with Section 6 of AS1668.1 The design of the services will be subject to the review by a fire services consultant.
Portable Fire Extinguishers	The building requires fire extinguishers in accordance with the provisions of Clause E1.6 of the BCA and AS 2444 to protect the main switch supplying power to control and indicating equipment and to cover class A fire risk in classrooms and associated corridors. The proposed design shall achieve compliance.

Emergency Lighting	Emergency lighting is required within the development in accordance with Clauses E4.2 and E4.4 of the BCA and AS 2293.1-2005. Compliance of the design is to be confirmed by a suitable electrical engineer at the Construction Certificate stage.
Exit Signs	Exit signs are required throughout the development in accordance with Part E of the BCA and AS 2293.1-2005. Compliance of the design is to be confirmed by a suitable electrical engineer at the Construction Certificate stage.

3.4 – Health and Amenity (Section F, BCA)

Item	Comment
Damp and Weatherproofing	The development will comply with Part F1 of the BCA 2013.
Sanitary & other facilities	The accessible facilities on level 00, 01 and 02 are to be a unisex accessible and shall comply with AS 1428.1-2009 At each bank of toilets a sanitary compartment for people with ambulant disability shall be provided in accordance with AS 1428.1-2009 Clause 16. Based on student numbers (900), female staff (170) and male staff (56), it appears that adequate number of sanitary facilities will be provided. Above numbers were provided by BVN Donovan Hill Architects and were advised by MLC.
Ventilation	The building it 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. Compliance will be achieved following the design of the system by the appropriate consulting engineer.
Lighting	Artificial lighting is required to be provided throughout the building in accordance with the provisions of Clause F4.4 of the BCA and AS 1680.1 to non habitable parts. Compliance will be achieved following the design of the system by the appropriate consulting engineer.

3.5 – Atrium Construction (Section G, BCA)

Item	Comment
Atriums Affected By This Part	Atrium does not require to be constructed in accordance with this part if : • Connects only 3 storeys • Each storey is provided with a sprinkler system complying with Specification E1.5 • One of these storeys is situated at a level at which there is direct egress to a road or open space. **Note:** For these concessions to apply the Main Building has to be provided with sprinklers.

3.6 – Energy Efficiency (Section J, BCA)

Item	Comment
Building Fabric	External walls are to generally achieve an R value of 2.8 and roof/ceiling 3.2, internal walls bounding conditioned and non conditioned spaces are to achieve a R value if 1.8 minimum. Compliance can be readily achieved
External Glazing	Glazing that forms part of the external building fabric is to be capable of achieving compliance with clause J2.4 of the BCA.
Building Sealing	The method of construction of the envelope will incorporate sealing of gaps etc to prevent loss of conditioned air and subject to clauses J3.2 – J3.7
Air-conditioning and Ventilation	Mechanical ventilation systems are to comply with Part J5 of the BCA.
Artificial Lighting	Internal lighting is capable of achieving compliance with Part J6 of the BCA.
Hot Water Systems	Hot water systems will comply with Section 8 of AS/NZS 3500.4 as applicable.

4.0 – Fire Safety Measures

4.1 – Proposed Fire Safety Measures

In terms of the proposal the following fire safety measures are required to serve the building: -

Measure	Installation Standard
Automatic fire sprinkler system	BCA Spec E1.5, AS 2118.1-1999
Emergency lighting	BCA Clause E4.2 & E4.4, AS 2293.1-2005
Exit signs	BCA Clause E4.5 & E4.8, AS 2293.1-2005
Fire doors	BCA Spec C3.4, AS 1905.1-2005
Fire Engineering	TBD
Fire hydrant systems	BCA Clause E1.3, AS 2419.1-2005
Fire hose reel system	BCA Clause E1.4, AS 2441-2005
Lightweight construction	BCA Clause C1.8, BCA Spec C1.8
Mechanical air handling systems (automatic shut down)	BCA Clause E2.2, Table E2.2b and AS/NZS 1668.1-1998
Fire dampers	BCA C3.12 & C3.15, AS/NZS1668.1-1998, AS1668.2-1991
Portable fire extinguishers	BCA Clause E1.6, AS 2444-2001
Smoke detectors and heat detectors	AS/NZS1668.1-1998 (Automatic shutdown of air handling equipment)
Sound system and intercom system for emergency purposes	BCA Clause E4.9, AS 1670.4-2004

5.0 – RECOMMENDATIONS AND CONCLUSION

5.1 – Conclusion

It is the opinion of this office that, on satisfaction of the above recommendations, the proposed building is capable of achieving compliance with the requirements of the Building Code of Australia (BCA) 2013 and relevant adopted standards without undue modification to the design or appearance of the building.

Signed,

Mariusz Para

Vic Lilli & Partners

6.0 – Referenced Drawings

This BCA Capability report has been prepared on the basis of the following-

(i) Architectural Plans as prepared by BVN Donovan Hill Architects.

Drawing No.	Title
AR-R-XX-03	Level 0 floor plan3D-Main Building-Rendered Image from Park Road
AR-C-XX-01	Elevations-Main Building
AR-C-XX-02	Elevations-Middle School
AR-D-XX-01	Sections 1
AR-D-XX-02	Section 2
AR-B-02-04	Floor Plan Level-01
AR-B-00-01	Floor Plan Level-00
AR-B-00-01	Exit Points
AR-B-01-02	Floor Plan Level-01
AR-B-01-03	Floor Plan Level-02
AR-B-02-05	Roof Plan
AR-A-XX-03	Finishes Schedule
AR-R-XX-01	Shadow Diagrams Sheet 01
AR-R-XX-02	Shadow Diagrams Sheet 02
AR-A-XX-04	Existing Survey Report
	DA Council Submission Drawings

(ii) Building Code of Australia (BCA) 2013;

(iii) Disability (Access to Premises - Buildings) Standards 2010

(iii) Environmental Planning and Assessment Act, 1979, and Regulations.