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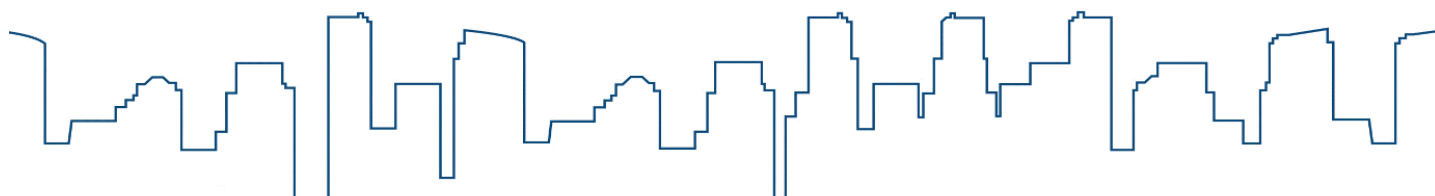
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UTS SCHOOL OF HEALTH

BUILDING CODE OF AUSTRALIA 2016

JUNE 2018


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DOCUMENT ACCEPTANCE

Company	Name	Signed	Date
Metro Building Consultancy	Seb Howe		18/06/18

REVISION HISTORY

Description	Prepared by	Revision No.	Date
BCA Report	Seb Howe	R02	18/06/18

1.0 Introduction and Documentation

Introduction

DJRD Architects have requested a Building Code of Australia 2016 (Amendment 1) review of the initial design documents for the proposed new works to 100 Broadway, Haymarket, NSW. The proposals involve the change of use from office to a class 9b learning facility for Phd medical students.

The information submitted to date has been reviewed for compliance with the Deemed-to-Satisfy provisions of the Building Code of Australia 2016 excluding Section B structure, part G5 bushfire NSW Part H101 Entertainment Venues and Section J energy efficiency. This report is for the exclusive use of DJRD Architects and cannot be used for any other purpose without the prior permission of Metro Building Consultancy. The report is only valid in its entire form.

Documentation available and assessed

The drawings provided by DJRD Architects to Metro Building Consultancy on 01/06/18 have been assessed for compliance to the Building Code of Australia 2016. The list of drawings reviewed is as per the table in Appendix A of this report.

2.0 Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by DJRD Architects (refer appendix A) for compliance with the Building Code of Australia 2016 Amendment 1.

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA. The submission for Construction certificate will need to include verification from a suitably accredited fire engineer: -

DTS Clause	Description of Non-Compliance	Performance Requirement
	The central staircase is proposed to be protected by a glazed system with drenchers fitted to the outside. This does not achieve the required FRL of a staircase shaft walls of -/120/120 (non-loadbearing) or 120/120/120 (loadbearing). A C10 Accredited Fire engineer is required to address Performance Requirements CP2 and CP4.	CP2 & CP4
D1.4	Travel distances on Level 5 are in excess of the maximum: - Travel distance from the computer lab to a point of choice is 27m in lieu of 20m - Travel distance from the 40 Pax Pod in the SW corner is 23m in lieu of 20m A C10 Accredited Fire Engineer is required to address Performance Requirements DP4 and EP2.2.	DP4 and EP2.2
D1.12	The non-required staircase connecting levels 5 to 9 exceeds the maximum of 2 consecutive stories in BCA D1.12. It is noted that the staircase is protected by glazing containing a sliding door with drenchers located to the outside face of the glazing. The provision of a stair not within a fire rated shaft is required to be addressed by an C10 Accredited Fire Engineer against Performance Requirements DP4 and EP2.2.	DP4 & EP2.2
E2.2, Spec E2.2, Spec E2.2b	A gap analysis is required from the Fire Services Engineer to highlight any gaps in Standard of Performance between BCA 2014 and BCA 2016 Amendment 1. This is due to the change of use requirements under C143 of the EP&A Regulations. Further Fire Engineering may then be required to completed to justify the gaps in the Standards of Performance or upgrades to the systems may be required.	EP2.2

The fire engineered solution relating to Category 2 items (in this instance EP2.2 and DP4) will need to be approved after consultation with the FRNSW as part of the Construction Certificate process. The documentation will need further detailing such as door hardware, specifications, service design.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning

3.0 Change of Use – Fire Protection & Structural Capacity

It is noted that there is a change of use from Class 5 (offices) to Class 9b (school/university) on Level 5 to 10. CI143 of the Environmental Planning & Assessment Regulations 2000 requires the following:

- a. The fire protection and structural capacity of the building will be appropriate to the to its new use, and
- b. The building will comply with such of the Category 1 fire safety provisions as are applicable to the new use.

4.0 Use and class of building

The following table lists the uses and classifications of the building.

Level	Use	Class	Approx. floor area
Level 5	Teaching health clinic, consultation rooms	Class 9b and 5	1,191m ²
Level 6	Office, computer labs, imaging	Class 9b and 5	1,191m ²
Level 7	Office, pharmacy, pathology	Class 9b and 5	1,191m ²
Level 8	Office and learning spaces	Class 9b and 5	1,191m ²
Level 9	Offices and meetings rooms	Class 5	1,191m ²
Level 10	Offices and meeting rooms	Class 5	1,191m ²

The proposed tenancy is across 6 levels (Levels 5-10) of the whole building.
The wider building has a rise of stories of 19 and an effective height of 63.15m.

5.0 Construction and fire resistance ratings

As the whole building has a rise in storeys of 19 the proposed works are required to comply with the Building Code of Australia Type A Construction requirements. These are listed in Appendix B.

A Structural Adequacy Statement is requested from the Structural Engineer to verify that the existing FRL's in the building are suitable for the change of use from Class 5 (office) to Class 9b (schools/university).

Exposure to a fire source feature

A part of a building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that has an FRL of not less than 30/–/–.

Fire-source feature means—

- (a) the far boundary of a road, river, lake or the like adjoining the allotment; or
- (b) a side or rear boundary of the allotment; or
- (c) an external wall of another building on the allotment which is not a Class 10 building.

The shell of the building will be constructed as part of the base build. Therefore, the fit-out of floors 5-10 for UTS will not affect the exposure to fire source features.

Fire protection for a support of another part

Where a part of a building *required* to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL not less than that *required* by the BCA.

Attachments to fire rated building elements

Ancillary elements can be fixed, installed or attached to internal parts or external face of the external walls provided they are listed in BCA C1.14.

If an ancillary element is proposed to be used that is not listed in BCA C1.14 then Verification method CV3 is required to be used to demonstrate compliance with the Performance Requirements.

Enclosure of shafts

For the Type A building, shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building, except that these provisions need not apply to:

- the top of a shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway or ramp; or
- the bottom of a shaft if it is non-combustible and laid directly on the ground

This applies to fire stair shafts, lift shaft and any services shafts eg mechanical services shafts, they must be enclosed at the top with the same FRL as the walls of the shaft.

Floors

The floors separating storeys between the levels on 5-10 must have an FRL of 120/120/120. The existing building was designed as a Class 5 building so the floors should have an FRL of 120/120/120. Structural engineer to clarify.

Lightweight construction

New lightweight construction required to have an FRL must comply with BCA Clause C1.8 and Specification C1.8 of the Building Code of Australia.

If lightweight construction is used for the *fire-resisting* covering of a steel column or the like, and if the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting and the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.

Fire Hazard Properties

All new floor, wall and ceiling linings are to comply with the requirements of Clause C1.10 and Specification C1.10 of Building Code of Australia 2016.

Please provide a list of all wall, floor and ceiling linings for assessment.

Compartmentation

The Building Code of Australia 2016 requirement for a Type A Class 9b and 5 buildings is that the maximum floor area must not exceed 8,00m² and the maximum volume must not exceed 48,000m³.

Each floor area is around 1,191m². It is noted that Levels 5 to 10 are not connected by a non-required stair. So that the stair does not connect more than two storeys as required in BCA D1.12 protection to the stair is required to be provided. The protection to the stair should have an FRL of -/120/120. It is noted that the stair is proposed to be protected with glazing and a drencher system. This will be required to form a Performance Solution by a Fire Engineer.

Battery Rooms

Any rooms that contain a proposed battery or batteries that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours (eg UPS) must be fire separated from the remainder of the building by construction that achieves an FRL of at least 2 hours.

This does not apply to plug in type devices appliances and the requirement only applies to hardwired installations.

Please confirm if the comms rooms or similar have any batteries exceeding this voltage.

Service penetrations in fire-isolated exits

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

- Electrical wiring for a lighting, detection, or pressurisation system serving the exit; or
- Electrical wiring for a security, surveillance or management system serving the exit; or
- Electrical wiring for the monitoring of hydrant or sprinkler isolating valves; or
- Water supply pipes for fire services

Openings for Services Penetrations

Openings for services penetrations in any fire rated construction must be fire sealed in accordance with the requirements of BCA Clause C3.15 and Specification C3.15.

6.0 Egress

Principles

The building's egress system should be designed to ensure compliance with the following principles:

- The maximum distance of travel to an exit will be 40 metres, and to a point of choice will be 20 metres, the distance between alternate exits is not to exceed 60 metres.
- The distance between alternate exits is to be not less than 9 metres.
- The construction and discharge of exits, landings, thresholds, balustrades and handrails are required to meet the requirements of the BCA.
- All paths of travel are to be a minimum of 1000mm in clear width.
- Exit doors should swing in the direction of travel ie outwards and should have a minimum clear width of 750mm (850mm for accessible doors).
- All doors should be free passage from the side that a person is seeking egress.
- The threshold of all doors must be flush or provided with a threshold or kerb ramp.
- Handrails along stairs and ramps are required to have a minimum height of 865-1000mm.
- Balustrades are required to have a minimum height of 865mm along stair flights and 1m along landings and walkways where the drop is greater than 1m.
- The balustrade provisions apply to the tops of all new retaining walls that form part of, or are directly associated with a delineated path of access to a building from the road, or a delineated path of access between buildings.
- Balustrades are not permitted to have an opening greater than 125mm.
- Balustrades that protect a fall of more than 4m are not permitted to facilitate climbing within a 150-760mm zone measured from floor level.
- Electrical, comms or mechanical distribution boards installed along a path of travel to an exit are required to be enclosed by non-combustible construction or a fire protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

Travel Distance

Travel distances exceed the provisions of the BCA to the following areas:

- Distance to a point of choice from the Level 5 Computer Lab is 27m in lieu of 20m.
- Distance to a point of choice from the Level 5 PAX 40 in the SW corner is 23m in lieu of 20m.

The above non-compliances are required to be addressed by way of Performance Solution from an accredited Fire Engineer. The Performance Solution for extended travel distance should address Performance Requirements DP4 and EP2.2.

Dimension of exits

All paths of travel are required to have a minimum clear width of 1m. Please ensure that the final design drawings indicate a minimum 1m clear path of travel to all parts of the buildings including between pieces of equipment.

The BCA states that if the storey accommodates more than 200 persons the aggregate unobstructed width, except for doorways, must be not less than:

- 2m plus 500mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway; or
- in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200;

It is noted that some floors are proposed to have a greater population than 200 people per floor. The existing escape strategy is designed to accommodate a maximum of 200 people per floor. A Performance Solution may be required from a qualified Fire Engineer addressing Performance Requirement DP6 and DP4.

Travel by non-fire-isolated stairways

The non-required stair that joins Level 5 and 9 is not permitted as it should join no more than 2 consecutive storeys. The stair is also not protected with fire rated construction with an FRL not less than -/120/120. A Performance Solution should be provided by a Fire Engineer which addresses Performance Requirements DP4 and EP2.2.

It is noted that the staircase is protected by glazing containing a sliding door with drenchers located to the outside face of the glazing however the stairway is not contained in a fire rated shaft.

The provision of the stairway connecting greater than 2 consecutive stories and not contained within a fire rated shaft is required to be addressed by an C10 Accredited Fire Engineer against Performance Requirements DP4 and EP2.2.

Stairs

The proposed stairs are required to be provided with risers and goings that have a constant dimension throughout the flight.

The proposed stairs must have risers which do not have any openings that would allow a 125mm sphere to pass through between the treads.

The treads or nosing strips of the internal stairs must have a slip-resistance classification of not less than P3 when tested in accordance with AS 4586 2013.

The treads or nosing strips of the external stairs must have a slip-resistance classification of not less than P4 when tested in accordance with AS 4586 2013.

The proposed non-fire isolated stairs are required to be provided with risers and goings that have constant dimensions throughout the flight. Rise and goings should be in accordance with Table D2.13.

Landings

Landings are required to 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.

Door thresholds

The threshold of all doorways must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless it is provided with a threshold ramp or step ramp in accordance with AS1428.1 2009.

This applies to all doorways, even those to the outside and only used as exits.

Balustrades

Balustrades are required to have a minimum height of 865mm along stair flights and 1m along landings and walkways where the drop is greater than 1m.

Any balustrade protecting a drop of more than 4m must not have any climbable elements (eg GPOs, high skirting, gas heaters etc) within a 150-760mm zone measured from the floor.

A construction tolerance is also recommended to this eg a 1100mm high balustrade and a 100-800mm no climb zone.

Balustrades are not permitted to have an opening greater than 125mm.

Handrails

Handrails are required to be provided to the proposed stairs and are required to have a height of 900mm.

Door hardware

The door hardware to all proposed swing and sliding 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 and 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 35 mm and not more than 45mm or
- a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor.

Construction tolerances

Note that it is very important to incorporate construction tolerances into the design, while the minimum balustrade height may be 1m any balustrade specified to be installed at 1m may be installed at 995mm which is non-compliant and will have to be modified to comply.

7.0 Disabled Access

Refer to the separate report for comments in relation to the disabled access requirements.

8.0 Services and Equipment

The following is a status of the services required to be provided to the building.

Sprinkler Protection

The base build sprinkler system is to be amended to provide coverage in accordance with BCA E1.5, AS2118.1-1999 and AS2118.6-2012 & Fire Engineering Report by WSP (Rev 2) dated 23/10/17 by Dan Kirk NSW C10 BPB 2952 throughout.

Provide drawings and a Design Statement to show compliance in accordance with these standards.

Fire Hydrants

Please provide hydraulic drawings showing that the base build fire hydrant system provides coverage to all areas of the fit out on Levels 5-10. A hydraulic design statement is requested to verify compliance with AS2419.1-2005 & Fire Engineering Report by WSP (Rev 2) dated 23/10/17 by Dan Kirk NSW C10 BPB.

Fire Hose-Reels

Please provide hydraulic drawings to show that the base build fire hose reel system provides coverage to call areas of the fit out on Level 5-10. A hydraulic design statement is requested to verify compliance with AS2441-2005 & Fire Engineering Report by WSP (Rev 2) dated 23/10/17 by Dan Kirk NSW C10 BPB.

Portable Fire Extinguishers

Portable fire extinguishers must be provided in accordance with BCA Clause E1.6 and AS 2444 2001. Provide a Design Statement in accordance with AS2444-2001 to show compliance.

Smoke hazard management

The base build smoke detection and alarm system is to be amended to suit the new layouts in accordance with BCA E2.2 and Specification E2.2a as well as AS1670.1-2015 & Fire Engineering Report by WSP (Rev 2) dated 23/10/17 by Dan Kirk NSW C10 BPB.

The existing Fire Safety Schedule (see Appendix C taken from City Plan BCA Report dated 22 October 2014) notes the smoke detection system as an AS1670.1-2004 system. As the proposals form a change of use from Class 5 to Class 9b the Category 1 fire safety systems are required to be upgraded to meet current standards. The current Standard of Performance in BCA2016 is AS1670.1-2015. A gap analysis should be undertaken by the fire services engineer to identify any upgrades and fire engineering may be required to be implemented if necessary.

Provide electrical design drawings and a design statement in accordance with these conditions.

The NSW Variation of the BCA states that Class 9b assembly buildings are required to be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS/NZS 1668.1 2015) on the activation of smoke detectors installed complying with Clause 5 of BCA Specification E2.2a and any other fire detection and alarm system.

Clause 5 of BCA Specification E2.2a states that detectors must be spaced not more than 20m apart and not more than 10m from any wall, bulkhead or smoke curtain and have a sensitivity in accordance with AS1670.1 2015.

A zone smoke control system in accordance with BCA Spec E2.2a is required to be maintained on Levels 5-10. It is noted that the zone pressurisation system may be affected by joining with the non-required stairs. Additional fans may be required to achieve the required pressure differentials or, alternatively, a Performance Requirement may be required to address Performance Requirements EP2.2. It is also noted that the base build zone pressurisation system is installed to AS1668.1-1998. The current Standard of Performance in BCA2016 Admt 1 is AS1668.1-2015. A Gap Analysis will be required to be undertaken on the system as the system is a Category 1 fire safety system and the change of use requirements activate a potential upgrade.

Emergency Lighting and Exit Signs

Exit signs and an emergency lighting system must be provided and must be in accordance with the BCA Clause E4.2, E4.4, E4.5, E4.6, E4.8 and AS 2293.1 2005.

9.0 Health and Amenity

Damp & weatherproofing

Any external walls are required to comply with BCA Performance Requirement FP1.4. Where a cladding is proposed it should have a CodeMark Certificate of Conformity confirming compliance to BCA FP1.4.

Stormwater drainage

Any modifications to the stormwater drainage must comply with AS/NZS 3500.3 2015.

Waterproofing of wet areas

Building elements in bathroom or shower room, a sink compartment, a laundry or sanitary compartment must—

- (i) be *water resistant* or *waterproof* in accordance with BCA Table F1.7; and
- (ii) comply with AS 3740 2010.

Where a wall hung urinal is installed—

- (i) the wall must be surfaced with impervious material extending from the floor to not less than 50 mm above the top of the urinal and not less than 225 mm on each side of the urinal.
- (ii) the floor must be surfaced with impervious material and graded to a floor waste

In a room with timber or steel framed walls and containing a urinal—

- (i) the wall must be surfaced with an impervious material extending from the floor to not less than 100 mm above the floor surface; and
- (ii) the junction of the floor surface and the wall surface must be impervious.

Glazed assemblies

The following glazed assemblies in an external wall, must comply with AS 2047 2014 requirements for resistance to water penetration:

- Windows.
- Sliding and swinging glazed doors with a frame, including french and bi-fold doors with a frame.
- Adjustable louvres.
- Window walls with one piece framing

Toilets

The toilet provision has been located using a whole tenancy calculation.

There are sufficient toilets across the tenancy to accommodate up to 1087 people (including students, staff and visitors). If these numbers change then further sanitary calculation will be required.

The lifts serving the tenancies should not be fitted with access control to allow free movement between each floor.

A university falls under the definition of 'school' under BCA definitions. Staff and students are required to have separate toilets under the requirements of BCA F2.3. In this instance, it is understood that the 'students' are sometimes paid as employees and are often older than some teachers. For this reason, we require a letter from the client stating that they understand the requirement but are happy for students and staff to share toilet facilities.

Accessible toilets & ambulant cubicles

The existing accessible toilet and ambulant cubicles are required to comply with the requirements of As1428.1 2009.

Room Sizes

All classrooms, offices and the kitchen are required to have a minimum ceiling height of 2.4m. Storerooms and sanitary compartments are required to have a minimum height of 2.1m.

Light and Ventilation

Artificial lighting must be provided to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, other circulation spaces and paths of egress. The artificial lighting system must comply with AS/NZS 1680.0 2009.

All areas of the buildings, except the store rooms, must be provided with natural ventilation complying with BCA Clause F4.6 or mechanical ventilation complying with AS 1668.2 2012. Natural ventilation requires an opening of size no less than 5% of the floor area of the room. Note that the window openings must make an allowance for any opening size restrictions placed on the windows by the balustrade requirements.

The staff kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 2015 and AS 1668.2 2012 where:

- (a) any cooking apparatus has—
 - (i) a total maximum electrical power input exceeding 8 kW; or
 - (ii) a total gas power input exceeding 29 MJ/h; or
- (b) the total maximum power input to more than one apparatus exceeds—
 - (i) 0.5 kW electrical power; or
 - (ii) 1.8 MJ gas, per m² of floor area of the room or enclosure.

10.0 Energy Efficiency

Building Fabric

Any parts of the building that are provided with an air-conditioning system (including a gas heater) with an input power of more than 15 W/m² (ie it is a conditioned space) must comply with the building fabric requirements of Part J1 of the Building Code of Australia 2016.

External Glazing

Any parts of the building that are provided with an air-conditioning system (including a gas heater) with an input power of more than 15 W/m² (ie it is a conditioned space) must comply with the glazing requirements of Part J2 of the Building Code of Australia 2016.

Building Sealing

Any parts of the building that are provided with an air-conditioning system (including a gas heater) with an input power of more than 15 W/m² (ie it is a conditioned space) must have seals specified to the external doors and operable windows and must have self closing devices specified to the external swing doors all as per the requirements of Part J3 of the Building Code of Australia 2016.

Ventilation Systems, Artificial Lighting, Hot Water Supply

All services are required to comply with the requirements of BCA Section J.

11.0 Conclusion

The design documentation provided to date has been assessed in respect to the deemed to satisfy provisions of the Building Code of Australia 2016, the design is at a point where the design development can continue and further reviews will be carried out prior to the completion of the design and issue of Construction Certificate.

APPENDIX A – DRAWINGS REVIEWED

Architectural drawings prepared by DJRD Architects

Drawing number, title and revision	Drawing number, title and revision
A1.10 Rev 4	A1.11 Rev 4
A1.12 Rev 3	A1.13 Rev 4
A1.14 Rev 4	A1.15 Rev 4

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APPENDIX B –

TYPE A CONSTRUCTION REQUIREMENTS

The following table lists the fire resistance levels required for the GLA Building.

Building Element	FRL Required for Class 5, 7a & 9
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 -	
<i>For loadbearing parts</i>	
Less than 1.5m	120/120/120
1.5 to less than 3m	120/90/90
3m or more	120/60/30
<i>For non-loadbearing parts</i>	
Less than 1.5m	-/120/120
1.5 to less than 3m	-/90/90
3m or more	-/-/-
External column not incorporated in an external wall -	
For loadbearing columns	120/-/-
For non-loadbearing columns	-/-/-
Common wall and fire walls	120/120/120
Internal walls	
Fire resisting lift and stair shafts	
<i>Loadbearing</i>	120/120/120
<i>Non-loadbearing</i>	-/120/120
Bounding <i>public corridors</i> , public lobbies and the like	
<i>Loadbearing</i>	120/-/-
<i>Non-loadbearing</i>	-/-/-
Between or bounding <i>sole-occupancy units</i>	
<i>Loadbearing</i>	120/-/-
<i>Non-loadbearing</i>	-/-/-
Ventilation, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	
<i>Loadbearing</i>	120/90/90
<i>Non-loadbearing</i>	-/90/90
Other loadbearing internal walls, internal beams, Trusses and columns	120/-/-
Floors	120/120/120
Roofs	120/60/30

APPENDIX C –

Existing Fire Safety Schedule

No	Fire Safety Measure	Standard of Performance
1.	Access panels, doors and hoppers to fire-resisting shafts	BCA2014 C3.13 & AS1905.1-2005, AS1905.2-2005
2.	Automatic fail-safe devices	Spec C3.4 automatic smoke doors
3.	Automatic fire detection and alarm systems	BCA 2014 E2.2, Spec E2.2a AS1670.1-2004 Amdt 1 AS3786-1993 Amdt 1,2,3&4 AS/NZS 1668.1-1991 Amdt1 BCA 2014 Spec G3.8
4.	Automatic fire suppression systems	BCA 2014 E1.5, Spec E1.5 & AS2118.1-1999 amdt1, AS2118.6-2016 BCA2014 Spec G3.8
5.	Building Occupant Warning System	BCA2014 Clause
6.	Emergency lifts	BCA2014 E3.4 & Spec E3.1
7.	Emergency lighting	BCA 2014 Clause E4.2, E4.3, E4.4 & AS2293.1-2005 Amdt 1 BCA 2014 Spec E1.8 Clause 12 (Emergency lighting for control)
8.	Sound systems & intercom systems for emergency purposes	BCA2014 E4.9 & AS1670.4-2004
9.	Exit signs	BCA2014 E4.5, E4.6, E4.8 Spec E4.8 & AS2293.1 Amdt 1
10.	Exit signs (non-illuminated)	BCA2014 E4.7
11.	Fire Blankets	AS2444-2001
12.	Fire control centres and rooms	BCA 2014 E1.8 & Spec E1.8
13.	Fire dampers	BCA 2014 C3.12, C3.15 & AS1668.1-1998 Amdt 1, AS 1668.2-2012, AS1682.1-1990, AS 1682.2-1990
14.	Fire doors	BCA 2014 Spec C3.4 & AS 1905.1-2005
15.	Fire rated lift landing doors	BCA 2014 C3.10 & AS 1735.11-1986
16.	Fire hydrant systems	BCA 2014 E1.3 & AS2419.1-2005 Amdt 1
17.	Fire Hose Reel System	BCA 2014 E1.4 & AS2441-2005 Amdt 1
18.	Fire seals protecting openings in fire-resisting components of the building	BCA 2014 C3.12, C3.15 & Spec C3.15 AS4072.12005 Amdt 1 AS1530.4-2005

No	Fire Safety Measure	Standard of Performance
19.	Fire shutters	BCA 2014 C3.4 & Spec C3.4
20.	Fire windows	BCA 2014 C3.4 & Spec C3.4
21.	Lightweight construction	BCA 2014 C1.8 & Spec C1.8
22.	Mechanical air handling systems	BCA 2014 E2.2, Table E2.2, Spec E2.2a & AS 1668.1-1998 Amdt1 Class 7a carpark building mechanical ventilation systems – BCA 2013 E2.2, Table E2.2a and clause 5.5 of AS1668.1 Amdt 1 BCA 2014 Spec G3.8
23.	Portable fire extinguishers	BCA 2014 E1.6 & AS2444-2001
24.	Pressurising Systems	BCA 2014 Clause E2.2 & AS1668.1-1998 Amdt 1 BCA 2014 Spec G3.8
25.	Smoke alarms and heat alarms	BCA2014 E2.2, Spec E2.2a & AS3786-1993 Amdt 1,2,3 & 4
26.	Smoke exhaust system	BCA 2014 E2.2, Spec E2.2b & AS1668.1-1998 Amdt 1 BCA 2014 Spec G3.8
27.	Smoke Dampers	BCA 2014 E2.2, Spec C2.5 (class 9a & 9c)
28.	Smoke Detectors & Heat Detectors	BCA2014 E2.2, Spec E2.2a & AS1670.1-2004 BCA2014 C3.5 for automatic fire doors in firewalls; C3.8 automatic fire doors to fire isolated exit, C3.11 automatic closing smoke doors
29.	Smoke doors	BCA 2014 C3.4
30.	Wall-wetting sprinkler and drencher systems	BCA 2014 C3.4
31.	Warning and operational signs	EPA Regulation (reg 183) BCA 2014 E3.3 (lifts) BCA 2014 C3.6 sliding doors, BCA 2014 NSW D2.19(b)(v)(C) Notices on doors in sign of audience BCA 2014 D2.23 Signs on exit doors
32.	Zone smoke control system	BCA2014 E2.2 & AS1668.1-1998

APPENDIX D –

Proposed Fire Safety Schedule

No	Fire Safety Measure	Standard of Performance
	Access panels, doors and hoppers to fire-resisting shafts	BCA2014 C3.13 & AS1905.1-2005, AS1905.2-2005
2.	Automatic fail-safe devices	Spec C3.4 automatic smoke doors
3.	Automatic fire detection and alarm systems	BCA 2014 E2.2, Spec E2.2a AS1670.1-2004 Amdt 1 AS3786-1993 Amdt 1,2,3&4 AS/NZS 1668.1-1991 Amdt1 BCA 2014 Spec G3.8
4.	Automatic fire suppression systems	BCA 2014 E1.5, Spec E1.5 & AS2118.1-1999 amdt1, AS2118.6-2016 BCA2014 Spec G3.8
5.	Building Occupant Warning System	BCA2014 Clause
6.	Emergency lifts	BCA2014 E3.4 & Spec E3.1
7.	Emergency lighting	BCA 2014 Clause E4.2, E4.3, E4.4 & AS2293.1-2005 Amdt 1 BCA 2014 Spec E1.8 Clause 12 (Emergency lighting for control)
8.	Sound systems & intercom systems for emergency purposes	BCA2014 E4.9 & AS1670.4-2004
9.	Exit signs	BCA2014 E4.5, E4.6, E4.8 Spec E4.8 & AS2293.1 Amdt 1
10.	Exit signs (non-illuminated)	BCA2014 E4.7
11.	Fire Blankets	AS2444-2001
12.	Fire control centres and rooms	BCA 2014 E1.8 & Spec E1.8
13.	Fire dampers	BCA 2014 C3.12, C3.15 & AS1668.1-1998 Amdt 1, AS 1668.2-2012, AS1682.1-1990, AS 1682.2-1990
14.	Fire doors	BCA 2014 Spec C3.4 & AS 1905.1-2005
15.	Fire rated lift landing doors	BCA 2014 C3.10 & AS 1735.11-1986
16.	Fire hydrant systems	BCA 2014 E1.3 & AS2419.1-2005 Amdt 1
17.	Fire Hose Reel System	BCA 2014 E1.4 & AS2441-2005 Amdt 1
18.	Fire seals protecting openings in fire-resisting components of the building	BCA 2014 C3.12, C3.15 & Spec C3.15 AS4072.12005 Amdt 1 AS1530.4-2005
19.	Fire shutters	BCA 2014 C3.4 & Spec C3.4

No	Fire Safety Measure	Standard of Performance
20.	Fire windows	BCA 2014 C3.4 & Spec C3.4
21.	Lightweight construction	BCA 2014 C1.8 & Spec C1.8
22.	Mechanical air handling systems	<p>BCA 2014 E2.2, Table E2.2, Spec E2.2a & AS 1668.1-1998 Amdt1</p> <p>Class 7a carpark building mechanical ventilation systems – BCA 2013 E2.2, Table E2.2a and clause 5.5 of AS1668.1 Amdt 1 BCA 2014 Spec G3.8</p> <p>The Class 9b UTS Levels 5 to 10 are required to have mechanical shutdown of the air handling system on activation of the smoke detection system in accordance with NSW Table E2.2b.</p>
23.	Portable fire extinguishers	BCA 2014 E1.6 & AS2444-2001
24.	Pressurising Systems	<p>BCA 2014 Clause E2.2 & AS1668.1-1998 Amdt 1</p> <p>BCA 2014 Spec G3.8</p>
25.	Smoke alarms and heat alarms	BCA2014 E2.2, Spec E2.2a & AS3786-1993 Amdt 1,2,3 & 4
26.	Smoke exhaust system	<p>BCA 2014 E2.2, Spec E2.2b &</p> <p>AS1668.1-1998 Amdt 1</p> <p>BCA 2014 Spec G3.8</p>
27.	Smoke Dampers	BCA 2014 E2.2, Spec C2.5 (class 9a & 9c)
28.	Smoke Detectors & Heat Detectors	<p>BCA2014 E2.2, Spec E2.2a & AS1670.1-2004</p> <p>BCA2014 C3.5 for automatic fire doors in firewalls;</p> <p>C3.8 automatic fire doors to fire isolated exit, C3.11 automatic closing smoke doors</p>
29.	Smoke doors	BCA 2014 C3.4
30.	Wall-wetting sprinkler and drencher systems	BCA 2014 C3.4
31.	Warning and operational signs	<p>EPA Regulation (reg 183)</p> <p>BCA 2014 E3.3 (lifts)</p> <p>BCA 2014 C3.6 sliding doors,</p> <p>BCA 2014 NSW D2.19(b)(v)(C) Notices on doors in sign of audience</p> <p>BCA 2014 D2.23 Signs on exit doors</p>
32.	Zone smoke control system	BCA2014 E2.2 & AS1668.1-1998