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17/04/20

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Rev 1.0 BCA/NCC Compliance assessment Report of the plans for the proposed (4) Storey Education Building with associated Carparking and Associated Rooftop Tennis Facilities

1. Introduction

This report is an assessment of the plans for the proposed (4) Storey Education Building with associated Carparking and Associated Rooftop Tennis Facilities) at the above address to determine if construction shown generally complies with the (NCC/BCA) Building Code of Australia 2019

Plans for the proposed building work were assessed against the Deemed-to-Satisfy (DTS) Provisions of the BCA/NCC 2019. As per below plans.

Drawn by BVN Architects –

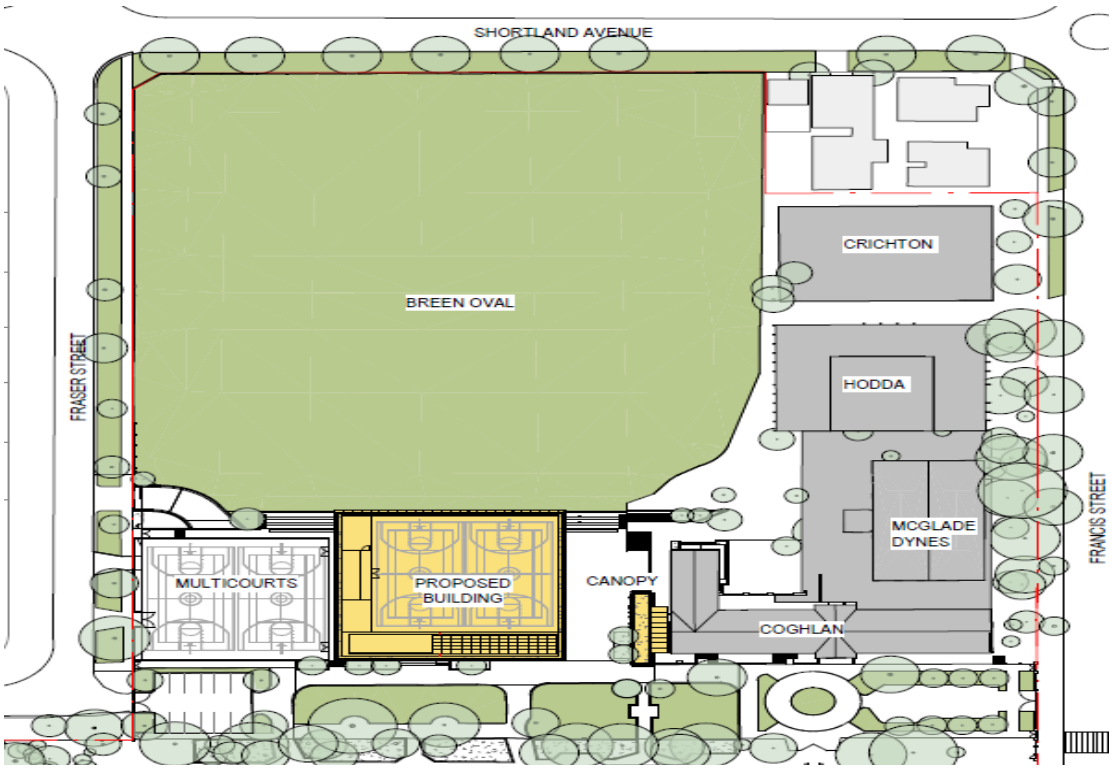
A-01-SHEET LIST			
SHEET NUMBER	SHEET NAME	Current Revision	Current Revision Description
A - INTRODUCTORY			
A10-AA-01	EXISTING SITE PLAN	4	FOR SSDA
A10-AA-02	PROPOSED SITE PLAN	5	FOR SSDA
B - PLANS			
B10-00-00	GA PLAN - GROUND LEVEL OVERALL	6	FOR SSDA
B10-00-01	GA PLAN - GROUND LEVEL - SHEET 1/2	12	FOR SSDA
B10-00-02	GA PLAN - GROUND LEVEL - SHEET 2/2	7	FOR SSDA
B10-01-00	GA PLAN - LEVEL 01	8	FOR SSDA
B10-02-00	GA PLAN - LEVEL 02	8	FOR SSDA
B10-03-00	GA PLAN - ROOF TENNIS COURTS	8	FOR SSDA
B10-03-01	ROOF PLAN	2	FOR SSDA
B10-B1-00	GA PLAN - BASEMENT OVERALL	5	FOR SSDA
B10-B1-01	GA PLAN - BASEMENT - SHEET 1/2	7	FOR SSDA
B10-B1-02	GA PLAN - BASEMENT - SHEET2/2	6	FOR SSDA
C - ELEVATIONS			
C10-AA-01	ELEVATIONS - NORTH	5	FOR SSDA
C10-AA-02	ELEVATIONS - SOUTH	6	FOR SSDA
C10-AA-03	ELEVATIONS - EAST & WEST	6	FOR SSDA
D - SECTIONS			
D10-AA-01	SECTIONS - SHEET 1	5	FOR SSDA
D10-AA-02	SECTIONS - SHEET 2	5	FOR SSDA
D10-AA-03	SECTIONS - SHEET 3	1	FOR SSDA
L - PERFORMANCE			
L10-AA-01	SHADOW DIAGRAMS	1	FOR SSDA
U - DEMOLITION			
U10-00-01	DEMOLITION PLAN	3	FOR SSDA

The assessment relates to the BCA/NCC 2019 and NSW Environmental Planning and Assessment legislation current at the time and therefore does not necessarily infer building compliance with the same legislation at some other point in time. The assessment relates specifically to the building the subject of this report and therefore should not be construed to apply to any other building.

Generally the report only comments on non-compliances, or where insufficient detail is shown to confirm compliance. Other comment may be made where necessary to explain requirements for interrelated elements and systems of the building. **The use of notes and diagrams on future plans referencing construction methods that comply with the below general BCA/NCC requirements and relevant Australian Standards will typically address the BCA/NCC for the purposes of Construction Certificate drawing package, in addition Suitable qualified consultants design packages will provide for full BCA Compliance for all other matters**

2. Description of Building/s

Location:	**St Patrick's College Francis St, Strathfield NSW 2135**	
Use of Building:	**(4) Storey Education Building with associated Carparking and Associated Rooftop Tennis Facilities**	
Classification:	9b/7a	(A3.2/A3.3)
Rise in Storeys:	4 (Total) <25m effective height	(C1.2)



3. Fire-Resisting Construction – (Part's C1, C2, C3 of BCA/NCC)

Note: All fire resisting building elements/ FRLs should be referenced as notes detailing systems/typical linings on CC issue Architectural Plans where **not** incorporated into Engineers design

General Requirements –

- **external walls (includes any attached cladding) on the building and the flooring, floor framing of lift pits must be non-combustible**
- **loadbearing internal walls (including those that are part of a loadbearing shaft) must be of concrete or masonry**
- **Internal walls required to have an FRL as outlined below, between sole occupancy units and bounding public corridors, public lobbies and the like, Ventilating, pipe, garbage, and like shafts; shafts (lift, stairs, services) are to extend to the underside of the floor above, the underside of a roof with and FRL or non - combustible roof lining.**
- **Attachments to fire resisting construction AND wall cladding: lightweight cladding panels are to be "non-combustible: as defined/tested under AS1530.1 construction. (e.g.. Wall cladding to external walls and other parts of building) as noted on DA issue plans**
- **non-loadbearing—**

  internal walls required to be fire-resisting *(as listed below)*; and lift, ventilating, pipe, garbage, or similar shaft, must be of non-combustible construction

FRL REQUIREMNTS OF BUILDING ELEMENTS (TABLE 3 of SPECIFICATION C1.1 BCA NCC)

Whole Building

Building elements require the following fire resistance levels (FRLs):

- External Walls: (above ground level) Loadbearing - 120/120/120, Non Loadbearing within 3m from boundary -/120/120, 3m or more from boundary OR another building on the same allotment
- Internal walls: Ventilating, pipe, garbage, and the like shafts loadbearing: 120/90/90 ; non-loadbearing: -/90/90;
- Lift Shaft- Loadbearing - 120/120/120, Non Loadbearing -/120/120
- Stair Shaft Loadbearing - 120/-/-
- Other loadbearing internal walls and internal beams: 120/-/-
- Internal columns: loadbearing: 120/-/-
- Floors: 120/120/120

Any electrical substations and/or main switchboards (that sustain emergency equipment) located **within** the building must be separated from any other part of the building by construction with an FRL of 120/120/120 with any openings protected with a self-closing fire door having an FRL of not less than -/120/30.

Switchboards which sustain electrical supply to emergency equipment such as fire hydrant booster pumps and occupant warning must be separated from non-emergency equipment switchgear by metal partitions to minimise spread of a fault (C2.13)

The Fire Hazard Properties required for construction materials, carpets/vinyls/internal linings, etc. are as follows: (Noting Sprinkler Systems Concessions have adjusted requirements)

- Sarking: must have a flammability Index not more than 5;
- Floor materials and floor coverings: a critical radiant flux not less than 1.2
- Wall and Ceiling Lining Materials: Material Group 1, 2 or 3

(Specification C1.10)

4. Protection of Openings

The following openings also will require protection:

- Openings in fire isolated lift shafts are to be protected by -/60/- fire doors that operate in accordance with Part C3.10 of the BCA.
- Doors to fire exits are to have fire door signage in accordance with D2.23 and Clause 183 of the Environmental Planning and Assessment Regulation 2000.

Lift indicator panels including a lift call panel, indicator panel or other panel in the wall of the fire isolated lift shaft must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 in area.

Fire-isolated *exits* must not be penetrated by any services other than—

(a) Electrical wiring permitted by 2.7(e) of the BCA to be installed within the *exit*; or

(b) Water supply pipes for fire services.

Penetrations of walls, floors and ceilings required to have an FRL by services are to be protected in accordance with Specification C3.15 or where a **shaft** is used to penetrate floor/ceilings in accordance with Specification C1.1 of the BCA.

Openings in walls of shafts providing access to ventilating, pipe, garbage or other services shaft must be protected by the relevant methods below;

(a) if it is in a sanitary compartment — a door or panel which, together with its frame, is non-combustible or has an FRL of not less than –/30/30; or

(b) a self-closing –/60/30 fire door or hopper; or

(c) an access panel having an FRL of not less than –/60/30; or

(d) if the *shaft* is a garbage shaft — a door or hopper of non-combustible construction.

5. Access and Egress

Plans provided show the following non-compliances (Addressed by Fire Engineering Report):

1. **Non-Compliance - Travel Distance to a Single exit leading from areas on Rooftop Tennis Court areas exceed 20m – Noting that this has now been suitably addressed by Fire Engineer and will be subject to Fire Brigade and CC stage approval**
1. **Non- Compliance – Distance between alternative exits on carpark level exceed 60m (when measured through point of choice) Noting that this has now been suitably addressed by Fire Engineer and will be subject to Fire Brigade and CC stage approval**
2.

General requirement for all doors

ALL doors must be readily openable without a key from the side that faces a person seeking egress by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor.

(D2.21

Installations in exits and paths of travel - Services or equipment comprising:

Electricity meters, distribution boards or ducts, telecommunication distribution boards, electrical motors, or any other motors or equipment may be installed in paths of travel to an exit if enclosed by non-construction or construction with a fire protective covering with doorways suitable sealed against smoke spread.

6. Provision of Services and Equipment (NOTE: This section must be read in conjunction with Table 6 (Additional Fire Safety Requirements) of MCD Fire Engineering Concept Fire Engineering Strategy)

Emergency lighting complying with AS 2293.1 is required in any room or space to which there is public access in every storey of the building. (E4.2(f))

Emergency lighting complying with AS 2293.1 must be installed in every passageway or corridor that is part of the path of travel to an exit, any room with a floor area more than 100m² that does not open to a corridor or space that has emergency lighting or to a road or open space, i.e. and any room that has a floor area more than 300m² (E4.2(b))

As per recent changes braille exit signage indicating level and exit identity is required to be provided for each exit door to comply with D3.6 (a)(ii) of BCA.

Emergency lighting complying with AS 2293.1 must also be installed in all exit stairways. (E4.2)

Exit signs complying with AS 2293.1 are required over exit doors and in appropriate positions in corridors, hallways and the like indicating the direction to a required exit where exits are not readily apparent to persons occupying or visiting the building (E4.5, E4.6)

The proposed building requires the provision of the following fire fighting equipment:

- Fire Hydrants(entire building)
- Hose Reels (Carpark ONLY)
- Sprinkler System (Whole Building) AS2118 -2017
- Portable Fire Extinguishers (Non Classroom parts of building)

(Part E1)

Fire hydrants must be provided to the building in accordance with AS 2419.1. On-site hydrants have coverage of 70m and if external must not be located closer than 10 m to a building unless shielded by fire-rated construction. (E1.3)

Automatic smoke detection and alarm systems must be provided in accordance with Specification E2.2a of the BCA, which includes occupant warning systems (Tables E2.2a)

The carpark level is to be provided with mechanical ventilation system in accordance with AS 1668.2 or a system of natural ventilation complying with Section 4 of AS1668.4

7. List of DRAFT statutory required Fire Safety Measures (NOTE: This Schedule must be read in conjunction with Table 6 (Additional Fire Safety Requirements) of MCD Fire Engineering Concept Fire Engineering Strategy) - Listed in red are BCA/NCC 2019 DTS required Amendments

Essential Fire and Other Safety Measures	Standard of Performance
Access panels, doors and hoppers to fire resisting shaft (Lift Doors)	BCA Clause C3.10 and C3.13
Automatic Fire Suppression System (sprinklers)	BCA Spec. E1.5 and AS 2118 -2017
Emergency Lighting	BCA Clauses E4.2/E4.4 & AS/NZS 2293.1-2018
Exit Signs	BCA Clauses E4.5/NSW E4.6/E4.7/E4.8 and AS/NZS 2293.1-2018
Fire Dampers	AS/NZS 1668.1-2015
Fire Doors (Main Switch Rooms and substations within building) where applicable	BCA Spec. C3.4 & BCA Clauses C2.12, C2.13, C3.4, C3.5, C3.6, C3.7, C3.8, C3.10, D2.8, Spec E1.8 and AS1905.1-2015
Fire Hydrant Systems	BCA Clause E1.3, C2.12 & AS 2419.1-2005
Fire Seals (protecting openings in fire resisting components of the building) Stormwater, Electrical and like penetrations of Fire Rated Slab	BCA Clause C3.15
Hose Reels (Carpark)	AS2441-2004
Mechanical Air Handling Systems 1. Mechanical Ventilation to Carpark. 2. Auto Shutdown of Ducted Air / Mechanical Air Handling	BCA Clauses E2.2a & b, F4.12 and AS/NZS 1668.1-2015
Openings in Fire-isolated Lift Shafts	BCA Clause C3.10 and AS 1735.11-1986
Path of Travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
Smoke Detectors (Associated with Auto shutdown of Mechanical Air Handling systems	BCA NSW Part E2.2(b)
Warning and Operational Signs	D2.23 (Signs on Fire Doors) E3.3 (Lift Sign), EPA Regs 2000, Clause 183

8. Stairways and balustrades

All stairways must have an unobstructed width between handrails of 1m.

ALL stairways including enclosed stairs must comply with AS1428.1-2009

Stair construction is to comply with BCA D2.13, D2.16 and D2.17 including riser and going dimensions, slope relationship, construction of landings and handrails. Stairs to have Risers: max 190 min 115; Goings: max 355 min 240; Slope Relationship (2R +G) max 700 min 550. Each flight must have not more than 18 nor less than 2 risers. The riser opening must not allow a 125 mm sphere to pass through between treads. Landings are to be not less than 750 mm long.

All treads of ALL stairways must have —

(A) a Luminous contrasting nosing (includes fire isolated stairways); and

(B) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; OR

(A) a nosing strip with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586

All landings of ALL stairways must have —

(A) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; OR

(B) a strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586, where the edge leads to a flight below.

All ramps will require slip resistance classification as per above.

The balustrades to landings, decks, balconies and the like must have a height of not less than 1 m above finished surfaces. All balustrades must have openings that do not permit a 125 mm sphere to pass through it and for stairs, the space is tested above the nosing line. Balustrades must also comply with Part B of the BCA in terms resistance to impact, forces and the like.

For balustrades and windows more than 4 m above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing.

9. Sanitary and Other Facilities

Fully enclosed sanitary compartments must have doors that open outwards, slide or are readily removable from outside of the sanitary compartment unless there is a clear space of at least 1.2m between the door hinge and the closet pan.

(F2.5)

10. Light and Ventilation

The plans of the proposed building work show details of windows and other openings that provide natural lighting and ventilation to comply with BCA requirements.

Sanitary compartments without openable windows will require mechanical ventilation.

(Part F4)

Artificial lighting is to comply with AS/NZS 1680.0. (F4.4)

11. Energy Efficiency

Specialist input will be required by Energy Efficiency Consultant/ Engineer for building that is intended to be “Condition Space”

12. Access for people with a disability

Further detail required at CC issue stage. Specialist Input will be required from an appropriately qualified / registered Access Consultant

13. Food Tech (Areas)

The Food tech areas will be required to comply with AS4674-2004 (Food Premises Code) for fit out, walls, coving, finishes, fixtures and the like to comply with Local Council requirements

14. Conclusion

The design generally complies with the BCA/NCC with inclusion of Fire Engineering (subject to CC approval at Construction Stage of Development) we can confirm that the design can readily incorporate the other requirements listed in this report. It is suggested that where details cannot be provided diagrammatically, they are provided as notes or the like on plans and in building specifications for CC issue. This Architectural submission is suitable for Development Application Lodgement.

Report by

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