BUILDING CODE OF AUSTRALIA ASSESSMENT REPORT

Biological Sciences Project

Project: Biological Sciences Project, UNSW, Kensington NSW

Client: Brookfield Multiplex
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1.0 EXECUTIVE SUMMARY

The premises subject to this report is located at the north east corner of the UNSW Kensington Campus. The proposal is broken up into two stages:

Stage 1 is for a nine storey building on the site of the existing Biomedical Theatres building. Stage 1 also involves refurbishment of the Lower Ground Floor of the existing Biolink building and pedestrian links through the ground floor of Building D26.

Stage 2 comprises refurbishment of the Ground Floor of Building D26 and the Ground Floor of the Biolink building. Stage 2 also involves the provision of a new facade and rooftop plant enclosure to Building D26 and construction of a new fire stair.

This report has been prepared, on behalf of Brookfield Multiplex Constructions, to establish compliance to the Building Code of Australia and relevant Acts and Regulations of the design development application documentation for the proposed works. Unless specifically noted this assessment and report deals with the proposed building works.

The following non-compliance's with the deemed-to-satisfy provisions of the BCA, in relation to the proposed building work, have been identified and are proposed to be dealt by justification against the performance requirements of the BCA in accordance with BCA Clause A0.5 (b).

STAGE 1 WORKS

C2.2 General floor area and volume limitations	Level 2 to 6 is one fire compartment connected by the atrium void and at 10,500 m² it is over 5,000 m² maximum permitted floor area.
C2.7 Separation by fire walls	The Stage 1 building will be fire separated from the D26 and Biolink such that it is a separate building. Fire separation will be a combination of DTS fire walls and performance justification.
Spec C1.1 Clause 3.1 and associated Clause C2.8 & C2.9	Classifications attracting 3 hrs and 4hrs fire resistance are to be performance justified to 2 hrs.
C3.2 Protection of openings in external walls	At Stage 1, the building contains openings (glazing, louvres etc) in the external walls that are less than 6m from the existing D26 and Biolink building. Similarly, Building D26 and Biolink contains openings (glazing, louvres etc) in the external walls that are less than 6m from the proposed Biological Sciences building. Performance justification is proposed. Refer to C2.7 above.
	The proposed fire stair at the link bridge (part of Wallace Wurth building) will contain glazing along the west and south external facade. The south and west facade will be within 6 m of D26 and as separate buildings, protection under this clause is required.
C3.5 Doorways in fire walls	The roller door in the fire wall between Building D26 and the new building, at Lower Ground floor, may not have the full fire rating required for fire doors.
C3.15 Protection of openings for service installations	The fume cupboards exhaust ductwork will not contain fire dampers at the fire rated shaft penetrations. Performance justification is proposed.

	It is proposed to provide motorised Fire Dampers in lieu of Sub Ducts at floor take-offs from Return Air/Smoke Spill ductwork riser serving Workspace Area. Performance justification is proposed.
D1.2 Number of exits required	Under Stage 1 the Rooftop plant room will have access to only one exit from that building. The alternative access is onto the roof of Building 26 which is a separate building.
D1.4 Exit travel distances	The following areas are more than 20 m to a point of choice • Level 6 Hold/Proc rooms - 25 m • Lower ground floor corridor - 30 m. The following areas are more than 40 m to an exit: • LGF Amenities - 42 m • LGF main switch room - 43 m (open plan) • Level 1 Teaching Lab - 47 m • Level 2 to 5 - 70 m • Level 6 - 67 m • Level 7 - Over 40 m taking into consideration D26 roof exit, as an alternative exit to be justified under D1.2.
D1.4 Exit travel distances - use of horizontal exit	A horizontal exit is proposed to be utilised in the Lower Ground Floor providing egress from the new Biological Building circulation corridor into the Biolink building. Under Stage 1 the reliance on the horizontal exit is to be performance justified as the buildings are assessed as separate buildings.
D1.5 Distance between alternative exits	The following floors contain distance between alternative exits of more than 60 m: • Lower Ground floor - 67 m between south exit door to Horizontal exit into Biolink building • Ground - 80 m between fire stairs • Level 1 - 65 m from south west stair to atrium stair. 65 m from south east to south west stair. • Level 2 to 5 - 120 m • Level 6 - 108 m
D1.7 Travel via fire isolated exits	Openings within 6 m of the external path of travel from discharge of the west stair are to performance justified.
D1.9 Travel by non-fire isolated exits	The open stair connecting Level 1 with ground floor has been assessed as a required non-fire isolated exit. The distance from the bottom of the stair to the eastern door providing egress direct to outside exceeds 20 m.
E1.3 Fire Hose Reels	Fire hose reels are located more than 4 m from an exit.
E1.5 & Spec G3.8 Clause 2 - Sprinklers	Performance justification may be perused to deal with: • use of AS 2118.1-2006 • no sprinklers under external canopy • omission of sprinklers to specialised areas • omission of heat collector plates to the sprinkler system

	protecting the atrium floor**.**
E2.2 General requirements *(Smoke Hazard Management)* & Spec G3.8 Clause 7	The following systems are proposed to be performance justified: • Pressurisation of fire isolated stairs • Zone smoke control • Class 9b fire compartment Smoke exhaust • Smoke control system for buildings containing atriums. • Building occupant warning system - Some areas such as the animal house may not be able to comply.
E4.5 Exit signs	The exit signs in the vertebrate holding areas will require non-standard exit signs such as red colour symbol on black background.
G3.2 Dimensions of atrium well	The east atrium well does not fully comply with the required dimensions.
G3.3 Separation of atriums by bounding walls & G3.4 Construction of bounding walls	Fire Separation of the east atrium will not be provided fully in accordance with this clause
Spec G3.8 Smoke control system	The system of smoke control will not comply with all of the requirements of this clause.
Spec G3.8 Clause 4 Fire detection and alarm system	The “EVACUATE” signage is not proposed to be provided

STAGE 2 WORKS - As for Stage 1 plus the following addition matters

C2.7 Separation by fire walls	The proposed northern canopy of Building D26 connects D26 with the Wallace Wurth building. Fire wall separation is not proposed and this is to be performance justified.
C3.8 Openings in fire isolated exits	This clause requires a fire isolated exit stair window to be protected in accordance with C3.4 if it is within 6 m of and exposed to, a window or other opening in a wall of the same building. The proposed fire stair at the link bridge will contain glazing along the west and south external facade That are within 6 m of non-fire rated external wall including glazing of Wallace Wurth Building (including link bridge). The south external wall of the Wallace Wurth building contains concrete panels that would need to be assessed to determine if they achieve a fire rating. A combination of deemed to satisfy and performance justification is proposed.
D1.4 Exit travel distances D1.5 Distance between alternative exits D1.6 Dimensions of exits and paths of travel to exits	Egress from Building D26 at Stage 2 will necessitate passing into the bridge link forming part of the Wallace Wurth building, which is a separate building.
D1.7 Travel via fire isolated exits	Openings within 6 m of the external path of travel from discharge of the west stair are to be protected or performance justified.

	The west exit discharge involves passing by unprotected openings within 6 m of the Biolink building. A combination of DTS and performance justification is proposed.
G3.2 Dimensions of atrium well	The west atrium well does not fully comply with the required dimensions.
G3.3 Separation of atriums by bounding walls & G3.4 Construction of bounding walls	Fire Separation of the west atrium will not be provided fully in accordance with this clause
Spec G3.8 Smoke control system	The system of smoke control will not comply with all of the requirements of this clause.
Spec G3.8 Clause 4 Fire detection and alarm system	The “EVACUATE” signage is not proposed to be provided

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.

2.0 INTRODUCTION

2.1 General

The premises subject to this report is located at the north east corner of the UNSW Kensington Campus. The proposal is broken up into two stages:

Stage 1 is for a nine storey building on the site of the existing Biomedical Theatres building. Stage 1 also involves refurbishment of the Lower Ground Floor of the existing Biolink building and pedestrian links through the ground floor of Building D26.

Stage 2 comprises refurbishment of the Ground Floor of Building D26 and the Ground Floor of the Biolink building. Stage 2 also involves the provision of a new facade and rooftop plant enclosure to Building D26 and construction of a new fire stair.

2.2 Purpose of the Report

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

2.3 Report Basis

This report is based on:

i. Architectural plans prepared by Woods Bagot, as identified in the attached Appendix 1.
ii. The Building Code of Australia 2014, inclusive of NSW variations (See Note 1).
iii. Environmental Planning and Assessment Act 1979.
iv. Environmental Planning and Assessment Regulation 2000.

Notes (1) Building Code of Australia (BCA) 2014 was adopted in NSW on 1 May 2014. The amendment of the BCA in force at the date of lodgement of a Construction Certificate application or in the case of Crown Building work the date of invitations of tenders, is the version called up by Clause 98 of the Environmental Planning & Assessment Regulation 2000 for the purpose of the building design.

2.4 Exclusions & Limitations

This report has been prepared based on the following limitations and exclusions;

i. This report deals with the proposed works only, and
ii. This report does not consider structural design of the building, and
iii. This report does not consider the design basis and/or operating capabilities of electrical, mechanical, hydraulic or fire protection services, and
iv. This report does not consider heritage significance, and
v. This report does not include or imply compliance with;
    a) The Disability Discrimination Act 1992;
    b) Demolition Standards not referred to by the BCA;
    c) Occupational Health & Safety Act;
    d) Construction Safety Act;

e) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, WorkCover, TR&MS, Council and the like; and
f) Requirements of planning legislation, and
g) Any conditions of Development Consent.

vi. The use of this report is limited to its intended purposes and shall not be relied upon by any other party.

3.0 BUILDING CODE OF AUSTRALIA ASSESSMENT

3.1 Building Separation

The existing Building D26 and Biolink Building are one building for the purpose of BCA application. The existing Wallace Wurth building is connected to Building D26 via a link bridge. The link bridge forms part of the Wallace Wurth building and is fire separated from D26 by internal fire wall and fire doors. External fire separation between the Wallace Wurth building & Building D26 has been performance justified in Fire Engineering Report prepared by Meinhardt Ref 102382 Rev 5 dated 13.03.14. The Wallace Wurth building relies on egress into D26 at Lower Ground Floor and via the link bridge at each level and this has been performance justified in Fire Engineering Report prepared by Meinhardt.

For Stage 1 works, the new Biological Sciences building will be assessed as a separate building, independent of Building D26 and Biolink.

3.2 Classification (A3.2)

The proposed building consists of the following classifications.

Lower Ground Floor:	Class 7b Loading dock & storage
Ground floor:	Class 9b Education Class 8 Laboratory Class 6 Retail (Stage 2)
Level 1:	Class 9b Education Class 8 Laboratory
Level 2 to 5:	Class 5 Office Class 8 Laboratory
Level 6:	Class 8 Laboratory
Level 7:	Class 8 plant (ancillary)

The existing Building D26 and Biolink contains a mixture of Class 5 Office, Class 7b storage, Class 8 laboratories and Class 9b education. The proposed work in the basement of the Biolink involves Class 7b storage and Class 8 workshop.

3.3 Effective Height (A1.1)

The proposed building will have an effective height of 28.33 m.

3.4 Rise in Storeys (C1.2)

The Biological Sciences building will have a rise in storeys of eight (8). The existing Building D26 & Bibolink has a rise in storeys of eight (8).

3.5 Type of Construction (C1.1)

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

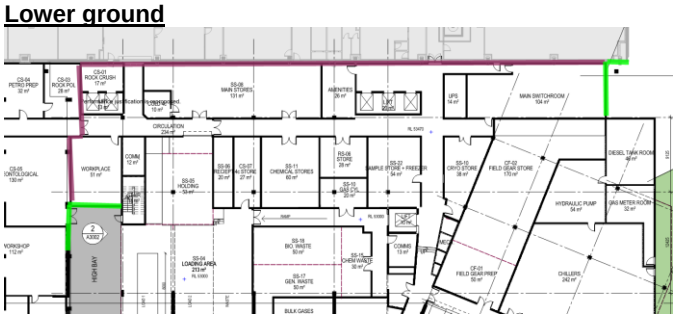
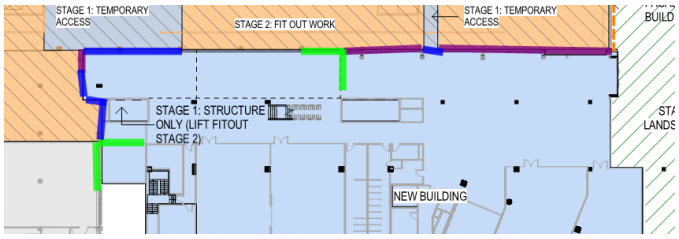
4.0 BUILDING CODE OF AUSTRALIA ASSESSMENT

4.1 Structure (BCA Section B)

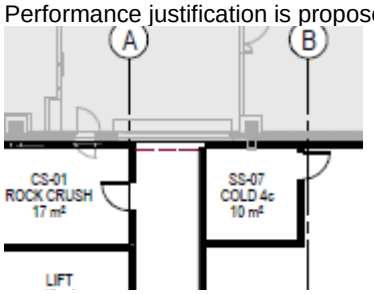
BCA Clause	Title	Assessment and Comment	Status
B1.1	Resistance to actions	The resistance of the building must be greater than the most critical action effects resulting from different combinations of actions as required by this clause.	Note
B1.2	Determination of individual actions	The building is to be designed and constructed to accommodate the magnitude of individual actions, in accordance with this clause, generally covering; (a) Permanent actions (b) Imposed actions (c) Wind, snow and ice and earthquake actions (d) Other specified actions A structural engineer is to provide design certification at the construction 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.	The proposed building is capable of complying
B1.4	Determination of structural resistance of materials & forms of construction	The structural resistance of the following materials and forms of construction must be determined, in accordance with this clause; (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) Garage doors (m) Lift shafts A structural engineer is to provide design certification at the construction 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. Where the existing building does not contain termite risk management measures in accordance with AS 3660.1, any proposed primary building element (as defined by the BCA) must be of steel/concrete construction or naturally or preservative treated timber in accordance with AS 3660.1.	The proposed building is capable of complying
B1.5	Structural Software	Structural software used in computer aided design is to comply with the requirements of this provision. A Structural engineer is to provide design certification at the construction certificate stage.	The proposed building is capable of complying
B1.6	Construction of buildings in flood hazard areas	N/A	N/A

4.2 Fire Resistance (BCA Section C)

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 of the types of construction.	Note
C1.2	Calculation in rise in storeys	The Biological Sciences building will have a rise in storeys of eight (8). The existing Building D26 & Bobolink also has a rise in storeys of eight (8).	Note
C1.8	Lightweight construction	Any proposed lightweight construction shall be designed and installed to comply with the provisions of Specification C1.8 and satisfy the relevant tests.	The proposed building is capable of complying
C1.10	Fire hazard properties	Proposed building materials, floor materials, floor coverings, wall and ceiling lining materials are to be selected to comply with the required fire hazard properties of Specification C1.10. Evidence of compliance (test certificates) shall be obtained from the supplier or manufacturer.	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 and the requirements of this provision do not apply.	N/A
C2.2	General floor area and volume limitations	The maximum DTS permitted fire compartments sizes are 5,000 m ² and 48,000 m³. The following fire compartments have been identified for the Stage 1 Biological Sciences building : Lower Ground Floor Biological Sciences Building - 2,500 m² Lower Ground Floor Building D26 & Biolink - 2,290 m² Ground Floor (excluding Biolink) plus L1 Biological Sciences Building - 4,850 m² Ground floor, L1, L2, L3, L4, L5 & L6 of Building D26 & Biolink - 2,640 m² each level Level 2 to 6 Biological Sciences Building - 10,500 m² Level 7 of Biological Sciences Building - 653 m² Level 2 to 6 is one fire compartment connected by the atrium void and is over 5,000 m². Performance justification is proposed. Stage 2 will result in the Biological Sciences building, Building D26 and Biolink Building being one fire compartment from Ground Level to Level 6. Further performance justification will be required at this stage.	Alternative solution
C2.6	Vertical separation of openings in external walls	The building is proposed to be sprinkler protected therefore vertical separation is not required.	Complies
C2.7	Separation by fire walls	The Stage 1 building will be fire separated from the D26 and Biolink such that it is a separate building. Fire separation will be a combination of DTS fire walls and performance justification. The highlighted lines below represent the following DTS requirements for Stage 1: Purple - fire wall Blue - required fire wall, however proposed to be performance justified Green - external fire rated wall and/or sprinkler protected (Refer to C3.4). Proposed to be performance justified however	Alternative solution

BCA Clause	Title	Assessment and Comment	Status
		may still involve a level of fire rating/protection. **Lower ground**  **Ground floor**  **Level 1 to 6 similar**  At Stage 2, the proposed northern canopy of Building D26 connects D26 with the Wallace Wurth building. Fire wall separation is not proposed and this is to be performance justified.	Alternative solution
C2.8	Separation of classifications in the same storey	If a building has parts of different classifications located alongside one another in the same storey, • each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or • the parts must be separated in that storey by a fire wall. Classifications requiring 3 hrs & 4hrs fire resistance are to be performance justified to 2 hrs.	Alternative solution
C2.9	Separation of classifications in different storeys	The floors between parts of different classifications must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey. Classifications attracting 3 hrs & 4hrs fire resistance are to be performance justified to 2 hrs.	Alternative solution

BCA Clause	Title	Assessment and Comment	Status
C2.10	Separation of lift shafts	The lift shafts are required to be separated from the rest of the building with walls having an FRL of not less than that required by Table 3 of Specification C1.1.	The proposed building is capable of complying
C2.11	Stairways and lifts in one shaft	The stairs and lift shaft are located in different shafts.	The building complies
C2.12	Separation of equipment	The following equipment, if installed in the building, is to be fire separated from the remainder of the building by 120/120/120 FRL construction: a) Boilers b) Lift motors and control panels c) Emergency generators used to sustain emergency equipment operating in emergency mode; or d) Central smoke control plant; or e) Batteries installed in a building that have a voltage exceeding 24 volts and capacity exceeding 10ampere hours.	The proposed building is capable of complying
C2.13	Electricity supply system	Fire separation of substations is to be in accordance with this clause and the specific fire resistant construction requirements from the energy authority. A main switchboard board, sustaining emergency equipment, is to be fire separated from the remainder of the building by 120/120/120 construction. 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. Electrical conductors and switchboards are required to comply with this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
C3.2	Protection of openings in external walls	At Stage 1, the building contains openings (glazing, louvres etc) in the external walls that are less than 6m from the existing D26 and Biolink building. Similarly, Building D26 and Biolink contains openings (glazing, louvres etc) in the external walls that are less than 6m from the proposed Biological Sciences building. Performance justification is proposed. Refer to C2.7 above. The proposed fire stair at the link bridge (part of Wallace Wurth building) will contain glazing along the west and south external facade. The south and west facade will be within 6 m of D26 and as separate buildings, protection under this clause is required. Fire spread externally between Building D26 and Wallace Wurth building has been addressed by the existing Fire Engineering Report prepared by Meinhardt Ref 102382 Rev 05 dated 13.03.14. The protection strategy does not rely on or specify design criteria for Building D26.	Alternative Solution Alternative Solution
C3.3	Separation of external walls and associated openings in different fire compartments	The building does not contain separate fire compartments.	N/A

BCA Clause	Title	Assessment and Comment	Status
C3.4	Acceptable method of protection	Windows requiring protection must be protected by one of the means; • 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. Fire doors, fire windows and fire shutters are required to comply with Specification C3.4.	The proposed building is capable of complying
C3.5	Doorways in fire walls	Doorways in fire walls are required to be protected in accordance with this clause, except that the roller door between Building D26 and the new building at Lower Ground floor may not have the full fire rating required for fire doors. Performance justification is proposed. 	Alternative solution
C3.6	Sliding fire doors	The sliding fire doors are required to be designed in accordance with the requirements of this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying
C3.7	Protection of doorways in horizontal exits	Horizontal exits are to be design in accordance with this clause. The door opening from D26 into the biological sciences building at ground floor is a horizontal exit from D26.	The proposed building is capable of complying
C3.8	Openings in fire isolated exits	The fire-isolated exits are required to be protected by -/60/30 self closing fire doors. Construction documentation should demonstrate compliance. This clause requires a fire isolated exit stair window to be protected in accordance with C3.4 if it is within 6 m of and exposed to, a window or other opening in a wall of the same building. The proposed fire stair at the link bridge will contain glazing along the west and south external facade That are within 6 m of non-fire rated external wall including glazing of Wallace Wurth Building (including link bridge). The south external wall of the Wallace Wurth building contains concrete panels that would need to be assessed to determine if they achieve a fire rating. A combination of deemed to satisfy and performance justification is proposed.	The proposed building is capable of complying Alternative solution
C3.9	Service penetrations in fire isolated exits	Services are not to penetrate through fire isolated exits unless permitted by this clause. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

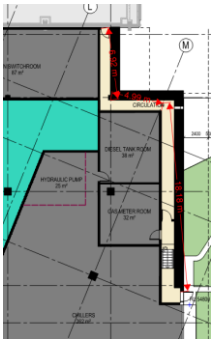
BCA Clause	Title	Assessment and Comment	Status
C3.10	Fire isolated lift shafts	The lift doors are required to be -/60/- fire doors and comply with this provision. A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of 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	N/A	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. Construction documentation to demonstrate compliance.	The proposed building is capable of complying
C3.15	Openings for service installations	Services that penetrate a building element must be protected utilising one of the options listed under this clause. Construction documentation to demonstrate compliance. The fume cupboards exhaust ductwork will not contain fire dampers at the fire rated shaft penetrations. Performance justification is proposed. It is proposed to provide motorised Fire Dampers in lieu of Sub Ducts at floor take-offs from Return Air/Smoke Spill ductwork riser serving Workspace Area. Performance justification is proposed.	 Alternative solution Alternative solution
C3.16	Construction joints	Construction joints in building elements required to be fire resistant are required to be protected in accordance with this clause.	The proposed building is capable of complying
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. Details are to be provided with the construction documentation.	The proposed building is capable of complying

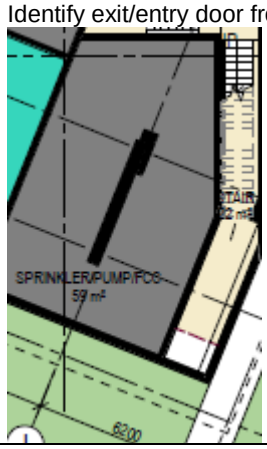
4.3 Fire-Resisting Construction (Specification C1.1)

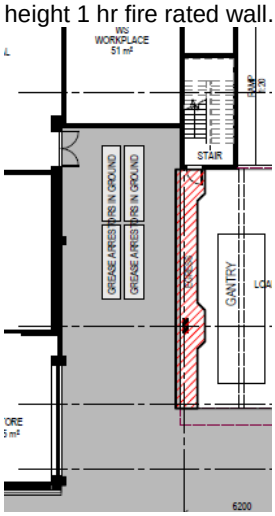
BCA Clause	Title	Assessment and Comment	Status
2.1	Exposure to fire source features	The requirements of this provision apply to the subject building.	Note
2.2	Fire protection for support of another part	When determining FRL's applicable to a particular building element, the requirements of this clause are required to be complied with.	The proposed building is capable of complying
2.3	Lintels	Lintels are to be protected as required by the requirements of this clause.	The proposed building is capable of complying
2.4	Attachment not to impair fire resistance	A combustible material may be used as a finish or lining to a wall or roof, or in a sign, sunscreen or blind, awning, or other attachment to a building element which has the required FRL if— (i) the material is exempted under C1.10 or complies with the fire hazard properties prescribed in Specification C1.10; and (ii) it is not located near or directly above a required exit so as to make the exit unusable in a fire; and (iii) it does not otherwise constitute an undue risk of fire spread via the facade of the building. The attachment of a facing or finish, or the installation of ducting or any other service, to a part of a building required to have an FRL must not impair the required FRL of that part. Details demonstrating compliance are to be provided with the construction documentation.	The proposed building is capable of complying
2.5	General concessions	Roof top plan rooms need not have an FRL if they are non-combustible and they only contain equipment specified in this clause.	Note
2.6	Mezzanine floors: concession	The building does not contain mezzanine's that are subject to this provision.	N/A
2.7	Enclosure of shafts	The shafts are to be enclosed at the top and bottom in accordance with the requirements of this clause.	The proposed building is capable of complying

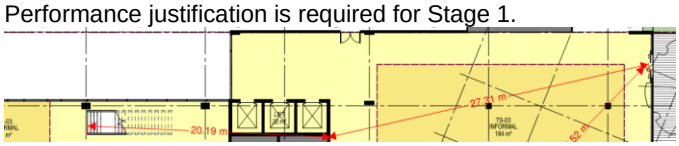
BCA Clause	Title	Assessment and Comment	Status
3.1	Fire resistance of building elements	The building is required to be designed to comply with the required fire resistance levels applicable to Type A construction. The following fire resistance requirements generally apply: Office – 2 hrs Education – 2 hrs Retail - 3 hrs Laboratories – 4 hrs Loading Dock – 4 hrs Storage- 4hrs Classifications attracting 3 hrs and 4hrs fire resistance are to be performance justified to 2 hrs. External walls, common walls and the flooring and floor framing of lift pits must be non-combustible. Particular attention is required to the use of aluminum composite panels, which are combustible, and therefore will not comply unless they are designed as an 'attachment' to an external wall. Details are to be provided with the construction documents. Internal walls required to have an FRL with respect to integrity and insulation must be design in accordance with this clause. A loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be of concrete or masonry.	Alternative solution
3.5	Roof: Concession	The roof is not required to have an FRL, in a sprinkler protected building, however the covering of the roof must be non-combustible.	The proposed building is capable of complying
3.6	Roof lights	Rooflights are proposed above the atrium.	The proposed building is capable of complying
3.7	Internal wall and column concession	Internal columns, internal walls (other than fire walls and shaft wall) immediately below the roof are permitted to achieve an FRL of 60/60/60. This concession does not apply to internal columns within 1.5m from the external windows.	Concession available

4.4 Access & Egress (BCA Section D)

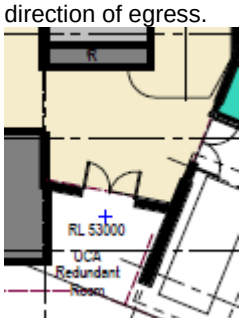
BCA Clause	Title	Assessment and Comment	Status
D1.2	Number of exits required	Not less than 2 exits must be provided from each storey. Exits will be identified on the roof. Under Stage 1 the Rooftop plant room will have access to only one exit from that building. The alternative access is onto the roof of Building 26 which is a separate building. Performance justification is proposed.	Alternative solution
D1.3	When fire isolated exits are required	The following proposed stairs are required to be fire isolated: • South west stairs • South east stairs • Northern stair at the link between D26 & the Wallace Wurth building The following stairs may be non-fire isolated: • Stairs within atrium void • Open stair connecting Ground Level to Level 1	The proposed building is capable of complying
D1.4	Exit travel distances	**Class 5, 6, 7b & 9b -** No point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40m. The following areas are more than 20 m to a point of choice: • Level 6 Hold/Proc rooms - 25.5m • Lower ground floor corridor - 30 m  On Level 2, an access route is proposed to be provided from the Lounge area, directly into the Bioinformatics workplace. The following areas are more than 40 m to an exit: • LGF Amenities - 42 m • LGF main switch room - 43 m (open plan) • Level 1 Teaching Lab TL -06 - 47 m • Level 2 to 5 - 71.3 m • Level 6 - up to 68 m • Level 7 - Over 40 m taking into consideration D26 roof exit, as an alternative exit to be justified under D1.2. Performance justification is proposed. Egress from Building D26 at Stage 2 will necessitate passing into the bridge link forming part of the Wallace Wurth building, which is a separate building. Performance justification is required.	Alternative solution Minor design change required Alternative solution Alternative solution

BCA Clause	Title	Assessment and Comment	Status
		A horizontal exit is proposed to be utilised in the Lower Ground Floor providing egress from the new Biological Building circulation corridor into the Biolink building. Under Stage 1 the reliance on the horizontal exit is to be performance justified as the buildings are assessed as separate buildings. Identify exit/entry door from sprinkler pump room.  	Alternative solution
D1.5	Distance between alternative exits	Exits that are required to serve as alternative means of egress must not be more than 45m apart in a residential building and not more than 60m in all other parts. The following floors contain distance between alternative exits of more than 60 m: Lower Ground floor - 67 m between south exit door to Horizontal exit into Biolink building Ground - 80 m between fire stairs Level 1 - 69 m from south east stair to atrium stair and 76 m from south east to south west stair. Level 2 to 5 - 120 m Level 6 - 108 m 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. The exits comply with this requirement. Egress from Building D26 at Stage 2 will necessitate passing into the bridge link forming part of the Wallace Wurth building, which is a separate building. Performance justification is required.	Alternative solution Alternative solution
NSW D1.6	Dimensions of exits and paths of travel to exits	A required exit and path of travel to an exit are required to be a minimum unobstructed height of not less than 2m and minimum width of 1m. The required aggregate exit width for stage 1 is: LGF new building - 2 m LGF Biolink - 2 m Ground floor - 3 m for Stage 1 and 5 m for stage 2 Level 1 - 3 m Level 2 to 5 - 2 m each level Level 6 - 2 m Egress from Building D26 at Stage 2 will necessitate passing into the bridge link forming part of the Wallace Wurth building, which is a separate building. Performance justification is required.	The building complies Alternative solution

BCA Clause	Title	Assessment and Comment	Status
D1.7	Travel via fire isolated exits	A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from— (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. The building design complies.	The building complies
		Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to a road or open space or a covered area in accordance with this clause. The building design complies.	The building complies
		Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6 m 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 m above or below, as appropriate, the level of the path of travel. Openings within 6 m of the path of travel are to be protected or performance justified. The east exit discharge is capable of complying. The west exit discharge involves passing by openings within 6 m. At stage 2 (when buildings area assessed as one building), travel also involves walking by the windows in Biolink part within 6 m of external path of travel. A combination of DTS and performance justification is proposed. A portion (1 m length) of the barrier separating the Load 1 from the path of travel, closest to the door will need to be a full height 1 hr fire rated wall.  The discharge of the proposed north stair under stage 2 also will necessitate protection of external openings within 6 m of the path of travel. DTS protection is to be provided. The external pedestrian path of travel is to be identified on the construction plans.	Alternative solution
		The discharge of the West fire stair of Building D26 requires some redesign to comply with this clause.	Design change requried
D1.8	External Stairs or ramps in lieu of fire-isolated exits	The fire isolated exits are enclosed.	N/A

BCA Clause	Title	Assessment and Comment	Status
D1.9	Travel via non-fire-isolated stairways or ramps	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. Open space is defined as a space on the allotment adequately protected from fire. The open stair connecting Level 1 with ground floor has been assessed as a required non-fire isolated exit. The distance from the bottom of the stair to the eastern door providing egress direct to outside exceeds 20 m (the distance is 47.5 m). Performance justification is required for Stage 1. 	The proposed building complies Alternative solution
D1.10	Discharge from exits	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. The external pedestrian paths connecting discharge of exit stairs with street are to be identified on the construction plans. The BCA also specifies that exits must not be blocked at a point of discharge and where necessary suitable barriers must be provided to prevent vehicles from blocking the exit or access to it. Bollards are to be provided where required to protected external pedestrian paths of travel.	The proposed building is capable of complying
D1.11	Horizontal exits	A horizontal exit is proposed in the Lower Ground Floor providing egress from the new Biological Building circulation corridor into the Biolink building. The doors are to be re-swung so that they swing in the direction of egress (into the Biolink Building).	The proposed building is capable of complying
D1.12	Non-required stairways, ramps or escalators	Non-required stairs are located within the atriums, however this clause does not apply in this case.	N/A
D1.13	Number of persons accommodated	Populations have been based on a combination of Table D1.13 and occupant numbers provided by the client.	Note
D1.16	Plant rooms and lift rooms: concession	A ladder may be used in lieu of a stairway to provide egress from certain plant rooms as permitted by this clause. Where permitted, the ladder: (iii) must comply with— (A) AS 1657 for a plant room or a Class 8 electricity network substation; and (B) AS 1735.2 for a lift machine room.	The proposed building is capable of complying
D1.17	Access to lift pits	Access to lift pits must, where the pit depth is not more than 3m, may be through the lowest landing doors. Where the lift pit depth is more than 3 m, additional access requirements apply in accordance with this clause. The Construction plans are to demonstrate compliance.	The proposed building is capable of complying
D2.2	Fire-isolated stairways and ramps	A stairway or ramp (including any landings) that is required to be within a fire-resisting shaft must be constructed of non-combustible materials and so that if there is local failure it will not cause 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	The non fire isolated stairs are required to be designed in accordance with the requirements of this provision.	The proposed building is capable of complying
D2.4	Separation of rising and descending stair flights	The south stairs discharge through Lower ground floor level and the north stair discharges at Ground.	N/A

BCA Clause	Title	Assessment and Comment	Status
D2.7	Installation in exits and paths of travel	Access to service shafts and services other than to fire-fighting or detection equipment as permitted in the Deemed-to-Satisfy Provisions of Section E, must not be provided from a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp. An opening to any chute or duct intended to convey hot products of combustion from a boiler, incinerator, fireplace or the like, must not be located in any part of a required exit or any corridor, hallway, lobby or the like leading to a required exit. Gas or other fuel services must not be installed in a required exit. Electrical or telecommunications cupboards opening onto a corridor or the like must be of non-combustible construction and smoke sealed from the corridor (including metal lining to inside face of door and smoke seals to door) . Only electrical wiring associated with services specified in this clause, are permitted to be installed in a fire isolated exit.	The proposed building is capable of complying
D2.8	Enclosure of space under stairs and ramps	The space below the required fire-isolated stairways must not be enclosed to form a cupboard or similar enclosed space.	The proposed building is capable of complying
D2.9	Width of stairways	The required width of a stairway must be measured in accordance with this clause.	Note
D2.10	Pedestrian ramps	A ramp serving as a required exit must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1; or (ii) in any other case, have a gradient not steeper than 1:8. The floor surface of a ramp must have a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586.	The building is capable of complying
D2.11	Fire-isolated passageways	The enclosing construction of the fire-isolated passageways must have an FRL when tested for a fire outside the passageway in another part of the building of not less than that required for the stairway shaft.	The proposed building is capable of complying
D2.12	Roof as open space	If an exit discharges to the roof of a building, the roof must – (a) Have an FRL of not less than 120/120/120; and (b) Not have any rooflights or other openings within 3 m of the external path of travel.	The proposed building is capable of complying
NSW D2.13	Goings & risers	Goings and risers are to be designed to comply with this clause, including opening sizes, going and riser dimensions and non-slip finish or non-skid nosings. The stairway must have treads which have— (A) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; or (B) a nosing strip with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
D2.14	Landings	Landings are to be designed in accordance with this clause. Landings must have have— (A) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; or (B) a strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586, where the edge leads to a *flight* below	The proposed building is capable of complying
NSW D2.15	Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless— (i) the doorway opens to a road or open space, external stair landing or external balcony; and (ii) the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.	The proposed building is capable of complying
NSW D2.16	Balustrades and other barriers	Balustrades are to be provided in accordance with this clause. Should the north fire stair be provided with hold open doors, the balustrade should be of the 125 rule type.	The proposed building is capable of complying
D2.17	Handrails	Handrails are to be provided to stairs and ramps and designed to comply with this clause. Particular attention is required to the design of handrails to assist people with disabilities.	The proposed building is capable of complying
D2.18	Fixed platforms, walkways, stairways & ladders	A fixed platform, walkway, stairway, ladder and any going and riser, landing, handrail, balustrade or other barrier attached thereto may comply with AS 1657 in lieu of D2.13, D2.14, D2.16 and D2.17 if it only serves: (a) machinery rooms, boiler houses, lift-machine rooms, plant-rooms, and the like; or (b) non-habitable rooms, such as attics, storerooms and the like that are not used on a frequent or daily basis in the internal parts of a sole-occupancy unit in a Class 2 building or Class 4 part.	The proposed building is capable of complying
NSW D2.19	Doorways and doors	A doorway serving as a required exit or forming part of a required exit must be designed in accordance with this clause. Particular attention is required to the restriction on use, of sliding doors, roller shutter, tilt up-doors and power operated doors.	The proposed building is capable of complying
D2.20	Swinging doors	Swinging doors are required to be designed in accordance with this clause in relation to direction of swing; encroachment on stairways, ramps and passageways; and hold open devices. The basement exit doors at grid E9 are required to swing in the direction of egress.  	The proposed building is capable of complying Minor design change required

BCA Clause	Title	Assessment and Comment	Status
NSW D2.21	Operation of latch	All the doors in the required exits, doors forming part of the required exits, an doors within paths of travel must be readily openable in accordance with this clause.	The proposed building is capable of complying
D2.22	Re-entry from fire-isolated exits	Doors of a fire-isolated exit must not be locked from the inside a fire-isolated exit. This requirement does not apply to a door fitted with a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and— (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation.	The proposed building is capable of complying
D2.23	Signs on doors	A sign ("FIRE SAFETY DOOR—DO NOT OBSTRUCT" or **'**FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN", as appropriate), must be installed where it can readily be seen on, or adjacent to the following; • A required fire door providing direct access to a fire-isolated exit, • A required smoke door, • A fire door forming part of a horizontal exit; • A smoke door that swings in both directions; • door leading from a fire isolated exit to a road or open space, in accordance with this clause.	The proposed building is capable of complying
D2.24	Protection of openable windows	Window openings must be protected in accordance with this clause. Where the floor below a window is 4 m or more above the surface beneath the window, a barrier with height of 865 mm above the floor is required. The barrier must not have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. Construction documentation should also demonstrate compliance.	The proposed building is capable of complying
D3.1	General building access requirements	Access for people with disabilities is required to be provided to and within all areas normally used by occupants in accordance with the requirements of this provision and AS1428.1-2009.	The proposed building is capable of complying
D3.2	Access to buildings	An accessway must be provided to a building required to be accessible— i. from the main points of a pedestrian entry at the allotment boundary; and ii. from another accessible building connected by a pedestrian link; and iii. from any required accessible carparking space on the allotment. In a building required to be accessible, an accessway must be provided through the building pedestrian entrances as required by this clause. The Construction plans are to demonstrate compliance. Note: The 'affected part' mandatory upgrade provisions of the Disability (Access to Premises - Buildings) Standards 2010 are triggered by the works to the existing D26 building and Biolink Building. This requires a compliant path of travel (access for people with disabilities) from the principal pedestrian entrance of Building D26/Biolink, to the area of the proposed works. The Construction plans are to demonstrate compliance.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
D3.3	Parts of building to be accessible	Every ramp and stairway (except for ramps and stairways in areas exempted by D3.4) must comply with— i. for a ramp, except a fire-isolated ramp, clause 10 of AS 1428.1; and ii. for a stairway, except a fire-isolated stairway, clause 11 of AS 1428.1; and iii. for a fire-isolated stairway, clause 11.1(f) and (g) of AS 1428.1-2009. The construction plans are to demonstrate compliance. Every passenger lift must comply with E3.6. Accessways must have passing spaces and turning spaces in accordance with this clause. Minor design changes may be required to comply.	The building is capable of complying
D3.4	Exemptions	The following areas are not required to be accessible: (a) An area where access would be inappropriate because of the particular purpose for which the area is used. (b) An area that would pose a health or safety risk for people with a disability. (c) Any path of travel providing access only to an area exempted by (a) or (b).	Note
D3.5	Accessible Car parking	Carparking is not proposed.	N/A

BCA Clause	Title	Assessment and Comment	Status
D3.6	Signage	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 must identify each— i. sanitary facility, except a sanitary facility within the sole-occupancy unit of the Class 3 component, and ii. a space with a hearing augmentation system; Each doorway required to be provided with an exit sign under E4.5 must be identified with "EXIT" and "LEVEL" followed by the floor level number. Signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within a room containing a hearing augmentation system, in accordance with this clause. Signage in accordance with AS 1428.1 must be provided for accessible unisex sanitary facilities to identify if the facility is suitable for left or right handed use. Signage to identify an ambulant accessible sanitary facility in accordance with AS 1428.1 must be located on the door of the facility. Where a pedestrian entrance is not accessible, directional signage incorporating the international symbol of access, in accordance with AS 1428.1 must be provided to direct a person to the location of the nearest accessible pedestrian entrance. Where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility, directional signage incorporating the international symbol of access in accordance with AS 1428.1 must be placed at the location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex sanitary facility.	The building is capable of complying
D3.7	Hearing augmentation	A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed in the teaching labs.	The building is capable of complying
D3.8	Tactile indicators	Tactile ground surface indicators are required to be provided as required by this clause. Tactile ground surface indicators are required to comply with sections 1 and 2 of AS/NZS 1428.4.1.	The proposed building is capable of complying
D3.9	Wheelchair seating spaces in Class 9b assembly buildings	N/A	N/A
D3.11	Ramps	On an accessway— (a) a series of connected ramps must not have a combined vertical rise of more than 3.6 m; and (b) a landing for a step ramp must not overlap a landing for another step ramp or ramp.	The proposed building is capable of complying
D3.12	Glazing on an accessway	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	The proposed building is capable of complying

4.5 Services & Equipment (BCA Section E)

BCA Clause	Title	Assessment and Comment	Status
E1.3	Fire hydrants	A fire hydrant system must be provided in accordance with this clause to serve the whole building and must also be installed in accordance with AS2419.1. Where internal hydrants are provided, they must only serve the storey in which they are located. The hydrant pump room must open direct to outside or by fire isolated passageway direct to outside. Hydrant boosters are to be located in accordance with AS2419.1.	The proposed building is capable of complying
E1.4	Fire hose reels	Fire hose reels are located more than 4 m from an exit. Performance justification is proposed	Alternative solution
E1.5	Sprinklers	The building is required to be protected by a sprinkler system in accordance with Specification E1.5. Performance justification may be perused to deal with: • use of AS 2118.1-2006 • no sprinklers under external canopy • omission of sprinklers to specialised areas	The proposed building is capable of complying
E1.6	Portable fire extinguishers	Portable fire extinguishers are to comply with this provision and sections 1, 2, 3 and 4 of AS2444.	The proposed building is capable of complying
E1.8	Fire control centres	A fire control centre in accordance with Specification E1.8 must be provided.	The proposed building is capable of complying
E1.9	Fire precautions during construction	In a building under construction portable fire extinguishers and hydrants are required to be provided as required by this clause.	The proposed building is capable of complying
E1.10	Provision for special hazards	Suitable additional provision must be made if special problems of fighting fire could arise because of the nature or quantity of materials stored, displayed or used in a building or on the allotment. An assessment by the design team & dangerous goods consultant is required in this regard to determine if provision for special hazards is necessary.	The proposed building is capable of complying
E2.2	General requirements *(Smoke Hazard Management)*	The following smoke hazard management measures are required: • Pressurisation of fire isolated stairs • Zone smoke control • Smoke exhaust is required from any fire compartment over 2000 m² and containing Class 9b (school) parts. (Note 1: Ground and Level 1 contain Class 9b school parts and is one fire compartment. Note 2: the Teaching labs and associated prep area, as classrooms, do not required smoke exhaust) • Smoke control system for buildings containing atriums in accordance with BCA Spec G3.8 • A sprinkler system and fire detection and alarm system is required under Part G3 ‘Atriums’ • Shutdown of certain air-handling systems • Smoke detection system for smoke control systems • Building occupant warning system • Monitoring of smoke detection system in accordance with BCA Spec E2.2a	

BCA Clause	Title	Assessment and Comment	Status
		The following systems are proposed to be performance justified: • Zone smoke control - NDY have advised that, *'The smoke control system for the building is envisaged as a hybrid system comprising purge system for the Open/Support lab areas and a zone smoke control system for the workspace areas. A zone pressurisation system in the lab areas is not compatible with the PC2 laboratory pressurisation regime. The purge systems in place for the ventilation of the Lab areas will operate to exhaust smoke from the fire affected laboratory area and negatively pressurise this lab to mitigate the spread of smoke.'* • Class 9b fire compartment Smoke exhaust • Smoke control system for buildings containing atriums. • Building occupant warning system - Some areas such as the animal house may not be able to comply. The Class 6 part of the fire compartment is less than 2000 m².	Alternative solution
E2.3	Provision for special hazards	Additional smoke hazard management measures may be necessary due to the— (a) special characteristics of the building; or (b) special function or use of the building; or (c) special type or quantity of materials stored, displayed or used in a building; or (d) special mix of classifications within a building or *fire compartment*, which are not addressed in Tables E2.2a and E2.2b. An assessment by the design team & dangerous goods consultant is required in this regard to determine if provision for special hazards is necessary.	The building is capable of complying
E3.1	Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1. The construction documents are to demonstrate compliance.	The building is capable of complying
E3.2	Stretcher facility in lifts	A stretcher facility in accordance with must be provided— (i) in at least one emergency lift required by E3.4; or (ii) where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12 m, in at least one of those lifts to serve each floor served by the lifts. The stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level	The proposed building is capable of complying
E3.3	Warning against use of lifts in fire	Warning signage for the passenger lifts is to be provided in accordance with this clause.	The proposed building is capable of complying
E3.4	Emergency lifts	Emergency lifts are to be provided in accordance with this clause.	The proposed building is capable of complying
E3.5	Landings	Access and egress to and from liftwell landings must comply with the DTS provision of Section D.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
E3.6	Passenger lifts	Every passenger lift must comply with the requirements of this provision, including lift type; accessible features; and restrictions on the use of constant pressure devices for operation of the lift.	The proposed building is capable of complying
E3.7	Fire service controls	Where lifts serve any storey above an effective height of 12m, the following must be provided: (a) A fire control switch complying with E3.9 for— (i) a group of lifts; or (ii) a single lift not in a group that serves the storey. (b) A lift car fire service drive control switch complying with E3.10 for every lift.	The proposed building is capable of complying
E3.8	Aged care buildings	N/A	N/A
E3.9	Fire service recall operation switch	Each group of lifts must be provided with one fire service recall control switch where fire service controls are required by E3.7. Fire recall operation switches are to comply with the requirements of this provision.	The proposed building is capable of complying
E3.10	Lift car fire service drive control switch	Lift car fire service drive control switch required by E3.7 must be activated from within the car and the switch must comply with the requirements of this clause.	The proposed building is capable of complying
E4.2	Emergency lighting requirements	Emergency lighting must be provided in accordance with this clause. Emergency lighting is required to comply with AS2293.1-2005.	The proposed building is capable of complying
E4.5	Exit signs	Exit signage must be provided in accordance with this clause. Exit signage is required to comply with AS2293.1-2005 and be clearly visible at all times. The exit signs in the vertebrate areas will require non-standard exit signs such as red colour symbol on black background. Performance justification is proposed.	Alternate solution
NSW E4.6	Direction signs	If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.	The proposed building is capable of complying
E4.9	Sound systems and intercom systems for emergency purposes	A sound system and intercom system for emergency purposes complying where applicable with AS1670.4-2004 must be installed in the building.	The proposed building is capable of complying

4.5 Health & Amenity (BCA Section F)

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.	The proposed building is capable of complying
F1.1	Stormwater drainage	Stormwater drainage is required to be designed to comply with AS/NZS3500.3-2003.	The proposed building is capable of complying
F1.4	External above ground membranes	Waterproofing membranes for external above ground use must comply with AS4654.1-2012 & AS4654.2-2012.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
F1.5	Roof coverings	Lightweight metal roof sheeting is to comply with AS1562.1.	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.	The proposed building is capable of complying
F1.7	Waterproofing of wet areas in buildings	Waterproofing of wet areas is required to comply with this clause.	The proposed building is capable of complying
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	Damp-proofing is required to be provided in accordance with the requirements of this provision.	The proposed building is capable of complying
F1.12	Sub-floor ventilation	There is no sub floor space.	N/A
F1.13	Glazed assemblies	Proposed glazed assemblies identified in this clause are to comply with the AS 2047 requirements for the resistance to water penetration.	The proposed building is capable of complying
F2.3	Facilities in Class 3 to 9 buildings	Sanitary facilities must be provided in accordance with this clause and Table F2.3. Sanitary families for students must be separate from sanitary facilities for teachers/staff. Facilities for retail food patrons are required to be provided. Shared male and female sanitary facilities are not permitted by DTS provisions of the BCA including washbasins. The shared handbasin facilities on ground floor do not comply**.**	The proposed building is capable of complying Design change required
F2.4	Accessible sanitary facilities	Unisex sanitary compartments must be provided on every storey containing sanitary facilities and where a storey has more than 1 bank of sanitary compartments, at not less than 50% of these banks in accordance with AS1428.1-2009. In addition to the unisex sanitary compartment, each bank of toilets must be provided with a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 and must be provided for use by males and females. An accessible unisex sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels. The circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with Table F2.4(a) and Table F2.4(b) must comply with the requirements of AS 1428.1; and Access to unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only. Where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible, Accessible unisex showers must be provided where required by Table F2.4(b)	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
F2.5	Construction of sanitary compartments	The construction of sanitary compartments is required to comply with this requirement. The hinge side of 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
F2.6	Interpretation: Urinals and washbasins	A urinal may be—an individual stall or wall-hung urinal; or each 600 mm length of a continuous urinal trough, or a closet pan used in place of a urinal. A washbasin may be an individual basin or a part of a hand washing trough served by a single water tap.	Note
F3.1	Height of rooms and other spaces	The minimum ceiling height requirements are to comply with the requirements of this provision. On the ground floor any area accommodating or serving more than 100 persons must have a minimum ceiling height of at least 2.7 m.	The proposed building is capable of complying
F4.1 – F4.3	Provision of natural light	N/A	N/A
F4.4	Artificial lighting	Artificial lighting is to be provided in accordance with AS/NZS1680.0 and in accordance with this clause to the common room.	The proposed building is capable of complying
F4.5 - F4.7	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 certain rooms, unless permitted by F4.9.	The building complies
F4.9	Airlocks	Mechanical ventilation and screening of doors is to be provided as required by this clause.	The proposed building is capable of complying
F4.11	Car park exhaust	Every storey of a carpark, except an open-deck carpark, must have— (a) a system of mechanical ventilation complying with AS 1668.2; or (b) a system of natural ventilation complying with Section 4 of AS 1668.4.	The proposed building is capable of complying
F4.12	Kitchen local exhaust	No commercial kitchens are provided.	N/A

4.6 Ancillary Provisions (Section G)

BCA Clause	Title	Assessment and Comment	Status
G1.2	Refrigerated chambers, strongrooms & vaults	Refrigerated chambers, strongrooms & vaults to comply with the requirements of this provision. .	The proposed building is capable of complying
NSW 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. Construction documentation should demonstrate compliance.	The proposed building is capable of complying

BCA Clause	Title	Assessment and Comment	Status
G3.1	Atriums affected by this part	This Part does not apply to an atrium which— (a) connects only 2 storeys; or (b) connects only 3 storeys if— (i) each storey is provided with a sprinkler system complying with Specification E1.5 throughout; and (ii) one of those storeys is situated at a level at which there is direct egress to a road or open space. The east void connecting Level 2 to Level 6 is an atrium affected by this part. The west void connecting Ground floor with Level 1 is not an atrium affected by this part under Stage 1. Under stage 2, the west void is an atrium connecting Ground to Level 6.	Note
G3.2	Dimensions of atrium well	The atrium well does not fully comply.	Alternative solution
G3.3	Separation of atriums by bounding walls	Fire separation will not be provided fully in accordance with this clause.	Alternative solution
G3.4	Construction of bounding walls	Fire separation will not be provided in accordance with this clause.	Alternative solution
G3.5	Constriction at balconies	This clause requires balustrades bounding the atrium to be imperforate, non-combustible and at least 1 m high. Performance justification may be pursued.	The proposed building is capable of complying
G3.6	Separation at roof	In an atrium— (a) the roof must have the FRL prescribed in Table 3 of Specification C1.1; or (b) the roof structure and membrane must be protected by a sprinkler system complying with Specification E1.5.	The proposed building is capable of complying
G3.7	Means of egress	All areas within the atrium have access to at least two exits.	Complies
G3.8	Fire & smoke control systems	Fire and smoke control systems are required to comply with Specification G3.8. Refer below.	Refer below
Spec G3.8 Clause 2	Automatic fire sprinkler system	A sprinkler system in accordance with BCA Spec E1.5 is required. A roof of an atrium which does not have the FRL prescribed in Specification C1.1 or the Deemed-to-Satisfy Provisions of Part C2 must be protected by automatic sprinklers arranged to wet both the covering membrane and supporting structure and the temperature rating of sprinkler heads providing roof protection must be within the range 79°C–100°C. The floor of the atrium must be protected by sprinklers with— (a) the use of sidewall pattern sprinkler heads together with overhead sprinklers where dictated by the dimensions of the atrium; and (b) sprinkler heads of the fast response type, installed with suitable non-combustible heat collector plates of 200 mm minimum diameter to ensure activation by a rising fire plume. Heat collector plates are not proposed. This will be performance justified. Stop valves are to be provided in accordance with Clause 2.5.	The building is capable of complying Alternative solution

BCA Clause	Title	Assessment and Comment	Status
Spec G3.8 Clause 3	Smoke control system	This clause contain requirements for smoke control in atrium buildings including: 3.2 Operation of atrium mechanical air-handling systems 3.3 Activation of smoke control system 3.4 Smoke exhaust system 3.5 Upward air velocity 3.6 Exhaust fans 3.7 Smoke and heat vents 3.8 Make-up air supply The system of smoke control will not comply with all of these requirements and will be performance justified.	Alternative solution
Spec G3.8 Clause 4	Fire detection and alarm system	BCA Specification G3.8 requires that a building containing an atrium must be provided with automatic fire detection and alarm system in accordance with AS1670.1 and Clause 4 of spec G3.8, including break glass alarms.	The building is capable of complying
Spec G3.8 Clause 5	Sound systems and intercom systems for emergency purposes	All buildings containing an atrium must be provided with a sound system and intercom system for emergency purposes which— (a) complies with AS 1670.4; and (b) incorporates visual warning devices that— (i) operate upon the evacuation signal; and (ii) display the words “EVACUATE” in red with letters conforming with the requirements of the Deemed-to-Satisfy Provisions of Part E4 for exit signs. The “EVACUATE” signage is not proposed to be provided and will be performance justified. Some areas such as the animal house may not be able to comply with the sound system requirements.	Alternative solution Alternative solution
Spec G3.8 Clause 6	Standby power systems	Suitable alternative power supply must be provided to operate required safety systems, including sprinkler systems and fire hydrant pumps, air handling systems, alarms, warning and communication systems and emergency lighting circuits, in accordance with this clause.	The building is capable of complying
Spec G3.8 Clause 7	System for excluding smoke from fire isolated exits	Pressurisation of fire isolated exits is required in accordance with this clause. The external stairs do not have pressurisation.	Alternative solution
G5.2	Protection in bushfire prone areas	N/A	N/A

4.7 Energy Efficiency – (Section J – Class 5, 6, 7b & 9b)

4.7.1 External 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 building elements forming the envelope of a Class 2 to 9 building in accordance with this clause.	Note
J1.2	Thermal Construction General	Required insulation, reflective insulation and bulk insulation is to be installed in accordance with this clause and AS/NZS 4859.1.	The proposed building is capable of complying
J1.3	Roof and Ceiling Construction	A roof or ceiling that is part of the envelope must be designed and constructed and achieve the required Total R-Value and in accordance with this clause, including the provision of thermal breaks.	The proposed building is capable of complying
J1.4	Roof Lights	Roof lights, including any associated shaft and diffuser, that form part of the envelope, must be designed and constructed in accordance with this clause.	The proposed building is capable of complying
J1.5	Walls	Walls that form part of the envelope, must be designed and constructed in accordance with this clause including the provision of thermal breaks. Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a. Any internal wall forming part of the envelope must achieve the total R-value in Table J1.5b. A wall that— (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, 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. Detail of the wall construction and Total R-Value is to be provided with the construction documentation to demonstrate compliance.	The proposed building is capable of complying
J1.6	Floors	A floor that is part of the envelope is required to comply with this clause.	The proposed building is capable of complying

4.7.2 External Glazing (Part J2)

BCA Clause	Title	Assessment and Comment	Status
J2.4	Glazing	Glazing must be designed in accordance with J2.4 to achieve the aggregate air-conditioning energy value. A glazing calculator results are to be provided with the construction documentation to demonstrate compliance.	The proposed building is capable of complying
J2.5	Shading	Required shading must be designed in accordance with the requirements of this condition.	The proposed building is capable of complying

4.7.3 Building Sealing (Part J3)

BCA Clause	Title	Assessment and Comment	Status
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 serving a conditioned space must be sealed or capable of being sealed in accordance with this clause.	N/A
J3.4	Windows and doors	External windows and doors are required to be sealed to restrict air infiltration. The requirements of this provision do not apply where external windows and doors are designed in accordance with AS2047, to fire doors or louvered windows or doors. 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— (i) where the conditioned space has a floor area of not more than 50 m^2; or (ii) where a café, restaurant, open front shop or the like has— (A) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (B) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors.	The proposed building is capable of complying
J3.5	Exhaust Fans	A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a; (a) conditioned space; or (b) a habitable room in climate zone 4, 6, 7 & 8.	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

4.7.4 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

BCA Clause	Title	Assessment and Comment	Status
J5.3	Time Switch	The mechanical ventilation system and air conditioning 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 or cooling 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

4.7.5 Artificial Lighting and Power (Part J6)

BCA Clause	Title	Assessment and Comment	Status
J6.2	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

4.7.6 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 heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	The proposed building is capable of complying

4.7.7 Access for Maintenance and Facilities for Energy Monitoring (Part J8)

BCA Clause	Title	Assessment and Comment	Status
J8.2	Access for maintenance	Access for maintenance must be provided to services, equipment and other building elements identified in this clause	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. A building with a floor area of more than 2,500 m^2 must have the facility to record individually the energy consumption of services identified in this clause.	The proposed building is capable of complying

5.0 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 & hoppers to fire resisting shaft	BCA 2014 C3.13 & AS1905.1-2005, AS1905.2-2005
Automatic fail safe devices	D2.21 *(b)(iv) auto unlock of doors* D2.22 *(re-entry from fire stairs)*
Automatic fire detection and alarm system	BCA 2014 E2.2, Spec E2.2a & AS1670.1-2004 Amdt 1, AS/NZS 1668.1-1998 Amdt 1 BCA 2014 Spec G3.8
Automatic fire suppression system	BCA 2014 E1.5, Spec E1.5 & AS2118.1-1999 amdt 1, BCA 2014 Spec G3.8
Building occupant warning system	BCA 2014 Spec E2.2a (Clause 6) & of AS1670.1-2004 (Amdt 1) (Clause 3.22)
Emergency Lifts	BCA2014 E3.4 & Spec E3.1
Emergency lighting	BCA 2014 Clause E4.2, E4.3, E4.4 & AS 2293.1 – 2005 Amdt 1
Sound systems & intercom systems for emergency purposes	BCA2014 E4.9 & AS1670.4-2004 BCA 2014 Spec G3.8
Exit signs	BCA2014 E4.5, E4.6, E4.8 Spec E4.8 & AS 2293.1-2005 Amdt 1

Fire blankets	AS2444-2001
Fire control centre	BCA 2014 E1.8 & Spec E1.8
Fire dampers	BCA 2014 C3.12, C3.15 & AS/NZS1668.1-1998 Amdt 1, AS 1668.2-2012, AS1682.1-1990, AS1682.2-1990
Fire doors	BCA 2014 Spec C3.4 & AS/NZS 1905.1 – 2005
Fire rated lift landing doors	BCA 2014 C3.10 & AS 1735.11-1986
Fire Hose reel systems	BCA 2014 E1.4 & AS 2441-2005 Amdt 1.
Fire hydrant systems	BCA 2014 E1.3 & AS 2419.1-2005 Amdt 1
Fire seals protecting openings in fire resisting components of the building	BCA2014 C3.12, C3.15 & Spec C3.15 AS 4072.1-2005 Amdt 1 AS 1530.4.-2005
Lightweight construction	BCA 2014 C1.8 & Spec C1.8
Mechanical air handling system	BCA 2014 E2.2, Table E2.2, Spec E2.2a & AS/NZS 1668.1-1998 Amdt 1 E2.2, Table E2.2a and clause 5.5 of AS/NZS 1668.1 Amdt 1 BCA 2014 Spec G3.8
Portable fire extinguishers	BCA 2014 E1.6 & AS 2444-2001
Pressurising system	BCA 2014 Clause E2.2 & AS/NZS1668.1-1998 Amdt 1 BCA 2014 Spec G3.8
Smoke exhaust system	BCA 2014 E2.2, Spec E2.2b & AS/NZS 1668.1-1998 Amdt 1 BCA 2014 Spec G3.8
Smoke detectors and heat detectors	BCA2014 E2.2, Spec E2.2a & AS1670.1-2004 BCA 2014 C3.5 *for automatic fire doors in fire walls; C3.7 automatic fire doors in horizontal exits;* *C3.8 automatic fire doors to fire isolated exits;*
Standby power systems	BCA 2014 Spec G3.8
Wall wetting sprinkler and drencher systems	BCA 2014 C3.4 Spec G3.8 (atriums bounding walls)
Warning and operational signs	EPA Regulation (reg 183), BCA 2014 E3.3 (lifts), BCA 2014 D2.23 Signs on exit doors
Zone smoke control system	BCA2014 E2.2 & AS/NZS1668.1-1998

6.0 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
STAGE 1 WORKS		
C2.2 General floor area and volume limitations	CP2, CP9, EP2.2	Level 2 to 6 is one fire compartment connected by the atrium void and at 10,500 m² it is over 5,000 m² maximum permitted floor area.
C2.7 Separation by fire walls	CP2	The Stage 1 building will be fire separated from the D26 and Biolink such that it is a separate building. Fire separation will be a combination of DTS fire walls and performance justification.
Spec C1.1 Clause 3.1 and associated Clause C2.8 & C2.9	CP1 & CP2	Classifications attracting 3 hrs and 4hrs fire resistance are to be performance justified to 2 hrs.
C3.2 Protection of openings in external walls	CP2	At Stage 1, the building contains openings (glazing, louvres etc) in the external walls that are less than 6m from the existing D26 and Biolink building. Similarly, Building D26 and Biolink contain openings (glazing, louvres etc) in the external walls that are less than 6m from the proposed Biological Sciences building. Performance justification is proposed. Refer to C2.7 above. The proposed fire stair at the link bridge (part of Wallace Wurth building) will contain glazing along the west and south external facade. The south and west facade will be within 6 m of D26 and as separate buildings, protection under this clause is required.
C3.5 Doorways in fire walls		The roller door between Building D26 and the new building, at Lower Ground floor, may not have the full fire rating required for fire doors.
C3.15 Protection of openings for service installations	CP2 & CP8	The fume cupboards exhaust ductwork will not contain fire dampers at the fire rated shaft penetrations. Performance justification is proposed. It is proposed to provide motorised Fire Dampers in lieu of Sub Ducts at floor take-offs from Return Air/Smoke Spill ductwork riser serving Workspace Area.
D1.2 Number of exits required	DP4	Under Stage 1 the Rooftop plant room will have access to only one exit from that building. The alternative access is onto the roof of Building 26 which is a separate building.
D1.4 Exit travel distances	DP4 & EP2.2	The following areas are more than 20 m to a point of choice • Level 6 Hold/Proc rooms - 25 m • Lower ground floor corridor - 30 m. The following areas are more than 40 m to an exit: • LGF Amenities - 42 m • LGF main switch room - 43 m (open plan) • Level 1 Teaching Lab - 47 m • Level 2 to 5 - 70 m

		• Level 6 - 67 m • Level 7 - Over 40 m taking into consideration D26 roof exit, as an alternative exit to be justified under D1.2.
D1.4 Exit travel distances - use of horizontal exit	DP4	A horizontal exit is proposed to be utilised in the Lower Ground Floor providing egress from the new Biological Building circulation corridor into the Biolink building. Under Stage 1 the reliance on the horizontal exit is to be performance justified as the buildings are assessed as separate buildings.
D1.5 Distance between alternative exits	DP4 & EP2.2	The following floors contain distance between alternative exits of more than 60 m: • Lower Ground floor - 67 m between south exit door to Horizontal exit into Biolink building • Ground - 80 m between fire stairs • Level 1 - 65 m from south west stair to atrium stair. 65 m from south east to south west stair. • Level 2 to 5 - 120 m • Level 6 - 108 m
D1.7 Travel via fire isolated exits	DP4 & CP2	Openings within 6 m of the external path of travel from discharge of the west stair are to performance justified.
D1.9 Travel by non-fire isolated exits	DP4	The open stair connecting Level 1 with ground floor has been assessed as a required non-fire isolated exit. The distance from the bottom of the stair to the eastern door providing egress direct to outside exceeds 20 m.
E1.3 Fire Hose Reels	EP1.1	Fire hose reels are located more than 4 m from an exit.
E1.5 Sprinklers	EP1.4	Performance justification may be perused to deal with: • use of AS 2118.1-2006 • no sprinklers under external canopy • omission of sprinklers to specialised areas • omission of heat collector plates to the sprinkler system protecting the atrium floor**.**
E2.2 General requirements *(Smoke Hazard Management)* & Spec G3.8 Clause 5 & 7	EP2.2	The following systems are proposed to be performance justified: • Zone smoke control • Class 9b fire compartment Smoke exhaust • Smoke control system for buildings containing atriums. • Building occupant warning system - Some areas such as the animal house may not be able to comply.
E4.5 Exit signs	EP4.2	The exit signs in the vertebrate holding areas will require non-standard exit signs such as red colour symbol on black background.
G3.2 Dimensions of atrium well	CP2	The atrium well does not fully comply with the required dimensions.
G3.3 Separation of atriums by bounding walls & G3.4 Construction of bounding walls	CP2 & EP2.2	Fire Separation of the atrium will not be provided fully in accordance with this clause.
Spec G3.8 Smoke control system	EP2.2	The system of smoke control will not comply with all of the requirements of this clause.
Spec G3.8 Clause 4 Fire detection and alarm system	EP2.2 & EP4.2	The “EVACUATE” signage is not proposed to be provided

STAGE 2 WORKS - As for Stage 1 plus the following addition matters		
C2.2 General floor area and volume limitations	CP2, CP9, EP2.2	Ground to Level 6 is one large fire compartment that exceeds the compartmentation limits.
C2.7 Separation by fire walls	CP2	The proposed northern canopy of Building D26 connects D26 with the Wallace Wurth building. Fire wall separation is not proposed and this is to be performance justified.
C3.8 Openings in fire isolated exits	CP2 & DP5	This clause requires a fire isolated exit stair window to be protected in accordance with C3.4 if it is within 6 m of and exposed to, a window or other opening in a wall of the same building. The proposed fire stair at the link bridge will contain glazing along the north, west and south external facade. The north and west stair facade will be within 6 m of non-fire rated external wall including glazing of Wallace Wurth Building (including link bridge). The south external wall of the Wallace Wurth building contains concrete panels that would need to be assessed to determine if they achieve a fire rating. A combination of deemed to satisfy and performance justification is proposed.
D1.4 Exit travel distances D1.5 Distance between alternative exits D1.6 Dimensions of exits and paths of travel to exits	DP4 & EP2.2	Egress from Building D26 at Stage 2 will necessitate passing into the bridge link forming part of the Wallace Wurth building, which is a separate building.
D1.7 Travel via fire isolated exits	DP4 & CP2	Openings within 6 m of the external path of travel from discharge of the west stair are to be protected or performance justified. The west exit discharge involves passing by unprotected openings within 6 m of the Biolink building. A combination of DTS and performance justification is proposed.
G3.2 Dimensions of atrium well	CP2	The west atrium well does not fully comply with the required dimensions
G3.3 Separation of atriums by bounding walls & G3.4 Construction of bounding walls	CP2 & EP2.2	Fire Separation of the west atrium will not be provided fully in accordance with this clause
Spec G3.8 Smoke control system	EP2.2	The system of smoke control will not comply with all of the requirements of this clause.
Spec G3.8 Clause 4 Fire detection and alarm system	EP2.2 & EP4.2	The “EVACUATE” signage is not proposed to be provided

7.0 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.

Chris Michaels
For and on behalf of City Plan Services Pty Ltd

APPENDIX 1

Assessed SD Round 2 plans prepared by Woods Bagot

Plan Title	Drawing No	Revision	Date
Cover Sheet	A0001	B	21/01/15
Site Plan	A1000	B	21/01/15
Staging Plan 01	A1201	B	21/01/15
Staging Plan 02	A1202	B	21/01/15
Shadow Diagrams June 9am	A1302	B	21/01/15
Shadow Diagrams June 12pm	A1303	B	21/01/15
Shadow Diagrams June 2.53pm	A1304	B	21/01/15
Shadow diagrams June 3pm	A1305	B	21/01/15
Shadow diagrams – Time shadow cross	A1306	B	21/01/15
Floor Plan – Lower Ground	A2201	B	21/01/15
Floor Plan – Ground	A2202	B	21/01/15
Floor Plan – Level 1	A2203	B	21/01/15
Floor Plan – Level 2	A2204	B	21/01/15
Floor Plan – Level 3	A2205	B	21/01/15
Floor Plan – Level 4	A2206	B	21/01/15
Floor Plan – Level 5	A2207	B	21/01/15
Floor Plan – Level 6	A2208	B	21/01/15
Floor Plan – Level 7	A2209	B	21/01/15
Floor Plan – Roof	A2210	B	21/01/15
Elevations – 01	A3001	B	21/01/15
Elevation – 02	A3002	B	21/01/15
Sections – 01	A3101	B	21/01/15
Sections – 02	A3102	B	21/01/15
Sections – 03	A3103	B	21/01/15