

BCA Report

BUILDING CODE OF AUSTRALIA ASSESSMENT REPORT

Project: The Australian Hearing Hub,
Macquarie University
Client: Macquarie University

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1.0 INTRODUCTION

1.1 General

The subject development is proposed to be located at Macquarie University, in the block bounded by Macquarie Drive to the North and University Avenue to the South. The development comprises of the construction of a nine storey building containing office and future laboratory use, ground floor cafe, auditorium and basement car parking.

The subject property is located within the local government area of the City of Ryde.

1.2 Subject of this report,

The subject of this report relates to the Australian Hearing Hub at Macquarie University.

1.3 Description

The building will contain nine (9) storeys and have the following uses:

Basement 2:	Car parking
Basement 1:	Car parking and loading dock
Ground:	Office and Cafe
Level 1 to Level 2:	Office (with future partial laboratory use) and Auditorium
Level 3 to Level 5:	Office (with future partial laboratory use)
Plant level	

1.4 Purpose of the Report

This report has been prepared, on behalf of Macquarie University, to establish compliance to the Building Code of Australia and relevant Acts and Regulations of the development application documentation for the proposed works.

1.5 Report Basis

This report is based on:

- i. Architectural plans prepared by Perumal Pedavoli Architects as identified in the attached Appendix 1.
- ii. Alternative Solution Report R1.1 – TA prepared by Defire dated July 2010.
- iii. The Building Code of Australia 2010, inclusive of NSW variations (See Note 1).
- iv. Environmental Planning and Assessment Act 1979.
- v. Environmental Planning and Assessment Regulation 2000.

Notes (1) Building Code of Australia (BCA) 2010 was adopted in NSW on 1 May 2010. The amendment of the BCA in force at the date of lodgement of a Construction Certificate is the version called up by Clause 98 of the Environmental Planning & Assessment Regulation 2000 for the purpose of the building design. Therefore comments may be subject to changes to comply with updated versions of the Building Code of Australia.

1.6 Exclusions

This report does not consider the following except where specifically mentioned;

- i. Structural design.
- ii. The Disability Discrimination Act 1992.

2.0 BUILDING CODE OF AUSTRALIA DESCRIPTION

2.1 Classification (A3.2)

The proposed building consist of;

Basement 2:	Class 7a Carpark
Basement 1:	Class 7a Carpark, Class 7b Loading dock
Ground:	Class 5 Office, Class 6 Cafe and Class 8 Laboratory
Levels 1 and 2:	Class 5 Office and Class 9b Auditorium
Levels 3 to 5:	Class 5 Office and Class 9b Auditorium
Plant/Roof plan:	Plant
Roof:	Plant*

*The roof plant level has been considered as mezzanine (an intermediate floor within a room not enclosed by a wall to separate it from the room it falls within).

2.2 Effective Height (A1.1)

The proposed building will have an effective height of less than 25 m.

2.3 Rise in Storeys (C1.2)

The proposed building will consist of a rise in storeys of seven (7)*

*The roof plant and mezzanine level have not been considered in the rise in storeys under this clause.

2.4 Type of Construction (C1.1)

Type A construction in accordance with Specification C1.1 of the BCA, is the applicable type of construction.

3.0 BUILDING CODE OF AUSTRALIA ASSESSMENT

3.1 Structure (BCA Section B)

BCA Clause	Title	Assessment and Comment	Status
B1.1	Resistance to actions	The resistance of the building must be greater than the most critical action effects resulting from different combinations of actions.	Note
B1.2	Determination of individual actions	<p>The building is to be designed and constructed to accommodate the magnitude of individual actions generally covering;</p> <ul style="list-style-type: none"> (a) Permanent actions (b) Imposed actions (c) Wind, snow and ice and earthquake actions (d) Other specified actions <p>A structural engineer is to provide design certification at the Construction Certificate stage that the building has been designed to the relevant structural standards and maintain appropriate supervision during construction to certify that the structure has been constructed in accordance with the design.</p>	The proposed building is capable of complying
B1.4	Determination of structural resistance of materials & forms of construction	<p>The structural resistance of the following materials and forms of construction must be determined;</p> <ul style="list-style-type: none"> (a) Masonry (b) Concrete construction (c) Steel construction (d) Composite steel and concrete (e) Aluminium construction (f) Timber construction (g) Piling (h) Glazing assemblies (i) Termite risk management (j) Roof construction (k) Particleboard structural flooring (l) Lift shafts not required to have an FRL <p>A structural engineer is to provide design certification at the Construction Certificate stage that the building has been designed to the relevant structural standards and maintain appropriate supervision during construction to certify that the structure has been constructed in accordance with the design.</p>	The proposed building is capable of complying

3.2 Fire Resistance (BCA Section C)

3.2.1 Fire Resistance and Stability (Part C1)

BCA Clause	Title	Assessment and Comment	Status
C1.1	Type of construction required	The type of fire resisting construction applicable is Type A construction. Type A construction is the highest of the fire resistant types of construction. (Refer to Item 3.2.2 of this report – Specification C1.1 Fire-resisting Construction).	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
C1.2	Calculation in rise in storeys	<p>The rise in storeys is the sum of the greatest number of storeys at any part of the external wall of the building.</p> <p>The plant roof storey and mezzanine have not been counted in the rise in storeys in the building in that they are situated at the top of the building and only containing heating, ventilating or lift equipment, water tanks or similar service units or equipment.</p> <p>The mezzanine should be open to the room to which it opens to and not enclosed by walls to separate it. For the purposes of calculating the rise in storeys the mezzanine has not been regarded as a storey as its floor area is not more than 200m² or more than 1/3rd of the floor area of the room.</p>	Note
C1.8	Lightweight construction	<p>Any lightweight fire resisting construction is required to be selected to comply with this clause.</p> <p>Particular attention should be provided to identify where any lightweight construction is intended to be used in a wall system that is required to have an FRL or for a lift shaft, stair shaft or an external wall bounding a public corridor.</p>	The proposed building is capable of complying
C1.10	Fire hazard properties	<p>Materials are required to be selected to comply with the required fire hazard properties.</p> <p>It is important that all wall, floor and ceiling finishes other than those specifically accepted under this provision are supplied with test reports that provide evidence of suitability in accordance with A2.2 & A2.4 of the BCA and produced by a Registered Testing Authority.</p>	The proposed building is capable of complying
C1.11	Performance of external wall in fire	The building has a rise in storeys of more than 2 therefore this clause is not applicable.	N/A

3.2.2 Fire-Resisting Construction (Specification C1.1)

BCA Clause	Title	Assessment and Comment	Status
2.2	Fire protection for support of another part	The building is to be designed to comply with this provision. Elements which have an FRL and rely upon the direct vertical and/or lateral support from another element to maintain its FRL, the supporting part must have the same or higher level of fire resistance.	The proposed building is capable of complying
2.3	Lintels	<p>Lintels are to have an FRL where required by this clause.</p> <p>Lintels that contribute to the support of a fire door, fire window or fire shutter are to be specified to have the FRL for the part of the building in which it is situated. Lintels supporting other openings must also comply with this requirement unless the concession applies.</p>	The proposed building is capable of complying
2.4	Attachment not to impair fire resistance	<p>A combustible material may be used as a finish or lining to a wall or roof, or a sign, sunscreen or blind, awning, or other attachment to a building element which is required to have an FRL if the material meets the specified fire hazard properties identified and does not impact on a required exit or otherwise constitute an undue risk.</p> <p>Particular attention is required to specify that any materials used in these circumstances comply are where necessary supplied with test reports that provide evidence of suitability in accordance with A2.2 & A2.4 of the BCA and produced by a Registered Testing Authority.</p>	The proposed building is capable of complying
2.5	General concessions	A non-combustible structure situated on a roof need not comply with the FRL requirements listed under 2.6 and 3.1 below if it only	The building complies

BCA Clause	Title	Assessment and Comment	Status
		contains lift motor equipment, hot water tanks, ventilating ductwork, ventilating fans and their motors, air conditioning chillers, or other service units that are non-combustible and do not contain combustible liquids or gases. The rooftop plant room has been assessed on this basis and is the structure accordingly is not required to have an FRL.	
2.6	Mezzanine floors: concession	The only mezzanine floors proposed is contained in the roof plant area and this concession is not applicable under 2.5 above.	N/A
2.7	Enclosure of shafts	Any fire rated shafts are required to be enclosed at the top and bottom with fire resisting construction in accordance with this clause as required.	The proposed building is capable of complying
3.1	Fire resistance of building elements	<p>Building elements are required to achieve a required FRL of not less than that prescribed in Specification C1.1.</p> <p>Generally the following FRL's are applicable for the proposed uses</p> <p>Carpark & loading area: 2 hrs (the loading area has not been considered as formal loading dock requiring 4 hour construction) Office: 2 hours Auditorium: 2 hours Retail: 3 hrs (As the proposed retail area is less than 10% of the floor area in which it is located this can be reduced to 2 hrs)</p> <p>Laboratory: 4 hrs (Please note that an alternative solution will be utilized to justify reduce the FRL requirements for future laboratory use)</p> <p>External walls & floors are non-combustible construction. Loadbearing internal walls are required to be concrete or masonry. Any non-loadbearing internal walls required to have an FRL are required to be of non-combustible construction.</p> <p>Details are to be provided with the construction documentation.</p>	<p>The proposed building is capable of complying</p> <p>Alternative solution required</p>
3.5	Roof: Concession	The roof need not comply with the FRL requirements under 3.1 above if its covering is non-combustible and the ceiling immediately below the roof has a resistance to the incipient spread of fire.	The proposed building is capable of complying
3.6	Rooflights	No rooflights are proposed.	N/A
3.7	Internal wall and column concession	Where the roof concession clause 3.5 is used, internal columns, internal walls (other than fire walls and shaft wall) immediately below the roof do not need to achieve an FRL. This concession does not apply to internal columns within 1.5m from the external windows.	Concession available
3.9	Carpark	The carpark is proposed to be sprinklered therefore is afforded a concession under this clause for 60 minute construction. Please note the loading area is not considered a formal loading dock.	Concession available

3.2.3 Compartmentation and Separation (Part C2)

BCA Clause	Title	Assessment and Comment	Status
C2.1	Application of part	C2.2 is not applicable to a carpark provided with a sprinkler system	Note
C2.2	General floor area & volume limitations	<p>A class 5 commercial (office) use building is permitted to have a fire compartment size of 8000m². The future proposed use of laboratory is permitted to have a fire compartment of maximum area of 5000m².</p> <p>Fire walls are proposed to reduce the compartments connected by voids into compliant sizes. The proposed fire walls traverse to the North of the sanitary compartments and around the stairs to gridline 10 on each of the commercial levels. The building compartment and volume sizes are therefore within the prescribed floor area and volume limitations of this clause.</p>	The proposed building complies
C2.6	Vertical separation of openings in external walls	<p>Vertical separation of openings in the external wall which are located above another in the storey next below are required to be protected with spandrels designed in accordance with the requirements of this provision.</p> <p>The 900mm spandrel is provided without a 600mm upturn in the selected triangular portion of the building projecting overhead on the four topmost levels. This does not comply with the prescriptive clause but will be justified by a suitably qualified fire engineer against the performance requirements of this clause.</p> <p>Construction documentation should demonstrate compliance.</p>	Alternative Solution proposed
C2.7	Separation by firewalls	The firewalls separating compartments are required to comply with the requirements of this clause. Firewalls are required to have an FRL of not less than that prescribed in Specification C1.1 (generally 2 hrs). In general the fire walls have been nominated on plan and can comply with this provision.	The proposed building is capable of complying
C2.8	Separation of classifications in the same storey	<p>The BCA requires that classifications on the same storey be separated by a firewall <u>or</u> each element in that storey should achieve the higher FRL as described in Specification C1.1.</p> <p>Please note the future laboratory use, which contains a higher FRL requirement, will be assessed under an alternative solution to reduce the FRL requirement to 2 hr.</p> <p>Construction documentation should demonstrate compliance.</p>	The proposed building is capable of complying
C2.9	Separation of classifications in different storeys	The floor between the adjoining parts must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey.	The proposed building is capable of complying
C2.10	Separation of lift shafts	Lift shafts are required to be fire separated from the remainder of the building as outlined in Table 3.1 of Specification C1.1.	The proposed building is capable of complying
C2.11	Stairways and lifts in one shaft	Lifts and stair shafts are separated.	The proposed building complies

BCA Clause	Title	Assessment and Comment	Status
C2.12	Separation of equipment	<p>The following equipment is required to be fire separated from the remainder of the building by 120/120/120 FRL construction:</p> <ul style="list-style-type: none"> • Lift motor rooms and lift control panels. • Emergency Generators. • Central smoke control plant. • Sprinkler valve and hydrant/sprinkler pumps. • Boilers. • Battery rooms. <p>Doorways are required to be self-closing and achieve an FRL of -120/30 and all penetrations in enclosures are to be appropriately sealed or protected.</p> <p>Construction documentation should demonstrate compliance.</p>	The proposed building is capable of complying
C2.13	Electricity supply system	<p>The electricity substation is required to be fire separated from the remainder of the building. The BCA requires 2 hr separation however the electricity authority generally requires 3 hr separation.</p> <p>Any main switchboard located in the building, sustaining emergency equipment operating in emergency mode, must be fire separated from the remainder of the building by 2 hr fire resisting construction.</p> <p>Construction should achieve an FRL of 120/120/120, doorways are required achieve an FRL of -120/30 and to be self-closing and all penetrations in enclosures are to be appropriately sealed or protected.</p> <p>All switchboards in the electrical distribution system, which sustain the electricity supply to the emergency equipment, must provide full segregation by way of enclosed metal partitions designed to prevent the spread of any fault from non-emergency equipment switchgear to the emergency equipment switchgear.</p> <p>Electrical conductors and switchboards are required to comply with this clause.</p> <p>Construction documentation should demonstrate compliance.</p>	<p>The proposed building is capable of complying</p> <p>N/A</p>
C2.14	Public corridors in Class 2 & 3 buildings	The building does not contain public corridors more than 40 m in length.	N/A

3.2.4 Protection of openings (Part C3)

BCA Clause	Title	Assessment and Comment	Status
NSW C3.2	Protection of openings in external walls	Openings in external walls are located more than 3m from a side or rear boundary of an allotment, more than 6 metres from a far boundary of a road or like, and more than 6 metres from another building. Therefore no protective measures are required in accordance with this clause.	N/A
C3.3	Separation of external walls and associated openings in different fire compartments	The proposed firewall separation abuts gridlines 05 and C to the West external wall and between gridlines 10 and D on levels 1 and 2 to the East external wall. The distance between parts of external walls and any openings within them in different fire compartments separated by a firewall are required to be protected to meet the requirements of this clause.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
C3.4	Acceptable method of protection	<p>Windows requiring protection must be protected by one of the means;</p> <ul style="list-style-type: none"> • External wall-wetting sprinklers with windows that are automatically or permanently fixed in the closed position. • -/60/- fire windows (Automatic or permanently fixed in the closed position) • -/60/- automatic fire shutters • Doorways which require protection can be protected externally with wall wetting sprinklers with doors that are self closing or automatic closing, or • -/60/30 fire doors which are self closing or automatic closing. <p>Fire doors, fire windows and fire shutters are required to comply with Specification C3.4.</p>	The proposed building is capable of complying
C3.5	Doorways in fire walls	Doorways in firewalls should meet the requirements of this clause.	The proposed building is capable of complying
C3.6	Sliding fire doors	There are no proposed sliding fire doors.	N/A
C3.8	Openings in fire isolated exits	<p>The fire-isolated exits are required to be protected by -/60/30 self closing fire doors.</p> <p>Construction documentation should demonstrate compliance.</p>	The proposed building is capable of complying
C3.9	Service penetrations in fire isolated exits	Service are not to penetrate through fire isolated exits unless permitted by this clause.	The proposed building is capable of complying
C3.10	Fire isolated lift shafts	Lift doors are to be -/60/- fire doors and comply with this provision. A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35 000 mm ² in area.	The proposed building is capable of complying
NSW C3.11	Bounding construction	Bounding construction requirements not applicable.	N/A
C3.12	Openings in floors and ceilings for services	Fire separation between floors is required to be maintained where services penetrate though floors unless the services are located in fire rated shafts.	The proposed building is capable of complying
C3.13	Openings in shafts	<p>Services within fire rated shaft are required to be fire stopped where they pass through the shaft walls.</p> <p>Construction documentation should specify compliance.</p>	The proposed building is capable of complying
C3.15	Openings for service installations	<p>Services that penetrate a building element must be protected utilising one of the options listed under this clause.</p> <p>The construction documentation should specify compliance.</p>	The proposed building is capable of complying
C3.16	Construction joints	<p>Construction joints in building elements required to be fire resisting are required to be protected in accordance with this clause.</p> <p>The construction documentation should specify compliance.</p>	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
C3.17	Columns protected with lightweight construction to achieve an FRL	A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire.	N/A

3.3 Access & Egress (BCA Section D)

3.3.1 Provision for escape (Part D1)

BCA Clause	Title	Assessment and Comment	Status
NSW D1.2	Number of exits required	At least one exit is required from each storey, and two exits from the basement carpark and auditorium, subject to Clause D1.4 and D1.5. Required exits are provided where required.	The proposed building complies
D1.3	When fire isolated exits are required	Generally exit stairs connecting more than 2 levels in the office/laboratory portion and carpark portion and are required to be fire isolated. One further level can be connected if the required exit does not provide access to or egress for, and is separated from, the extra storey by construction having:- (i) an FRL of -/60/60, if non-loadbearing, and (ii) an FRL of 90/90/90 for Type A construction, and (iii) no opening that could permit the passage of fire or smoke. All stairs are required to be fire-isolated apart from Stair 01, 02, 09, 14, 15, 16, 17, 18, and the stairs 03, 05 and 06 serving basement levels. Stair 04 is able to utilise the separation requirements of this clause and be considered as a non-fire-isolated stair. Please see D1.12 in respect of stairs 10 and 11.	The building is capable of complying
D1.4	Exit travel distances	The BCA requires that no point on a floor can be more than 20m from an exit or from a point which travel in different directions to 2 exits is available. Where two exits are available the maximum distance to one of those exits must not exceed 40m. The following excessive travel distances are noted:- <ul style="list-style-type: none"> Travel distance on the office floors to the nearest exit are up to a maximum of 50m in lieu of 40m. This distance is to be justified by a suitably qualified fire engineer. Travel distance in the triangular portion of the building to a point of choice is up to 25m in lieu of 20m. This distance is to be justified by a suitably qualified fire engineer. Travel distance from the top floor plant room point of choice is up to 25m in lieu of 20m. This distance is to be justified by a suitably qualified fire engineer. 	Alternative Solution

BCA Clause	Title	Assessment and Comment	Status
D1.5	Distance between alternative exits	<p>Exits that are required to serve as alternative means of egress must not be more than 60m apart and exits required as alternative means of egress must be located not less than 9m apart and located so that the alternative paths of travel do not converge such that they become less than 6m apart.</p> <p>The following distance between exits are exceeded:-</p> <ul style="list-style-type: none"> Basement 2: 75 metres between Stair 04 and Stair 05. This distance is to be justified by a suitably qualified fire engineer Basement 1: Between 71 and 73 metres through point of choice between Stair 04 and Stair 16. This distance is to be justified by a suitably qualified fire engineer 	Alternative Solution
NSW D1.6	Dimensions of exits and paths of travel to exits	<p>Exits and paths of travel are required to be at least 1 m wide. Doors may be reduced as permitted.</p> <p>The Anechoic chamber has ladder egress with reduced width. This to comply with clause D1.16 and AS1657. The building generally complies.</p>	The proposed building complies
D1.7	Travel via Fire-isolated exits	<p>Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 metres of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have an FRL of not less than 60/60/60 and any openings protected internally in accordance with C3.4, for a distance of 3 metre above or below, as appropriate, the level of the path of travel or for the height of the wall, whichever is the lesser.</p> <p>The discharge of Stair 08 and 07 is within 6 metres of the same building and should be protected accordingly.</p>	The building is capable of complying
D1.8	External Stairs or ramps in lieu of Fire-isolated exits	External stairs are not provided in lieu of fire isolated exits.	N/A
D1.9	Travel via non-fire-isolated stairways or ramps	<p>A non fire-isolated stair serving as a required exit must provide a continuous means of travel by its own flights and landings to a level at which egress to a road or open space is available.</p> <p>The distance from any point on a floor to a point of egress of a road or open space by way of a required non-fire-isolated stairway must not exceed 80 m.</p> <p>The required non-fire isolated stairway must discharge at a point not more than 15 metres from a doorway providing egress to a road or open space or 30 m from one of 2 such doorways if travel to them is in opposite directions.</p> <p>Travel from the non-fire isolated stairs complies with the requirements of this provision.</p>	The proposed building complies
NSW D1.10	Discharge from exits	<p>The discharge point of the fire isolated exits is required to be connected to the road by a minimum 1 m wide path and where there is a change of level, the path must contain a complying stair or ramp.</p> <p>Where an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by a ramp or other incline having a gradient not steeper than 1:9 at any part, or not steeper than 1:14 (if required for access for people with disabilities).</p>	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
D1.11	Horizontal exits	Horizontal exits are not proposed.	N/A
D1.12	Non-required stairways, ramps or escalators	A non-required non fire-isolated stairway must not connect, directly or indirectly, more than 2 storeys at any level in a Class 5 (office) or 8 (laboratory) building and those storeys must be consecutive. Stair 10 and Stair 11 comply.	
D1.13	Number of persons accommodated	Populations have been assessed in accordance with Table D1.13. Consideration has also been given to client brief request to consider compliance with density populations for Grade A office accommodation based on industry standards.	Note
D1.16	Plant rooms and lift motor rooms: concessions	The BCA allows concessions for plant rooms with floor areas less than 100m ² and areas less than 200 m ² . Within these limitations plant rooms can be serviced by a ladder in lieu of a stairway and a stair and ladder in combination. Details are to be provided with the construction documentation.	The proposed building is capable of complying
D1.17	Access to lift pits	Access is required to be provided in accordance with requirements of this provision. Details are to be provided with the construction documentation.	The proposed building is capable of complying

3.3.2 Construction of exits

BCA Clause	Title	Assessment and Comment	Status
D2.2	Fire-isolated stairways and ramps	Stairs within fire isolated exits should be designed in accordance with the requirements of this provision. Note: stairs are required to be designed so that local failure will not result in structural damage to, or impair the fire resistance of the shaft.	The proposed building is capable of complying
D2.3	Non-fire isolated stairs and ramps	Non fire-isolated stairs must be constructed in accordance with D2.2, or only of:- (a) Reinforced or prestressed concrete; or (b) Steel in no part less than 6 mm thick; or (c) Timber that – (I) Has a finished thickness of not less than 44 mm; and (II) Has an average density of not less than 800 kg/m ³ 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 formaldehyde or resorcinol phenol formaldehyde glue.	The proposed building is capable of complying
D2.4	Separation of rising and descending stair flights	A fire isolated stairway must not have a direct connection between a flight rising from a storey below the lowest level of access to a road or open space and a flight descending from a storey above.	The proposed building complies

BCA Clause	Title	Assessment and Comment	Status
D2.7	Installation in exits and paths of travel	<p>Access to service shafts and services other than to fire-fighting or detection equipment must not be provided from a fire isolated stairway or the like.</p> <p>Services or equipment comprising electricity meters, distribution boards, central telecommunication distribution boards / equipment, electrical motors or other motors serving equipment in the building, can be installed in a corridor or the like leading to a required exit if the services or equipment are enclosed with non-combustible construction or appropriate fire-protective covering and doorways suitably sealed against smoke spread from the enclosure.</p> <p>Gas or other fuel services are not permitted in a required exit.</p>	The proposed building is capable of complying
D2.8	Enclosure of space under stairs	No enclosures are proposed or visible under stairs.	Note
D2.9	Width of stairways	The required width of stairs is to be measured clear of obstructions.	Note
D2.10	Pedestrian ramps	An internal fire isolated ramp, or a ramp serving as a required exit (ramps to street) is required to have a grade of not steeper than 1:8 and is required to have a non-slip finish.	The proposed building is capable of complying
D2.11	Fire isolated passageways	<p>Fire- isolated passageways are required to have an appropriate FRL in accordance with the clause. Please note that to meet compliant travel distances between exits on basement 1 between stairs 02 and the passageway alongside stair 06, this passageway should be fire-isolated.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying
D2.12	Roof as Open Space	There is no roof provided as open space.	N/A
NSW D2.13	Goings & risers	Goings and risers are required to be designed to comply with this clause.	The proposed building is capable of complying
D2.14	Landings	Landing dimensions comply with this clause.	The proposed building complies
NSW D2.15	Thresholds	Thresholds at external doorways may have a step of not more than 190 mm except where disabled access is required.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
NSW D2.16	Balustrades and other barriers	<p>Balustrades and windows are required to be designed to comply with this clause.</p> <p>The height of the balustrade must be constructed so that it is not less than 865 mm above the nosings of the stair treads, and not less than 1 metre above the landings, and 865 mm above the floor beneath an openable window.</p> <p>For balustrades provided primarily as egress stairs the space between the rails should be no more than 150 mm above the nosings of the stair treads or the floor of the landing, and the space between the rails must not be more than 460 mm.</p> <p>There are gaps indicating more than 150 mm above the nosings of the stairs to Stair 02 and Stair 01 on the section details provided. Compliant details are to be provided with construction documentation.</p> <p>For generally accessible stairs the openings between the balusters must not permit a 125 mm sphere to pass through it and for stairs the space is measured above the nosings, and for floors more than 4 metres above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing.</p>	The proposed building is capable of complying
D2.17	Handrails	<p>Handrails are required along at least one side of the stairways or ramps, or on both sides of stairs or ramps with a total width of more than 2m.</p> <p>Refer to disabled access requirements for additional handrail requirements.</p>	The proposed building is capable of complying
D2.18	Fixed platforms, walkways, stairways & ladders	<p>Fixed platforms, walkways, stairways & ladders are required to be designed in accordance with the requirements of this provision.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying
NSW D2.19	Doorways and doors	Swinging doors are provided where required.	The proposed building complies
D2.20	Swinging doors	Required exit doors are required to swing in the direction of egress.	The proposed building complies
NSW D2.21	Operation of latch	Door hardware is required to be comply with the requirements of this provision.	The proposed building is capable of complying
D2.22	Re-entry from fire isolated exits	The requirements of this clause only apply to buildings with an effective height over 25m.	N/A
D2.23	Signs on doors	<p>Statutory signage is required to be provided to fire isolated exit doors.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying
D2.101	Doors in paths of travel in a place of public entertainment	N/A	N/A

3.3.3 Access for people with disabilities

Access is not required under the BCA to Class 2 & associated Class 7a buildings. A level of access may be required by Council policy, however this is not dealt with in this report.

BCA Clause	Title	Assessment and Comment	Status
D3.2	General building access requirements	<p>External access to the building must be in accordance with AS 1428.1 and provided:-</p> <ul style="list-style-type: none"> (i) From the allotment boundary at the main points of entry; And (ii) From any accessible carparking space on the allotment in accordance with D3.5; and (iii) From any adjacent and associated accessible building on the allotment; and (iv) Through the principal public entrance; and <p>To and within the entrance floor and any floor to which a passenger lift or ramp complying with AS1428.1 is provided.</p>	The proposed building is capable of complying
D3.3	Parts of building to be accessible	<p>Access is required to be provided to areas normally used by occupants except for plant rooms and cleaners store rooms. Every passenger lift must comply with E3.6. Finishes and fittings are required to comply with AS1428.1. Details of compliance are to be provided with the construction documentation.</p>	The proposed building is capable of complying
D3.5	Car parking	<p>1 disabled car space is required for every 100 carspaces provided for the office/laboratory portion of the building. (Please note the cafe and auditorium are considered ancillary to the main use of the storey to which they are located on) Carparking spaces are required to comply with AS2890.1.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying
D3.6	Identification of accessible facilities, services, and features.	<p>The accessible WC's are required to be signposted in accordance with the requirements of the clause.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying
D3.7	Hearing augmentation	<p>Where an inbuilt amplification system, other than one used for emergency warning purposes only, is installed, a hearing augmentation system complying with AS1428.1 must be provided to the auditorium equitably distributed and to not less than 15% of the floor area.</p>	The proposed building is capable of complying
D3.8	Tactile indicators	<p>Tactile ground surface indicators are required to be provided to warn people with a vision impairment that they are approaching all public stairs and in the absence if a suitable barrier to an overhead obstruction less than 2 m above floor level, other than a doorway.</p> <p>Details are to be provided with the construction documentation.</p>	The proposed building is capable of complying

3.4 Services & Equipment (BCA Section E)

3.4.1 Fire fighting equipment (Part E1)

BCA Clause	Title	Assessment and Comment	Status
E1.3	Fire hydrants	<p>Fire hydrants are required to be provided to serve the whole building.</p> <p>Any on-site pumpset located within the building, is required to be located in a clearly indicated room having direct egress to a road or open space and unless the building is sprinklered protected have enclosing walls with an FRL not less than that prescribed for a firewall.</p> <p>Full details should be provided with construction documentation.</p>	The proposed building is capable of complying
E1.4	Fire hose reels	<p>Fire hose reels are required to be provided to serve the whole building.</p> <p>Fire hose reels are required to be located internally and located less than 4m from a required exit (fire-isolated stair) or adjacent to internally fire hydrants.</p> <p>Full details should be provided with construction documentation.</p>	The proposed building is capable of complying
E1.5	Sprinklers	<p>A sprinkler system complying with the requirements of this provision is required to be provided within the carpark (containing more than 40 vehicles).</p> <p>Details are to be provided with construction documentation</p>	The proposed building is capable of complying
E1.6	Portable fire extinguishers	<p>Portable fire extinguishers are required to be provided in accordance with this clause.</p> <p>Details are to be provided with construction documentation.</p>	The proposed building is capable of complying
E1.8	Fire control centres	<p>The building is less than 25 m in effective height and the laboratory (Class 8) part will form less than 18,000 m², therefore a fire control centre is not required.</p>	The proposed building is capable of complying
E1.9	Fire precautions during construction	<p>Not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required exit or temporary stairway or exit.</p>	The building will comply
E1.10	Provision for special hazards	<p>No special hazards have been identified</p>	Note

3.4.2 Smoke hazard management (Part E2)

BCA Clause	Title	Assessment and Comment	Status
E2.2	General Requirements	<p>An air-handling system, which does not form part of a smoke hazard management system, which recycles air from one from compartment to another, or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another must:-</p> <ul style="list-style-type: none"> (i) be designed as a smoke control system (AS1668.1) or (ii) incorporate smoke dampers where the air handling ducts penetrate any separating element: and (iii) arranged such that the air-handling system is shut down, and smoke dampers are activated to close automatically, by smoke detectors complying with Clause 4.10 of AS/NSZ 1668.1 	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
		<p>Miscellaneous air-handling systems covered by Sections 5 and 11 of AS/NZS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard.</p> <p>The building must be provided with either of the following:</p> <ul style="list-style-type: none"> (i) in each required fire-isolated stairway an automatic air pressurisation system for fire-isolated exits in accordance with AS/NZS 1668.1; or (ii) zone smoke control system in accordance with AS/NZS 1668.1; or (iii) an automatic smoke detection and alarm system complying with Specification E2.2a; or (iv) a sprinkler system complying with Specification E1.5 <p>The carpark ventilation system is required to be designed in accordance with Table E2.2 "Class 7a Buildings"</p>	
E2.3	Provision for special hazards	N/A	N/A

3.4.3 Lift installations (Part E3)

BCA Clause	Title	Assessment and Comment	Status
E3.2	Stretcher facility in lifts	<p>The lifts are required to be design to accommodate a stretcher.</p> <p>Details are to be provided with construction documentation.</p>	The proposed building is capable of complying
E3.3	Warning against use of lifts in fire	<p>Warning sign is required to be provided.</p> <p>Details are to be provided with construction documentation.</p>	The proposed building is capable of complying
E3.4	Emergency Lifts	The building is less than 25 m in effective height therefore emergency lifts are not required.	N/A
E3.5	Landings	Access & egress from the lift landings comply with Section D.	The building complies
E3.6	Facilities for people with disabilities	<p>The lifts are required to be provided with facilities for people with disabilities as required.</p> <p>Details are to be provided with construction documentation.</p>	The proposed building is capable of complying
E3.7	Fire service controls	The lift is required to be with fire service controls as required by this clause.	The proposed building is capable of complying

3.4.4 Emergency lighting, exit signs and warning systems (Part E4)

BCA Clause	Title	Assessment and Comment	Status
E4.2	Emergency lighting requirements	Emergency lighting is required to be provided throughout the building in accordance with this clause. Details are to be provided with construction documentation.	The proposed building is capable of complying
E4.5	Exit signs	Exit signs are required to be provided in accordance with his clause. Details are to be provided with construction documentation.	The proposed building is capable of complying
NSW E4.6	Directional exit signs	Exit signs are required to be provided in accordance with his clause. Details are to be provided with construction documentation.	The proposed building is capable of complying
E4.8	Design and operation of exit signs	The exit signs are required to be designed to comply with AS/NZS 2293.1. Details are to be provided with construction documentation.	The proposed building is capable of complying
E4.9	Emergency warning & intercommunication systems	EWIS is not required in the subject building.	N/A

3.5 Health & Amenity (BCA Section F)

3.5.1 Damp and weather proofing (Part F1)

BCA Clause	Title	Assessment and Comment	Status
F1.0	Deem to satisfy provisions	Performance requirement FP1.4, for the prevention of the penetration of water through external walls, is required to be complied with. Details are to be provided with construction documentation.	The proposed building is capable of complying
F1.1	Stormwater drainage	Stormwater drainage is required to be designed to comply with AS/NZS3500.3 Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.5	Roof coverings	Lightweight metal roof sheeting is to comply with AS1562.1. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.6	Sarking	Sarking-type materials used for weatherproofing of roofs and walls are required to comply with AS/NZS 4200 Parts 1 and 2. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F1.7	Waterproofing of wet areas in buildings	Waterproofing of wet areas are required to comply with this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
F1.9	Damp-proofing	Damp proof course is required to be provided to walls to comply with this clause.	The proposed building is capable of complying
F1.10	Damp-proofing of floor on ground	A vapour barrier is required to be provided to the underside of a slab laid on ground, in accordance with this clause.	The proposed building is capable of complying
F1.11	Provision of floor wastes	Only applicable to a Class 2 or 3 building or Class 4 part.	N/A
F1.13	Glazed assemblies	Glazed assemblies to comply with AS 2047 as applicable.	The proposed building is capable of complying

3.5.2 Sanitary and other facilities (Part F2)

BCA Clause	Title	Assessment and Comment	Status
F2.1	Facilities in residential buildings	The building contains no residential use.	The proposed building is capable of complying
F2.3	Facilities in Class 3 to 9 buildings	Sanitary facilities must be provided in accordance with Table F2.3. Based on the floor area the building would be expected to contain 1603 persons based on 12m ² per person. This calculation excludes the theatre, meeting rooms and libraries as these areas will be utilised by occupants already contained in the building. Basement levels also have not been included as these spaces would be associated with the remainder of the building. It has been noted that unisex facilities required for persons with a disability may be counted once for each sex. Numbers and types of sanitary facilities contained in the building have been provided in compliance with this clause.	The proposed building complies
F2.4	Facilities for people with disabilities	One wheelchair accessible unisex facility must be provided for every 1-100 closet pans provided. Numbers of sanitary facilities provided exceed the requirements. Accessible unisex facilities to comply with AS1428.1. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
F2.5	Construction of sanitary compartments	The construction of sanitary compartments is required to comply with this requirement. Sanitary compartments must have doors and partitions that separate adjacent compartments and extend to 1.8 m above the floor in all other cases. Doorways located less than 1.2m from the closet pan are required to swing outwards, slide or be capable of being removed from the outside (lift off hinges).	The proposed building is capable of complying

3.5.3 Room sizes (Part F3)

BCA Clause	Title	Assessment and Comment	Status
F3.1	Height of rooms and other spaces	Ceiling heights are required to be generally 2.4 metres in the office, laboratory, auditorium and cafe use, and 2.1 metres in corridors. Bathrooms, sanitary compartments, car parking area and airlocks should be at least 2.1 metres. Ceiling heights are capable of complying.	The proposed building is capable of complying

3.5.4 Light & Ventilation (Part F4)

BCA Clause	Title	Assessment and Comment	Status
F4.1	Provision of natural light	Natural light is required to residential, hospital, aged care and school buildings in accordance with this Part. The building does not contain this use.	N/A
F4.4	Artificial lighting	Artificial lighting is to be provided in accordance with AS1680.0 and in accordance with this clause.	The proposed building is capable of complying
F4.5	Ventilation of rooms	Ventilation is to be provided by natural or mechanical means in accordance with this provision and Clause F4.6.	The proposed building is capable of complying
F4.8	Restriction on the position of water closets and urinals	A room containing a closet pan or urinal must not open directly into a room used for public assembly or a workplace normally occupied by more than one person.	The proposed building is capable of complying
F4.9	Airlocks	If the room containing a closet pan or urinal must not open directly into rooms identified in F4.8 above then an airlock of not less than 1.1 m ² and fitted with self-closing doors at all access doorways or the room containing the closet pan or urinal must be provided with mechanical ventilation and the doorway to the room adequately screened from view.	The proposed building is capable of complying
F4.11	Car park exhaust	The carpark is required to be mechanically ventilated in accordance with AS/NZS 1668.2	The proposed building is capable of complying
F4.12	Kitchen local exhaust	It will be the tenants responsibility to provided Kitchen local exhaust to any commercial kitchens at fit out stage.	N/A

3.5.5 Sound Transmission & Insulation (Part F5)

BCA Clause	Title	Assessment and Comment	Status
F5.1	Application of Part	The provisions of this part apply to Class 2 and 3 residential units.	N/A

3.6 Ancillary Provisions (Section G)

3.6.1 Minor Structure and Components (Part G1)

BCA Clause	Title	Assessment and Comment	Status
G1.2	Refrigerated chambers, strongrooms & vaults	Refrigerated chambers, strongrooms & vaults are not proposed.	Note
G1.101	Provision for the cleaning of windows	The method of provision for the cleaning of windows is required to be in accordance with this clause. Details are to be provided with the construction documentation submitted with the construction certificate.	The proposed building is capable of complying

3.7 Energy Efficiency – NSW Variation (Section J – Class 3 and 5 to 9 buildings)

Class 3, 5 to 9 buildings must comply with the relevant national provisions of Section J, except as varied by NSW J1.6 for Class 3 Buildings, NSW J3.4 and J8.2 for Class 3 and 5 to 9 buildings.

The assessment is based on buildings located within Climate Zone 5.

3.7.1 Building Fabric (Part J0)

BCA Clause	Title	Assessment and Comment	Status
J0.1	Application of Section J	Performance requirements JP1, JP2 & JP3 are satisfied by compliance with the deemed-to-satisfy provisions of Section J, as relevant.	Note
J0.2	Heating & cooling loads of SOU's of Class 2 & 4	N/A	N/A
J0.3	Ceiling fans	N/A	N/A

3.7.2 Building Fabric (Part J1)

BCA Clause	Title	Assessment and Comment	Status
J1.1	Application of part	The Deemed-to-Satisfy Provisions of this Part apply to a building elements forming the envelope of a class 3 – 9 building other than- (a) a class 7, 8 & 9b building that does not have a conditioned space; or (b) an atrium or solarium that is not a conditioned space and is separated from the remainder of the building by an <i>envelope</i> . The building has been assessed as being a conditioned space, by definition, under the BCA.	Note Note
J1.2	Thermal Construction General	Required insulation, reflective insulation and bulk insulation is to be installed in accordance with this clause.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
J1.3	Roof and Ceiling Construction	<p>A roof or ceiling that is part of the envelope must achieve the Total R-Value specified in Table J1.3a & b for the direction of heat flow.</p> <p>A roof that—</p> <ul style="list-style-type: none"> (i) is required to achieve a minimum Total R-Value; and (ii) has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see Specification J1.3 Figure 2(c) and (f)), <p>must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the metal sheet roofing and its supporting member.</p>	The proposed building is capable of complying
J1.4	Roof Lights	Roof lights are not proposed.	N/A
J1.5	Walls	<p>Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a.</p> <p>Any internal wall forming part of the <i>envelope</i> must achieve the total R-value in Table J1.5b.</p> <p>A wall that—</p> <ul style="list-style-type: none"> (i) is required to achieve a minimum Total R-Value; and (ii) has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and (iii) does not have a wall lining or has a wall lining that is fixed directly to the metal frame, <p>must have a thermal break, consisting of a material with an R-Value of not less than R0.2, installed between the external cladding and the metal frame.</p>	The proposed building is capable of complying
J1.6	Floors	A floor that is part of the envelope of the building, including a floor above a carpark, must achieve a total R-Value specified in Table J1.6 and comply with the requirements of this clause.	The proposed building is capable of complying

3.7.3 External Glazing (Part J2)

BCA Clause	Title	Assessment and Comment	Status
J2.1	Application of part	<p>The Deemed-to-Satisfy Provisions of this Part apply to a building elements forming the <i>envelope</i> of a class 3 – 9 building other than-</p> <ul style="list-style-type: none"> (a) a class 7, 8 & 9b building that does not have a conditioned space; or (b) an atrium or solarium that is not a conditioned space and is separated from the remainder of the building by an <i>envelope</i>. <p>The building has been assessed as being a conditioned space, by definition, under the BCA.</p>	Note
J2.4	Glazing	Glazing must be designed in accordance with J2.4.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
J2.5	Shading	Required shading is required to be designed in accordance with the requirements of this condition.	Note

3.7.4 Building Sealing (Part J3)

BCA Clause	Title	Assessment and Comment	Status
J3.1	Application of part	<p>The Deemed-to-Satisfy Provisions of this Part apply to the Class 5 (office), 6 (café), 9 (laboratory) and 9 (auditorium) components of the development except a:</p> <p>(a) a building in climate zones 1, 2, 3 & 5 where the only means of air-conditioning is by using an evaporative cooler; or</p> <p>(b) permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of the gas appliance; or</p> <p>(c) Class 6, 7, 8 and 9b building that does not have a conditioned space; or</p> <p>(d) a building or space where the mechanical ventilation system required by Part F4 provides sufficient pressurization to prevent infiltration; or</p> <p>(e) an atrium or solarium that is not a conditioning space and is separated from the remainder of the building by an envelope.</p> <p>(f) parts of the building that cannot be fully enclosed.</p> <p>The building has been assessed as being a conditioned space, by definition, under the BCA.</p>	Note
J3.2	Chimneys and flues	Solid fuel burning appliances are not proposed and the requirements of this provision do not apply.	N/A
J3.3	Roof Light	Roof lights are not proposed.	Note
J3.4	Windows and doors	<p>Windows and doors forming part of the envelope are required to be sealed to restrict air infiltration. The requirements of this provision do not apply to,</p> <ol style="list-style-type: none"> 1. Windows complying with AS2047, 2. A fire or smoke door, 3. Roller shutter doors. <p>An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than where the conditioned space has a floor area of not more than 50 m².</p>	The proposed building is capable of complying
J3.5	Exhaust Fans	<p>A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a;</p> <p>(a) conditioned space; or</p> <p>(b) a habitable room in climate zone 4, 6, 7 & 8.</p>	The proposed building is capable of complying
J3.6	Construction of roofs, walls and floors	Roofs, ceilings, walls, floors and any openings are required to be designed and constructed to minimise air leakage in accordance with this clause.	The proposed building is capable of complying
J3.7	Evaporative Coolers	Evaporative coolers are not proposed.	N/A

3.7.5 Air Conditioning and Ventilation Systems (Part J5)

BCA Clause	Title	Assessment and Comment	Status
J5.2	Air Conditioning and Ventilating system	Any proposed air-conditioning systems and mechanical ventilation systems are required to comply with the requirements of this provision.	The proposed building is capable of complying
J5.3	Time Switch	The mechanical ventilation system and air conditions system design would be required to be designed in accordance with the requirements of this provision.	The proposed building is capable of complying
J5.4	Heating and chilling systems	Any heating of chilling system for air-conditioning would be required to be designed in accordance with the requirements of this provision.	The proposed building is capable of complying
J5.5	Miscellaneous exhaust system	A miscellaneous exhaust system with an air flow rate of more than 1000 L/s, that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory is required to be design to comply with this clause.	The proposed building is capable of complying

3.7.6 Artificial Lighting and Power (Part J6)

BCA Clause	Title	Assessment and Comment	Status
J6.2	Artificial lighting	The requirements of this provision relate to the illumination load and power of artificial lighting. Artificial lighting is to be designed in accordance with this provision.	The proposed building is capable of complying
J6.3	Interior artificial lighting and power control	Artificial lighting and power control are to be designed and provided in accordance with this provision.	The proposed building is capable of complying
J6.4	Interior decorative and display lighting	Interior decorative and display lighting, such as for foyer mural or art display, must be controlled in accordance with this clause.	The proposed building is capable of complying
J6.5	Artificial lighting around the perimeter of a building	Artificial lighting around the perimeter of a building must be designed to comply with this clause.	The proposed building is capable of complying
J6.6	Boiling water and chilled water storage units	Power supply to a boiling water or chilled water storage unit is required to be controlled by a time switch in accordance with Spec J6.	The proposed building is capable of complying

3.7.7 Hot Water Supply and Swimming Pool and Spa Pool Plant (Part J7)

BCA Clause	Title	Assessment and Comment	Status
J7.2	Hot Water Supply	A hot water supply system for food preparation and sanitary purposes, other than a solar hot water supply system in climate zones 1, 2 and 3, must be designed and installed in accordance with Section 8 of AS/NZS 3500.4	The proposed building is capable of complying
J7.3	Swimming pool heating and pumping	A swimming pool is not proposed.	N/A
J7.4	Spa pool heating and pumping	A spa pool is not proposed.	N/A

3.7.8 Hot Water Supply (Part J8)

BCA Clause	Title	Assessment and Comment	Status
NSW J8.2	Access for maintenance	Access for maintenance must be provided to— (i) adjustable or motorised shading devices. (ii) time switches and motion detectors; and (iii) room temperature thermostats; and (iv) plant thermostats such as on boilers or refrigeration units; and (v) motorized air dampers and control valves; and (vi) reflectors, lenses and diffusers of light fittings; and (vii) heat transfer equipment; and (viii) plant that receives a concession under JV3(b) for the use of energy obtained from- (a) a source that is renewable on-site such as solar, geothermal or wind, or (b) another process as reclaimed energy (c)	The proposed building is capable of complying
J8.3	Facilities for energy monitoring	The building must have a facility to record the consumption of gas and electricity in accordance with this clause.	The proposed building is capable of complying

4.0 FIRE SAFETY SCHEDULE

The following table is a list of the required fire safety measures for this development. This list is to be treated as a guide as to what the buildings are considered to require.

FIRE SAFETY MEASURES	PROPOSED STANDARD OF PERFORMANCE
Access Panels, doors and hoppers to fire resisting shaft	BCA C3.13 & AS1905.1-2005, AS1905.2-2005
Automatic fail safe devices	BCA Part C3 & D2.21
Automatic fire detection and alarm system	BCA E2.2, Spec E2.2a & AS1670.1-2004, AS3786-1993
Automatic fire suppression system (sprinkler)	BCA E1.5, Spec E1.5 & AS2118.1-1999
Emergency lighting	BCA E4.2, E4.4 & AS/NZS2293.1-2005
Exit signs	BCA E4.5, E4.6, E4.8 & AS/NZS2293.1-2005
Fire dampers	BCA C3.12, C3.15 & AS/NZS1668.1-1998, AS1668.2-1991, AS1682.1-1990, AS1682.2-1990
Fire doors	BCA Spec C3.4 & AS1905.1-2005
Fire hydrant systems	BCA E1.3 & AS2419.1-2005
Fire seals protecting openings in fire resisting components of the building	BCA C3.12, C3.15 & Spec C3.15
Fire shutters	BCA C3.4 & Spec C3.4
Fire windows	BCA Spec C3.4
Hose reel system	BCA E1.4 & AS2441-2005
Lightweight construction	BCA C1.8 & Spec C1.8
Mechanical air handling system	BCA E2.2 & AS/NZS1668.1-1998
Portable fire extinguishers	BCA E1.6 & AS2444-2001
Required automatic exit doors	BCA C3.4 & C3.8
Smoke Control System	BCA E2.2 & AS1668.1
Smoke dampers	BCA E2.2
Wall wetting sprinkler and drencher systems	BCA C3.4
Warning and operational signs	EPA Regulation (reg 183), BCA E3.3 (lifts), BCA C3.6 sliding doors, D2.23 Signs on exit doors
Alternative Solutions	TBC

5.0 SUMMARY OF NON-COMPLIANCE ISSUES

The following is a summary table of non-compliance with the deemed-to-satisfy provisions of the BCA, identification of the Performance Requirements of the BCA and the appropriate justification method.

SUMMARY OF NON-COMPLIANCE ISSUES WITH DEEMED-TO-SATISFY PROVISIONS OF BCA

BCA CLAUSE	Performance Requirements	ISSUE	JUSTIFICATION
C1.1	CP1	Laboratory: 4 hour construction to be reduced to 2 hrs for future laboratory use	
C2.6	CP2	The 900mm spandrel is provided without a 600mm upturn in the selected triangular portion of the building projecting overhead on the four topmost levels. This does not comply with the prescriptive clause but will be justified by a suitably qualified fire engineer against the performance requirements of this clause.	
D1.4	DP4	<ul style="list-style-type: none"> Travel distance on the office floors to the nearest exit are up to a maximum of 50m in lieu of 40m. This distance is to be justified by a suitably qualified fire engineer. Travel distance in the triangular portion of the building to a point of choice is up to 25m in lieu of 20m. This distance is to be justified by a suitably qualified fire engineer. Travel distance from the top floor plant room point of choice is up to 25m in lieu of 20m. This distance is to be justified by a suitably qualified fire engineer. 	
D1.5	DP4	<p>The following distance between exits are exceeded:-</p> <ul style="list-style-type: none"> Basement 2: 75 metres between Stair 04 and Stair 05. This distance is to be justified by a suitably qualified fire engineer Basement 1: Between 71 and 73 metres through point of choice between Stair 04 and Stair 16. This distance is to be justified by a suitably qualified fire engineer 	

JUSTIFICATION LEGEND

PR PERFORMANCE REQUIREMENTS

An Alternative Building Solution Report prepared under Part A0.8 of the BCA demonstrating compliance with the 'performance requirements'. These reports are assessed by an Accredited Certifier during the Construction Certificate determination process.

PR (LEVEL 2) PERFORMANCE REQUIREMENTS – LEVEL 2 ANALYSIS

Compliance is to be demonstrated by a fire engineered solution based on a Evaluation Extent 2 System Performance Evaluation under the Fire Engineering Guidelines.

Clause 94 COUNCIL DISCRETION

Clause 94 of the Environment Planning & Assessment Regulation 2000 - Council is required to determine if full or partial compliance with the BCA is to apply to the building. To be determined as part of DA process under Section 79C of the EPA Act.

Clause 188 NSW FIRE BRIGADE DISCRETION

Clause 188 of the Environment Planning & Assessment Regulation 2000 - NSW Fire Brigade may set aside BCA requirements in relation to Category 3 Fire Safety Provisions where compliance cannot be achieved.

Clause 144 CONCURRENCE OF NSW FIRE BRIGADE

Clause 144 of the Environment Planning & Assessment Regulation 2000 - NSW Fire Brigades is to review any Alternative Building Solution Report prepared in relation to a Category 2 Fire Safety Provision and provide concurrence prior to the issue of a Construction Certificate.

6.0 CONCLUSION

The design as proposed is capable of complying with the Building Code of Australia, and will be subject to construction documentation that will provide appropriate details to demonstrate compliance. This report has identified areas of non-compliance with the deemed-to-satisfy provisions and indicates the design intent to demonstrate compliance with the Performance Requirements of the BCA. Whilst the performance based solutions are to be design developed, it is my view that the solutions will not impact on the current design.

Alison Domenici
For and on behalf of City Plan Services Pty Ltd

APPENDIX 1

Assessed plans prepared by Perumal Pedavoli

Plan Title	Drawing No	Revision	Date
Cover Sheet 01	AD_00_000	-	28/05/10
Cover Sheet 02	AD_00_001	-	28/05/10
Site and Building Setout Plan	AD_00_011	-	28/04/10
Basement 2	AD_01_001	-	28/05/10
Basement 1	AD_01_002	-	28/05/10
Ground Floor Plan	AD_01_003	-	28/05/10
Level 1 Floor Plan	AD_01_004	-	28/05/10
Level 2 Floor Plan	AD_01_005	-	28/05/10
Level 3 Floor Plan	AD_01_006	-	28/05/10
Level 4 Floor Plan	AD_01_007	-	28/05/10
Level 5 Floor Plan	AD_01_008	-	28/05/10
Plant / Roof Plan	AD_01_009	-	28/05/10
Roof Plan	AD_01_010	-	28/05/10
Elevations Sheet 1	AD_01_101	-	28/05/10
Elevations Sheet 2	AD_01_102	-	28/05/10
Elevations Sheet 3	AD_01_103	-	28/05/10
Elevations Sheet 4	AD_01_104	-	28/05/10
Elevations Details	AD_01_111	-	28/05/10
Sections Sheet 1	AD_01_201	-	28/05/10
Sections Sheet 2	AD_01_202	-	28/05/10
Sections Sheet 3	AD_01_203	-	28/05/10
Sections Sheet 4	AD_01_204	-	28/05/10
Basement 2 Fire Rating Plan	AD_01_601	-	28/05/10
Basement 1 Fire Rating Plan	AD_01_602	-	28/05/10
Ground Floor Fire Rating Plan	AD_01_603	-	28/05/10
Level 1 Floor Fire Rating Plan	AD_01_604	-	28/05/10
Level 2 Floor Fire Rating Plan	AD_01_605	-	28/05/10
Level 3 Floor Fire Rating Plan	AD_01_606	-	28/05/10
Level 4 Floor Fire Rating Plan	AD_01_607	-	28/05/10
Level 5 Floor Fire Rating Plan	AD_01_608	-	28/05/10