

26 October 2016

Our Ref: 142580

Dawn Carroll

Multiplex
Level 22, 135 King Street,
Sydney, NSW 2000

Dear Mrs Carroll,

**RE: BCA COMPLIANCE CAPABILITY STATEMENT
UNSW BIOLOGICAL SCIENCES STAGE 2 SECTION 96 APPLICATION**

Reference is made to the Section 96 application for modification of SSD 6674, as identified by architectural plans listed below. The proposal generally involves changes to the Ground Floor, facades and roof top plant. We have reviewed the proposed building works, for compliance capability with the Building Code of Australia (BCA) and consistency with our previous BCA report, reference RE1410223 lodged with the SSD application. We provide the following description and statements.

1. BCA DESCRIPTION

1.1 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 Teaching, café, student centre & plant (Stage 2)
Level 1 to 5:	Class 5 Office Class 8 Laboratory
Level 6:	Class 8 Laboratory
Level 7:	Class 8 plant (Stage 2 - ancillary)
Level 8	Class 8 plant (Stage 2 - ancillary)

1.2 Type of Construction (C1.1)

Type A construction is applicable.

1.3 Effective Height (A1.1)

The building has an effective height of more than 25 m.

1.4 BCA Reports

The Biological Sciences Building E26 is the subject of a BCA report prepared by City Plan Services, Ref RE14248 Issue 3 dated 14 July 2015.

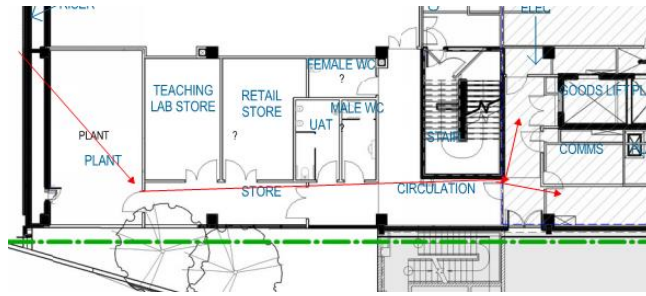
1.5 Alternative Solutions

The Biological Sciences Building E26 is the subject of a Fire Engineering report prepared by Arup, Ref 238676 Revision C dated 6 May 2016.

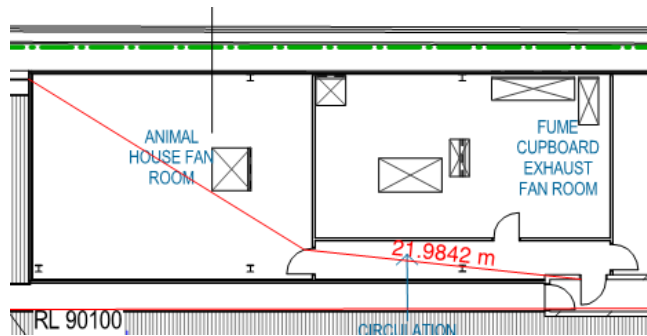
2. CONSISTENCY WITH BCA REPORT RE14248 ISSUE 3

The proposal is consistent with BCA report RE14248 Issue 3, subject to the following additional comments:

- 2.1 The Stage 1 and 2 Performance Solutions have been updated and are included in Part 3 Table 1 below.
- 2.2 The FRLs of the existing D26 structure (floors, external walls, internal walls required to be fire rated, columns, roof) are to be assessed by a structural engineer to determine FRL achieved. Any non-compliances with current BCA (4 hrs fire resistance) are to be upgraded or performance justified.
- 2.3 The proposed northern canopy of Building D26 connects D26 with the link bridge between D26 and the Wallace Wurth building. Fire wall separation between D26 and the link bridge within this canopy space is not proposed and this is to be performance justified (BCA C2.7).
- 2.4 Any combustible external walls or combustible attachment to external walls is to be identified during detailed design and assessed for BCA compliance.
- 2.5 Building D26 contains external walls less than 6 m from the Wallace Wurth building as associated link bridge. Protection of openings including any non-fire rated external walls is to be performance justified.
- 2.6 Complying egress from the Ground Floor of the south west part of D26 and the Biolink relies on access being available into the western fire isolated stairway. A design change is required to provide for this access. Depending on the location of the access door there may still be a travel distance non-compliance from the D26 south west plant room which may be up to 24 m to a point of choice.

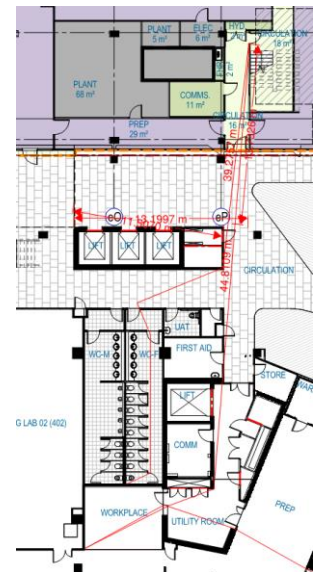


Egress from the Building D26 level 8 Animal House fan room is 22 m to a point of choice.



2.7 The exits serving Building E26 have been redefined. This causes the following additional travel distance issues (performance justification required):

- (a) Distance from the GF toilets in the Biological Sciences Building E26 are 39 m the nearest exit (D26 east exit stair).
- (b) If Biological Sciences Building E26 utility room G009 and workplace G004 does not have access via prep room G005 in an emergency, travel distance to the nearest exit is 45 m to D26 east exit stair.



2.8 The design of the terrace outside the discharge of the Building D26 west fire isolated exit stair is to allow egress from the discharge to be not more than 6 m to a space open to the sky and such that travel from the discharge does not pass by the external wall of the building.

2.9 The west stair connecting Building D26 Level 7 to Level 8 does not comply as follows:

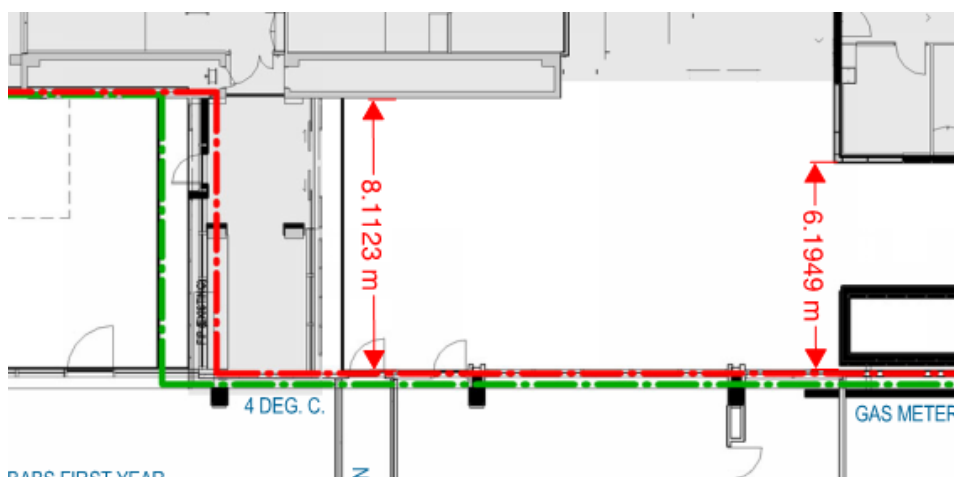
- (a) is not a fire isolated stair (BCA D1.3).
- (b) does not discharge to the outside (BCA D1.7)
- (c) is less than 1 m wide (BCA D1.6)
- (d) goings and risers comply with AS1657 in lieu of BC D2.13.

(e) balustrades comply with AS 1657 in lieu of D2.16.

2.10 Distance between alternative exits on Building D26 Level 7 is 64.3 m

2.11 Discharge of east stair at GF means that:

- (a) Externally, persons within a 1 m path of travel need to travel within 6 m of unprotected glazing (of Building D26), while traveling to the street.
- (b) Externally, persons travel under a covered area for a length of more than 6 m.



These are non-compliances with D1.7. Item (a) requires fire rating (1 hr) /sprinkler protection internally for a height of 3 m.

Item (b) is to be **performance justified**.

2.12 The dimensions of atrium well do not allow a cylinder having a horizontal diameter of not less than 6 m to be contained throughout

3. BCA COMPLIANCE CAPABILITY

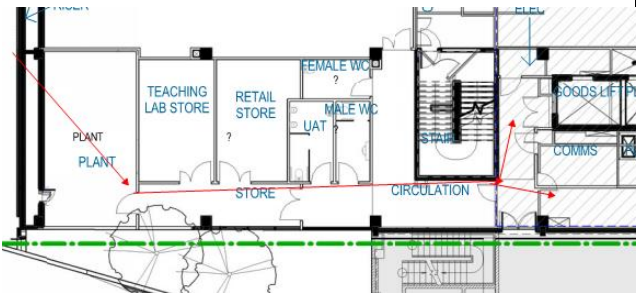
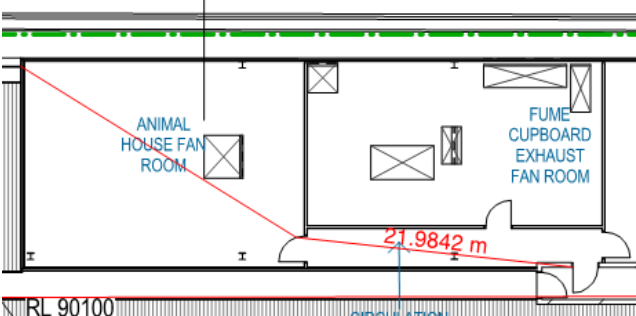
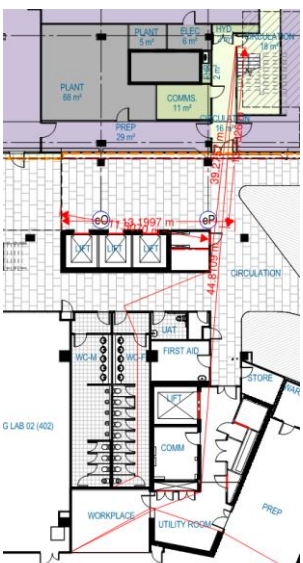
It is our opinion that the proposed building works are capable of complying with the Building Code of Australia. The modifications proposed do not affect the ability of the development to comply with the BCA. Detailed construction drawings are to be provided at the relevant time demonstrating compliance.

The following Table 1 identifies proposed building works that are areas of non-compliance with the deemed-to-satisfy provisions of the BCA, which have been or are intended to be addressed by performance justification.

Table 1: Performance solutions

BCA Clause	Performance Requirements	Issue
Stage 1		
C2.2, E1.3, E1.5. G3.4.	CP2, CP9, EP1.3, EP1.4,	Fire compartment size

G3.5, G3.6 7 Spec G3.8	EP2.2, EP4.2	Hydrant design Atrium provisions Smoke control
C2.7 & C3.2	CP2	Fire separation and protection of openings
C3.5	CP2	FRL of internal roller door
C3.15	CP2 & CP8	Fire separating of fume cupboard exhaust riser
Spec C1.1	CP1 & CP2	FRL of structure supporting fire stair lid
Spec C1.1	CP1, CP2 & CP8	FRL of fire wall at ground floor.
C3.15, E2.2 & Table E2.2a	CP2, CP8 & EP2.2	Motorised some and fire dampers in lieu of subducts
C3.16 & Spec C1.1	CP8	Fire rated wall and façade interface.
D1.2	DP4	Roof top plant egress
D1.4	DP4	Travel distances
D1.5	DP4 & E2.2	Distance between alternative exits
D1.7	DP5	Exit discharge
E1.5 & Spec G3.8	EP4	Sprinkler system design
E2.2, Spec G3.8	EP2.2	Class 9b compartment smoke exhaust & atrium smoke control
E4.5 & E4.6	EP4.2	Exit sign types in animal hiding areas
E4.9 & Spec G3.8	EP4.3	Speech indelibility of alarm system in plant room and animal holding rooms
E2.2	EP2.2	Zone smoke control
Stage 2 works - in addition to the above alternative solutions as relevant to Stage 2		
Spec C1.1	CP1 & CP2	The FRLs of the existing D26 structure (floors, external walls, internal walls required to be fire rated, columns, roof) are to be assessed by a structural engineer to determine FRL achieved. Any non-compliances with current BCA (4 hrs fire resistance) are to be upgraded or performance justified
C2.7	CP2	The proposed northern canopy of Building D26 connects D26 with the Wallace Wurth building (note: link bridge is part of Wallace Wurth building), which is a separate building. Fire wall separation is not proposed and this is to be performance justified.
Clause 3.1 of Specification C1.1 & Clause C3.2	CP1 & CP2	Building D26 contains external walls less than 6 m from the Wallace Wurth building as associated link bridge. Protection of openings including any non-fire rated external walls is to be performance justified.

<p>D1.4</p>	<p>DP4</p>	<p>Egress from the Ground Floor Building D26 south west plant room is 24 m to a point of choice.</p>  <p>Egress from the Building D26 level 8 Animal House fan room is 22 m to a point of choice.</p> 
<p>D1.4</p>	<p>DP4</p>	<p>The exits serving Building E26 have been redefined. This causes the following additional travel distance issues (performance justification required):</p> <ul style="list-style-type: none"> (a) Distance from the GF toilets in the Biological Sciences Building E26 are 39 m the nearest exit (D26 east exit stair). (b) If Biological Sciences Building E26 utility room G009 and workplace G004 does not have access via prep room G005 in an emergency, travel distance to the nearest exit is 45 m to D26 east exit stair. 

D1.3, D1.7, D1.6, D2.13	CP2, DP2, DP3 & DP4	The west stair connecting Building D26 Level 7 to Level 8 does not comply as follows: (a) is not a fire isolated stair (BCA D1.3). (b) does not discharge to the outside (BCA D1.7) (c) is less than 1 m wide (BCA D1.6) (d) goings and risers comply with AS1657 in lieu of BC D2.13. (e) balustrades comply with AS 1657 in lieu of D2.16.
D1.5	DP4 & E2.2	Distance between alternative exits on Building D26 Level 7 is 64.3 m
D1.7	DP5	The path of travel from the discharge of the east fire isolated exit of Building D26 passes under covered area (Wallace Wurth undercroft) for more than 6 m.
G3.2	CP2	The dimensions of atrium well do not allow a cylinder having a horizontal diameter of not less than 6 m to be contained throughout.

4. PLANS ASSESSED


Drawings prepared by Woods Bagot Pty Ltd

Plan Title	Drawing No	Issue	Date
Cover Sheet	A0001	E	23/09/16
Site Plan	A1000	E	23/09/16
Shadow Diagrams - June 9am	A1302	E	23/09/16
Shadow Diagrams - June 12pm	A1303	E	23/09/16
Shadow Diagrams - June 1pm	A1304	E	23/09/16
Shadow Diagrams - June 3pm	A1305	E	23/09/16
Shadow Diagrams - Time Shadow Cross Adjacent	A1306	E	23/09/16
Shadow Diagrams - June 2pm	A1307	B	23/09/16
Floor Plan – Lower Ground	A2201	E	23/09/16
Floor Plan – Ground	A2202	E	23/09/16
Floor Plan – Level 1	A2203	E	23/09/16
Floor Plan – Level 2	A2204	E	23/09/16
Floor Plan – Level 3	A2205	E	23/09/16
Floor Plan – Level 4	A2206	E	23/09/16
Floor Plan – Level 5	A2207	E	23/09/16
Floor Plan – Level 6	A2208	E	23/09/16
Floor Plan – Level 7	A2209	E	23/09/16
Floor Plan – Roof	A2210	E	23/09/16
Floor Plan – Level 8	A2211	A	23/09/16
Elevation – 01	A3001	E	23/09/16
Elevation – 02	A3002	E	23/09/16
Sections – 01	A3101	E	23/09/16
Sections – 02	A3102	E	23/09/16
Sections – 03	A3103	E	23/09/16

Should you need to discuss any issues, please do not hesitate to contact the undersigned on 8270-3500.

Yours Faithfully,





Chris Michaels
Director