



Building Code of Australia

Assessment Report

**Project: UNSW BUILDING E25 BIOLINK
REDEVELOPMENT**

Address: 356 Anzac Parade, Kensington, NSW 2052

Client: UNSW

Report Number: 240221

Revision: 04B

REPORT REVISION HISTORY

Revision	Date Issued	Revision Description
01	12/11/24	Draft issued for client comment Prepared by Chris Michaels <i>Executive Director</i>
02	27/11/24	SSDA Issue Prepared by Chris Michaels <i>Executive Director</i>
03	05/12/24	Final SSDA Issue Prepared by Chris Michaels <i>Executive Director</i>
04	05/03/25	Revised Final SSDA Issue Prepared by Chris Michaels <i>Executive Director</i>
04A	06/04/26	SSDA Mod 1 Prepared by Chris Michaels <i>Executive Director</i>
04B	22/04/26	SSDA Mod 1 Prepared by  Chris Michaels <i>Executive Director</i>

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1. EXECUTIVE SUMMARY

This Building Code of Australia (BCA) report has been prepared by City Plan Services to accompany a detailed State Significant Development Application (SSDA) for alterations and additions to a UNSW teaching facility within the Kensington campus at 356 Anzac Parade, Kensington, NSW 2052. The site is made up of a single building within a large lot. The legal description of the site is outlined in Table 1..

Table 1 Legal Description

Property Address	Title Description
356 Anzac Parade, Kensington, NSW 2052	Lot 5 in Deposited Plan 1264171
Project Site Area	2,173sqm

Table 2

Clause	Comments	Action
B1D2 Resistance to actions to B1D4 Determination of structural resistance of materials & forms of construction	The existing building does not fully comply with the current structural provisions of the BCA. Full upgrade to current BCA structural standards is not feasible or practical. A degree of structural upgrade is proposed for the following: 1. Strengthening / alterations to the structure that are required to support the increased loading conditions. 2. Remediation to the structure where it has deteriorated. 3. Strengthening areas that represent a high structural risk. 4. Undertaking testing works to improve the reliability of the existing drawings and collect information where the drawings are incomplete. Further, a Structural Engineers Certificate will be provided prior to commencement of works certifying that the existing building can support the proposed loads, and that the structural capacity of the existing building will not be reduced. It is requested that the consent authority support a partial upgrade to the existing structure, under Clause 64 of the Environmental Planning and Assessment Regulation 2021, taking into consideration the existing nature of the building, the degree of structural upgrade proposed, and the impracticality of full compliance.	Partial upgrade of existing structure proposed

S5C11 Fire-resistance of building elements & C4D3 Protection of openings in external walls	The achieved FRLs for the existing structure (as determined by the structural engineer) are:				Performance solution
	• Slabs – 120/120/120 • Beams – 60/-/- • Columns – 60/-/-				
	The required fire resistance is generally:				
	Level	Existing Classification	Proposed Classification	Required FRLs	
	Lower ground	Class Research	8 Class 7b Storage Class 8 Research/Print services	4 hours except where performance justified to 2 hours for the radioactive stores and columns in external walls	
	Ground	Class 5 Office Class teaching	9b Class 9b teaching	2 hours under DTS	
	Level 1	Class 5 office Class 8 Labs Class teaching	9b Class 9b teaching		
Level 2	Class 5 office Class 8 Labs Class teaching	9b Class 9b teaching			
Level 3	Class 5 office Class 8 Labs Class teaching	9b Class 5 Office Class 8 laboratories & Research facility/Animal Holding	2 hours by performance solution		
Level 4	Class 5 office Class 8 Labs Class teaching	9b Class 5 Office Class 8 laboratories & Research facility/Animal Holding			

Level 5	Class 5 office	Class 5 Office
	Class 8 Labs	Class 8
	Class teaching	laboratories & Research facility/Animal Holding
	9b	

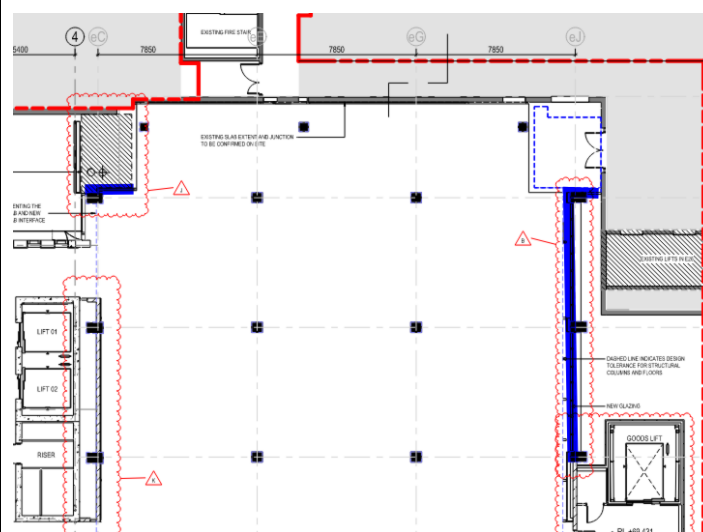
Level 6 roof	Class 8 plant	Class 8 Plant
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The Class 8 laboratory/animal holding/research on Levels 3 to 5 are to be performance justified to 2 hrs fire resistance in lieu of 4 hrs. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed. The Lower Ground Floor will be upgraded to achieve the required FRL of 4 hrs with the exception of the columns in external walls and radioactive stores which are proposed to be performance justified.

The Class 9b levels Ground Floor to Level 2 are proposed to achieve 2 hours. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed.

Any existing external walls proposed to be retained, and within 6 m of Building E26, that do not have the required FRL are to be reviewed by the fire engineer for consistency with the existing Fire engineering report prepared by Arup Ref 281879 rev A date 09.06.22.

Typical Level – existing walls (outlined in blue) less than 6 m from E26:

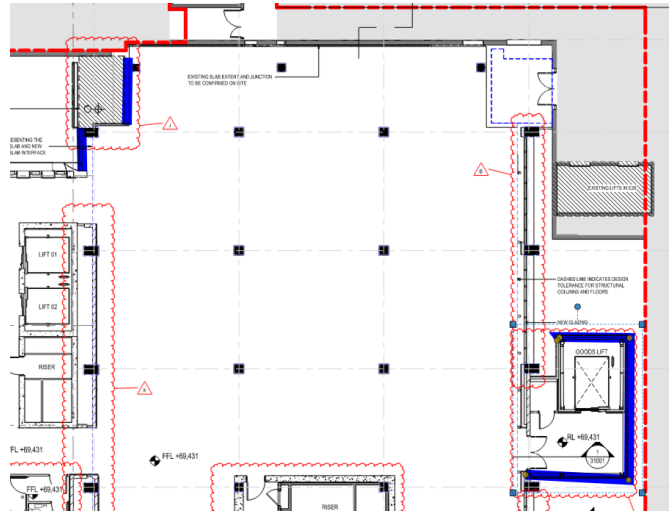


Any new non-load bearing external walls within 6 m of Building D26 or E26 are to have the required FRL of

- 2 hours on levels Ground to Level 2.

- 2 hours on Levels 3 to 5 in lieu of 4 hrs under performance justification
- 4 hours on Lower ground level

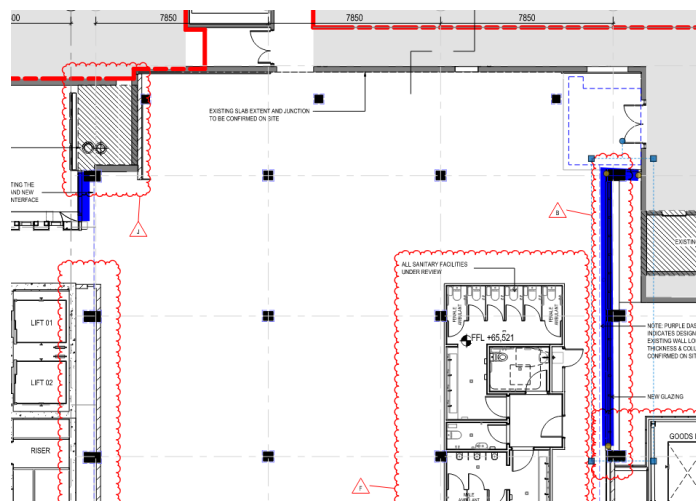
Typical Level – walls (outlined in blue) less than 6 m from D26 & E26:

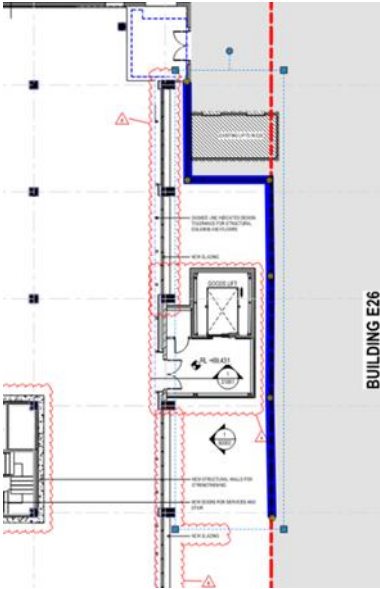
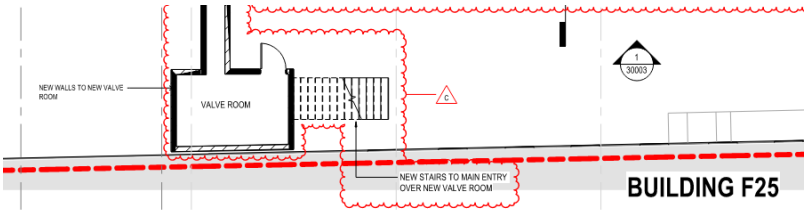


The proposed valve room on LGF must have the required FRLs, particularly in relation its proximity to Building F25.

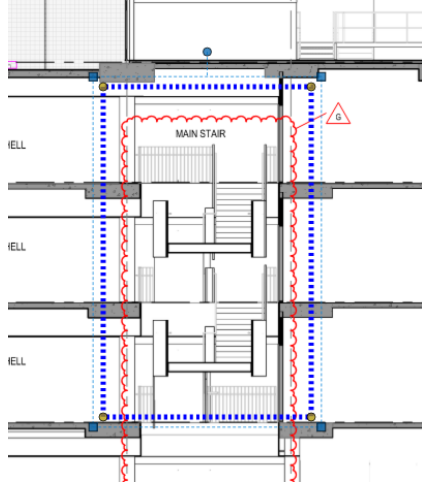
The new unprotected glazed windows within 6 m of Building E26 and D26 are to be performance justified:

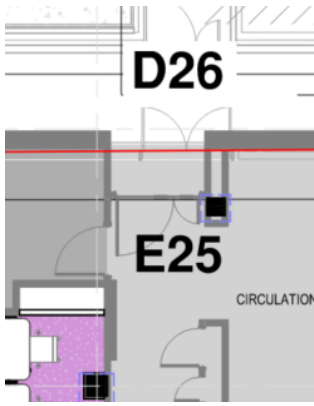
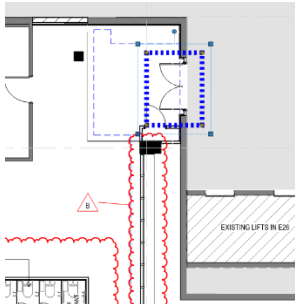
Typical Level – glazed windows (outlined in blue) less than 6 m from E26 & D26:



	The existing E26 contains openings in external that are within 6 m of the proposed new external walls of E25. This includes the E26 storeys above the E25 building for a height of 15 m (by application of Clause S5C2). The extract below is a typical level identifying in red the E26 wall within 6 m of the proposed external walls of E25 and clouded in blue are unprotected. Performance justification is required. 	Performance solution
	The existing Building F25 contains non-loadbearing external walls and opening in the walls that are within 6 m of the proposed new external walls of the LGF valve room. This includes the F25 storeys above the valve room for a height of 15 m (by application of Clause S5C2). These existing walls and openings may not have the required FRL/protection . Performance justification is required. 	Performance solution
C2D10 Non-combustible building elements	The existing timber framing in the south elevation, internal skin of external wall, is to be removed. 	Upgrade considered necessary

C4D6 Doorways in fire walls	The fire door tag to the LGF Fire doors separating Building E25 from E26 does not adequately identify the fire rating of the fire door. The tag has been damaged such that the FRL reference is not legible. The fire door is required to be a -/120/30 fire door (2 hrs proposed to be performance justified – refer to S5C11 above). The fire door shall be assessed by a fire door contractor and the fire rating confirmed and door/door tag rectified. Should the door be less than -/120/30 fire door, performance justification or replacement of the door is required.	Upgrade is considered necessary
C4D9 Openings in fire isolated exits	The existing fire stair complies except that the junction of the LGF fire stair fire door with the wall does not appear to be adequately sealed to maintain the FRL of the wall.	Upgrade considered necessary
C4D10 Service penetrations in fire isolated exits	The fire isolated passageway on the LGF connecting fire stair to the outside of the building contains services (argon and nitrogen pipes) therein that are not permitted in the fire isolated passageway. The services shall be removed, or fire separated from the fire isolated passageway. 	Upgrade considered necessary
NSW D2D3 Number of exits required	The horizontal exit into Building D26 on levels Lower ground floor to level 5 are required for complying travel distances and is to be performance justified as it does not comply with the definition of an exit due to the opening to another building.	Performance solution
D2D5 Exit travel distances	Egress travel distances from the rooftop plant room is 40m in lieu of 20 m to the fire stair. Performance justification of the extended travel distance is required.	Performance Solution
D2D12 Travel via fire isolated exits	At the discharge of the fire isolated exit to the outside of the building at LGF, travel to the street involves passing within 6 m of external doors within the elevation. Such doors are required to be -/60/30 fire doors. Access to open the doors was not available at the time of inspection. The doors shall be checked for compliance. Any noncompliance is to be rectified to comply.	Upgrade considered necessary
D2D17 Non-required stairways, ramps or escalators	The open stair connecting level 3 to level 5 has been assessed as a non-required stairway. As the stair connects more than 2 storeys, performance justification is required.	Performance Solution

		
D3D8 Installation in exits and paths of travel	The services within the service cupboard in the LGF fire isolated passageway are to be removed from the cupboard. The cupboard door is to permanently fixed closed so that the cupboard is not usable. The opening in the floor slab at the top of the cupboard which is sealed with fire pillows is to be certified by a fire stopping contractor as providing an FRL of -/120/120.	Upgrade considered necessary
NSW D3D14 Goings and risers	The existing E25 fire stairs shall be upgraded as follows: (a) Contrast nosing's in accordance with AS1428.1. (b) The nosing's must have a slip resistance rating of not less than P3.	Upgrade considered necessary
D3D22 Handrails	A handrail shall be provided to the short stair flight in the fire isolated stair accessing the roof.  <i>Figure B – Stair to Roof</i>	Upgrade considered necessary
D3D25 Swinging doors	Currently there is an LGF E25 exit sign pointing towards the fire door separating E25. The exit sign shall be repositioned to the door opening into D26 subject to the door being provided with 'pull to open' signage being provided as required by the existing E25 FER.	Upgrade considered necessary
	The existing doorway from E25 to D26, on each level is a horizontal exit. The swing of the doors is against the direction of egress and is currently justified in the existing E25 fire engineering report prepared by Arup Ref 281879 rev A date 09.06.22. As building E25 is being extended and altered, this should be reassessed by the fire engineer by a revised performance solution.	Performance solution

		
	On level 01, the required horizontal exit door into E26 swings against the direction of travel. Performance justification required. 	Performance solution
E1D2 Fire hydrants	The position of the exiting hydrant outside the fire stair do not comply. Hydrants shall be installed within the fire stair in accordance with the BCA.	Upgrade considered necessary
E1D3 Fire hose reels	Fire hose reels shall be upgraded to comply with current BCA, including location requirements. In this regard the existing FHR near the southern fire stair is located 4.85 m from the fire stair door which is more than the maximum 4 m required by this clause.	Upgrade proposed
NSW E2D19 Class 9b - assembly buildings: other assembly buildings (not listed in NSW E2D16 to E2D18)	A class 9b building (except classrooms) must have an automatic smoke exhaust system complying with Spec 21 to fire compartments more than 2000 m2. Omission of smoke exhaust is to be performance justified.	Performance Solution
NSW F4D4 Facilities in Class 3 to 9 buildings	The use of unisex facilities on level 3 to 5 and the omission of a urinal on each of these levels will require performance solution. Sharing of sanitary facilities by staff and students, in lieu of separate facilities is to be performance justified.	Performance solution

1.1. Project background

A State Significant Development Application (SSDA) was approved on 16 December 2025 for the University of New South Wales (UNSW) at Building E25 Biolink within the UNSW Kensington Campus. The SSDA grants approval for: Upgrade and extension to Building E25 for the purpose of teaching and research facilities including partial demolition of Building E25 (the UNSW Biolink Building), earthworks, extension of the existing building, internal and external alterations, facade works and landscaping.

Urbis is preparing this Modification Application (Mod 1) to seek approval for minor external and internal modifications to Building E25.

A summary of the proposed modifications is provided in the table below. The listed changes are based on the proposed amendments to the approved development. The specialist consultants will need to assess the impacts of these proposed amendments in their reports, including any cumulative impacts.

	Approved	Proposed Modification
Total Gross Floor Area	7,620m ² which includes: • Lower Ground – 775 m² • Ground – 1,137 m² • Level 01 – 1,118 m² • Level 02 – 1,168 m² • Level 03 – 1,128 m² • Level 04 – 1,167 m² • Level 05 – 1,127 m²	7,627m ² which includes: • Lower Ground – 787 m² • Ground – 1,105 m² • Level 01 – 1,106 m² • Level 02 – 1,149 m² • Level 03 – 1,148 m² • Level 04 – 1,182 m² • Level 05 – 1,150 m²
Proposed works	Upgrade and extension to Building E25 for the purpose of teaching and research facilities including partial demolition of Building E25 (the UNSW Biolink Building), earthworks, extension of the existing building, internal and external alterations, facade works and landscaping.	No change
Proposed uses	Tertiary education – teaching / research / laboratory.	No change
Maximum Height	32.89 m above existing ground level RL 86.35m 7 storeys (Lower Ground – Level 5) plus rooftop plant.	33.09 m above existing ground level RL 86.55m 7 storeys (Lower Ground – Level 5) plus rooftop plant.
Landscaped Area	10% of the site area is provided as soft landscaping.	No change
Hours of Operation	Construction: • 7am - 6pm Monday to Saturday • No work Sundays or public holidays. Operation: 24/7	No change

1.2. Project Description

Descriptor	Site Details
Street Address	356 Anzac Parade, Kensington
Legal Description	Lot 5 in DP 1264171
Site Area	2,173 m ²

1.3. Brief Description

Modification Application (Mod 1) will seek approval for minor internal and external modifications to deliver the approved upgrade and extension of Building E25 Biolink. The proposed modifications are to improve building functionality, operability and long-term performance of the building.

Please refer to accompanying Architectural Design Statement prepared by HDR.

1.4. Detailed Description

Please refer to Architectural Design Statement prepared by HDR.

1.5. Methodology

1.5.1. Information relied upon

The following information has been directly referenced or relied upon in the preparation of this report:

- Architectural plans prepared by HDR Pty Ltd, as identified in the attached Appendix 2.
- Inspection of the building on 01.07.24
- Fire engineering report Building E25 prepared by Arup Ref 281879 rev A date 09.06.22.
- Fire engineering report for Building D26 prepared by Arup Ref BS2-Arup-FS-0402 FER rev B dated 7.06.17.
- Fire engineering report Building E26 prepared by Arup Ref 238676 rev H dated 04.10.17.
- The Building Code of Australia 2022 Amendment 2, inclusive of NSW variations (See Note 1).
- Environmental Planning and Assessment Act 1979.
- Environmental Planning and Assessment (Development Certification & Fire Safety) Regulation 2021
- Environmental Planning and Assessment Regulation 2021.

Note1: Building Code of Australia (BCA) 2022 Amendment 2 was adopted in NSW on 29 July 2025. The version of the BCA applicable is the version as in force at the time of invitation of tenders to carry out the building work. Therefore, comments may be subject to changes to comply with updated versions of the Building Code of Australia.

1.5.2. BCA Description

(a) Relationship to Building D26 & E26

Building E25 has been assessed as a separate building to the attached Building E25 & E26 (Figure 2), for the purpose of BCA assessment, consistent with methodology outlined in the fire engineering report for Building E25 prepared by Arup Ref 281879 rev A date 09.06.22.

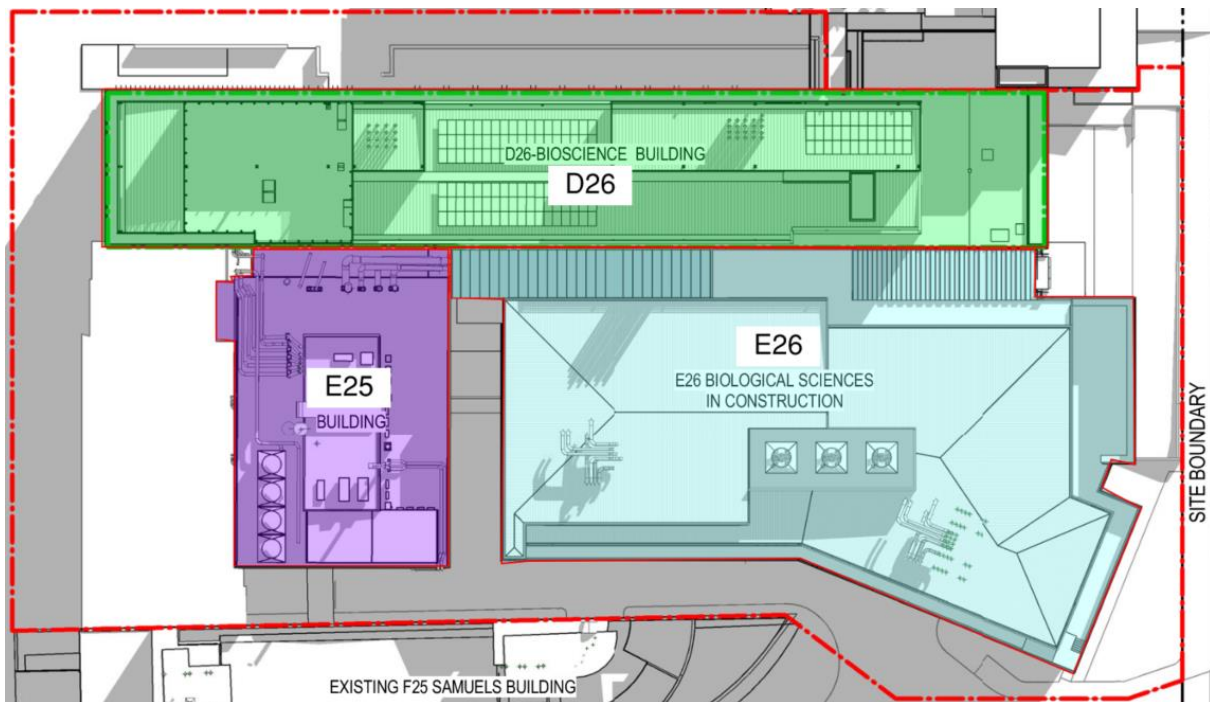


Figure 2 – Location Plan of E25 and surrounding buildings.

(b) Classification (BCA Part A6)

The E25 building consists of:

Level	Existing Classification	Proposed Classification
Lower ground	Class 8 Research	Class 7b Storage Class 8 Research/Print services
Ground	Class 5 Office Class 9b teaching	Class 9b teaching
Level 1	Class 5 office Class 8 Labs Class 9b teaching	Class 9b teaching
Level 2	Class 5 office Class 8 Labs Class 9b teaching	Class 9b teaching
Level 3	Class 5 office Class 8 Labs Class 9b teaching	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 4	Class 5 office Class 8 Labs Class 9b teaching	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 5	Class 5 office Class 8 Labs Class 9b teaching	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 6 roof	Class 8 plant	Class 8 Plant

(c) Effective Height (BCA Schedule 1)

The proposed building will have an effective height of less than 25 m. (Level 5 RL 77.35 – LGF RL53.45 = 23.5m).

(d) Rise in Storeys (BCA C2D3)

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

(e) Type of Construction (BCA C2D2)

Type A construction in accordance with Specification C2D2 of the BCA, is the applicable type of fire resisting construction.

1.6. Exclusions and Limitations

Refer to Attachment 2

2. ASSESSMENT & FINDINGS - BUILDING CODE OF AUSTRALIA ASSESSMENT

2.1. Structure (BCA Section B)

BCA Clause	Assessment and Comment	Status
Part B1 Structural Provisions		
B1D2 Resistance to actions	The structural design of the alterations and additions is to be completed by a Structural Engineer to meet the requirements of this provision.	Proposed alterations and additions are capable of complying
	The existing building does not fully comply with the current structural provisions of the BCA. Full upgrade to current BCA structural standards is not feasible or practical. A degree of structural upgrade is proposed for the following: 5. Strengthening / alterations to the structure that are required to support the increased loading conditions. 6. Remediation to the structure where it has deteriorated. 7. Strengthening areas that represent a high structural risk. 8. Undertaking testing works to improve the reliability of the existing drawings and collect information where the drawings are incomplete. Further, a Structural Engineers Certificate will be provided prior to commencement of works certifying that the existing building can support the proposed loads, and that the structural capacity of the existing building will not be reduced. It is requested that the consent authority support a partial upgrade to the existing structure, under Clause 64 of the Environmental Planning and Assessment Regulation 2021, taking into consideration the existing nature of the building, the degree of structural upgrade proposed, and the impracticality of full compliance.	Partial upgrade of existing structure proposed
B1D3 Determination of individual actions	The structural design is to be completed by a Structural Engineer to meet the requirements of this provision. Non-structural components such as partitions, ceilings, services, etc, and their fastenings must be designed for earthquake forces to comply with AS 1170.4-2007^{Amdt 1 & 2}, as relevant.	Proposed alterations and additions are capable of complying
	Refer to B1D2 above regarding existing structure.	Refer to B1D2 above regarding existing structure.
B1D4 Determination of structural resistance of materials & forms of construction	The structural resistance of the following materials and forms of construction for the following elements are to be in accordance with the standards nominated in this clause: ▪ Masonry ▪ Concrete ▪ Steel construction ▪ Composite steel and concrete ▪ Aluminium construction ▪ Timber construction	Proposed alterations and additions are capable of complying

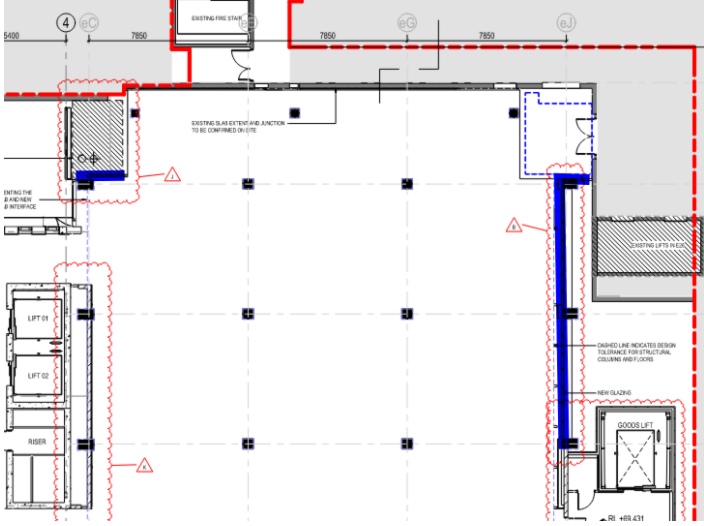
BCA Clause	Assessment and Comment	Status
	▪ Piling ▪ Glazing assemblies ▪ Termite risk management ▪ Roof construction ▪ Particleboard structural flooring ▪ Garage doors ▪ Lift shafts The method of termite control shall be to: (a) use primary building elements (as defined by the BCA) that are of a material that is not subject to termite attack, ie. primary building elements must not be timber unless the timber is naturally termite resistant, or preservative treated in accordance with AS 3660.1; and (b) Provide physical or chemical termite control measures at the ground floor slab level in accordance with AS 3660.1 The structural design is to be completed by a Structural Engineer to meet the requirements of this provision.	
	Refer to B1D2 above regarding existing structure.	Partial upgrade of existing structure proposed
B1D5 Structural Software	Structural software used in computer aided design is to comply with the requirements of this provision.	Capable of Complying

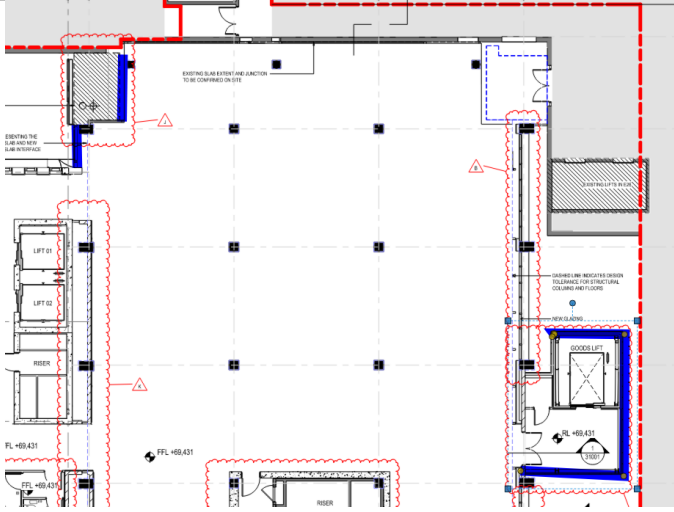
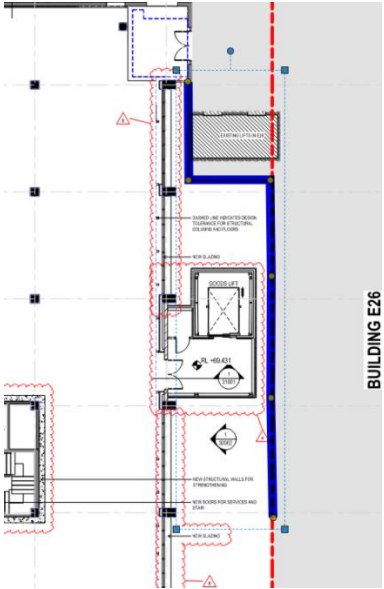
2.2. Fire Resistance (BCA Section C)

BCA Clause	Assessment and Comment	Status
Part C2 Fire Resistance and Stability		
C2D2 Type of construction required	The type of fire resisting construction applicable is Type A construction.	Refer below
	Specification 5 Fire-resisting construction	
	S5C3 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.	Proposed alterations and additions are capable of complying
	S5C4 Lintels Lintels are to be protected as required by the requirements of this clause	Proposed alterations and additions are capable of complying
	S5C5 Method of attachment not to reduce the fire resistance of building elements	Proposed alterations and additions are

BCA Clause	Assessment and Comment	Status				
	The method of attaching or installing a finish, lining, ancillary element or service installation to the building element must not reduce the fire-resistance of that element to below that required.	capable of complying				
	S5C6 General concessions Roof top plant rooms need not have an FRL if they are non-combustible, and they only contain the following equipment: • lift motor equipment; or • one or more of the following: • Hot water or other water tanks. • Ventilating ductwork, ventilating fans and their motors. • Air-conditioning chillers. • Window cleaning equipment. • Other service units that are non-combustible and do not contain flammable or combustible liquids or gases. Services consultants to confirm. Note: the lift and fire isolated stair shaft will need an FRL of 2hrs	Capable of Complying				
	S5C8 Enclosure of shafts Fire rated shafts are to be enclosed at the top and bottom in accordance with the requirements of this clause. Where the roof is constructed of lightweight construction, the shaft lids must be non-combustible and achieve an FRL of -/120/120	Capable of Complying				
Type A Fire resisting construction						
	S5C11 Fire-resistance of building elements Each building element listed in Tables S5C11a, S5C11b, S5C11c, S5C11d, S5C11e, S5C11f and S5C11g and any beam or column incorporated in it, must have an FRL not less than that listed in those Tables for the particular Class of building concerned. Any internal wall required to have an FRL with respect to integrity and insulation must extend to a building element referred to in S5C11(1)(b). A loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be constructed from concrete or masonry. The FRLs specified in Table S5C11c for an external column apply also to those parts of an internal column that face and are within 1.5 m of a window and are exposed through that window to a fire-source feature. The achieved FRLs for the existing structure (as determined by the structural engineer) are: • Slabs – 120/120/120 • Beams – 60/-/- • Columns – 60/-/- The required fire resistance is generally:	Performance solution				
<table><tr><th>Level</th><th>Existing Classification</th><th>Proposed Classification</th><th>Required FRLs</th></tr></table>			Level	Existing Classification	Proposed Classification	Required FRLs
Level	Existing Classification	Proposed Classification	Required FRLs			

BCA Clause	Assessment and Comment				Status
	Lower ground	Class Research	8	Class 7b Storage Class 8 Research/Print services	
	Ground	Class 5 Office Class teaching	9b	Class 9b teaching	4 hours except where performance justified to 2 hours for the radioactive stores and columns in external walls 2 hours under DTS
	Level 1	Class 5 office Class 8 Labs Class teaching	9b	Class 9b teaching	2 hours by performance solution
	Level 2	Class 5 office Class 8 Labs Class teaching	9b	Class 9b teaching	
	Level 3	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding	
	Level 4	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding	
	Level 5	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding	
	Level 6 roof	Class 8 plant		Class 8 Plant	

BCA Clause	Assessment and Comment	Status
	The Class 8 laboratory/animal holding/research on Levels 3 to 5 are to be performance justified to 2 hrs fire resistance in lieu of 4 hrs. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed. The Lower Ground Floor will be upgraded to achieve the required FRL of 4 hrs with the exception of the columns in external walls and radioactive stores which are proposed to be performance justified. The Class 9b levels Ground Floor to Level 2 are proposed to achieve 2 hours. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed. Any existing external walls proposed to be retained, and within 6 m of Building E26, that do not have the required FRL are to be reviewed by the fire engineer for consistency with the existing Fire engineering report prepared by Arup Ref 281879 rev A date 09.06.22. Typical Level – existing walls (outlined in blue) less than 6 m from E26:  Any new non-load bearing external walls within 6 m of Building D26 or E26 are to have the required FRL of • 2 hours on levels Ground to Level 2. • 2 hours on Levels 3 to 5 in lieu of 4 hrs under performance justification • 4 hours on Lower ground level Typical Level – walls (outlined in blue) less than 6 m from D26 & E26:	

BCA Clause	Assessment and Comment	Status
	 The proposed valve room on LGF must have the required FRLs, particularly in relation its proximity to Building F25. The existing E26 contains non-loadbearing external walls that are within 6 m of the proposed new external walls of E25. This includes the E26 storeys above the E25 building for a height of 15 m (by application of Clause S5C2). The extract below is a typical level identifying in blue the E26 wall within 6 m of the proposed external walls of E25 and clouded in blue is the walls that do not have an FRL of 2 hours. Performance justification is required. 	
		Performance solution

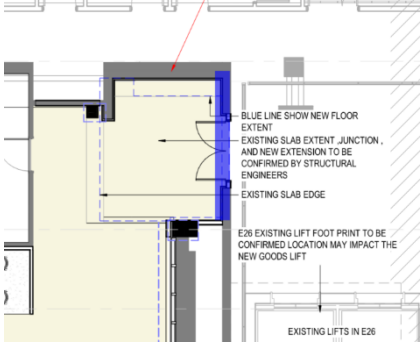
BCA Clause	Assessment and Comment	Status
	The existing Building F25 contains non-loadbearing external walls that are within 6 m of the proposed new external walls of the LGF valve room. This includes the F25 storeys above the valve room for a height of 15 m (by application of Clause S5C2). These existing wall may not have the required FRL. Performance justification is required. 	Performance solution
	S5C15 Roof: Concession A roof need not comply with Table S5C11g if its covering is non-combustible and the building: (a) has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 installed throughout; or (b) has an effective height of not more than 25 m and the ceiling immediately below the roof has a resistance to the incipient spread of fire to the roof space of not less than 60 minutes.	Capable of Complying
	S5C16 Roof lights New roof lights are not proposed. The top of the existing fire stair contains a roof light that complies with this clause. Refer to S5C8 above for additional requirements for roof lights to fire stairs.	N/A to proposed works Existing skylight complies
	S5C17 Internal columns and walls: 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	Capable of Complying
C2D9 Lightweight construction	Lightweight construction must comply with Specification 6 if it is used in a wall system: (a) that is required to have an FRL; or (b) for a lift shaft, stair shaft or service shaft or an external wall bounding a public corridor including a non fire-isolated passageway or non fire-isolated ramp, in a spectator stand, sports stadium, cinema or theatre, railway station, bus station or airport terminal. If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if: (a) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and (b) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.	Capable of Complying

BCA Clause	Assessment and Comment	Status
C2D10 Non-combustible building elements	1. In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible: (a) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (b) The flooring and floor framing of lift pits. (c) Non-loadbearing internal walls where they are required to be fire-resisting. 2. A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in: (a) a building required to be of Type A construction; and (b) a building required to be of Type B construction, subject to C3D11, in: (i) a Class 2, 3 or 9 building; and (ii) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. 3. A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shafts, must comply with Specification 5. 4. The requirements of (1) and (2) do not apply to the following: (a) Gaskets. (b) Caulking. (c) Sealants. (d) Termite management systems. (e) Glass, including laminated glass, and associated adhesives, including tapes. (f) Thermal breaks associated with: (i) glazing systems; or (ii) external wall systems, where the thermal breaks: (A) are no larger than necessary to achieve thermal objectives; and (B) do not extend beyond one storey; and (C) do not extend beyond one fire compartment. (g) Damp-proof courses. (h) Compressible fillers and backing materials, including those associated with articulation joints, closing gaps not wider than 50 mm. (i) Isolated: (i) construction packers and shims; or (ii) blocking for fixing fixtures; or (iii) fixings, including fixing accessories; or (iv) acoustic mounts. (j) Waterproofing materials applied to the external face, used below ground level and up to 250 mm above ground level. (k) Joint trims and joint reinforcing tape and mesh of a width not greater than 50 mm. (l) Weather sealing materials, applied to gaps not wider than 50 mm, used within and between concrete elements.	Capable of Complying

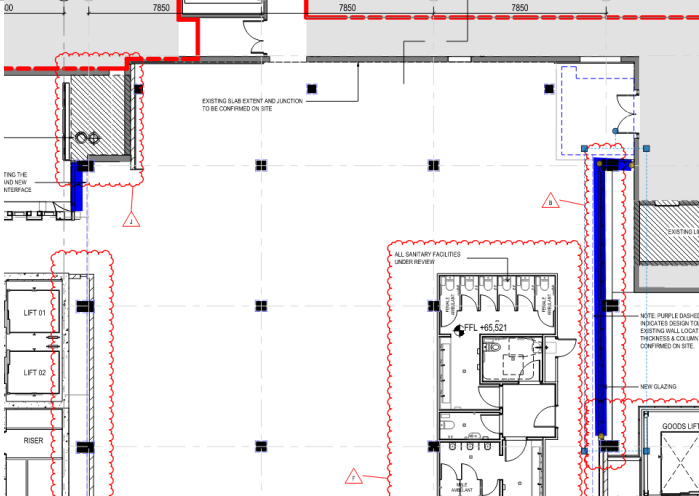
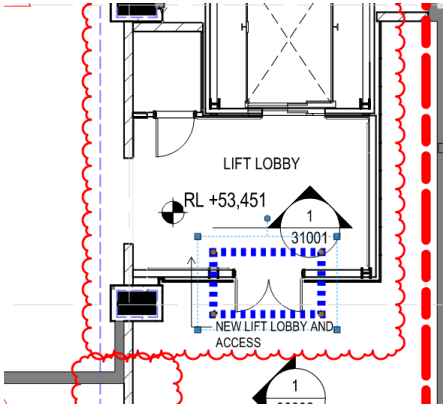
BCA Clause	Assessment and Comment	Status
	(m) Wall ties and other masonry components complying with AS 2699 Part 1 and Part 3 as appropriate, and associated with masonry wall construction. (n) Reinforcing bars and associated minor elements that are wholly or predominately encased in concrete or grout. (o) A paint, lacquer or a similar finish or coating. Adhesives, including tapes, associated with stiffeners for cladding systems. (p) Fire-protective materials and components required for the protection of penetrations. 5. The following materials, when entirely composed of itself, are non-combustible and may be used wherever a non-combustible material is required: (a) Concrete. (b) Steel, including metallic coated steel. (c) Masonry, including mortar. (d) Aluminium, including aluminium alloy. (e) Autoclaved aerated concrete, including mortar. (f) Iron. (g) Terracotta. (h) Porcelain. (i) Ceramic. (j) Natural stone. (k) Copper. (l) Zinc. (m) Lead. (n) Bronze. (o) Brass. 6. The following materials may be used wherever a non-combustible material is required: (a) Plasterboard. (b) Perforated gypsum lath with a normal paper finish. (c) Fibrous-plaster sheet. (d) Fibre-reinforced cement sheeting. (e) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (f) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5. (g) Bonded laminated materials where: (i) each lamina, including any core, is non-combustible; and (ii) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (iii) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively; and (iv) when located externally, are fixed in accordance with C2D15.	
	The existing timber framing in the south elevation, internal skin of external wall, is to be removed.	Upgrade considered necessary

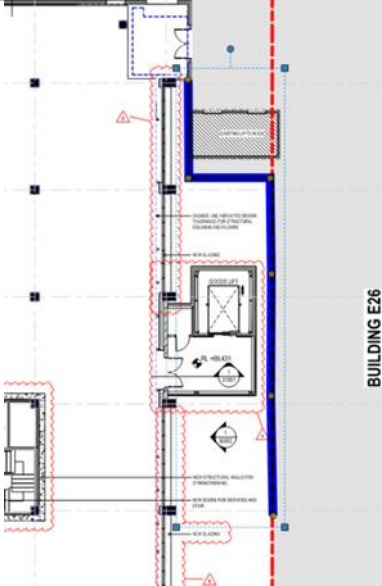
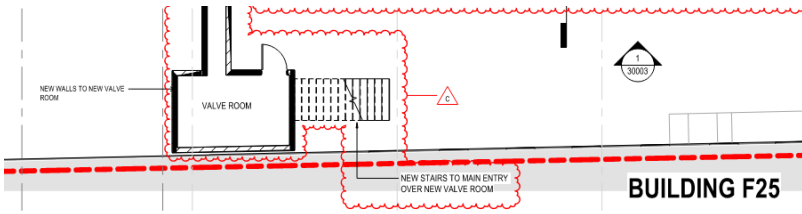
BCA Clause	Assessment and Comment	Status
		
NSW C2D11 Fire hazard properties	Proposed internal linings, materials and assemblies are to be selected to comply with the required fire hazard properties of Specification 7. Evidence of compliance (test certificates) shall be obtained from the supplier or manufacturer.	Capable of Complying
C2D14 Ancillary Elements	An ancillary element must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following: (a) An ancillary element that is non-combustible. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing. (d) A grate, grille or similar cover not more than 2 m² in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign. (h) A sign other than one provided under (a) or (g) that: (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and does not extend beyond one fire compartment; and (iii) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that: (i) meets the relevant requirements of Table S7C7 as for an internal element; and (ii) serves a storey: (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an exit, where it would render the exit unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface. (m) Collars, sleeves and insulation associated with service installations. (n) Screens applied to vents, weepholes and gaps complying with AS 3959. (o) Wiper and brush seals associated with doors, windows or other openings.	Capable of Complying

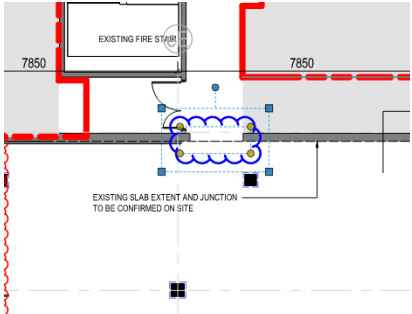
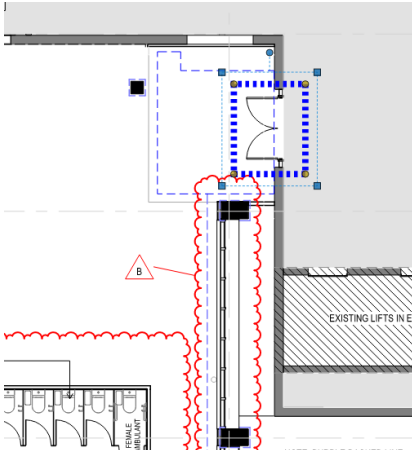
BCA Clause	Assessment and Comment	Status
	(p) A gasket, caulking, sealant or adhesive directly associated with (a) to (o). Limitations: C2D14 does not apply to ancillary elements fixed, installed or attached to the internal face or lining of an external wall. Notes: C2D14 does not prevent the mounting of domestic air-conditioning condenser units on external walls. Explanatory information: Ancillary elements fixed, installed or attached to the internal face or lining of an external wall may be subject to other provisions such as C2D11.	
C2D15 Fixing of bonded laminated cladding panels	- In a building required to be of Type A or B construction, externally located bonded laminated cladding panels must have all layers of cladding mechanically supported or restrained to the supporting frame. - An externally located bonded laminated cladding panel need not comply with (1) if it is one of the following: - A laminated glass system. - Layered plasterboard product. - Perforated gypsum lath with a normal paper finish. Fibrous-plaster sheet. - Fibre-reinforced cement sheeting. - A component of a garage door.	Capable of Complying
Part C3 Compartmentation and Separation		
C3D3 General floor area and volume limitations	The following maximum fire compartmentation floor area and volume limitations apply to the following fire compartments: Lower Ground floor: 5,000 m² and 30,000 m³ Ground floor to Level 2: 8,000 m² and 48,000 m³ Level 3 to Level 5: 5,000 m² and 30,000 m³ The fire compartment sizes are within these limits	Capable of complying
C3D7 Vertical separation of openings in external walls	The building is required to be protected with sprinkler system in accordance with AS 2118.1 and therefore vertical separation is not required.	N/A
C3D8 Separation by fire walls	The building contains existing fire walls separating the building from Building D26 & E26. These are proposed to be retained.	Note

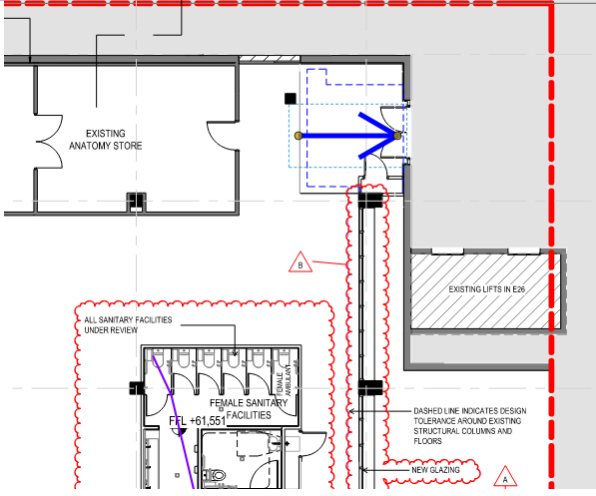
BCA Clause	Assessment and Comment	Status
	The proposal involves extending E25 to E26 in the area highlighted below. Our records indicate that the existing wall of E26 is - /120/120 FRL. 	Capable of Complying
C3D9 Separation of classifications in the same storey	If a building has parts of different classifications located alongside one another in the same storey: (a) each building element in that storey must have the higher FRL prescribed in Specification 5 for that element for the classifications concerned; or (b) the parts must be separated in that storey by a fire wall. Compliance option (a) is to be adopted.	Capable of Complying
C3D10 Separation of classifications in different storeys	If parts of different classification are situated one above the other in adjoining storeys, they must be separated by a floor having have an FRL of not less than that prescribed in Specification 5 for the classification of the lower storey.	Proposed building - Capable of Complying
	Any existing building non-compliances are to be upgraded otherwise performance justification is required. Refer to Specification 5 above	Existing building – Upgrade or performance justified
C3D11 Separation of lift shafts	- Any lift connecting more than 2 storeys, or more than 3 storeys if the building is sprinklered, (other than lifts which are wholly within an atrium) must be separated from the remainder of the building by enclosure in a shaft in which the walls have the relevant FRL prescribed by Specification 5; - Openings for lift landing doors and services must be protected in accordance with the Deemed-to-Satisfy Provisions of Part C4.	Capable of Complying
C3D12 Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	Complies
C3D13 Separation of equipment	The following equipment is required to be fire separated from the remainder of the building by 120/120/120 FRL construction: - Lift motor rooms and lift control panels. - Emergency Generators. - Central smoke control plant. - Boilers.	Capable of Complying

BCA Clause	Assessment and Comment	Status
	Battery systems installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. The building does not contain any of the above rooms and the requirements of this provision do not apply. Separation of on-site fire pumps must comply with the requirements of AS 2419.1.	
C3D14 Electricity supply system	The electricity substation is required to be fire separated from the remainder of the building. The BCA requires 2 hr separation however the electricity authority generally requires 3 hr separation. Any main switchboard located in the building which sustains emergency equipment operating in emergency mode, is required to be fire separated from the remainder of the building by 2 hr fire resisting construction. Electrical conductors and switchboards are required to comply with this clause. 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.	Capable of Complying
Part C4 Protection of Openings		
C4D3 Protection of openings in external walls	- Subject to (2), openings in an external wall that is required to have an FRL must be protected in accordance with C4D5, and if wall-wetting sprinklers are used they must be located externally. - The requirements of (1) only apply if the distance between the opening and the fire-source feature to which it is exposed is less than: 3 m from a side or rear boundary of the allotment; or 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or 6 m from another building on the allotment that is not Class 10. - Openings in an external wall that is required to have an FRL, if required to be protected under (1), must not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand. The new unprotected glazed windows within 6 m of Building E26 and D26 are to be performance justified: Typical Level – glazed windows (outlined in blue) less than 6 m from E26 & D26:	Performance Solution

BCA Clause	Assessment and Comment	Status
	 The LGF lift lobby proposed airlock double doors and single door adjacent to the goods lift on the Lower Ground floor are within 6 m of building E26 which require an FRL of -60/30 in accordance with this clause.  The existing E26 contains openings in external that are within 6 m of the proposed new external walls of E25. This includes the E26 storeys above the E25 building for a height of 15 m (by application of Clause S5C2). The extract below is a typical level identifying in red the E26 wall within 6 m of the proposed external walls of E25 and clouded in blue are unprotected. Performance justification is required.	
	The existing E26 contains openings in external that are within 6 m of the proposed new external walls of E25. This includes the E26 storeys above the E25 building for a height of 15 m (by application of Clause S5C2). The extract below is a typical level identifying in red the E26 wall within 6 m of the proposed external walls of E25 and clouded in blue are unprotected. Performance justification is required.	Performance solution

BCA Clause	Assessment and Comment	Status
		
	The existing Building F25 contains non-loadbearing external walls and opening in the walls that are within 6 m of the proposed new external walls of the LGF valve room. This includes the F25 storeys above the valve room for a height of 15 m (by application of Clause S5C2). These existing walls and openings may not have the required FRL/protection. Performance justification is required. 	Performance solution
C4D5 Acceptable method of protection	- Where protection is required, doorways, windows and other openings must be protected as follows: - Doorways - internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or –/60/30 fire doors that are self-closing or automatic closing. - Windows - internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or –/60/– automatic closing fire shutters. - Other openings (excluding voids) - internal or external wall-wetting sprinklers, as appropriate; or construction having an FRL not less than –/60/–. - Fire doors, fire windows and fire shutters must comply with Specification 12.	Note
C4D6 Doorways in fire walls	The building contains existing fire walls with fire doors separating the building from Building D26 & E26. These are proposed to be retained.	Capable of complying

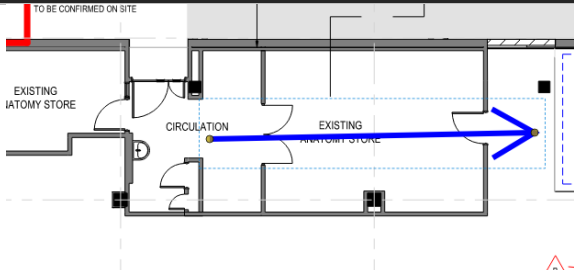
BCA Clause	Assessment and Comment	Status
	Ensure that on level 2 the fire door, in the fire wall, is retained/replaced. 	
	The proposed double doors running across Ground level to Level 5 in the existing fire wall separating Building E25 from E26 are required to be fire doors achieving a fire rating of -/120/30. 	Capable of complying
	The fire door tag to the LGF Fire doors separating Building E25 from E26 does not adequately identify the fire rating of the fire door. The tag has been damaged such that the FRL reference is not legible. The fire door is required to be a -/120/30 fire door (2 hrs proposed to be performance justified – refer to S5C11 above). The fire door shall be assessed by a fire door contractor and the fire rating confirmed and door/door tag rectified. Should the door be less than -/120/30 fire door, performance justification or replacement of the door is required.	Further assessment & upgrade is considered necessary
C4D7 Sliding fire doors	Sliding doors in fire walls are not proposed	N/A
C4D8 Protection of doorways in horizontal exits	The fire door between E25 & D26 is a horizontal exit on Lower ground floor to level 5 for the purposes of travel distances. On level 01, egress to Building D26 from the main floor plate of E25 is to be restricted due to the blocking of one existing door and the presence of an existing anatomy store. On this basis, egress into Building E26 is required as a horizontal exit via the proposed new double doors.	Capable of Complying

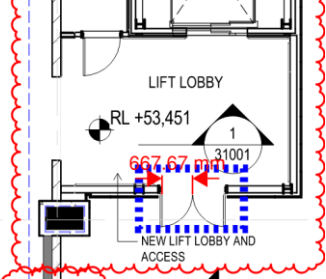
BCA Clause	Assessment and Comment	Status
		
C4D9 Openings in fire isolated exits	The proposed new doors that open to the fire isolated stairway is required to achieve an FRL of -/60/30 in accordance with this clause.	Capable of complying
	The existing fire stair complies except that the junction of the LGF fire stair fire door with the wall does not appear to be adequately sealed to maintain the FRL of the wall.	Upgrade considered necessary
	The existing fire doors may not comply with current version of AS1905.1-2015 however, except where specifically mentioned in this report, the doors are fire doors (as evidenced by the fire door tags). Replacement of the doors is not considered necessary.	Upgrade not considered necessary
C4D10 Service penetrations in fire isolated exits	Services are not to penetrate through fire isolated exits unless permitted by this clause.	Capable of Complying
	The fire isolated passageway on the LGF connecting fire stair to the outside of the building contains services (argon and nitrogen pipes) therein that are not permitted in the fire isolated passageway. The services shall be removed, or fire separated from the fire isolated passageway. 	Upgrade considered necessary
C4D11 Openings in 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 mm² in area.	Capable of Complying
C4D13 Openings in floors and ceilings for services.	Fire separation between floors is required to be maintained where services penetrate through floors in accordance with this clause	Capable of Complying

BCA Clause	Assessment and Comment	Status
C4D14 Openings in shafts	Opening in shafts are required to be protected in accordance with this clause.	Capable of Complying
C4D15 Openings for service installations	Services that penetrate a building element that is required to have an FRL must be protected utilising one of the options listed under this clause. Test certificates describing each individual service penetration and configuration will be required at the construction certificate stage.	Capable of Complying
C4D16 Construction joints	Construction joints in building elements required to be fire resistant are required to be protected in accordance with this clause.	Capable of Complying
C4D17 Columns protected with lightweight construction to achieve an FRL	Any columns protected with fire resisting lightweight construction to achieve an FRL must be installed in a manner that's identical to the tested prototype.	Capable of Complying

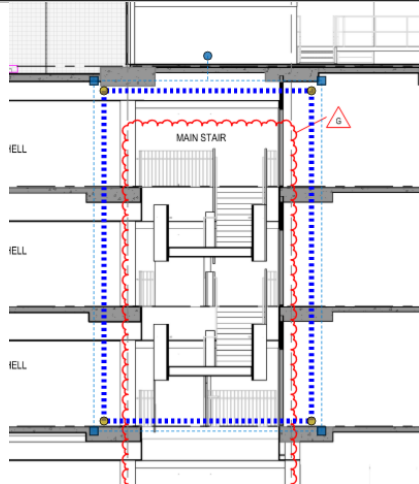
2.3. Access and Egress (BCA Section D)

BCA Clause	Assessment and Comment	Status
Part D1 Access and Egress		
NSW D2D3 Number of exits required	The building is required to be provided with a minimum of 2 exit(s) for levels Ground to level 2 (9b teaching), in addition to any horizontal exit, and a minimum of 1 exit for other levels. The following exits have been identified: LGF: existing horizontal exit into D26 1 m wide; Lift lobby exit door 1m wide. GF: External auto sliding doors x2, 1 m wide each; Existing fire stair 1 m wide & existing horizontal exit 1.5m wide into D26 L1: proposed open stair 1.5m wide; existing fire stair 1 m wide; horizontal exit into E26 1 m wide. L2: proposed open stair 1.5m wide; existing fire stair 1 m wide & existing horizontal exit into D26 1.5m wide L3 to L5: existing fire stair 1 m & existing horizontal exit 1.5 m into D26. L6: Existing fire stair 1 m The horizontal exit into Building D26 on levels Lower ground floor to level 5 are required for complying travel distances and is to be performance justified as it does not comply with the definition of an exit due to the opening to another building. Egress from the Level 1 Anatomy store area relies on travel into the balance of the E25 floor. Exit signs and door hardware is to be provided to comply.	Performance solution

BCA Clause	Assessment and Comment	Status																				
																						
D2D4 When fire isolated exits are required	The existing fire stair is required to be fire isolated stair. The proposed open stair connecting levels Ground to Level 2 may be a non-fire isolated stair. The open stair connecting level 3 to level 5 is not an exit.	Capable of Complying																				
D2D5 Exit travel distances	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. Egress travel distances from the rooftop plant room is 40m in lieu of 20 m to the fire stair. Performance justification of the extended travel distance is required.	Performance Solution																				
D2D6 Distance between alternative exits	Exits that are required to serve as alternative means of egress must not be more than 60m. The distance between alternative exits complies.	Complies																				
	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 the requirements above	Complies																				
D2D7 Height of exits, paths of travel to exits and doorways	In a required exit or path of travel to an exit the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm.	Complies																				
NSW D2D8 Width of exits and paths of travel to exits	The unobstructed width of each required exit or path of travel to an exit, except for ladders provided in accordance with D2D21, D3D23 or I3D5, and doorways, must be not less than 1 m. The aggregate exit width required, based on the population (given), and provided is identified below: <table><tr><th>Level</th><th>Occ no.</th><th>Required</th><th colspan="2">Provided</th></tr><tr><td>LGF</td><td>5</td><td>1 m</td><td>Existing horizontal exit - 1m Lift lobby exit door - 1m</td><td>Total 2m</td></tr><tr><td>Ground Floor</td><td>216</td><td>2.5 m</td><td>External auto sliding doors x2 - 1m each Existing fire stair - 1m Existing horizontal exit into D26 - 1.5m</td><td>Total 4.5m</td></tr><tr><td>Level 1</td><td>250</td><td>2.5 m</td><td>Open stair - 1.5m</td><td>Total 3.5m</td></tr></table>	Level	Occ no.	Required	Provided		LGF	5	1 m	Existing horizontal exit - 1m Lift lobby exit door - 1m	Total 2m	Ground Floor	216	2.5 m	External auto sliding doors x2 - 1m each Existing fire stair - 1m Existing horizontal exit into D26 - 1.5m	Total 4.5m	Level 1	250	2.5 m	Open stair - 1.5m	Total 3.5m	Capable of Complying
Level	Occ no.	Required	Provided																			
LGF	5	1 m	Existing horizontal exit - 1m Lift lobby exit door - 1m	Total 2m																		
Ground Floor	216	2.5 m	External auto sliding doors x2 - 1m each Existing fire stair - 1m Existing horizontal exit into D26 - 1.5m	Total 4.5m																		
Level 1	250	2.5 m	Open stair - 1.5m	Total 3.5m																		

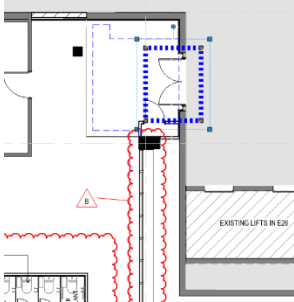
BCA Clause	Assessment and Comment					Status
				Existing fire stair - 1m Horizontal exit into E26 - 1 m		
	Level 2	253	2.5 m	Open stair - 1.5m Existing fire stair -1m Existing horizontal exit into D26 - 1.5m	4 m	
	Level 3	40	1 m	Existing fire stair -1m Existing horizontal exit into D26 - 1.5m	2.5 m	
	Level 4	30	1 m	Existing fire stair -1m Existing horizontal exit into D26 - 1.5m	2.5 m	
	Level 5	40	1 m	Existing fire stair -1m Existing horizontal exit into D26 - 1.5m	2.5 m	
	Level 6	37	1 m	Existing fire stair -1m	1 m	
	Refer to D2D18 below for determined population numbers.					
NSW D2D9 Width of doorways in exits or paths of travel to exits	In a required exit or path of travel to an exit, the unobstructed width of a doorway must be not less than the unobstructed width of each exit provided to comply with D2D8(1), (2), (3) or (4), minus 250 mm. The LGF Lift lobby double door, one leaf is to provide a clear width of at least 850 mm. Minor design change required. 					Capable of Complying (except for item below)
	The fire stair doors forming part of the fire stair have a clear width of 740 mm which is less than the minimum 750 mm required. As this is a minor departure, it is not considered that upgrade is necessary, however the fire engineer is to take this into consideration in any aggregate egress analysis that is taken as part of the FER.					Upgrade not considered necessary
D2D10 Exit width not to diminish in direction of travel	The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space, except where the width is increased in accordance with D2D8(1)(b) or D2D9(a)(i).					Capable of Complying
D2D11 Determination and measurement of exits and	The required width of stairs and ramps is to be measured in accordance with this clause.					Note

BCA Clause	Assessment and Comment	Status
paths of travel to exits		
D2D12 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: a public corridor, public lobby or the like; or a sole-occupancy unit occupying all of a storey; or a sanitary compartment, airlock or the like.	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 into a covered area that is open for at least 1/3 of its perimeter and has an unobstructed clear height of not less than 3m throughout (including the perimeter openings), and provides an unimpeded path of travel from the point of discharge to the road or open space of not less than 6m.	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 C4D5, for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. At the discharge of the fire isolated exit to the outside of the building at LGF, travel to the street involves passing within 6 m of external doors within the elevation. Such doors are required to be -/60/30 fire doors. Access to open the doors was not available at the time of inspection. The doors shall be checked for compliance. Any noncompliance is to be rectified to comply.	Upgrade considered necessary
D2D14 Travel via non-fire-isolated stairways or ramps	The proposed open stair connecting Ground floor to Level 2 has been designed to comply with this clause.	Complies
NSW D2D15 Discharge from exits	- An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it. - If a required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than the minimum width of the required exit; or 1 m, whichever is the greater. - Where there is a change of level, the path must contain a complying stair or ramp. - The discharge point of alternative exits must be located as far apart as practical.	Complies
D2D16 Horizontal exits	The door opening into D26 on Lower Ground floor to Level 5 has been assessed as a horizontal exit. The exit complies with this clause.	Complies
D2D17 Non-required stairways, ramps or escalators	The open stair connecting level 3 to level 5 has been assessed as a non-required stairway. As the stair connects more than 2 storeys, performance justification is required.	Performance Solution

BCA Clause	Assessment and Comment	Status																																																						
																																																								
NSW D2D18 Number of persons accommodated	Populations (SSDA+REF scheme) have been assessed in accordance with information provided by the client and Table D2D18, as follows: <table><tr><th>LEVEL</th><th>BASIS OF OCCUPANT NUMBERS</th><th>FLOOR AREA</th><th>OCCUPANT NUMBERS</th></tr><tr><td>LGF</td><td>Print centre (given)</td><td>224 m²</td><td>Total 5</td></tr><tr><td rowspan="3">GF</td><td>Class rooms (given)</td><td></td><td>102</td></tr><tr><td>Informal learning (given)</td><td>260 m²</td><td>114</td></tr><tr><td colspan="2"></td><td>Total GF 216</td></tr><tr><td rowspan="3">L1</td><td>Class rooms (given)</td><td>364 m2</td><td>170</td></tr><tr><td>Informal learning (given)</td><td>120 m²</td><td>80</td></tr><tr><td colspan="2"></td><td>Total L1 250</td></tr><tr><td rowspan="3">L2</td><td>Class rooms (given)</td><td>436 m²</td><td>198</td></tr><tr><td>Informal learning /social hub (given)</td><td>135 m²</td><td>55</td></tr><tr><td colspan="2"></td><td>Total L2 253</td></tr><tr><td>L3</td><td>Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)</td><td>225 m²</td><td>Total 40</td></tr><tr><td>L4</td><td>Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)</td><td>261 m²</td><td>Total 30</td></tr><tr><td>L5</td><td>Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)</td><td>208 m²</td><td>Total 40</td></tr><tr><td>L6</td><td>Plant 30 m² person (Table D2D18)</td><td>1,138 m²</td><td>Total 37</td></tr></table>	LEVEL	BASIS OF OCCUPANT NUMBERS	FLOOR AREA	OCCUPANT NUMBERS	LGF	Print centre (given)	224 m ²	Total 5	GF	Class rooms (given)		102	Informal learning (given)	260 m ²	114			Total GF 216	L1	Class rooms (given)	364 m2	170	Informal learning (given)	120 m ²	80			Total L1 250	L2	Class rooms (given)	436 m ²	198	Informal learning /social hub (given)	135 m ²	55			Total L2 253	L3	Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)	225 m ²	Total 40	L4	Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)	261 m ²	Total 30	L5	Workstations, offices and quiet rooms (Workspace occupants = lab occupants) (given)	208 m ²	Total 40	L6	Plant 30 m ² person (Table D2D18)	1,138 m ²	Total 37	Note
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BCA Clause	Assessment and Comment	Status
D2D21 Plant rooms, lift machine rooms and electricity network substations: Concession	A ladder may be used in lieu of a stairway to provide egress from a plant room with a floor area less than 100m ² or plant or lift machine rooms with a floor area of less than 200 m ² , for all but one point of egress. Ladders are required to comply with AS 1657 and the requirement of this clause.	Note
D2D22 Access to lift pits	Access to lift pits is to be in accordance with this clause.	Capable of Complying
Part D3 Construction of exits		
D3D4 Non-fire isolated stairs and ramps	The open stairs connecting levels Ground floor to Level 2 is to be designed in accordance with the requirements of this provision.	Capable of Complying
D3D8 Installation in exits and paths of travel	Access to service shafts and services other than to firefighting 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. 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 the clause, are permitted to be installed in a fire isolated exit.	Capable of Complying
	The services within the service cupboard in the LGF fire isolated passageway are to be removed from the cupboard. The cupboard door is to permanently fixed closed so that the cupboard is not usable. The opening in the floor slab at the top of the cupboard which is sealed with fire pillows is to be certified by a fire stopping contractor as providing an FRL of -/120/120.	Upgrade considered necessary
D3D9 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 space below a required non fire-isolated stairway (including an external stairway) or non fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless: - the enclosing walls and ceilings have an FRL of not less than 60/60/60; and - any access doorway to the enclosed space is fitted with a self-closing – /60/30 fire door.	Complies
D3D12 Fire-isolated passageways	The fire rating of fire-isolated passageways is required to be achieved from the outside.	Complies
NSW D3D14 Goings and risers	Goings and risers are to be designed in accordance with this clause.	Capable of Complying
	The existing E25 fire stairs shall be upgraded as follows: (c) Contrast nosings in accordance with AS1428.1.	Upgrade considered necessary

BCA Clause	Assessment and Comment	Status
	(d) The nosing's must have a slip resistance rating of not less than P3.	
D3D15 Landings	Landings are to be designed in accordance with this clause.	Capable of Complying
NSW D3D16 Thresholds	Doorway thresholds are to be designed in accordance with this clause.	Capable of Complying
D3D17 Barriers to prevent falls	Balustrades are to be designed in accordance with this clause.	Capable of Complying
NSW D3D18 Height of barriers	Balustrades are to be designed in accordance with this clause.	Capable of Complying
D3D19 Openings in barriers	Balustrades are to be designed in accordance with this clause.	Capable of Complying
D3D20 Barrier climbability	Balustrades are to be designed in accordance with this clause.	Capable of Complying
D3D21 Wire barriers	Wire balustrades are to be designed in accordance with this clause.	Capable of Complying
D3D22 Handrails	Handrails are required to be designed in accordance with this clause.	Capable of Complying
	A handrail shall be provided to the short stair flight in the fire isolated stair accessing the roof. 	Upgrade considered necessary
D3D23 Fixed platforms, walkways, stairways & ladders	Fixed platforms, walkways, stairways & ladders are to be designed in accordance with this clause.	Capable of Complying
NSW D3D24 Doorways and doors	Doorways and doors are to be designed in accordance with this clause. The auto sliding external exit doors on ground floor are required: - To be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and - To open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.	Capable of Complying
D3D25 Swinging doors	A swinging door must not encroach and impede the path of travel/exit width by more than 500mm at any part of its swing. When in the fully open position, it must not encroach into the path of travel/exit width by more than 100mm.	Capable of Complying (except for items)

BCA Clause	Assessment and Comment	Status
	Doors in or serving as a required exit must swing in the direction of egress unless they are subject to the concession in this clause.	identified bow)
	Currently there is an LGF E25 exit sign pointing towards the fire door separating E25. The exit sign shall be repositioned to the door opening into D26 subject to the door being provided with 'pull to open' signage being provided as required by the existing E25 FER.	Upgrade considered necessary
	The existing doorway from E25 to D26, on each level is a horizontal exit. The swing of the doors is against the direction of egress and is currently justified in the existing E25 fire engineering report prepared by Arup Ref 281879 rev A date 09.06.22. As building E25 is being extended and altered, this should be reassessed by the fire engineer by a revised performance solution. 	Performance solution
	On level 01, the required horizontal exit door into E26 swings against the direction of travel. Performance justification required. 	Performance solution
NSW D3D26 Operation of latch	Door hardware is to comply with this clause.	Capable of Complying
D3D28 Signs on doors	A sign, to alert persons that the operation of certain doors must not be impaired, must be installed where it can readily be seen on, or adjacent to exit door and smoke doors, in accordance with this clause.	Capable of Complying

BCA Clause	Assessment and Comment	Status
D3D29 Protection of openable windows	Window openings must be protected in accordance with this clause to limit the risk of a person falling through an openable window	Capable of Complying
Part D4 Access for People with Disabilities		
D4D2 General building access requirements to D4D13 Glazing on an accessway	Refer to separate access report by others	Note

2.4. Services and Equipment (BCA Section E)

BCA Clause	Assessment & Comment	Status
Part E1 Firefighting Equipment		
E1D2 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 AS 2419.1-2021.	Capable of Complying
	The position of the exiting hydrant outside the fire stair do not comply. Hydrants shall be installed within the fire stair in accordance with the BCA.	Upgrade considered necessary
E1D3 Fire hose reels	A hose reel system must be provided to serve the whole building. The hose reel system must be installed in accordance with this clause and AS 2441.	Capable of Complying
	Fire hose reels shall be upgraded to comply with current BCA, including location requirements. In this regard the existing FHR near the southern fire stair is located 4.85 m from the fire stair door which is more than the maximum 4 m required by this clause.	Upgrade proposed
E1D4 Sprinklers	A sprinkler system must: (a) be installed in a building or part of a building when required by E1D5 to E1D13 as applicable; and (a) comply with Specification 17 and Specification 18 as applicable.	Capable of Complying
Specification 17 - Fire sprinkler systems	Sprinkler protection is required under E2D9 below.	Refer to E2D9 below
	S17C2 Application of automatic fire sprinkler standards The following sprinkler system is proposed: AS 2118.1	Capable of Complying
	S17C3 Separation of sprinklered and non-sprinklered areas	Capable of Complying
	S17C4 Protection of openings	Capable of Complying

BCA Clause	Assessment & Comment	Status
	S17C5 Quick response sprinklers	Capable of Complying
	S17C6 Sprinkler valve enclosures	Capable of Complying
	S17C7 Water supply	Capable of Complying
	S17C8 Building occupant warning system	Capable of Complying
	S17C9 Connection to other systems	Capable of Complying
	S17C10 Anti-tamper devices	Capable of Complying
	S17C13 Sprinkler systems in lift installations	Capable of Complying
E1D14 Portable fire extinguishers	Portable fire extinguishers are to be provided in accordance with this clause and comply with this provision and sections 1, 2, 3 and 4 of AS 2444.	Capable of Complying
E1D16 Fire precautions during construction	In a building under construction not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required exit or temporary stairway or exit. After the building has reached an effective height of 12 m the required fire hydrants and fire hose reels must be operational in at least every storey that is covered by the roof or the floor structure above, except the 2 uppermost storeys and any required booster connections must be installed.	Capable of Complying
E1D17 Provision for special hazards	The existing radioactive store on the ground floor is sprinkler protected and fire separated from the remainder of the building.	Note
Part E2 Smoke Hazard Management		
E2D3 General requirements	- An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 to E2D20 and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must, subject to (2), be designed and installed: - to operate as a smoke control system in accordance with AS 1668.1; or - such that it: - incorporates smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and - is arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1. - Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with these Sections of the Standard.	Capable of Complying

BCA Clause	Assessment & Comment	Status
E2D9 Buildings not more than 25 m in effective height: Class 5, 6, 7b, 8 and 9b buildings	An AS 2118.1 sprinkler system is proposed to be provided.	Capable of Complying (except as provided below)
	The existing sprinkler system hardware in the radioactive store and associated lab on the LGF is proposed to be connected to the new sprinkler system. It is not proposed to provide a new sprinkler system hardware in the radioactive store and associated lab for the reasons specified in the UNSW memo attached in appendix 1 of this report . An upgrade to current hardware & spacing standards is not considered necessary.	Upgrade not considered necessary
NSW E2D16 Class 9b - assembly buildings: All	The Class 9b building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of— 1. smoke detectors installed complying with S20C6; and 2. any other installed fire detection and alarm system, including a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17.	Capable of Complying
NSW E2D19 Class 9b - assembly buildings: other assembly buildings (not listed in NSW E2D16 to E2D18)	A class 9b building (except classrooms) must have an automatic smoke exhaust system complying with Spec 21 to fire compartments more than 2000 m ² . Ground floor to level 2 exceeds 2000m ² . Omission of smoke exhaust is to be performance justified.	Performance Solution
E2D21 Provision for special hazards	The existing radioactive store on the ground floor is sprinkler protected and fire separated from the remainder of the building.	Note
Part E3 Lift Installations		
E3D2 Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification 24.	Refer below
	Specification 24 Lift installations	
	S24C2 Lift cars exposed to solar radiation	Capable of Complying
	S24C3 Lift car emergency lighting	Capable of Complying
	S24C4 Cooling of lift shaft	Capable of Complying
	S24C5 Lift foyer access	Capable of Complying
	S24C6 Emergency access doors in a single enclosed lift shaft	Capable of Complying
E3D3	The lift/s specified in this clause, must be able to accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space	Capable of Complying

BCA Clause	Assessment & Comment	Status
Stretcher facility in lifts	not less than 600 mm wide x 2000 mm long x 1400 mm high above the floor level.	
E3D4 Warning against use of lifts in fire	Warning signs must be displayed near every lift call button in accordance with this clause.	Capable of Complying
E3D5 Emergency lifts	Emergency lifts are not required.	N/A
E3D6 Landings	Access and egress to and from lift well landings must comply with the DTS provision of Parts D2, D3 & D4	Capable of Complying
E3D7 Passenger lift types and their limitations	Lift types are to be selected in accordance with this clause.	Capable of Complying
E3D8 Accessible features required for passenger lifts	Lifts are to have features in accordance with this clause.	Capable of Complying
E3D9 Fire service controls	Fire service controls are required to every lift serving any storey above an effective height of 12m. Fire service controls are required to comply with the requirements of this provision.	Capable of Complying
E3D11 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 E3D9. Fire recall operation switches are to comply with the requirements of this provision.	Capable of Complying
E3D12 Lift car fire service drive control switch	Lift car fire service drive control switch required by E3D9 must be activated from within the car and the switch must comply with the requirements of this clause.	Capable of Complying
Part E4 Visibility in an Emergency, Exit Signs and Warning Systems		
E4D2 to E4D4 Emergency lighting requirements	Emergency lighting must be provided in accordance with these clauses. Emergency lighting is required to comply with AS 2293.1-2018.	Capable of Complying
E4D5 to E4D8 Exit signs	Exit signage must be provided in accordance with these clauses. Exit signage is required to comply with AS 2293.1-2018 and be clearly visible at all times.	Capable of Complying
E4D9 Emergency warning and intercom systems	EWIS is required in accordance with AS1670.4-2018 and this clause.	Capable of Complying

2.5. Health and Amenity (BCA Section F)

BCA Clause	Assessment and Comment	Status
Part F1 Surface Water Management, Rising Damp and External Waterproofing		

BCA Clause	Assessment and Comment	Status
F1D2 Application of Part	1. F1D4 and F1D5 do not apply to a roof with a covering complying with F3D2(a) to (d). 1. F1D3 to F1D5 do not apply to a balcony, podium or similar horizontal surface part of a building - where the flooring is of timber decking or other perforated flooring; or which is located directly above ground.	Note
F1D3 Stormwater drainage	Stormwater drainage is required to be designed to comply with AS/NZS 3500.3-2021.	Capable of Complying
F1D4 Exposed joints	Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must: (a) be protected in accordance with Section 2.9 of AS 4654.2; and (a) not be located beneath or run through a planter box, water feature or similar part of the building.	Capable of Complying
F1D5 External above ground membranes	A roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane - consisting of materials complying with AS 4654.1; and designed and installed in accordance with AS 4654.2.	Capable of Complying
F1D6 Damp-proofing	Damp proofing is required to be provided in accordance with this clause.	Capable of Complying
F1D7 Damp-proofing of floor on ground	Damp proofing is required to be provided in accordance with this clause.	Capable of Complying
F1D8 Sub-floor ventilation	The sub-floor space between the suspended floor of a building and the ground must be provided with cross ventilation, be cleared of all debris, and graded to prevent ponding and evenly spaced ventilation openings in accordance with this clause.	Capable of Complying
Part F2 Wet Areas and Overflow Protection		
F2D2 Wet area construction	Wet areas, as required by this clause, must be water resistant or waterproof in accordance with Specification 26; and comply with AS 3740-2021	Capable of Complying
F2D3 Rooms containing urinals	Rooms containing urinals are to be designed in accordance with this clause.	Capable of Complying
F2D4 Floor wastes	Floor wastes and falls to floor wastes are required to be provided in accordance with this clause.	Capable of Complying
Part F3 Roof and Wall Cladding		
F3D2 Roof coverings	A roof must be covered with: (a) roof tiles complying with AS 2049-2002, fixed in accordance with AS 2050; or (b) metal sheet roofing complying with AS 1562.1-2018; or (c) plastic sheet roofing designed and installed in accordance with AS 1562.3-206; or (d) terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597-1999, except in cyclonic areas; or (e) an external waterproofing membrane complying with F1D5.	Capable of Complying

BCA Clause	Assessment and Comment	Status
F3D3 Sarking	Sarking-type material used for weatherproofing of roofs and walls must comply with AS 4200.1-2017 and AS 4200.2-2017.	Capable of Complying
F3D4 Glazed assemblies	Glazed assemblies to comply with AS 2047-2014, as applicable.	Capable of Complying
F3D5 Wall cladding	External wall cladding must comply with one or a combination of the following: (a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. (b) Autoclaved aerated concrete: AS 5146.3. (c) Metal wall cladding: AS 1562.1. External wall cladding, other than specified above, will require performance justification.	Capable of Complying
Part F4 Sanitary and Other Facilities		
NSW F4D4 Facilities in Class 3 to 9 buildings	Sanitary facilities are to be provided in accordance with BCA Part F4. The required sanitary facilities have been calculated to be as per the confirmed number of students and employees as noted below: Required facilities are indicated in the in the table below:	Performance solution

BCA Clause	Assessment and Comment									Status	
	Level	User	Gender	Numbers	Closet pan	Ambulant	Urinal	Basin	Access		
	LGF & GF	Students: 212	Male	106	1	1	3	3	1		
			Female	106	4	1	-	3			
		GF Staff: 4	Male	2	-	1	-	1			
			Female	2	-	1	-	1			
		LGF Staff: 5	Male	3	-	1	-	1			
			Female	3	-	1	-	1			
	L1	Students: 245	Male	123	1	1	3	3	1		
			Female	123	4	1	-	3			
		Staff: 5	Male	3	-	1	-	1			
			Female	3	-	1	-	1			
	L2	Students: 248	Male	124	1	1	3	3	1		
			Female	124	4	1	-	3			
		Staff: 5	Male	3	-	1	-	1			
			Female	3	-	1	-	1			
	L3	Employees: 30	Male	15	1	-	1	1	*		
			Female	15	2	-	-	1			
	L4	Employees: 30	Male	15	1	-	1	1	*		
			Female	15	1	-	-	1			
	L5	Employees: 30	Male	15	1	-	1	1	*		
			Female	15	1	-	-	1			
* The non-provision of access sanitary facility on Level 3 to 4 is on the basis that access for people with disabilities would not be appropriate because of the particular purpose for which the area is use. The number of facilities on levels Ground to Level 2 comply. LGF staff have access to upper level facilities. The use of unisex facilities on level 3 to 5 and the omission of a urinal on each of these leveld will require performance solution. Facilities for staff and students are required to be separate blocks in both assessment cases, i.e. staff cannot share facilities with students. Combined facilities will require performance justification (performance solution report by the											

BCA Clause	Assessment and Comment	Status
	architect or BCA consultant (other than the BCA consultant issuing the Crown building work certificate). It is noted that Gender Neutral facilities, on level Ground to 2, have been provided in addition to the minimum DTS required facilities such as designated female, male or unisex accessible bathrooms, therefore based on the public consultation advice received from the ABCB, a performance solution will not be required.	
F4D5 Accessible sanitary facilities	Accessible unisex and ambulant sanitary facilities are required in accordance with clause. The design of accessible sanitary facilities is to comply with AS1428.1-2021.	Capable of Complying
F4D6 Accessible unisex sanitary compartments	The number of accessible sanitary facilities is to be provided in accordance with this clause.	Capable of Complying
F4D8 Construction of sanitary compartments	The construction of sanitary compartments is required to comply with this requirement.	Capable of Complying
Part F5 Room heights		
F5D2 Height of rooms and other spaces	The height of rooms and other spaces is to be in accordance with this clause.	Capable of Complying
Part F6 Light and Ventilation		
F6D5 Artificial lighting	Artificial lighting is to be provided in accordance with AS/NZS1680.0 to spaces required by this clause.	Capable of Complying
NSW F6D6 Ventilation of rooms	Ventilation is to be provided by natural or mechanical means in accordance with this provision and Clause F6D6.	Capable of Complying
F6D9 Restriction on the position of water closets and urinals	A sanitary compartment must not open directly into a kitchen or pantry; or a public dining room or restaurant; or a dormitory in a Class 3 building; or a room used for public assembly (which is not an early childhood centre, primary school or open spectator stand); or a workplace normally occupied by more than one person. The Level 4 accessible bathroom adjacent to the lifts opens directly into the informal learning area which does not comply with this clause. Design change required.	Design change

2.6. Ancillary Provisions (BCA Section G)

BCA Clause	Assessment and comment	Status
Part G1 Minor Structures and Components		
NSW G1D5	The method of provision for the cleaning of windows is required to be in accordance with this clause (windows 3 or more storeys above the ground level).	Capable of Complying

BCA Clause	Assessment and comment	Status
Provision for cleaning windows		

2.7. Energy Efficiency (BCA Section J – Class 3 and 5 to 9 Buildings)

BCA Clause	Assessment and Comment	Status
Part J4 Building Fabric		
NSW J4D2 Application of Part to J4D7 Floors	Refer to separate report by Energy consultant.	Note
Part J5 Building Sealing		
NSW J5D2 Application of Part	The Deemed-to-Satisfy Provisions of this Part apply to building elements forming the envelope of a Class 3 and Class 5 to 9 building, other than areas exempt by this clause.	Note
NSW J5D5 Windows and doors	Windows and doors are to be designed in accordance with this clause, inclusive of: (a) windows compliant with AS 2047; (a) seals to restrict air infiltration; (b) unconditioned zones for cafes, restaurants, open front shop; and (c) rapid roller doors, as required by this clause.	Capable of Complying
J5D6 Exhaust fans	An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space; or a habitable room in climate zones 4, 5, 6, 7 or 8.	Capable of Complying
J5D7 Construction of ceilings, walls and floors	Ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage in accordance with this clause when forming part of the envelope; or in climate zones 4, 5, 6, 7 or 8.	Capable of Complying
J5D8 Evaporative coolers	An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space; or in climate zones 4, 5, 6, 7 or 8.	Capable of Complying
Part J6 Air-Conditioning and Ventilation		
NSW J6D2 Application of part	The Deemed-to-Satisfy Provisions of this Part do not apply to a Class 8 electricity network substation.	Note
J6D3 Air-conditioning system control	An air-conditioning system is to be designed in accordance with this clause.	Capable of Complying
J6D4 Mechanical ventilation system control	Mechanical ventilation control is to be designed in accordance with this clause.	Capable of Complying

BCA Clause	Assessment and Comment	Status
J6D5 Fans and duct systems	Fans and duct systems to be designed in accordance with this clause.	Capable of Complying
J6D6 Ductwork insulation	Ductwork insulation to be provided in accordance with this clause.	Capable of Complying
J6D6 Ductwork sealing	Ductwork sealing is to be provided in accordance with this clause.	Capable of Complying
J6D8 Pump systems	Pumped systems are to be designed in accordance with this clause.	Capable of Complying
J6D9 Pipework insulation	Pipework insulation to be provided in accordance with this clause	Capable of Complying
NSW J6D10 Space heating	Space heating is to be provided in accordance with this clause	Capable of Complying
J6D11 Refrigerant chillers	Refrigerant chillers are to be designed in accordance with this clause.	Capable of Complying
J6D12 Unitary air-conditioning equipment	Unitary air-conditioning equipment are to be designed in accordance with this clause.	Capable of Complying
J6D13 Heat rejection equipment	Unitary air-conditioning equipment are to be designed in accordance with this clause.	Capable of Complying
Part J7 Artificial Lighting and Power		
NSW J7D2 Application of Part	J7D3, J7D4 and J7D6(1)(b) do not apply to a Class 8 electricity network substation.	Note
NSW J7D3 Artificial lighting	Artificial lighting is to be designed in accordance with this clause.	Capable of Complying
NSW J7D4 Interior artificial lighting and power control	Interior artificial lighting and power control is to be designed in accordance with this clause.	Capable of Complying
J7D5 Interior decorative and display lighting	Interior decorative and display lighting is to be designed in accordance with this clause.	Capable of Complying
J7D6 Exterior artificial lighting	Exterior artificial lighting is to be designed in accordance with this clause.	Capable of Complying
J7D7 Boiling water and chilled water storage units	Boiling water and chilled water storage units are to be designed in accordance with this clause.	Capable of Complying
J7D8 Lifts	Lifts are to be designed in accordance with this clause.	Capable of Complying

BCA Clause	Assessment and Comment	Status
Part J8 Heated Water Supply and Swimming Pool and Spa Pool Plant		
J8D2 Heated water supply	A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B237 of NCC Volume Three - Plumbing Code of Australia.	Capable of Complying
Part J9 Energy Monitoring and On-site Distributed Energy Resources		
J9D2 Application of Part	The Deemed-to-Satisfy Provisions of this Part do not apply to a Class 8 electricity network substation.	
J9D3 Facilities for energy monitoring	Facilities for energy monitoring are to be designed in accordance with this clause.	Capable of Complying
J9D5 Facilities for solar photovoltaic and battery systems	Facilities for Facilities for solar photovoltaic and battery systems are to be designed in accordance with this clause.	Capable of Complying

3. MITIGATION MEASURES

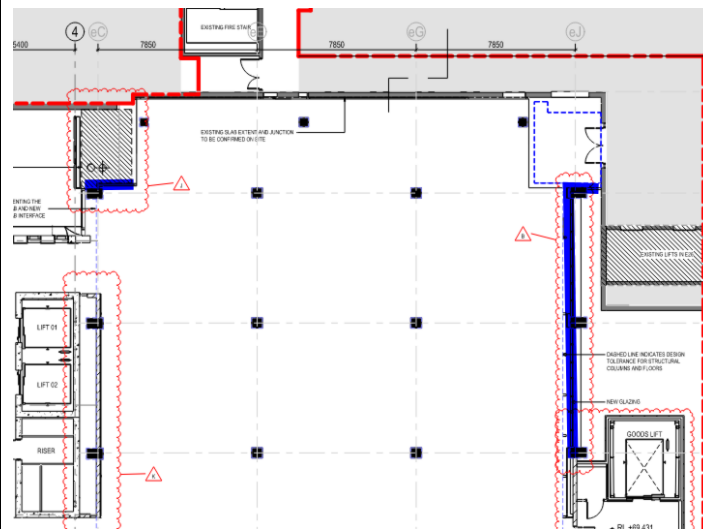
Table 4 below identifies proposed performance solutions to be justified against the performance requirements of the BCA, in accordance with BCA Clause A2G3, and required upgrades of the existing building.

Table 4 Compliance Items

Clause	Comments	Action												
B1D2 Resistance to actions to B1D4 Determination of structural resistance of materials & forms of construction	The existing building does not fully comply with the current structural provisions of the BCA. Full upgrade to current BCA structural standards is not feasible or practical. A degree of structural upgrade is proposed for the following: 9. Strengthening / alterations to the structure that are required to support the increased loading conditions. 10. Remediation to the structure where it has deteriorated. 11. Strengthening areas that represent a high structural risk. 12. Undertaking testing works to improve the reliability of the existing drawings and collect information where the drawings are incomplete. Further, a Structural Engineers Certificate will be provided prior to commencement of works certifying that the existing building can support the proposed loads, and that the structural capacity of the existing building will not be reduced. It is requested that the consent authority support a partial upgrade to the existing structure, under Clause 64 of the Environmental Planning and Assessment Regulation 2021, taking into consideration the existing nature of the building, the degree of structural upgrade proposed, and the impracticality of full compliance.	Partial upgrade of existing structure proposed												
S5C11 Fire-resistance of building elements & C4D3 Protection of openings in external walls	The achieved FRLs for the existing structure (as determined by the structural engineer) are: • Slabs – 120/120/120 • Beams – 60/-/- • Columns – 60/-/- The required fire resistance is generally: <table><thead><tr><th>Level</th><th>Existing Classification</th><th>Proposed Classification</th><th>Required FRLs</th></tr></thead><tbody><tr><td>Lower ground</td><td>Class Research</td><td>8 Class 7b Storage Class 8 Research/Print services</td><td>4 hours except where performance justified to 2 hours for the radioactive stores and columns in external walls</td></tr><tr><td>Ground</td><td>Class 5 Office</td><td>Class 9b teaching</td><td>2 hours under DTS</td></tr></tbody></table>	Level	Existing Classification	Proposed Classification	Required FRLs	Lower ground	Class Research	8 Class 7b Storage Class 8 Research/Print services	4 hours except where performance justified to 2 hours for the radioactive stores and columns in external walls	Ground	Class 5 Office	Class 9b teaching	2 hours under DTS	Performance solution
Level	Existing Classification	Proposed Classification	Required FRLs											
Lower ground	Class Research	8 Class 7b Storage Class 8 Research/Print services	4 hours except where performance justified to 2 hours for the radioactive stores and columns in external walls											
Ground	Class 5 Office	Class 9b teaching	2 hours under DTS											

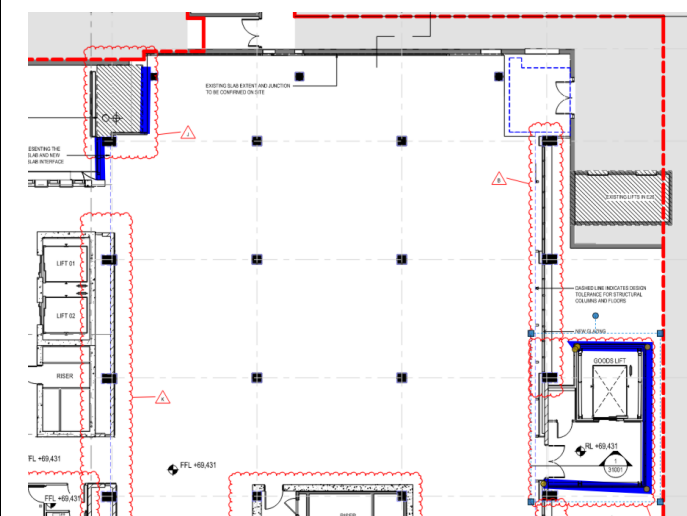
	Class teaching	9b	
Level 1	Class 5 office Class 8 Labs Class teaching	9b	Class 9b teaching
Level 2	Class 5 office Class 8 Labs Class teaching	9b	Class 9b teaching
Level 3	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 4	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 5	Class 5 office Class 8 Labs Class teaching	9b	Class 5 Office Class 8 laboratories & Research facility/Animal Holding
Level 6 roof	Class 8 plant		Class 8 Plant
The Class 8 laboratory/animal holding/research on Levels 3 to 5 are to be performance justified to 2 hrs fire resistance in lieu of 4 hrs. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed. The Lower Ground Floor will be upgraded to achieve the required FRL of 4 hrs with the exception of the columns in external walls and radioactive stores which are proposed to be performance justified. The Class 9b levels Ground Floor to Level 2 are proposed to achieve 2 hours. Where the existing structure is less than 2 hr fire resistance, upgrade to 2 hrs is proposed. Any existing external walls proposed to be retained, and within 6 m of Building E26, that do not have the required FRL are to be			

Typical Level – existing walls (outlined in blue) less than 6 m from E26:

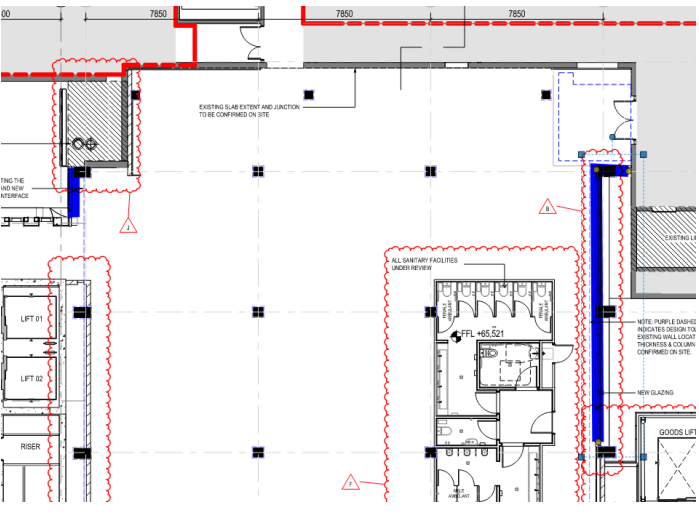
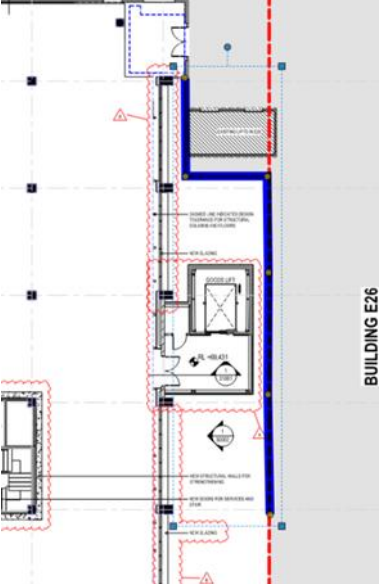


- 2 hours on levels Ground to Level 2.
- 2 hours on Levels 3 to 5 in lieu of 4 hrs under performance justification
- 4 hours on Lower ground level

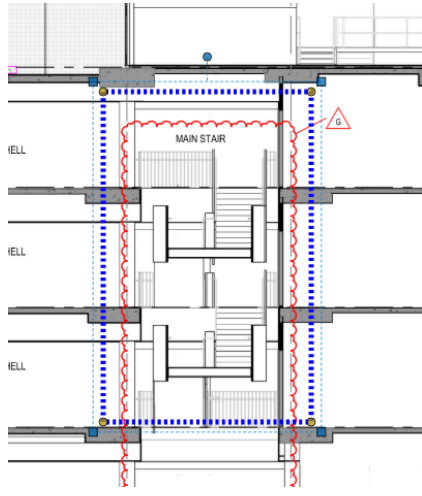
Typical Level – walls (outlined in blue) less than 6 m from D26 & E26:

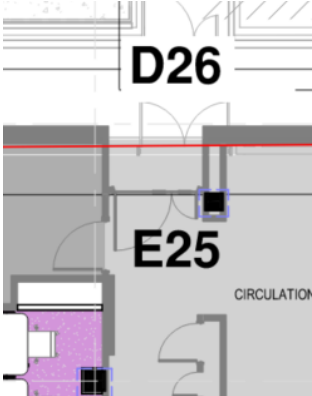
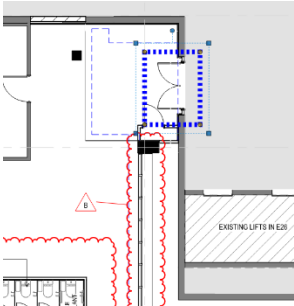


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	The new unprotected glazed windows within 6 m of Building E26 and D26 are to be performance justified: Typical Level – glazed windows (outlined in blue) less than 6 m from E26 & D26: 	
	The existing E26 contains openings in external that are within 6 m of the proposed new external walls of E25. This includes the E26 storeys above the E25 building for a height of 15 m (by application of Clause S5C2). The extract below is a typical level identifying in red the E26 wall within 6 m of the proposed external walls of E25 and clouded in blue are unprotected. Performance justification is required. 	Performance solution
	The existing Building F25 contains non-loadbearing external walls and opening in the walls that are within 6 m of the proposed new external walls of the LGF valve room. This includes the F25 storeys above the valve room for a height of 15 m (by application of Clause S5C2). These existing walls and openings may not have the required FRL/protection . Performance justification is required.	Performance solution

		
C2D10 Non-combustible building elements	The existing timber framing in the south elevation, internal skin of external wall, is to be removed. 	Upgrade considered necessary
C4D6 Doorways in fire walls	The fire door tag to the LGF Fire doors separating Building E25 from E26 does not adequately identify the fire rating of the fire door. The tag has been damaged such that the FRL reference is not legible. The fire door is required to be a -/120/30 fire door (2 hrs proposed to be performance justified – refer to S5C11 above). The fire door shall be assessed by a fire door contractor and the fire rating confirmed and door/door tag rectified. Should the door be less than -/120/30 fire door, performance justification or replacement of the door is required.	Upgrade is considered necessary
C4D9 Openings in fire isolated exits	The existing fire stair complies except that the junction of the LGF fire stair fire door with the wall does not appear to be adequately sealed to maintain the FRL of the wall.	Upgrade considered necessary
C4D10 Service penetrations in fire isolated exits	The fire isolated passageway on the LGF connecting fire stair to the outside of the building contains services (argon and nitrogen pipes) therein that are not permitted in the fire isolated passageway. The services shall be removed, or fire separated from the fire isolated passageway. 	Upgrade considered necessary
NSW D2D3 Number of exits required	The horizontal exit into Building D26 on levels Lower ground floor to level 5 are required for complying travel distances and is to be performance justified as it does not comply with the definition of an exit due to the opening to another building.	Performance solution
D2D5 Exit travel distances	Egress travel distances from the rooftop plant room is 40m in lieu of 20 m to the fire stair. Performance justification of the extended travel distance is required.	Performance Solution

D2D12 Travel via fire isolated exits	At the discharge of the fire isolated exit to the outside of the building at LGF, travel to the street involves passing within 6 m of external doors within the elevation. Such doors are required to be -/60/30 fire doors. Access to open the doors was not available at the time of inspection. The doors shall be checked for compliance. Any noncompliance is to be rectified to comply.	Upgrade considered necessary
D2D17 Non-required stairways, ramps or escalators	The open stair connecting level 3 to level 5 has been assessed as a non-required stairway. As the stair connects more than 2 storeys, performance justification is required. 	Performance Solution
D3D8 Installation in exits and paths of travel	The services within the service cupboard in the LGF fire isolated passageway are to be removed from the cupboard. The cupboard door is to permanently fixed closed so that the cupboard is not usable. The opening in the floor slab at the top of the cupboard which is sealed with fire pillows is to be certified by a fire stopping contractor as providing an FRL of -/120/120.	Upgrade considered necessary
NSW D3D14 Goings and risers	The existing E25 fire stairs shall be upgraded as follows: (e) Contrast nosing's in accordance with AS1428.1. (f) The nosing's must have a slip resistance rating of not less than P3.	Upgrade considered necessary
D3D22 Handrails	A handrail shall be provided to the short stair flight in the fire isolated stair accessing the roof.  <i>Figure B – Stair to Roof</i>	Upgrade considered necessary
D3D25 Swinging doors	Currently there is an LGF E25 exit sign pointing towards the fire door separating E25. The exit sign shall be repositioned to the door opening into D26 subject to the door being provided with 'pull to open' signage being provided as required by the existing E25 FER.	Upgrade considered necessary
	The existing doorway from E25 to D26, on each level is a horizontal exit. The swing of the doors is against the direction of egress and is currently justified in the existing E25 fire engineering report prepared by Arup Ref 281879 rev A date 09.06.22. As building E25 is being	Performance solution

	extended and altered, this should be reassessed by the fire engineer by a revised performance solution. 	
	On level 01, the required horizontal exit door into E26 swings against the direction of travel. Performance justification required. 	Performance solution
E1D2 Fire hydrants	The position of the exiting hydrant outside the fire stair do not comply. Hydrants shall be installed within the fire stair in accordance with the BCA.	Upgrade considered necessary
E1D3 Fire hose reels	Fire hose reels shall be upgraded to comply with current BCA, including location requirements. In this regard the existing FHR near the southern fire stair is located 4.85 m from the fire stair door which is more than the maximum 4 m required by this clause.	Upgrade proposed
NSW E2D19 Class 9b - assembly buildings: other assembly buildings (not listed in NSW E2D16 to E2D18)	A class 9b building (except classrooms) must have an automatic smoke exhaust system complying with Spec 21 to fire compartments more than 2000 m ² . Omission of smoke exhaust is to be performance justified.	Performance Solution
NSW F4D4 Facilities in Class 3 to 9 buildings	The use of unisex facilities on level 3 to 5 and the omission of a urinal on each of these levels will require performance solution. Sharing of sanitary facilities by staff and students, in lieu of separate faculties is to be performance justified.	Performance solution

4. 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 our view that the solutions will not impact on the current design.

This report also identifies aspects of the existing building that does not comply with the deemed-to-satisfy provisions of the BCA and:

- (a) the design intent to upgrade to comply with deemed to satisfy provision of the BCA; or
- (b) the intention to performance justify against the performance provisions of the BCA; or
- (c) the intention to bring the building into partial compliance with the BCA due to the minor nature of the departure; and/or the impracticality of full compliance.

ATTACHMENT 2 - ASSESSED PLANS

Assessed plans prepared by HDR

Plan Title	Drawing No	Revision	Date
Demolition Plan - Site	E25-HDR-AR-12001-REF	2	11/03/26
Demolition Plan - Site	E25-HDR-AR-12001-REF	2	11/03/26
Demolition Plan - Lower Ground Level	E25-HDR-AR-12002-REF	2	11/03/26
Demolition Plan - Ground Level	E25-HDR-AR-12003-REF	2	11/03/26
Demolition Plan - Level 01	E25-HDR-AR-12004-REF	2	11/03/26
Demolition Plan - Level 02	E25-HDR-AR-12005-REF	2	11/03/26
Demolition Plan - Level 03	E25-HDR-AR-12006-REF	2	11/03/26
Demolition Plan - Level 04	E25-HDR-AR-12007-REF	2	11/03/26
Demolition Plan - Level 05	E25-HDR-AR-12008-REF	2	11/03/26
Demolition Plan - Level 06	E25-HDR-AR-12009-REF	2	11/03/26
Demolition Plan - Roof Level	E25-HDR-AR-12010-REF	2	11/03/26
Proposed Site Plan/Cover Page	E25-HDR-AR-13002-REF	2	11/03/26
General Arrangement Lower Ground Level	E25-HDR-AR-21001-REF	2	11/03/26
General Arrangement Ground Level	E25-HDR-AR-21002-REF	2	11/03/26
General Arrangement Level 01	E25-HDR-AR-21003-REF	2	11/03/26

General Arrangement Level 02	E25-HDR-AR-21004-REF	2	11/03/26
General Arrangement Level 03	E25-HDR-AR-21005-REF	2	11/03/26
General Arrangement Level 04	E25-HDR-AR-21006-REF	2	11/03/26
General Arrangement Level 05	E25-HDR-AR-21007-REF	2	11/03/26
General Arrangement Level 06	E25-HDR-AR-21008-REF	2	11/03/26
General Arrangement Roof Level	E25-HDR-AR-21009-REF	2	11/03/26
Elevations - Sheet 01	E25-HDR-AR-30001-REF	2	11/03/26
Elevations - Sheet 02	E25-HDR-AR-30002-REF	2	11/03/26
Elevations - Sheet 03	E25-HDR-AR-30003-REF	2	11/03/26
Elevations - Sheet 04	E25-HDR-AR-30004-REF	2	11/03/26
Sections - Sheet 01	E25-HDR-AR-31001-REF	2	11/03/26
Sections - Sheet 02	E25-HDR-AR-31002-REF	2	11/03/26
Sections - Sheet 03	E25-HDR-AR-31003-REF	2	11/03/26

ATTACHMENT 3 - EXCLUSIONS AND LIMITATIONS

1. This report has been prepared by City Plan for UNSW and may only be used and relied on by UNSW for the purpose agreed between City Plan and UNSW, as set out in section 2.1 and 2.2 of this report.
2. City Plan otherwise disclaims responsibility to any person other than UNSW arising in connection with this report. City Plan also excludes implied warranties and conditions, to the extent legally permissible.
3. City Plan Services Pty Ltd undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document.
4. The services undertaken by City Plan in connection with preparing this report are limited to those specifically detailed within the report and subject to scope limitations as set out in the report but specifically exclude:
 - Structural design in any form or content.
 - The Disability Discrimination Act 1992.
 - Disability (Access to Premises – Building) Standards 2010.
 - The existing level of Building Code of Australia compliance unless specifically identified in Section 2.3 within this report.
 - The operational capabilities or compliance of any existing services installed within the building.
 - Assessment of any existing Performance Solutions, including Fire Safety, addressing compliance with the Performance Requirements of the BCA.
5. This report is not a Part 6 compliance certificate under the Environmental Planning & Assessment Act 1979
6. The opinions, conclusions and any recommendations within this report are based on conditions encountered and information reviewed at the date of preparation of the report. City Plan has no responsibility or obligation to update this report to account for events or changes occurring after the date that the report was prepared.
7. The methodologies adopted within this report specifically relate to the subject building and must not be used for any other purpose.
8. City Plan has prepared this report based on information provided by others, including but not limited to Architectural Plans and Annual Fire Safety Statements. City Plan has not independently verified or checked beyond the agreed scope of work the validity of the documentation prepared and provided by others. City Plan accepts no liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions within the information relied upon.
9. The documentation relied upon has been reviewed only to the degree reasonable as pertaining to City Plan's scope, as defined within the contract and fee agreement. It is expressly not City Plan's responsibility to:
 - Familiarise ourselves with all information and documentation relating to the project, or the potential BCA, Access, or fire safety aspect derivatives thereof,
 - Conduct a "full BCA audit or compliance assessment" in any way defined, implied, or assumed, for matters outside of City Plans scope.
 - Prepare a holistic BCA, Access or Fire Safety strategy for the building or carry out a full assessment of all information and documentation relating to the project, or the potential BCA, Access, or Fire Safety aspect derivatives thereof.
10. Where the report relied on a site inspection, the inspection was based on a visual, non-invasive check of representative samples of the building to which the report and scope applied, and to which safe and reasonable access was available/permitted on the date and time of the inspection. The inspection should not be considered as a testing, commissioning or maintenance procedure nor act as a guarantee or warranty of any kind.