BLACKETT MAGUIRE+ GOLDSMITH

**BCA ASSESSMENT REPORT**

# St Ignatius' College Riverview
# Ignis Stage 2

Revision: 3
Date: 26 August 2020
Reference: 200013

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## EXECUTIVE SUMMARY

The following comprises a summary of the key compliance issues identified under the clause-by-clause assessment in APPENDIX 1 of this report. These matters will need to be addressed during design development and prior to issue of the Construction Certificate.

### A. MATTERS REQUIRING REDESIGN OR ADDITIONAL INFORMATION AT CC STAGE:

| | BCA (DtS) Clause | Description |
|---|---|---|
| 1. | **C1.1 & Spec. C1.1** | Structural Engineer to review any existing loadbearing building elements that will be retained within the proposed new fire compartments and confirm the existing FRL's, such as floor slabs, columns, loadbearing walls, etc.<br>Additional treatment may be required to existing building elements in order to achieve the FRL required for the new works. |
| 2. | **C1.1, Spec. C1.1, C2.7, C3.5** | The new development will be fire separated from the existing building by 2hr fire walls in locations indicated in Appendix 5.<br>While the existing and proposed parts will form one building, the fire walls will ensure that the existing level of fire safety will not be adversely impacted upon by the new addition, particularly with respect to fire compartmentation.<br>Any existing walls that will form part of the required fire wall will need to be verified as achieving the required 2hr fire rating. In this regard, it is noted that the existing fire wall at Level 2 (Vaughan building) may only achieve a 1hr fire rating as indicated by the tags on the existing fire doors. |
| 3. | **cl. 3.5 of Spec. C1.1** | As Type A Construction applies, the roof requires a 120/120/120 FRL. In this regard, the concession granted under clause C3.5 allows omission of the above FRL to the roof provided that 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.<br>It is understood that a fire rated ceiling will be provided to existing roof at Level 4 (where there is potentially existing timber framework). Performance Solution to be documented to omit fire rating to the new roof construction (refer to Section B below). |
| 4. | **C2.6** | While the referenced plans generally show spandrels at the external walls, the fire rating and dimensions of the spandrels need to be specified on the plans, particularly where lightweight construction is proposed. It should be noted that the fire rating must be achieved when tested in both directions and installed strictly in accordance with relevant test reports.<br>The fire rated spandrels should extend for the full perimeter of the external walls (not just below window openings) unless the external wall achieves a minimum 60/60/60 FRL. |
| 5. | **C2.7 & C3.5** | Existing walls in line of proposed fire walls to be verified as achieving the required 2hr fire rating.<br>Any existing doorways to be upgraded where necessary. |
| 6. | **D1.2, D1.4 & D1.5** | It is noted that the existing doorway to the External Circulation (shown in Figure 1) will be retained. This needs to be reflected on the plans (extract from updated plans shown below).<br>Notwithstanding the above, we have re-assessed exit travel distances on the basis that this door will serve as an exit. |


**Figure 1**

| | BCA (DtS) Clause | Description |
|---|---|---|
| 7. | **D1.3** | The existing stair at Gridline 11 is not required to be fire isolated provided that it is fire separated from the remainder of the storey at Level 1 (as indicated in Figure 2).<br>Fire separation must comprise construction having—<br>(A) an FRL of –/60/60, if non-loadbearing; and<br>(B) an FRL of 90/90/90, if loadbearing; and<br>(C) no opening that could permit the passage of fire or smoke<br>Where drencher protected glazing is proposed in this wall in lieu of fire resisting construction then a Performance Solution will be required (see below). |
| 8. | **D1.6** | The clear width at the base of the exit stairway (circled in Figure 3) connecting Levels 2 & 3 is currently 1.4m, whereas the width of the stairway is 1.8m. The clear width at the base of the stairway will need to achieve a minimum 1.5m, being the minimum required width of the exit stair.<br>We understand that the width of this opening will be increased as part of the new works. Required dimension for this opening is to be added to the plans. |
| 9. | **D1.7** | The proposed fire isolated exit Stair 2 discharges directly outside and access.<br>It is noted that the wall bounding the Paper Store is proposed to be fire rated which will allow occupants to pass within 6m of the wall following discharge from Stair 2.<br>The fire rating to the wall (identified in red in Figure 5) must comprise an FRL of not less than 60/60/60 for a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.<br>This requirement is to added to the detailed architectural plans. |
| 10. | **Part D3 & AS 1428.1-2009** | Access Compliance Report to be prepared by the appointed Access Consultant. |

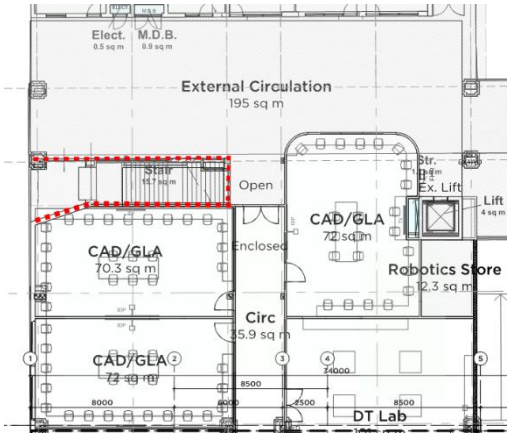



**Figure 2**

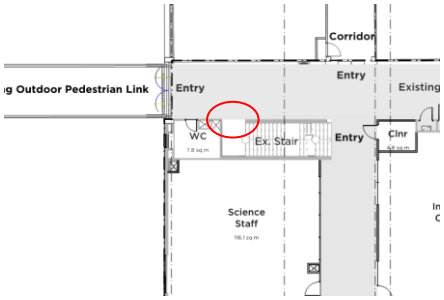



**Figure 3**

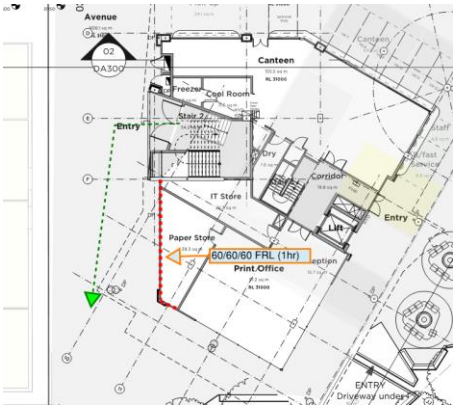
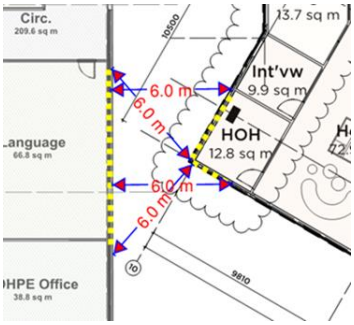
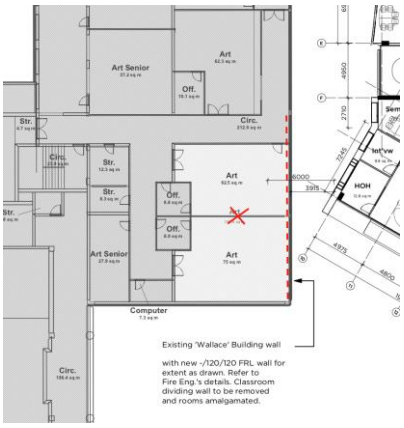
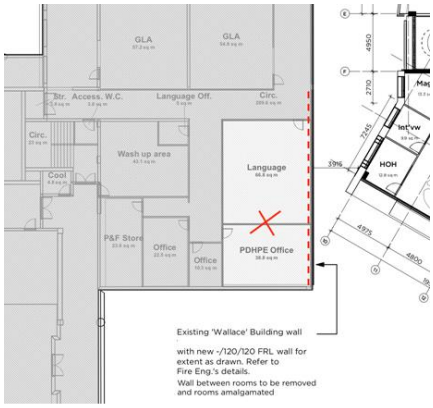



**Figure 4**

| | BCA (DtS) Clause | Description |
|---|---|---|
| 11. | **E1.3 & AS 2419.1-2005** | Fire hydrants are required to serve the building and be design and installed in accordance with BCA clause E1.3 & AS 2419.1-2005.<br>Hydraulic Consultant is to review the existing fire hydrant system and provide a gap analysis as to current level of compliance vs. compliance with AS 2419.1-2005.<br>Fire hydrant coverage plans will also be required from the Hydraulic Consultant demonstrating compliance with AS 2419.1-2005 will be required to be provided prior to the issue of a Construction Certificate. The fire hydrant coverage plans are to incorporate the following:<br>+ Fire Hydrant Booster Location<br>+ Fire pump location<br>+ Fire hydrant locations<br>+ Hose layout plans showing how coverage is achieved throughout the building<br>Note:<br>1. Fire Hydrants must be located within the proposed fire isolated exit stair.<br>2. Any remote Fire Hydrants required for coverage should be located within 25m of the of a fire hydrant within the fire stairs. |
| 12. | **E1.4 & AS 2441-2005** | Fire hose coverage plans showing the following:<br>+ Fire Hose Reel Locations<br>+ Hose layout plans showing how coverage is achieved throughout the building.<br>Note:<br>1. FHR's are not required to classrooms and associated corridors in a primary or secondary school.<br>2. Where required, FHR's must be positioned within 4m of required exits (however not within the fire stairs). The referenced plans do not comply in this regard. |
| 13. | **E1.10** | Suitable additional provisions must be made for fire-fighting if unique problems could arise due to;<br>+ The nature or quantity of materials stored, displayed or used in a building on the allotment; or<br>+ The location of the building in relation to a water supply for firefighting purposed.<br>In this regard, it is noted that the following areas have been identified for potential hazardous chemical storage:<br>+ Chemical Store & prep room,<br>+ Basement Cleaners store;<br>Advice from a Dangerous Goods Consultant is required to determine whether any additional measures are required, particularly having regard to AS 1940:2017 Flammable or combustible liquids storage and handling design, construction and operation requirements. |
| 14. | **E2.2, E4.9, AS 1670.1-2018 & AS 1670.4-2018** | Fire services design consultant is to review the existing smoke detection and alarm system and provide against the current provisions of AS 1670.1-2018 and provide a gap analysis to identify any deficiencies and capacity of the existing system.<br>Same applies for EWIS, which is required to serve the building. |
| 15. | **F2.3 & F2.4** | Toilet calculations for staff and students, as outlined in PMDL email issued 13/3/2020, indicate an adequate number of facilities for the nominated 78 staff and 1400 students (Senior Campus), however it is unclear as to the specific locations of these facilities as the referenced plans do not delineate between staff and student facilities.<br>Plans to be revised to clearly label staff and student facilities. |
| 16. | **Section J** | Section J Compliance Report or JV3 Report will be required prior to issue of the Construction Certificate demonstrating compliance with the relevant BCA Section J provisions. |

## B. MATTERS REQUIRING FIRE SAFETY ENGINEERED PERFORMANCE SOLUTIONS:

| | BCA (DtS) Clause | Description |
|---|---|---|
| 1. | **cl. 3.5 of BCA Spec. C1.1** | To allow omission of FRL to the new roof construction. |
| 2. | **C3.2** | To allow omission of protection of openings within 6m of the Wallace Building on the basis that 2hr fire rated construction will be provided to the external wall of the Wallace Building.       **Figure 5** |
| 3. | **C3.3** | Rationalise protection of openings in external walls of different fire compartments that are situated less than distances prescribed under BCA Table C3.3. In this regard, protection will generally be proposed at the new addition in lieu of both new and existing external walls.<br>*Refer to Figures 9 to 12 in Appendix 1.* |
| 4. | **D1.3** | As identified in Section A above, where drencher protected glazing is proposed in the wall bounding the existing stair at Ground Floor (existing O'Neil Building) in lieu of fire resisting construction then a Performance Solution will be required. |
| 5. | **D1.4** | Exit travel distances do not comply with the DtS provisions in the following locations:<br>+ Level 3 Staff Room: Maximum 32m to a point of choice in lieu of DTS maximum of 20m.<br>+ Level 3: Maximum 43m to one of two alternative exits in lieu of DtS maximum of 40m.<br>+ Level 4 Switchroom (Option 2): 45m to one of two alternative exits in lieu of 40m. |
| 6. | **D1.5** | Distances between alternative exits do not comply with the DtS provisions in the following locations:<br>+ Level 1: Maximum 71m between alternative exits in lieu of DTS maximum of 60m.<br>+ Level 3: Maximum 62m between alternative exits in lieu of DTS maximum of 60m.<br>+ Level 4 (Option 2): Maximum 74m between alternative exits in lieu of DTS maximum of 60m. |

| | BCA (DtS) Clause | Description |
|---|---|---|
| 7. | **D1.6** | Aggregate egress width of exits per storey have been calculated as per Table below. The available egress width for Level 3 does not comply based on the proposed occupant numbers. |

| LEVEL | POPULATION (1) *New Wallace, O'Neil & Vaughan* | AGGREGATE EGRESS WIDTH REQUIRED | AGGREGATE EGRESS WIDTH AVAILABLE (2) | COMPLIES |
|---|---|---|---|---|
| **L4** | 410 | 4m | 4m | Yes |
| **L3** | 682 | 6.5m | 4.5m | No |
| **L2** | 611 | 5.5m | 7.5m | Yes |
| **L1** | 330 | 3.5m | 4m | Yes |
| **L0** | Hall: 150<br>Canteen/Office: 69 | 2m<br>1m | 2m<br>>2m | Yes<br>Yes |
| **L-1** | 3 | 1m | >2m | Yes |

*(1) Source: College Brief 20/3/2020*

*(2) Refer to Appendix 4*

| | | |
|---|---|---|
| 8. | **D1.9** | The existing open stairway connecting Levels 3 & 4 (circled below) does not comply with these provisions as the stairway serves as a required exit and does not discharge to the level at which egress to a road or open space is provided.<br>Note: *This stairway is currently smoke separated from the remainder of the storey at Level 3. This separation is not a requirement of the BCA DtS provisions, and as such, it is assumed that it may have been a requirement of previous fire safety engineering that has been undertaken.* |


**Figure 6**

| | | |
|---|---|---|
| 9. | **D1.12** | The proposed non-required non-fire isolated stairway connecting Levels 1 to 3 (circled to the right) does not comply with the BCA DtS provisions as it connects more than two storeys in a non-sprinkler protected building.<br>Furthermore, this stairway indirectly connects with Stair 1, which serves Levels 0 & 1. |

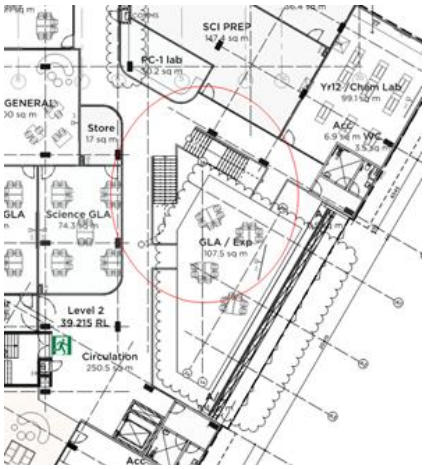



**Figure 7**

| | | |
|---|---|---|
| 10. | **E1.5, E2.2 & G3** | To allow the omission of sprinkler protection, smoke exhaust and Part G3 atrium provisions to the building that contains an atrium connecting 3 storeys. |
| 11. | **E2.2** | To allow omission of stair pressurisation to the fire isolated exit which serves an atrium to which G3 applies. |

## C. OTHER MATTERS REQUIRING PERFORMANCE SOLUTIONS:

| | BCA (DtS) Clause | Description |
|---|---|---|
| **1.** | **FP1.4** | A Performance Solution is required for the external walls to confirm the assembly prevents the penetration of water that could cause unhealthy or dangerous conditions, or loss of amenity for occupants; and undue dampness or deterioration of building elements.<br>Note: Compliance with FP1.4 may be verified using BCA Verification Method FV1. |
| **2.** | **F4.1 & F4.2** | A Performance Solution is required with respect to non-compliant natural lighting to the Science GLA at Level 2 which is not bounded by any external windows. Furthermore, borrowed light provisions of F4.3 cannot be applied to Class 9b buildings under the DtS provisions. |

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**REPORT REVISION HISTORY**

| REV. | DATE | STATUS | PREPARED BY | SIGNED | REVIEWED | SIGNED |
|---|---|---|---|---|---|---|
| 0 | 09/03/2020 | Preliminary issued for review | Tony Heaslip **Director** | | Brian Maguire **Director** | |
| 1 | 28/07/2020 | Revised based on updated plans | Tony Heaslip **Director** | | Brian Maguire **Director** | |
| 2 | 11/8/2020 | Preliminary Fire Safety Schedule added (Appendix 2) | Tony Heaslip **Director** | | Brian Maguire **Director** | |
| 3 | 26/8/2020 | Exit travel distances to Level 4 revised as per meeting 26/8/20 | Tony Heaslip **Director** *MAIBS, AIBS National Accreditation, NSW A1-Unrestricted Accredited Certifier (BPB 0178)* |  | Brian Maguire **Director** |  |

# 1.0 INTRODUCTION

## 1.1. PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd have been commissioned by St Ignatius College Riverview to undertake an assessment of the proposed Ignis Stage 2 development at St Ignatius' College against the relevant provisions of the Building Code of Australia 2019 (BCA).

## 1.2. AIM:

The aim of this report is to:

+ Undertake an assessment of the proposed development against the deemed-to-satisfy provisions of the BCA;
+ Identify matters that require plan amendments in order to achieve compliance with the BCA;
+ Identify matters that are to be required to be addressed by Performance Solutions;
+ Assist the Certifying Authority in their assessment and determination under Clause 143(1)(3) of the Environmental Planning and Assessment Regulation, 2000;
+ Assist the Certifying Authority in their assessment and determination under Clause 145 of the Environmental Planning and Assessment Regulation, 2000.

## 1.3. PROJECT TEAM

The following BM+G Team Members have contributed to this Report:

+ Tony Heaslip – Report Preparation (Director) | A1 Accredited Certifier
+ Brian Maguire – Peer Review (Director) | A1 Accredited Certifier
+ Camilo Ospina – Assistant Building Surveyor

## 1.4. REFERENCED DOCUMENTATION

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

+ Building Code of Australia 2019 (BCA).
+ The Guide to the Building Code of Australia 2019 (BCA).
+ Architectural Plans prepared by PMDL issued 23 June 2020
+ Email from PMDL *'2876 SIC Stage 2 - Draft BCA assessment report - PMDL comments 13.3.20'* dated 13 March 2020
+ Email from Saint Ignatius College Riverview *'2876 SIC Stage 2 - Stair Widths'* dated 8 April 2020

## 1.5. REGULATORY FRAMEWORK

Pursuant to clause 145 of the Environmental Planning and Assessment (EPA) Regulation 2000 all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.

Clause 143(3) of the EPA Regulation 2000 prevents a certifying authority from issuing a construction Certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

## 1.6. RELEVANT VERSION OF THE NCC BUILDING CODE OF AUSTRALIA

Pursuant to clause 145(1)(b) the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time the application for the Construction Construction Certificate was made. The current version of the BCA is the BCA 2019, with the next version of the BCA coming into effect on 1 May 2020 (BCA 2019 Amendment 1). While it is likely that the BCA 2019 Amendment 1 will apply to this development, for the purpose of this assessment, the assessment has been undertaken against the current provisions of the BCA, being BCA 2019.

Re-assessment against the new BCA 2019 (Amendment 1) provisions will be required following adoption.

## 1.7. ASSESSMENT METHODOLOGY

The BCA assessment was carried out in tabulated form in APPENDIX 1 below. The documents were assessed against the BCA 2019 requirements and the findings were detailed under the 'Comment' column.

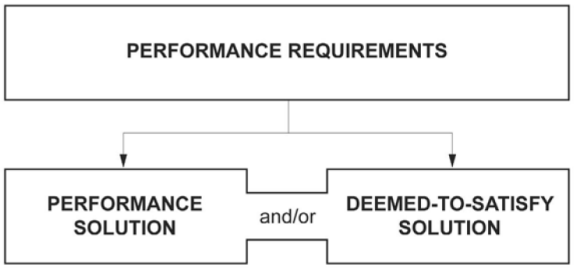
## 1.8. COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE

Compliance with the NCC is achieved by complying with—

+ the Governing Requirements of the NCC; and
+ the Performance Requirements.

Performance Requirements are satisfied by one of the following, as shown in the Figure below:

+ A Performance Solution.
+ A Deemed-to-Satisfy Solution.
+ A combination of the above two options.




## 1.9. LIMITATIONS AND EXCLUSIONS

The limitations and exclusions of this report are as follows:

+ No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). The building owner needs be satisfied that their obligations under the DDA have been addressed.
+ Please note that whilst the BCA specifies a minimum standard of compliance with AS1428 (Parts 1-3) and Part D3 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the DDA 1992. The DDA is a complaint based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the building owner should be satisfied that their obligations under the DDA have been addressed.
+ BM+G has not undertaken an assessment of any Alternative Solution Reports at the time of the preparation of this report.
+ The Report does not address matters in relation to the following Local Government Act and Regulations:
    i. Work Health and Safety Act and Regulations.
    ii. Work Cover Authority requirements.
    iii. Water, drainage, gas, telecommunications and electricity supply authority requirements.
    iv. Disability Discrimination Act 1992.
+ Blackett Maguire + Goldsmith Pty Ltd cannot guarantee acceptance of this report by Local Council, Fire & Rescue NSW or other approval authorities.
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## 1.10. REPORT TERMINOLOGY

***Building Code of Australia*** - Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in NSW under the provisions of the Environmental Planning & Assessment Act & Regulation.

***Climatic Zone*** – Means an area defined in Figure 2 and in Table 2 (of BCA Schedule 3) for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

***Construction Construction Certificate*** – Building Approval issued by the Certifying Authority pursuant to Part 6 of the EP&A Act 1979.

***Construction Type*** – The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—

(i) certain Class 2, 3 or 9c buildings in C1.5; and

(ii) a Class 4 part of a building located on the top storey in C1.3(b); and

(iii) open spectator stands and indoor sports stadiums in C1.7.

Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

***Deemed-to-Satisfy (DTS) Provisions of the BCA*** – Means the prescriptive provisions of the BCA which are deemed to satisfy the performance requirements.

***Effective Height*** – The vertical distance between the floor of the lowest storey included in the calculation of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift, or other equipment, water tanks or similar service units).

***Exit*** – Any, or any combination of the following if they provide egress to a road or open space;

- An internal or external stairway.
- A ramp.
- A fire-isolated passageway.
- A doorway opening to a road or open space.

***Fire Compartment*** – The total space of the building; or when referred to in

- The Performance Requirements – any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or
- The Deemed-to-Satisfy Provisions – any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant part.

***Fire Resistance Level (FRL)*** – The grading periods in minutes for the following criteria-

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order

***Fire Source Feature (FSF)*** - The far boundary of a road adjoining the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

***National Construction Code Series (NCC)*** – The NCC was introduced 1 May 2011 by the Council of Australian Governments (COAG). The BCA Volume One (Class 2 to 9 Buildings) is now referenced as the National Construction Code Series Volume One — BCA.

***Occupation Construction Certificate*** **(OC)** – Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 6 of the EPA Act 1979.

***Open Space*** - Means a space on the allotment, or a roof or other part of the building suitably protected from fire, open to the sky and connected directly with a public road.

***Performance Requirements of the BCA*** - A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must meet.

Compliance with the Performance Requirements can only be achieved by-

(a) complying with the Deemed-to-Satisfy Provisions; or

(b) formulating an Alternative Solution which-

(i) complies with the Performance Requirements; or

(ii) is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or

(c) a combination of (a) and (b).

***Performance Solution*** – Means a method of complying with the performance requirements other than by a *Deemed-To-Satisfy Solution.*

***Rise in Storeys*** – The greatest number of storeys calculated in accordance with C1.2.

***Sole Occupancy Unit*** – means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and can include a dwelling and/or office suite

## 2.0 BUILDING CHARACTERISTICS

### 2.1 PROPOSED DEVELOPMENT

The proposed development consists of new six (6) storey leaning and F&B Precinct Building including teaching and learning spaces including General Learning Areas (GLA), Science Labs, Technology and Applied Science (TAS) and Science, Technology, Engineering and Mathematics (STEM), PDHPE faculties and Pastoral Care House areas.

The new Ignis Stage 2 building is classified as follows:

| | |
|---|---|
| **BCA Classification:** | Class 5 Office and 7b Loading Dock/Storage (Level -1)<br>Class 9b Assembly Building (Levels 0 to 4) |
| **Rise in Storeys:** | 6 |
| **Storeys Contained:** | 6 |
| **Type of Construction:** | Type A Construction |
| **Importance Level (Structural):** | 3 |
| **Sprinkler Protected Throughout:** | No |
| **Effective Height:** | 19.91m |
| **Total Floor Area:** | Approximately 8,600m$^2$ |
| **Largest Fire Compartment:** | Approximately 6,400m$^2$ |
| **Climate Zone:** | Zone 5 |

*Note: While the above characteristics primarily relate to the new Ignis Stage 2 development, the addition forms part of the existing building to the north and west, and a separate building to the adjacent Wallace Building to the south.*

### 2.2 FIRE COMPARTMENT LIMITATIONS

The maximum floor area and volume limitations for fire compartments is:

| Classification | | Type A | Type B | Type C |
|---|---|---|---|---|
| 5, 9b or 9c | Max. floor area | 8,000m$^2$ | 5,500m$^2$ | 3,000m$^2$ |
| | Max. volume | 48,000m$^3$ | 33,000m$^3$ | 18,000m$^3$ |

## 3.0 CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed Ignis Stage 2 development at St Ignatius College Riverview against the deemed-to-satisfy provisions of the Building Code of Australia 2019 (BCA).

Arising from the assessment, key compliance issues have been identified that require further resolution, either by way of fire engineered Performance Solutions or plan amendments prior to the issue of the Construction Certificate stage.

Notwithstanding the above, it is considered that the proposed development can readily achieve compliance with the BCA subject to resolution of the matters identified in the Executive Summary & APPENDIX 1 of this report.

## APPENDIX 1 - BCA ASSESSMENT

| LEGEND: | |
|---|---|
| + **Complies**: | The referenced plans show compliance with this clause |
| + **Compliance Readily Achievable**: | The referenced plans do not show sufficient information to establish compliance with this clause. Design certification, should be submitted with the application for the Construction Certificate. |
| + **Further Information Required:** | The referenced plans do not show sufficient information to establish compliance with this clause. Further details, should be submitted with the application for the Construction Certificate. |
| + **Performance Solution:** | The referenced plans do not comply with this clause and an Performance Solution is required/proposed to demonstrate compliance with the Performance Requirements |
| + **Does Not Comply:** | The proposal does not comply with this clause and redesign is required. |
| + **Noted**: | Provisions contained within this BCA clause are provided for guidance, or are to be read in conjunction with other BCA clauses |
| + **Not Applicable/ Not critical information**: | This clause is not applicable or not critical to the proposed development. <u>These clauses have been removed from the assessment table below.</u> |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **SECTION B** | **STRUCTURE** | |
| ***Part B1*** | ***Structural Provisions*** | |
| **B1.2**<br>Determination of Individual Actions | Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1 in relation to the new structural elements of the building. | **Compliance Readily Achievable**<br>Design Statement is to be provided confirming that the design achieves compliance with the following is required at the time of Construction Certificate application, inclusive of reference to the following Australian Standards (where relevant):<br>AS 1170.0 – 2002 General Principles<br>AS 1170.1 – 2002, including certification for balustrading (dead and live loads)<br>AS 1170.2 – 2002, Wind loads<br>AS 1170.4 – 2007, Earthquake loads<br>AS 3700 – 2018, Masonry code<br>AS 3600 – 2018, Concrete code<br>AS 4100 – 1998, Steel Structures<br>AS 4600 – 2005, Cold formed steel.<br>AS 2047 – 2014, Windows in buildings<br>AS 1288 – 2006, Glass in buildings |
| **B1.4**<br>Determination of Structural Resistance of Materials | Materials & Forms of Construction | **Compliance Readily Achievable**<br>Detail and design certification to be provided at the Construction Certificate stage. |
| **B1.6**<br>Construction of Buildings Flood Hazard Areas | A Class 2 or 3 building, Class 9a health-care building, Class 9c building or Class 4 part of building, in a flood hazard area must comply with the ABCB Standard for Construction of Buildings in Flood Hazard Areas. | **Not Applicable** |

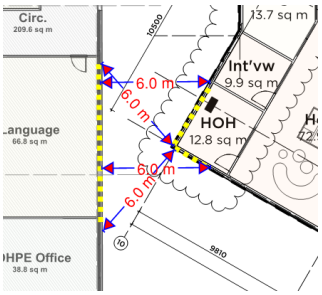
| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **SECTION C** | **FIRE RESISTANCE** | |
| ***Part C1*** | ***Fire Resistance and Stability*** | |
| **C1.1**<br>Type of Construction Required | The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1 except as allowed for in this clause.<br>Note: Table C1.1 does not apply to Class 2, 3 or 9c buildings classified in Part C1.5 or open spectator stands/indoor sports stadiums. | **Further Information Required**<br>Type A Construction applies to the building.<br>Refer to Spec C1.1 & Appendix 3 for the table of FRL's. Generally, 2hr fire ratings will apply throughout with the exception of the basement level (L-1) where 4hr fire rating is required.<br>Structural Engineer to confirm that the loadbearing building elements will achieve the required 2hr fire rating. |
| **C1.3**<br>Buildings of Multiple Classification | In a building of multiple classifications, the type of construction required for the building is the most fire-resisting type resulting from the application of Table C1.1 on the basis that the classification applying to the top storey applies to all storeys. This clause also contains exceptions in relation to Class 4 parts. | **Not Applicable** |
| **C1.5**<br>Two Storey Class 2,3 or 9c Buildings | A building with a rise in storeys of 2 is of Type C Construction if it is a Class 2 and/or 3 building and each sole-occupancy unit has access to at least 2 exits or its own direct access to a road or open space.<br>A building with a rise in storeys of 2 is of Type C Construction if it is a Class 9c building protected with a sprinkler system throughout and complies with the maximum compartment size specified in Table C2.2 in the BCA for Type C construction. | **Not Applicable** |
| **C1.8**<br>Lightweight Construction | Lightweight construction must comply with Specification C1.8 if used in a wall system in accordance with sub-clauses (a) & (b). | **Compliance Readily Achievable**<br>Detail to be provided at the Construction Certificate stage where lightweight construction is proposed to building elements that require an FRL. |
| **C1.9**<br>Non-Combustible Building Elements | In a building of Type A construction, the following building elements and their components must be non-combustible.<br>+ External walls and common walls, including all components incorporated in them, including the façade covering, framing and insulation.<br>+ The flooring and floor framing of lift pits.<br>+ Non-loadbearing internal walls where they are required to be fire-resisting.<br>This clause contains provisions for combustible materials that may be used wherever a non-combustible material is required under the BCA. | **Further Information Required**<br>Documentation is required to be provided as relevant to:<br>+ Any external wall claddings.<br>+ Any framing or integral formwork systems. I.e. timber framing, sacrificial formwork, etc.<br>+ Any external linings or trims. I.e. external UPVC window linings, timber window blades, etc.<br>+ Any sarking or insulation contained within the wall assembly.<br>This is not an exhaustive list, and any element incorporated within any external wall assembly must be identified and provided for review. Any departures from non-combustibility or deemed non-combustible materials under this clause are to be advised. |

| BUILDING ELEMENT | TYPE A CONSTRUCTION |
|---|---|
| External wall | Non-combustible |
| Common wall | Non-combustible |
| Floor and floor framing of lift pit | Non-combustible |
| All loadbearing internal walls (including those of shafts) | Concrete, masonry or fire-protected timber |
| Loadbearing fire walls | Concrete, masonry or fire-protected timber |
| Non-Loadbearing Internal Walls Required to be Fire-Resistant | Non-combustible |

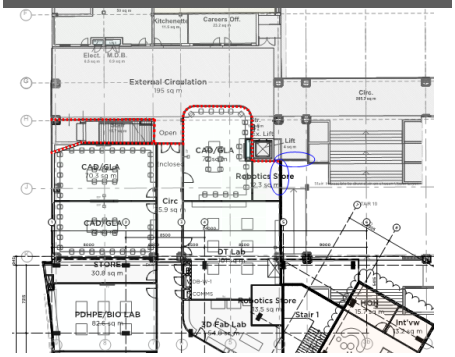
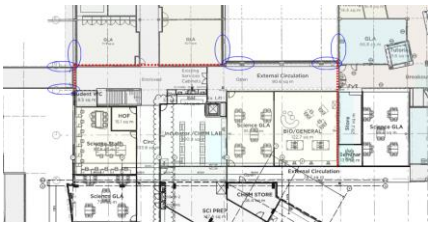
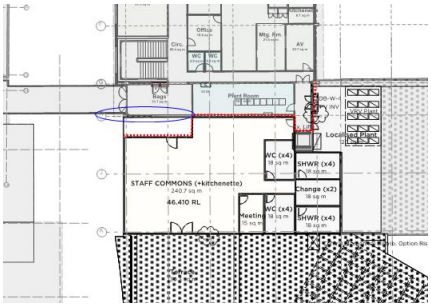
| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | Non-loadbearing lift, ventilating, pipe, garbage and the like shafts which do not discharge hot products of combustion. | Non-combustible |
| **C1.10**<br>Early Fire Hazard Properties | The fire hazard properties of the outlined linings, materials and assemblies in a Class 2 to 9 building must comply with Specification C1.10 | **Further Information Required:**<br>The fire hazard properties of any proposed floor or wall finishes, assemblies, or sarking material are to comply with Specification C1.10 and C1.10a. In this instance, the following fire hazard properties applies:<br>+ Floor linings and floor coverings:<br>- Critical radiant flux (CHF) of not less than 2.2kW/m2; and<br>- A maximum smoke development rate of 750 percent-minutes.<br>+ Wall & Ceiling linings<br>- Group Number 1 in the fire isolated exit, and Group 1 or 2 in other areas. Group Number must be determined in accordance with in accordance with AS 5637.1; and<br>- A smoke growth rate index not more than 100; or an average specific extinction area less than 250$m^2$/kg.<br>+ Air handling ductwork: Rigid & flexible ductwork must comply with the fire hazard properties set out in AS 4254 Parts 1 & 2.<br>+ Sarking material: Flammability Index of not more than 5.<br>Product data sheets and/or test reports showing the fire hazard properties of materials complying with the above should be obtained in order to verify compliance. |
| **C1.14**<br>Ancillary Elements | An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following:<br>+ Gutter/downpipe/other plumbing fixture<br>+ A flashing.<br>+ A grate/grille <2$m^2$ associated with a building service.<br>+ An electrical switch/GPO/cover plate, or the like.<br>+ A light fitting.<br>+ A required sign.<br>+ A combustible non-required sign may be permitted if achieving a Group Number of 1 or 2 and not extending beyond one storey or fire compartment.<br>+ A combustible awning, sunshade, canopy, blind, or shading hood may be permitted at ground storey or a storey immediately above ground storey if complying as relevant to fire hazard properties and not affecting a required exit.<br>+ A part of a security, intercom or announcement system.<br>+ Wiring.<br>+ A paint, lacquer or a similar finish.<br>+ A gasket, caulking, sealant, or adhesive associated with the above ancillary elements. | **Compliance Readily Achievable**<br>Detail to be included in the design and verified prior to issue of the Construction Certificate Stage. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| ***Part C2*** | ***Fire Compartmentation & Separation*** | |
| **C2.2**<br>General Floor Area Limitations | Limitations on the area and volume of fire compartments as required by sub-clauses (a), (b) & (c) must be adhered to unless excepted by Clause C2.3. | **Complies**<br>Refer to Section 2.2 of this report for applicable fire compartment limitations.<br>The new addition will be fire separated from the existing building by 2hr fire walls, and consist of essential three (3) fire compartments as follows:<br>+ *Fire Compartment 1*: Basement (Level -1) and Level 0.<br>+ *Fire Compartment 2*: Levels 1, 2<br>+ *Fire Compartment 3:* Level 3<br>+ *Fire Compartment 4:* Level 4<br>The above fire compartments are within the maximum fire compartment limitations prescribed under BCA Table C2.2.<br>Notwithstanding the above, it should be noted that additional fire compartmentation, particularly at the top of the atrium (Level 3) may be proposed under the fire safety engineering strategy for the building. |
| **C2.3**<br>Large Isolated Buildings | A building's fire compartments may exceed the requirements of C2.2 where they comply with the Large Isolated provisions of this clause. | **Not Applicable** |
| **C2.4**<br>Requirements for Open Spaces and Vehicular Access | These provisions apply where clause C2.3 above applies. | **Not Applicable** |
| **C2.5**<br>Class 9a and 9c Buildings | Class 9a health care building must comply with the compartmentation requirements outlined in this clause. | **Not Applicable** |
| **C2.6**<br>Spandrels | In a non-sprinkler protected building of Type A construction, openings above other openings within 450mm of a vertical plane must be separated by:<br>i. A spandrel of not less than 900mm in height (extending minimum 600mm above floor level) of non-combustible construction achieving an FRL of 60/60/60; or<br>ii. A horizontal projection extending from the external face of the wall no less than 1100mm, extending laterally 450mm beyond each side of the openings, and of non-combustible construction achieving an FRL of 60/60/60.<br>Construction that complies with (i) behind a curtain wall or panel wall and must have any gaps packed with a non-combustible material that will withstand thermal expansion and structural movement of the walling without the loss of seal against fire and smoke.<br>Note: The requirement for separation does not apply to:<br>+ Openings within the same stairway.<br>+ Openings in external walls where the floor separating the storeys does not require an FRL with respect to integrity and insulation. | **Compliance Readily achievable.**<br>Refer to drawing numbers A300 and A301 which show proposed spandrels.<br>Details to be provided prior to issue of the construction certificate demonstrating that the construction between the slab edge and external wall will have any gaps packed with a non-combustible material that will withstand thermal expansion and structural movement of the walling without the loss of seal against fire and smoke.<br>Note: Spandrel provisions do not apply to the internal elevation bounding the atrium at Levels 02 and 03 (refer to drawing A300). Refer to FER for any specific requirements relating to fire or smoke separation. Furthermore, spandrels are not required to the NE façade that bounds the atrium as this is one space. |
| **C2.7**<br>Separation by Fire Walls | Construction- A fire wall must be in accordance with the following:<br>+ The fire wall has the relevant FRL prescribed by Spec C1.1. | **Further Information Required**<br>The new development will be fire separated from the existing building by 2hr fire walls in locations indicated in Appendix 5. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | + Unless permitted by Part C3, must not reduce the FRL prescribed by C1.1.<br>+ Building elements (other than roof battens of 75x50 or sarking-type material) must not pass through a fire wall unless the FRL of the wall can be maintained.<br><br>Separation of buildings- A part of a building may be considered separate from the remainder of the building if separated by a fire wall in accordance with the following:<br>+ The fire wall extends through all storeys and is carried through to the underside of the roof covering.<br>+ Where roofs of separate buildings are at different heights, the fire wall must extend to the underside of:<br>▪ The higher roof, or >6m above the lower roof.<br>▪ The lower roof if it has an FRL not less than that of the fire wall and no openings closer than 3m to any wall above the lower roof.<br>▪ The lower roof if its covering is non-combustible and the lower part is sprinkler protected.<br>Separation of fire compartments- A part of a building, separated from the remainder by a fire wall, may be treated as a separate fire compartment if the fire wall extends to the underside of:<br>+ A floor having an FRL required for a fire wall; or<br>+ The roof covering. | While the existing and proposed parts will form one building, the fire walls will ensure that the existing level of fire safety will not be adversely impacted upon by the new addition, particularly with respect to fire compartmentation.<br>Any existing walls that will form part of the required fire wall will need to be verified as achieving the required 2hr fire rating. In this regard, it is noted that the existing fire wall at Level 2 (Vaughan building) may only achieve a 1hr fire rating as indicated by the tags on the existing fire doors.<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **C2.8**<br>Separation of Classifications in the Same Storey | Each building element in that storey must have the higher FRL prescribed in Specification C1.1 or have those parts of the building separated by a fire wall. | **Not Applicable** |
| **C2.9**<br>Separation of Classifications in Different Storeys | Parts of different classification that are situated one above the other in adjoining storeys must be separated as follows:<br>Type A construction – The floor between the adjoining parts must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey. | **Compliance Readily Achievable**<br>The floor separating the basement (Level -1) and Level 00 above requires an FRL applicable to Class 7b i.e. 240/240/240 FRL (4hrs). |
| **C2.10**<br>Separation of Lift Shafts | This clause applies to all classes of buildings and specifies the protection requirements for openings for lift shafts and lift landing doors. The requirements are set out in sub-clauses (a), (b) (c) & (d) which relate to fire separation of lifts that connect more than 2 storeys in non-sprinkler protected buildings. Also note the Deemed to Satisfy Provisions of Part C3. | **Compliance Readily Achievable**<br>The proposed lift must be separated from the remainder of the building by enclosure in a fire rated shaft achieving the FRL's prescribed under Specification C1.1. |
| **C2.11**<br>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** |
| **C2.12** Separation of Equipment | Equipment as listed below must be separated from the remainder of the building with construction that achieves an FRL of 120/120/120 (or that required by Spec C1.1, whichever is greater) and doorways being self-closing -/120/30 fire doors:<br>+ Lift motors and lift control panels; or<br>+ Emergency generators used to sustain emergency equipment operating in the emergency mode; or<br>+ Central smoke control plant; or<br>+ Boilers; or<br>+ A battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.<br>Separation of on-site fire pumps must comply with the requirements of AS 2419.1. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

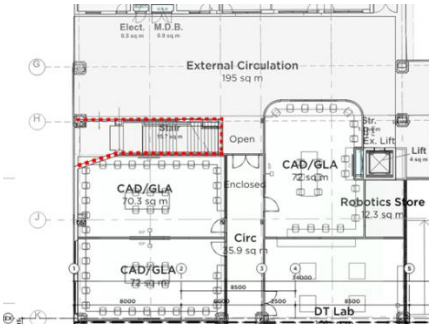
| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **C2.13**<br>Electricity Supply System | An electrical substation located within a building or a main switchroom which sustains emergency equipment, must:<br>+ Be separated from the building by construction achieving an FRL of 120/120/120; and<br>+ Have any doorway protected with a self-closing fire door achieving an FRL of -/120/30.<br>Electrical conductors within a building must be protected in accordance with sub-clause (c). | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **C2.14**<br>Public Corridors in Class 2 Buildings | Applies to Class 2 and 3 buildings | **Not Applicable** |
| ***Part C3*** | ***Protection of Openings*** | |
| **C3.1** Application of part | Openings listed in C3.1(a) need not comply with the Deemed-to-Satisfy Provisions of Part C3. | **Noted** |
| **C3.2** Protection of openings in external walls | Openings in an external wall required to have an FRL must be protected in accordance with C3.4 if the opening is less than:<br>+ 3m from a side or rear boundary; or<br>+ 6m from the far boundary of a road, river, lake or the like adjoining the allotment if not located at or near ground level; or<br>+ Less than 6m from another building on the allotment that is not Class 10.<br>An opening required to be protected under this part must not occupy more than 1/3 of the area of the external wall of the storey in which it is located. | **Does Not Comply**<br>Openings in the southern external walls at Levels 1, 2 & 3 that are situated less than 6m from the Wallace Building to the south will require protection in accordance with BCA clause C3.4 (e.g. external wall-wetting sprinklers).<br>Protection of openings will also be required to the openings in the northern external wall of the Wallace Building. In this regard, a Performance Solution may be possible to allow internal and external protection to the external walls of the new addition in lieu of protecting the existing openings in the Wallace Building.<br>  <br><br>**Figure 8**<br>Note: The external wall construction surrounding any openings that require protection must achieve a minimum 1hr fire rating. |
| **C3.3**<br>Separation of external walls and associated openings in different fire compartments | The distance between parts of external walls and any openings within them in different fire compartments separated by a fire wall must be at least that set out in Table C3.3 unless-<br>+ Those parts of each wall have an FRL of at least 60/60/60; and<br>+ Any openings protected in accordance with C3.4.<br>Method of measurement between adjoining fire comportments is set out below: - | **Performance Solution**<br>Protection of openings in external walls of different fire compartments will be required in the following locations (circled in blue). |

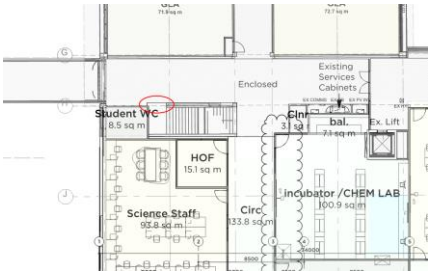
| Angle between walls | Min. Distance |
|---|---|
| $0^0$ (walls opposite) | 6m |
| More than $0^0$ to $45^0$ | 5m |
| More than $45^0$ to $90^0$ | 4m |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | More than $90^0$ to $135^0$ — 3m<br>More than $135^0$ to $180^0$ — 2m<br>$0^0$ or more — Nil |  <br>**Figure 9 - Level 1**<br>  <br>**Figure 10 - Level 2**<br>  <br>**Figure 11 - Level 3**<br>  <br>**Figure 12 - Level 4**<br>A Performance Solution may be documented to allow rationalisation of protection of openings in the above external walls. In this regard, we understand that protection will generally be proposed at the new addition in lieu of both new and existing external walls. |
| **C3.4** Acceptable methods of protection | Where protection is required, doorways, windows and other openings must be protected as follows:<br>+ Doorways –<br>▪ Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or<br>▪ -/60/30 fire doors that are self-closing or automatic closing.<br>+ Windows – | **Compliance Readily Achievable**<br>Refer also to clauses C3.2, C3.3 and D1.7 which outline where protection is required.<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | ▪ Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or<br>▪ -/60/- automatic closing fire shutters.<br>+ Other openings –<br>▪ Excluding voids – internal or external wall-wetting sprinklers, as appropriate; or<br>▪ Construction having FRL not less than -/60/-. | |
| **C3.5** Doorways in fire walls | Openings in fire walls, that are not part of a horizontal exit, must be protected in accordance with one of the methods set out in this clause.<br>Doorways in fire walls, that are not part of a horizontal exit, must:<br>+ In aggregate door width, not exceed ½ of the length of the fire wall.<br>+ Be protected by fire doors achieving the FRL required for the wall in accordance with Spec C1.1 for Type A Construction.<br>+ Be self-closing or automatically close on the activation of a smoke detector and applicable sprinkler system. | **Compliance Readily Achievable**<br>All doorways within the required fire walls are required to achieve a minimum -/120/30 FRL (2hrs).<br>Any existing fire doors in the proposed fire wall locations will need to be verified as achieving the required FRL or replaced with new fire doors.<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **C3.6**<br>Sliding fire doors | If doorway in a fire wall is fitted with a sliding fire door which is held in the open position whilst the building is occupied, the door must:<br>+ Be held open with an electromagnetic device, which upon de-activation, must close the door in not less than 20 seconds.<br>+ Fail-safe to the closed position.<br>+ Be provided with an audible warning device and a red flashing warning device on each side of the doorway.<br>+ Signs must be installed on each side of the doorway over the opening stating:<br>**'WARNING – SLIDING FIRE DOOR'**<br>(Capital letters. 50mm high. Colour contrasting with background)<br>+ Be de-activated by heat or smoke detector activation and the activation of an applicable sprinkler system. | **Not Applicable** |
| **C3.7** Protection of doorways in horizontal exits | A doorway that is part of a horizontal exit must be protected by:<br>+ A fire door with an FRL as required for the wall under Spec C1.1, except that the door must have an insulation level of at least 30; or;<br>+ Be self-closing, or automatic-closing activated by heat or smoke detector activation and the activation of an applicable sprinkler system. | **Not Applicable**<br>Horizontal Exits are not permitted to be counted as required exits in Class 9b primary and secondary schools. |
| **C3.8**<br>Openings in fire isolated exits | Doorways that open to fire-isolated exits (excluding those that open to a road or open space), must be protected by -/60/30 self-closing, or automatic closing fire doors.<br>A window in an external wall of a fire-isolated exit must be protected in accordance with C3.4 if it is exposed to and within 6m of another opening in wall of the same building. (excludes openings in the same fire-isolated exit) | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **C3.9**<br>Service penetrations in fire isolated exits | Fire isolated exits may only be penetrated by:<br>+ Electrical wiring permitted by D2.7 (e).<br>+ Ducting associated with a pressurisation system.<br>+ Water supply pipes for fire services. | **Compliance Readily Achievable** |
| **C3.10** Openings in fire isolated lift shafts | Doorways - Lift shafts required to be fire-isolated must be protected by -/60/- self-closing fire doors complying with AS1735.11. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | Lift Indicator Panels – If exceeding 35,000mm², lift indicator panels must be backed by no less than FRL-/60/60 construction. | |
| **C3.11** Bounding construction: Class 2, 3 and 4 parts | Applies to Class 2 & 3 and 4 parts buildings. | **Not Applicable** |
| **C3.12** Openings in Floors and Ceilings for Services | Where a service passes through:<br>+ A floor required to have an FRL (integrity and insulation), or;<br>+ A ceiling required to have a resistance to the incipient spread of fire,<br>That service must be protected:<br>+ In a building of Type A construction, by a shaft complying with Spec C1.1, or<br>+ in accordance with C3.15. | **Compliance Readily Achievable** |
| **C3.13** Openings in Shafts | In a building of Type A Construction, service shafts must be protected by:<br>+ A fire door, hopper or access panel achieving FRL - 60/30.<br>+ If in a sanitary compartment - a non-combustible door and frame achieving an FRL of -/30/30.<br>+ If the shaft is a garbage shaft – a non-combustible door or hopper. | **Compliance Readily Achievable** |
| **C3.15** Openings for Service Installations | When a service penetrates a building element that is required to have an FRL with respect to integrity or insulation or a resistance to the incipient spread of fire, that penetration must:<br>+ Be identical to a tested prototype assembly, tested in accordance with AS4072.1 and AS1530.4.<br>+ In the case of ventilating or air-conditioning ducts/equipment, the installation must comply with AS1668.1. | **Compliance Readily Achievable** |
| **C3.16** Construction Joints | Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL. | **Compliance Readily Achievable** |
| **C3.17** Columns Protected with Lightweight Construction to Achieve an FRL | A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire. | **Compliance Readily Achievable** |
| ***Spec.*** | ***Specifications*** | |
| **Spec C1.1** Fire-Resisting Construction | The new building works are required to comply with the requirements detailed under Table 3 of Specification C1.1 for Type A Construction (see Appendix 3).<br>The following should also be noted with respect to the proposed development: | **Further Information Required** |
| **SECTION D** | **ACCESS AND EGRESS** | |
| ***Part D1*** | ***Provisions for Escape*** | |
| **D1.2** Number of Exits Required | In addition to horizontal exits, following buildings/areas are required to be provided with two exits-<br>+ Class 9b- | **Complies**<br>The minimum number of exits proposed comply with the requirements of this clause. |

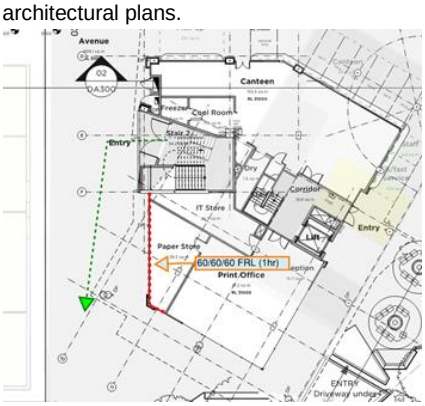
| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | ▪ Each storey in a primary or secondary school with a rise in storeys of 2 or more.<br>▪ Any storey or mezzanine that accommodates more than 50 persons, calculated under D1.13. | Refer to Appendix 4 for exit locations. |
| **D1.3** When Fire Isolated Exits are Required | Every stairway or ramp serving as a required exit must be fire-isolated unless it connects or passes by not more than 2 storeys, and one additional storey of any class may be included if:<br>▪ The building has a sprinkler system; or<br>▪ The required exit does not provide access to or egress for, and is separated from, the extra storey by construction having—<br>(A) an FRL of –/60/60, if non-loadbearing; and<br>(B) an FRL of 90/90/90, if loadbearing; and<br>(C) no opening that could permit the passage of fire or smoke | **Compliance Readily Achievable**<br>The two exit stairways that will serve the proposed addition comprise stair 2 and the existing open stair at Gridline 11.<br>Stair 2 will be comprise a fire isolated exit as the stairway connects more than two storeys in a non-sprinkler protected building.<br>The existing stair at Gridline 11 is not required to be fire isolated provided that it is fire separated from the remainder of the storey at Level 1 (as indicated below).<br>  <br>**Figure 13** |
| **D1.4** Exit Travel Distances | For Class 5, 6, 7, 8 or 9b / 9c buildings:<br>+ Maximum 20m to an exit or to a point of choice between alternative exits.<br>+ Maximum distance to one of those exits is 40m. | **Performance Solution Required**<br>Exit travel distances do not comply with the DtS provisions in the following locations:<br>+ Level 3 Staff Room: Maximum 32m to a point of choice in lieu of DTS maximum of 20m.<br>+ Level 3: Maximum 43m to one of two alternative exits in lieu of DtS maximum of 40m.<br>+ Level 4 Switchroom (Option 2): 45m to the exit/point of choice to alternative exits in lieu of DtS maximum of 20m. |
| **D1.5** Distances Between Alternative Exits | Exits that are required as alternative means of egress must be-<br>+ Distributed as uniformly as practical within the storey served.<br>+ Located so that unobstructed access to 2 exits is available from all points.<br>+ Not less than 9m apart.<br>+ Not more than 60m.<br>Located so that alternative paths of travel do not converge <6m. | **Performance Solution**<br>Distances between alternative exits do not comply with the DtS provisions in the following locations:<br>+ Level 1: Maximum 71m between alternative exits in lieu of DTS maximum of 60m.<br>+ Level 3: Maximum 62m between alternative exits in lieu of DTS maximum of 60m.<br>+ Level 4 (Option 2): Maximum 74m between alternative exits in lieu of DTS maximum of 60m. |
| **D1.6** Dimensions of Exits | The unobstructed height throughout a required exit must not be less than 2m and not less than 1980mm for a doorway.<br>The unobstructed with of paths of travel must be not less than 1m.<br>The doorways in the building must have a minimum unobstructed clear opening as follows: | **Does Not Comply**<br>The clear width at the base of the exit stairway (circled below) connecting Levels 2 & 3 is currently 1.4m, whereas the width of the stairway is 1.8m. The clear width at the base of the stairway will need to achieve a minimum 1.5m, being the minimum required width of the exit stair. We understand that the |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | + The width of the required exit minus 250mm; or<br>+ Generally: minimum 850mm for doors in the accessible path of travel, otherwise 750mm for doors not required to be accessible for people with disabilities. | width of this opening will be increased as part of the new works. Required dimension for this opening is to be added to the plans<br>  <br><br>**Figure 14**<br>Aggregate egress width of exits per storey have been calculated as per Table below. The available egress width for Level 3 does not comply based on the proposed occupant numbers. |

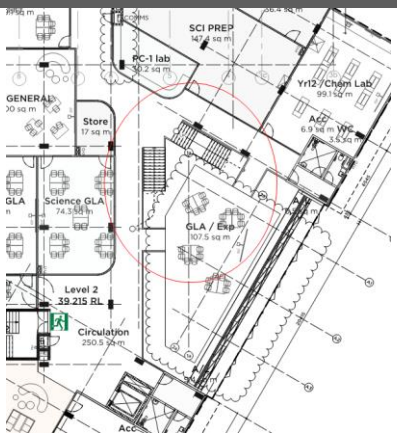
| LEVEL | POPULATION (1)<br>*New Wallace, O'Neil & Vaughan* | AGGREGATE EGRESS WIDTH REQUIRED | AGGREGATE EGRESS WIDTH AVAILABLE (2) | COMPLIES |
|---|---|---|---|---|
| **L4** | 410 | 4m | 4m | Yes |
| **L3** | 682 | 6.5m | 4.5m | No |
| **L2** | 611 | 5.5m | 7.5m | Yes |
| **L1** | 330 | 3.5m | 4m | Yes |
| **L0** | Hall: 150<br>Canteen/Office: 69 | 2m<br>1m | 2m<br>>2m | Yes<br>Yes |
| **L-1** | 3 | 1m | >2m | Yes |

*(3) Source: College Brief 20/3/2020*

*(4) Refer to Appendix 4*

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **D1.7**<br>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/lobby, sole-occupancy unit occupying all of a storey or a sanitary compartment/airlock.<br>Each fire isolated stairway or ramp must provide independent egress from each storey served and must discharge to –<br>+ A road or open space; or<br>+ To a point in a space within the building that is only used for pedestrian movement or car parking that is open a minimum of 2/3 of its perimeter and from which a path of travel under 20m is available to a road or open space; or<br>+ A covered area that adjoins a road or open space, is open for a minimum of 1/3 of its perimeter, has an unobstructed height of at least 3m throughout and provides a path of travel the point of discharge to a road or open space within 6m.<br>Where a path of travel from the point of discharge of a fire isolated exit necessitates passing within 6m of any part of an external wall of the same building, that part of the wall must have –<br>+ an FRL of not less than 60/60/60; and<br>+ Any openings protected internally in accordance with BCA Clause C3.4,<br>for a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. | **Compliance Readily Achievable**<br>The proposed fire isolated exit Stair 2 discharges directly outside and access.<br>It is noted that the wall bounding the Paper Store is proposed to be fire rated which will allow occupants to pass within 6m of the wall following discharge from Stair 2.<br>The fire rating to the wall (identified in red in Figure 5) must comprise an FRL of not less than 60/60/60 for a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser.<br>This requirement is to added to the detailed architectural plans.<br>  <br>**Figure 15** |
| **D1.8**<br>External Stairways or Ramps in Lieu of Fire-Isolated Stairways | An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit serving a storey below an effective height of 25m provided that it is constructed in accordance with the following.<br>+ The external stair is to achieve a minimum FRL of 60/60/60 – when tested from the inside;<br>+ Stair to be non-combustible;<br>+ Exit doors to the stair is to be self-closing -/60/30 fire door;<br>+ No openings to occur in the external wall of the building within 3m for the exit.<br>If openings are within 3-6m of the exit they are to be protected in accordance with BCA Clause C3.4 (if drenchers are used, they are to be located internally). Opens are restricted from being within 0-3m of the exit. | **Not Applicable** |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **D1.9** Travel by Non-Fire Isolated Stairways or Ramps | + A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided.<br>+ In a Class 5 / 6 / 8 / 9 building, the distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or ramp must not exceed 80m.<br>+ A required non-fire isolated stairway or non-fire-isolated ramp must discharge at a point not more than 20m from a doorway or fire-isolated exit providing egress to road or open space, or 40m from one of 2 such exits if travel to each is in opposite or approximate opposite directions. | **Performance Solution**<br>The existing open stairway connecting Levels 3 & 4 (circled below) does not comply with these provisions as the stairway serves as a required exit and does not discharge to the level at which egress to a road or open space is provided.<br>  <br>**Figure 16**<br>Note: This stairway is currently smoke separated from the remainder of the storey at Level 3. This separation is not a requirement of the BCA DtS provisions, and as such, it is assumed that it may have been a requirement of previous fire safety engineering that has been undertaken. |
| **D1.10** Discharge from Exits | The path of travel to the road from a required exit leading to open space must have an unobstructed exit width of that of the required exit, or if larger, 1m.<br>If the discharge point of the exit is at a different level from the road, a stairway or ramp achieving no more than 1:14 must be provided.<br>The discharge point of alternative exits must be located as far apart as practical and be suitably protected from vehicles potentially blocking the exit. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D1.11** Horizontal Exits | Horizontal Exits are not permitted to be counted as required exits in Class 9b primary and secondary schools. | **Not Applicable** |
| **D1.12** Non-Required Stairways, Ramps or Escalators | An escalator, moving walkway or non-required non fire-isolated stairway or ramp-<br>+ Class 5 / 6 sprinkler protected – May connect to any number of storeys.<br>+ Class 2/3 / 4 / 5 / 6 / 7b / 8 / 9 and non-sprinkler protected – May connect two storeys, provided they are consecutive and one storey is situated at a level with direct egress to a road or open space.<br>+ Class 2 / 3 / 4 / 7b / 8 / 9 and sprinkler protected – May connect three storeys, provided they are consecutive and one storey is situated at a level with direct egress to a road or open space. | **Performance Solution**<br>The proposed non-required non-fire isolated stairway connecting Levels 1 to 3 (circled below) does not comply with the BCA DtS provisions as it connects more than two storeys in a non-sprinkler protected building. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | |  <br>**Figure 17**<br>Furthermore, this stairway indirectly connects with Stair 1, which serves Levels 0 & 1. |
| **D.13**<br>Number of Persons Accommodated | Outlines the number of persons accommodated in a storey as per D1.13 of BCA 2016. | **Note**<br>Refer to Table in Clause D1.6 above & F2.3 below for occupant numbers. |
| **D1.16**<br>Plant Rooms & Lift Motor Rooms Concession | A ladder may be used in lieu of a stairway to provide egress from a plant room with a floor area of not more than 100m$^2$ or all but one point of egress from a plant room or a lift machine room with a floor area not more than 200m$^2$.<br>Sub-clause (b) sets out the parameters for the ladders permitted to be used in this circumstance. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D1.17**<br>Access to Lifts Pits | Access to lift pits with a depth of under 3m must be provided through the lowest landing doors. If a lift pit exceeds 3m in depth, access must be provided in accordance with sub-clause (b). | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| ***PART D2*** | ***Construction of Exits*** | |
| **D2.1** Application of Part | With the exception of specified clauses in this part the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of sole-occupancy units Class 2 & Class 3 buildings and Class 4 parts of buildings. | **Noted** |
| **D2.2**<br>Fire Isolated Stairways & Ramps | A stairway or ramp, including landings that are required to be within a fire-resisting shaft must be constructed of non-combustible materials to protect the structural integrity of the shaft. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.3**<br>Non-Fire-Isolated Stairways and Ramps | This clause requires that required non-fire-isolated stairways and ramps must be either constructed in accordance with D2.2 or the alternative options set out in D2.3 (a) to (c).<br>In a building with a rise in storeys of more than 2, required non-fire-isolated stairways and ramps must be either constructed in accordance with D2.2 or –<br>+ Reinforced or prestressed concrete; or<br>+ Steel at least 6mm thick at all points; or<br>+ Timber that has a finished thickness of at least 44mm, has an average density of at least 800 kg/m$^3$ at a moisture content of 12% and has not been joined by means of glue unless it has been laminated and glued with resorcinol/phenol formaldehyde. | **Complies**<br>These provisions will apply to the non-fire isolated stairway at Gridline 11. This stairways currently comprises a concrete stairway. |
| **D2.4** | In a required fire-isolated stairway there must be no direction connection between – | **Complies** |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| Separation of Rising and Descending Stair Flights | + A flight rising from a storey below the level of access to open space; and<br>+ A flight descending from a storey above that level.<br>Any construction that separates or is common to the rising and descending flights must be non-combustible and smoke proof. | |
| **D2.5**<br>Open Access Ramps and Balconies | Where an open access ramp or balcony is provided to meet smoke hazard management requirements, it must have ventilation openings to the outside air with a total unobstructed area not less than the floor area of the ramp or balcony and be evenly distributed along the open sides.<br>It must not be enclosed on its open sides above a height of 1m except by an open grille or the like having a free air space of not less than 75% of its area. | **Not Applicable** |
| **D2.6**<br>Smoke Lobbies | A smoke lobby required by clause D1.7 must have the following -<br>+ A floor area of at least $6m^2$.<br>+ Be separated from the occupied areas in the storey by walls that are impervious to smoke.<br>+ Have an FRL of at least 60/60/-<br>+ Extend from slab to slab or to the underside of a ceiling and any construction joints must be smoke sealed.<br>Any opening from the occupied areas must have smoke doors with a smoke sensing device only required on the approach side of the opening and be pressurised as part of the exit if the exit is required to be pressurised. | **Not Applicable** |
| **D2.7** Installations in Exits and Paths of Travel | If installed in a path of travel to an exit, electrical distribution boards, communication cupboards and the like containing motors, etc. are to be enclosed with non-combustible construction, and doors are to be provided with smoke seals to the perimeter. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.8**<br>Enclosure of Space Under Stairs and Ramps | The space below a required fire-isolated stairway or ramp in a fire-isolated shaft must not be enclosed to form a cupboard or other enclosed space.<br>If the required stairway or ramp is non-fire-isolated, (including an external stairway) any cupboard underneath must have an FRL of 60/60/60, with a self-closing -/60/30 door. | **Complies** |
| **D2.9**<br>Width of Required Stairways and Ramps | A required stairway or ramp that exceeds 2m in width is considered as having a width of only 2m unless it is divided by a handrail or barrier and each division has a width not more than 2m. | **Note** |
| **D2.10**<br>Pedestrian Ramps | A fire-isolated ramp may be substituted for a fire-isolated stairway is the enclosing structure satisfies the requirements of a fire-isolated stairway.<br>A ramp serving as an exit must have a gradient not steeper than 1.8, and where the ramp serves as an accessible ramp, be in accordance with AS 1428.1.<br>The floor surface of the ramp must have a slip-resistance classification not less than that listed in Table D2.14 of the BCA 2016. | **Not Applicable** |
| **D2.11**<br>Fire-Isolated Passageways | The enclosing construction of a fire-isolated passageway must have an FRL when tested for a fire outside the passageway in another part of the building of-<br>+ If the passageway discharges from a fire-isolated stairway or ramp – not less than that required for the stairway or ramp shaft; or<br>+ In any other case – not less than 60/60/60. | **Not Applicable** |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | Notwithstanding the above, the top construction of a fire-isolated passageway need not have an FRL if the walls of the fire-isolated passageway extend to the underside of-<br>+ A non-combustible roof covering; or<br>+ A ceiling having a resistance to the incipient spread of fire of not less than 60 minutes separating the roof space or ceiling space in all areas surrounding the passageway within the fire compartment. | |
| **D2.12** Roof as Open Space | If an exit discharges to a roof, it must have an FRL of at least 120/120/120 and not have any roof-lights or other openings within 3m of the path of travel of persons using the exit to reach a road or open space. | **Not Applicable** |
| **D2.13** Goings and Risers | The stairs must comply with the tread, riser and going dimensions of this clause and the nosing of the stairs must be provided with a non-slip treads and meet the provisions of AS1428.1-2009.<br>The following will apply in relation to the construction of all stairways:<br>+ Stairway must have not more than 18 and not less than 2 risers in each flight.<br>+ Goings and risers within the stair flights must be constant throughout.<br>+ Risers must be solid construction with no gaps and treads must have non slip finishes and stair nosings.<br>Goings and risers are to be in accordance with BCA Table D2.13 | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.14** Landings | In a stairway –<br>+ Landings must be a minimum of 750mm long, and where it involves a change of direction the length is measured 500mm from the inside edge of the landing<br>+ Have a slip resistance of the surface of the nosing strip in accordance with Table D2.14 and tested in accordance with AS 4586. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.15** Thresholds | The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless –<br>+ In a building required to be accessible –<br>▪ The doorway opens to a road or open space; and<br>▪ Is provided with a threshold ramp or step ramp in accordance with AS 1428.1.<br>+ In other cases –<br>▪ the doorway opens to a road or open space, external stair landing or external balcony; and<br>▪ the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.16** Balustrades | This clause details where balustrades are required to be provided and sets out in specific detail the construction requirements. Typically, the following will apply:<br>+ Balustrades are required where the fall to the level below is more than 1m in height. The minimum height of a balustrade is 1m above the floor of the landing, | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

| Application | Surface Conditions | |
|---|---|---|
| | Dry | Wet |
| Ramps steeper than 1:14 | P4/R11 | P5/R12 |
| Ramp steeper than 1:20 but not steeper than 1:14 | P3/R10 | P4/R11 |
| Tread or landing surface | P3/R10 | P4/R11 |
| Nosing or landing strip | P3 | P4 |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | walkway or the like; and 865mm above the floor of a stairway or a ramp.<br>+ For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface.<br>+ Where the floor is more than 4m above the surface beneath the balustrade any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.<br>+ Balustrades must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like. | |
| **D2.17** Handrails | Handrails must be located along at least one side of a ramp or flight unless the width is 2m or more requiring handrails on both sides.<br>Class 9b primary school requires one handrail fixed at a minimum height of 865mm and a second handrail fixed between 665mm and 750mm.<br>(other cases) Handrails must fixed at a minimum height of 865mm and be continuous between stair flight landings and have no on or above them that may break the hand hold. If in a required exit serving an accessible area, must comply with AS 1428.1.<br>These requirements do not apply to handrails referred to in D2.18, a stairway or ramp providing a change in elevation of less than 1m, a land or a winder where a newel post is installed to provide a handhold. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.18** Fixed Platforms, Walkways Stairways and Ladders | A fixed platform, walkway, stairway, ladder, any going and riser, any balustrade or other barrier attached thereto may comply with AS1657 if it only serves a machinery or plant room. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.19** Doorways and Doors | A doorway serving as a required exit or forming part of a required exit —<br>(i) must not be fitted with a revolving door; and<br>(ii) must not be fitted with a roller shutter or tilt-up door unless—<br>(A) it serves a Class 6, 7 or 8 building or part with a floor area not more than 200 m2; and<br>(B) the doorway is the only required exit from the building or part; and<br>(C) it is held in the open position while the building or part is lawfully occupied; and<br>(iii) must not be fitted with a sliding door unless—<br>(A) it leads directly to a road or open space; and<br>(B) the door is able to be opened manually under a force of not more than 110 N; and<br>(iv) if fitted with a door which is power-operated—<br>(A) it must 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<br>(B) if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

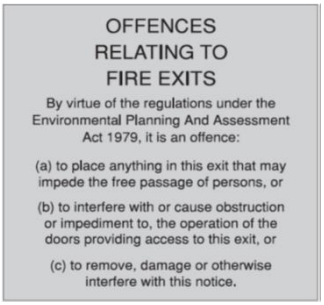
| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | alarm anywhere in the fire compartment served by the door.<br><br>A power-operated door in a path of travel to a required exit, except for a door in a patient care area of a Class 9a health-care building as provided in (b), must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source. | |
| **D2.20** Swinging Doors | A swinging door forming part of a required exit must not encroach the required width of a required exit by way of the swing of the door, or the door itself including associated hardware whilst in the open position. Also, must not swing against the direction of egress unless permitted to do so under sub-clause (b). | **Complies** |
| **D2.21** Operation of Latch | A door forming part of a required exit must be readily openable via the provision of single downward lever action hardware located between 900mm and 1.1m from FFL in area required to be accessible, otherwise single pushing action hardware between 900mm and 1.2m form FFL is permitted.<br>The requirements of sub-clause (a) do not apply to the items listed under sub-clause (b) providing concessions for high-security areas, SOUs, fail-safe devices, and the like. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **D2.22**<br>Re-entry From Fire-Isolated Exits | This clause applies to buildings over 25m Effective Height, Class 9a and Class 9c buildings. | **Not Applicable** |
| **D2.23**<br>Signs on doors | It is a requirement that signs to alert persons that the operation of smoke doors, fire doors, and doors discharging from fire isolated exits, must not be impaired must be installed where they can be readily seen. | **Compliance Readily Achievable**<br>Details to be included into the design documentation for Construction Certificate. |

a) 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, a—
   (i) A required fire door providing direct access to a fire-isolated exit; and
   (ii) A required smoke door, on the side of the door that faces a person seeking egress and, if the door is fitted with a device for holding it in the open position, on either the wall adjacent to the doorway or both sides of the door; and
   (iii) Fire door forming part of a *horizontal exit*; and
   (iv) Smoke door that swings in both directions; and
   (v) Door leading from a fire isolated *exit* to a road or *open space*, on each side of the door.

b) A sign referred to in (a) must be in capital letters not less than 20 mm high in a colour contrasting with the background and state—

Any new self-closing fire and/or smoke doors leading into the fire stair or forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows:


Any new automatic closing fire and/or smoke doors which are held on hold open devices that leads into the fire stair or forming part of a Horizontal Exit or smoke compartment are to be provided with signage as follows:

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | In addition to the above, the doors which provide access to the fire isolated exits and also the Horizontal Exits must have signage provided adjacent to the entry doorway which states the following (ref Clause 183 of EP&A Reg 2000):<br>  <br>OFFENCES RELATING TO FIRE EXITS<br>By virtue of the regulations under the Environmental Planning And Assessment Act 1979, it is an offence:<br>(a) to place anything in this exit that may impede the free passage of persons, or<br>(b) to interfere with or cause obstruction or impediment to, the operation of the doors providing access to this exit, or<br>(c) to remove, damage or otherwise interfere with this notice. | |
| **D2.24**<br>Protection of Openable Windows | In a Class 2/3/4/(9b early childhood centre), a window must be provided with protection if the floor below the window is 2m or more above the surface beneath.<br>Where the lowest level of the window opening is less than 1.7m above the floor, a window opening must be protected in accordance with sub-clause (b).<br>A barrier no less than 865mm is required to an openable window when a child resistant release mechanism is required, as well as when the floor below the window is >4m above the surface beneath.<br>A barrier required by this part is to comply with sub-clause (d) & (e). | **Not Applicable** |
| **D2.25**<br>Timber Stairways: Concession | (a) Notwithstanding D2.2(a), timber treads, risers, landings and associated supporting framework which—<br>(i) has a finished thickness of not less than 44 mm; and<br>(ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%, may be used within a required fire-isolated stairway or fire-isolated passageway constructed from fire-protected timber in accordance with C1.13 subject to—<br>(iii) the building being protected throughout by a sprinkler system (other than a FPAA101D system) complying with Specification E1.5 which extends to within the fire-isolated enclosure; and<br>(iv) fire protection being provided to the underside of stair flights and landings located immediately above a landing level which—<br>(A) is at or near the level of egress; or<br>(B) provides direct access to a carpark.<br>(b) Fire protection required by (a) must be not less than one layer of 13 mm fire-protective grade plasterboard fixed in accordance with the system requirements for a fire-protective covering. | **Compliance Readily Achievable** |
| ***PART D3*** | ***Access for People with Disabilities*** | |
| **D3**<br>General Building Access Requirements | BCA Part D3 contains the provisions relating to access for people with disabilities, including access to and within the building, ramps and stairways, accessible signage, car parking, glazing adjoining accessways, etc. | No assessment has been undertaken by BM+G in relation to compliance with Part D3 and AS 1428.1-2009.<br>Reference should be made to the Access Report prepared by Access Consultant appointed to the project. |

| CLAUSE | REFERENCE | COMMENT |
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| **SECTION E** | **SERVICES AND EQUIPMENT** | |
| ***Part E1*** | ***Fire Fighting Equipment*** | |
| **E1.3**<br>Fire Hydrants | A Hydrant system complying with AS 2419.1 – 2005 is required where the total floor area of the building exceeding 500msq.<br>Any required Fire Hydrant Booster assembly that is required must be affixed to the external wall and protected by a radiant heat shield that has an FRL of 90/90/90 located 2 metres either side and 3 metres above the outlets. Alternatively, the booster needs to be located at least 10m away from the building and any high voltage power supply.<br>Any Internal Hydrants are to be located within the fire isolated exits or within 4m of the top riser of the non-fire isolated exits (external stairs in lieu of fire stairs). In addition, if floor coverage cannot be achieved supplementary fire hydrants may be provided to suit the operational requirements of the NSW Fire Brigades.<br>External attack hydrants are required to be located not less than 10 metres from the building or protected by construction having an FRL of not less than 90/90/90 and extending 2 metres each side of the hydrant outlets and extending 3 metres above ground level. In addition, Hydrants must be located not less than 10 metres from high voltage main electrical distribution equipment or liquefied petroleum gas.<br>Where required, a hydrant pump room is required to have a door opening to a road or open space, or a door opening direct into a fire isolated airlock connected to a fire stair. | **Further information required**<br>Fire hydrants are required to serve the building and be design and installed in accordance with BCA clause E1.3 & AS 2419.1-2005.<br>Hydraulic Consultant is to review the existing fire hydrant system and provide a gap analysis as to current level of compliance vs. compliance with AS 2419.1-2005.<br>Fire hydrant coverage plans will also be required from the Hydraulic Consultant demonstrating compliance with AS 2419.1-2005 will be required to be provided prior to the issue of a Construction Certificate. The fire hydrant coverage plans are to incorporate the following:<br>+ Fire Hydrant Booster Location<br>+ Fire pump location<br>+ Fire hydrant locations<br>+ Hose layout plans showing how coverage is achieved throughout the building<br>Note:<br>1. Fire Hydrants must be located within the proposed fire isolated exit stair.<br>2. Any remote Fire Hydrants required for coverage should be located within 25m of the of a fire hydrant within the fire stairs. |
| **E1.4**<br>Fire Hose Reels | Does not apply to Class 2, 3, 4, 8 (electricity network substation), 9c or classrooms and associated corridors in a school.<br>A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m².<br>Fire Hose Reels are to be located within 4m of an exit, or located adjacent to an internal hydrant (other than one within a fire isolated exit). Where system coverage is not achieved by the above, additional FHR may be located in paths of travel to an exit. Fire hose reels must be located internally, externally or in any combination to achieve the system coverage specified in AS 2441.<br>Fire hose reels must not pass through any fire or smoke doors except if it is a doorway referred to in BCA Clause C2.5 (a)(v), C2.12, C2.13 or C3.13.<br>Fire hose reels must only serve the storey on which they are located except for an SOU or not more than 2 storeys for a Class 5 / 6 / 7 / 8 or 9 may be served by a single fire hose reel located at the level of egress. | **Further information required**<br>Fire hose coverage plans showing the following:<br>+ Fire Hose Reel Locations<br>+ Hose layout plans showing how coverage is achieved throughout the building.<br>Note:<br>1. FHR's are not required to classrooms and associated corridors in a primary or secondary school.<br>2. Where required, FHR's must be positioned within 4m of required exits (however not within the fire stairs). The referenced plans do not comply in this regard. |
| **E1.5**<br>Sprinklers | A sprinkler system must be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5.<br>Table E1.5 requires sprinkler protection to atriums. | **Performance Solution**<br>The building contains an atrium connecting 3 storeys however it is noted that the development is not proposed to be sprinkler protected. |
| **E1.6**<br>Portable Fire Extinguishers | Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |

| CLAUSE | REFERENCE | COMMENT |
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| **E1.8**<br>Fire Control Centres | A fire control centre facility in accordance with Spec E1.8 must be provided for building with a total floor area of >18,000m$^2$. | **Not Applicable**<br>The combined floor area of the proposed Ignis Stage 2 building, O'Neil, Vaughan and Therry buildings (which all form one building) is less than 18,000m2 (approx. 15,924m$^2$). |
| **E1.9**<br>Fire Precautions During Construction | In buildings under construction at least 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 a required exit and if the building has reached an effective height of 12m the required hydrant and hose reel systems must be installed, as set out in (b)(ii) and be operational and any required booster connections must be installed. | **Contractor to Note** |
| **E1.10**<br>Provisions for Special Hazards | Suitable additional provisions must be made for fire-fighting if unique problems could arise due to;<br>+ The nature or quantity of materials stored, displayed or used in a building on the allotment; or<br>+ The location of the building in relation to a water supply for firefighting purposed. | **Further Information Required**<br>Suitable additional provisions must be made for fire-fighting if unique problems could arise due to;<br>+ The nature or quantity of materials stored, displayed or used in a building on the allotment; or<br>+ The location of the building in relation to a water supply for firefighting purposed.<br>In this regard, it is noted that the following areas have been identified for potential hazardous chemical storage:<br>+ Chemical Store & prep room,<br>+ Basement Cleaners store;<br>Advice from a Dangerous Goods Consultant is required to determine whether any additional measures are required, particularly having regard to AS 1940:2017 Flammable or combustible liquids storage and handling design, construction and operation requirements. |
| ***Part E2*** | ***Smoke Hazard Management*** | |
| **E2.2**<br>General Requirements for Smoke Hazard Management (including Tables E2.2a & E2.2b) | + An air handling system which does not form part of a smoke hazard management system and 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 on fire compartment to another fire compartment must be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1 or incorporate smoke dampers where the air-handling ducts penetrate elements separating the fire compartments served and be arranged such that air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with AS 1670.1.<br>+ Any proposed miscellaneous air-handling systems covered by Sections 5 and 6 of AS/NZS 1668.1 which serve more than one fire compartment and do not form part of a smoke hazard management system must comply with Sections 5 and 6 of AS/NZS 1668.1.<br>+ Ducted air-handling systems (other than non-ducted individual room units <1,000l/s) must be designed to the new building, the system must be shut down automatically upon the activation of smoke detectors | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |

| CLAUSE | REFERENCE | COMMENT |
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| | installed complying with Cl. 5 of Spec. E2.2a, i.e. AS1668.1-2015).<br>+ An automatic smoke detection and alarm system is required throughout the development in accordance with BCA Spec. E2.2a, AS 1670.1-2018 and any relevant fire engineering requirements.<br>+ As each of the proposed fire compartments exceed 2,000m$^2$, the Other Assembly Buildings provisions need to be considered. These provisions are provided below:<br>(*a*) *Unless otherwise described in (b), in a building or part of a building used as an assembly building (not being a night club, discotheque or the like; or an exhibition hall, museum or art gallery) where the floor area of a fire compartment is more than 2000m$^2$, the fire compartment must be provided with—*<br>*(i) an automatic smoke exhaust system complying with Specification E2.2b; or*<br>*(ii) roof mounted automatic smoke-and-heat vents complying with SpecificationE2.2c, in a single storey building or the top storey of a multi storey building; or*<br>*(iii) if the floor area of the fire compartment is not more than 5000m2 and the building has a rise in storeys of not more than 2—*<br>*(A) an automatic smoke detection and alarm system complying with SpecificationE2.2a; or*<br>*(B) a sprinkler system complying with Specification E1.5.*<br>*(b) The following buildings are exempt from the provisions of (a):*<br>*(i) Sporting complexes, (including sports halls, gymnasiums, swimming pools, ice and roller rinks, and the like) other than indoor sports stadiums with total spectator seating for more than 1000 persons.*<br>*(ii) Churches and other places used solely for religious worship.*<br>*(iii) School classrooms.*<br>*Note: Smoke hazard management provisions for an assembly building used for multiple purposes must comply with all the relevant provisions of NSW Table E2.2b according to usage.* | Furthermore, the fire services design consultant is to review the existing system and provide against the current provisions of AS 1670.1-2018 and provide a gap analysis to identify any deficiencies and capacity of the existing system.<br>Note: The Class 9b parts of the proposed building comprises classrooms and therefore the Other Assembly Building provisions do not apply in this instance. |
| **E2.3**<br>Provision for Special Hazards | Additional smoke hazard management measures may be necessary due to the nature of a buildings special characteristic, its use, the nature of materials being stored in them and special mix of classifications. | **Noted** |
| ***Part E3*** | ***Lift Installations*** | |
| **E3.2**<br>Stretcher Facilities in Lifts | Stretcher facilities, complying with this clause, must be provided in lifts in at least one emergency lift as required by E3.4 or in building where lifts serve any storey above an effective height of 12m.<br>A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mmm long x 1400mm high above the floor level. | **Compliance Readily Achievable**<br>Applies as the building has an Effective Hight of more than 12m.<br>Design statement to be provided at Construction Certificate stage. |

| CLAUSE | REFERENCE | COMMENT |
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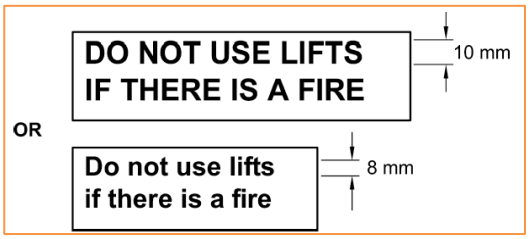
| **E3.3** Warning Against Use of Lifts in Fire | Warning signs required be provided must be displayed where they can be readily seen and must comply with the details and dimensions of Figure E3.3 below.<br>  | **Compliance Readily Achievable**<br>Detail to be included in the design. |
| **E3.4** Emergency Lifts | An emergency lift (complying with AS1735.2 or Appendix A of AS1735.1) must be installed in:<br>+ A building exceeds 25m in effective height; and<br>+ A class 9a building which has patient care areas located on a level that does not have direct egress to a road or open space. | **Not Applicable** |
| **E3.5** Landings | E3.5(a) The provisions of clause 12.2 –<br>"Access" of AS 1735.2 do not apply.<br>E3.5(b) The provisions of Clause A3.2 – "Access to landings" of Appendix A of AS 1735.1 do not apply.<br>E3.5(c) Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Part D. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E3.6** Passenger Lifts | In an accessible building, every passenger lift must be one of the types identified in Table E3.6a, have accessible features in accordance with Table E3.6b and not rely on a constant pressure device for its operation if the lift car is fully enclosed. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E3.7** Fire Service Controls | In passenger lifts designed in accordance with AS 1735 Parts 1 and 2, all lift cars serving any storey above an effective height of 12m must be provided with fire service controls. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E3.8** Aged Care Buildings | Where residents in a Class 9c building are on levels which do not have direct access to a road or open space, the building must have at least one lift to accommodate a stretcher or a ramp in accordance with AS 1428.1 leading to an exit. | **Not Applicable** |
| **E3.9** Fire Service Recall Operation Switch | Each group of lifts must be provided with one fire service control switch (required by Clause E3.7 above) that activates the fire service recall operation. This clause details the switch, the labelling, the key and operation procedures for a fire service recall operation. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E3.10** Lift Car Fire Service Drive Control Switch | The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. This clause details the switch, the initiation, the labelling and operation for the fire service drive control switch. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| ***Part E4*** | ***Emergency Lighting, Exit Signage and Warning Systems*** | |
| **E4.2** Emergency Lighting | This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for buildings and parts of buildings are detailed in sub-clauses (a) to (i) and each sub-clause must be considered as more than one may apply to any single building. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E4.3** Measurement of Distances | Distance, other than vertical rise, must be measured along the shortest path of travel whether by straight lines, curves or a combination of both. | **Noted** |

| CLAUSE | REFERENCE | COMMENT |
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| **E4.4** Design and Operation of Emergency Lighting | Every required emergency lighting system must comply with AS2293.1 | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E4.5** Exit Signs | An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress from a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage.<br>Note: As egress will be provided via stairways located within the new addition (including the existing stair at Gridline 11), existing exit signs over link bridge doors (providing access to Wallace Building) are to be removed. |
| **E4.6** Direction Signs | If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E4.8** Design and Operation of Exit Signs | Every required exit sign must comply with AS/NZS 2293.1 and be clearly visible at all times when the building is occupied by any person having the legal right of entry into the building. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **E4.9** Sound Systems and Intercom Systems for Emergency Purposes (EWIS) | + A sound system and intercom system for emergency purposes complying with AS 1670.4 must be installed—<br>+ In a Class 9b building used as a school and having a rise in storeys of more than 3 or used as a theatre, public hall, or the like, having a floor area more than 1000m$^2$ or a rise in storeys of more than 2. | **Compliance Readily Achievable**<br>Required as the building will have a rise in storeys of<br>Design statement to be provided at Construction Certificate stage. |
| **SECTION F** | **HEALTH AND AMENITY** | |
| ***Part F1*** | ***Damp & Weather Proofing*** | |
| **FP1.4** | A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—<br>(a) unhealthy or dangerous conditions, or loss of amenity for occupants; and<br>(b) undue dampness or deterioration of building elements. | **Performance Solution**<br>As there are no corresponding DtS provisions, a Performance Solution is required to be documented demonstrating compliance with this Performance Requirement.<br>Further information can be found at:<br>https://www.abcb.gov.au/Resources/Publications/Education-Training/Weatherproofing |
| **F1.1** Stormwater Drainage | Stormwater drainage must comply with AS/NZ 3500.3 | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **F1.5** Roof Coverings | This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a), (b), (c), (d), (e) & (f) which set out the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **F1.6** Sarking | Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2 | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **F1.7** Waterproofing of Wet Areas in Buildings | This clause requires that wet areas in Class 2 to 9 buildings must be waterproofed. It prescribes the standards to which the work must be carried on the construction of rooms containing urinals and their installation. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |

| CLAUSE | REFERENCE | COMMENT |
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| **F1.9** Damp-Proofing | Moisture from the ground must be prevented from reaching:<br>+ The lowest floor timbers and the walls above the lowest floor joists; and<br>+ The walls above the damp-proof course; and<br>+ The underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.<br>Where a damp-proof course is provided, it must consist of:<br>+ A material that complies with AS 2904; or<br>+ Impervious sheet material in accordance with AS 3660.1. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **F1.10** Damp-Proofing of Floors on the Ground | If the floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870. Damp-proofing need not be provided if weatherproofing is not required or the floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **F1.13** Glazed Assemblies | Glazed assemblies in an external wall must comply with AS2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one piece framing | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| ***Part F2*** | ***Sanitary & Other Facilities*** | |
| **F2.1** Facilities in Residential Buildings | Applies to Class 2 & 9c buildings. | **Not Applicable** |
| **F2.2** Calculation of number of occupants and fixtures | This clause sets out the requirements for the calculation of the number of occupants and the number of sanitary facilities required to be installed in Class 2 to 9 buildings as per D1.13, F2.1 and F2.3 | **Noted** |
| **F2.3** Facilities in Class 3 to 9 buildings | This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with Table F2.3.<br>When accessible sanitary facilities are provided, they account once for each sex. | **Further Information Required**<br>Confirmation is required as to whether the proposed new sanitary facilities are intended to serve the student and staff population of the proposed addition only, or to supplement the existing facilities throughout the school.<br>Toilet facility calculations are to be provided for BM+G review, alternatively, please provide existing toilet numbers together with existing and proposed occupant numbers. |
| **F2.4** Accessible Sanitary Facilities | F2.4 contains the provisions relating to access for people with disabilities, particularly sanitary facilities for people with disabilities. | No assessment has been undertaken by BM+G in relation to compliance with Part D3 and AS 1428.1-2009.<br>Reference should be made to the Access Report prepared by Access Consultant appointed to the project |
| **F2.5** Construction of Sanitary Compartments | Other than in an early childhood centre, sanitary compartments must have doors and partitions that separate adjacent compartments and extend –<br>+ from floor level to the ceiling in the case of a unisex facility; or<br>+ a height of not less than 1.5m above the floor if primary school children are the principal users; or<br>+ 1.8m above the floor in all other cases. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

| CLAUSE | REFERENCE | COMMENT |
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| | The door to a fully enclosed sanitary compartment must open outwards; or slide: or be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2m, measured in accordance with Figure F2.5 between the closet pan within the sanitary compartment and the doorway. | |
| **F2.6** Interpretation: Urinals and Wash Basins | A urinal may be an individual stall or wall-hung urinal, each 600mm length of a continuous urinal trough or a closet pan used in place of a urinal.<br>A washbasin may be an individual basin or a part of a hand washing trough served by a single water tap | **Noted** |
| **F2.8**<br>Waste Management | Applies to Class 9a and 9c buildings | **Not Applicable** |
| ***Part F3*** | ***Room Sizes*** | |
| **F3.1**<br>Height of Rooms and Other Spaces. | The ceiling heights are prescribed and should be checked for all classes and parts during assessment or the design process.<br>The minimum ceiling heights in a Class 5 / 6 / 7 / 8 building are as follows:<br>+ Generally - 2.4m.<br>+ Corridor, passageways, or the like - 2.1m.<br>The minimum ceiling heights in a Class 9b building are as follows:<br>+ School classroom, or other assembly building or part accommodating not more than 100 persons - 2.4m.<br>+ Theatre, public hall, or other assembly building or part accommodating more than 100 persons - 2.7m.<br>In any building:<br>+ Bathrooms, sanitary compartments, tea preparations rooms, pantries, store rooms or the like – 2.1m,<br>+ A commercial kitchen – 2.4m,<br>+ Above a stairway, ramp, landing or the like – 2m. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| ***Part F4*** | ***Light & Ventilation*** | |
| **F4.1**<br>Natural Lighting | Natural lighting must be provided in:<br>+ Class 9b buildings — to all general-purpose classrooms in primary or secondary schools and all playrooms or the like for the use of children in an early childhood centre. | **Performance Solution Required**<br>It is noted that classrooms are generally served by windows to outside, however a Performance Solution is required with respect to non-compliant natural lighting to the Science GLA at Level 2 which is not bounded by any external windows. Furthermore, borrowed light provisions of F4.3 cannot be applied to Class 9b buildings under the DtS provisions. |
| **F4.2**<br>Method and Extent of Achieving Natural Lighting | Windows or the like are to have an aggregate light transmitting area of not less than 10% of the floor area of the room. | **Compliance Readily Achievable** |
| **F4.3**<br>Natural light borrowed from adjoining room | Only permitted in Class 2, 3 & 4 buildings. | **Not Applicable** |
| **F4.4**<br>Artificial Lighting | Artificial lighting must be provided in required stairways, passageways, and ramps and where natural light is insufficient. The artificial lighting system must comply with AS/NZS 1680.0. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |

| CLAUSE | REFERENCE | COMMENT |
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| | Artificial lighting must be provided where occupants seeking egress in an emergency, in—<br>+ Class 3, 5, 6, 7, 8 and 9 buildings — to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress. | |
| **F4.5**<br>Ventilation of Rooms | A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6 **or** a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1.<br>Note: NSW F4.5(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 – the reference to AS/NZS 2666.1 is deleted from the BCA in NSW as the need to comply with this standard is regulated under the relevant section of the Public Health Act 1991. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **F4.6**<br>Natural Ventilation | Natural ventilation must consist of openings, windows, doors or other devices which can be opened— with a ventilating area not less than 5% of the floor area of the room required to be ventilated. Additionally, open to a suitably sized space open to the sky or an adjoining room in accordance with F4.7. | **Compliance Readily Achievable**<br>Design statement to be provided at Construction Certificate stage. |
| **F4.7**<br>Ventilation Borrowed From Adjoining Rooms | Natural ventilation to a room may come through a window, opening ventilating door or other device from an adjoining room (including an enclosed verandah) if both rooms are within a sole-occupancy unit or the enclosed verandah is common property and be carried out in accordance with the requirements of sub-clauses (a), (b) & (c). | **Noted** |
| **F4.8**<br>Restriction on Position of Water Closets and Urinals | A room containing a water closet pan or urinal must not open directly into a kitchen or pantry, public dining room or restaurant, a dormitory in a Class 3 building, 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 1 person. | **Complies** |
| **F4.9**<br>Airlocks | If a room containing a closet pan or urinal is prohibited under F4.8 form opening directly into another room then the provisions of sub-clauses (a) & (b) apply relating to the requirements of airlocks and mechanical ventilation standards. | **Complies** |
| **F4.11**<br>Carparks | Every storey of a carpark, except an open-deck car park, must have:<br>+ A system of mechanical ventilation complying with AS 1668.2; or<br>+ A system of natural ventilation complying with Section 4 of AS 1668.4. | **Compliance Readily Achievable**<br>Applies to Basement level (Level -1).<br>Design statement to be provided at Construction Certificate stage. |
| **F4.12**<br>Kitchen Local Exhaust Ventilation | A commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1 and 1668.2. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| ***Part F5*** | ***Sound Transmission and Insulation*** | |
| **F5**<br>Sound transmission | Applies to residential buildings | **Not Applicable** |
| **SECTION G** | **ANCILLARY PROVISIONS** | |
| **NSW G1.101**<br>Provision for Cleaning of Windows | A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level.<br>A building satisfies this requirement where the windows can be cleaned wholly from within the building; or provision is made for the cleaning of the windows by a method | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| | complying with the Work Health and Safety Act 2011 and regulations made under that Act. | |
| ***Part G1*** | ***Minor Structures and Components*** | |
| **G1.1** Swimming Pools | A swimming pool with a depth of water more than 300 mm in a Class 2, 3 or 4 part of a building, must have suitable barriers to restrict access by young children to the immediate pool surrounds in accordance with AS 1926 Parts 1 and 2. | **Not Applicable** |
| **G1.2** Refrigerated Chambers, Strong Rooms and Vaults | A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must be capable of being opened from the inside by hand without a key. This clause also sets out the acceptable safety standards for a cooling chamber or strongroom by installation of dedicated controls within the chamber and the external lights that indicate that the space is in use. Additionally, a door in a cooling chamber must have a doorway with a clear width of at least 600 mm and a clear height of at least 1.5 m. | **Compliance Readily Achievable**<br>Details to be included in the design documentation prior to issue of the Construction Certificate. |
| **G1.3** Outdoor Play Spaces | Any outdoor play space in a Class 9b early childhood centre must be enclosed on all sides with a barrier which complies with AS 1926.1 unless it is a wall, door or window. | **Not Applicable** |
| ***Part G2*** | ***Boilers, Pressure Vessels, Heating Appliances, Fireplaces, Chimneys and Flues*** | |
| **G2.2** Installation of Appliance | Domestic solid-fuel burning appliances must comply with AS/NZS 2918.<br>Boilers and pressure vessels must comply with Specification G2.2. | **Not Applicable** |
| ***Part 3*** | ***Atrium Construction*** | |
| **G3.1** Application of part | This Part does not apply to an atrium which—<br>(a) connects only 2 storeys; or<br>(b) connects only 3 storeys if—<br>(i) each storey is provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 throughout; and<br>(ii) one of those storeys is situated at a level at which there is direct egress to a road or open space. | **Performance Solution**<br>The proposed atrium connects three storeys in a non-sprinkler protected building. |
| ***Part G4*** | ***Construction in Alpine Areas*** | |
| **Part G4** | Applies to buildings in alpine areas. | **Not Applicable** |
| **SECTION H** | **SPECIAL USE BUILDINGS** | |
| ***Part H1*** | ***Class 9b Buildings – Theatres, Stages and Public Halls*** | |
| **H1.1** Application of Part | The Deemed-to-Satisfy Provisions of this Part apply to every Class 9b building or part of a building which is a school assembly, church or community hall with a stage and any backstage area with a total floor area of more than 300m$^2$ or a stage/backstage in any other building with a total floor area of more than 200m$^2$ or any other stage with an associated rigging loft. Parts H1.4 applies to all Class 9b buildings & H1.7 applies to all enclosed Class 9b buildings. | **Not Applicable** |

| CLAUSE | REFERENCE | COMMENT |
|---|---|---|
| **Part H2** | ***Public Transport Buildings*** | |
| **H2.1**<br>Application of Part | The Deemed-to-Satisfy Provisions of this Part apply to the passenger use areas of a Class 9b or Class 10 building used for public transport.<br>For an airport that does not accept regular public transport services, as defined in the Disability Standards for Accessible Public Transport 2002, only H2.8, H2.9, H2.10, H2.11, H2.12 and H2.13 of this Part apply. | **Not Applicable** |
| **SECTION J** | **ENERGY EFFICIENCY** | |
| **J1**<br>Building Fabric | The provision of insulation of the building envelope will be required in the proposed building, in accordance with Clauses J1.0 to J1.6, and the Tables therein, including Thermal Construction General, Roof and Ceiling Construction, Rooflights, Walls, and Floors. Design details and/or certification of design will be required to be provided in this regard. | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |
| **J2 *****<br> | The content of Part J2 for glazing, which existed in NCC 2016, has been removed. Glazing provisions are now included in Part J1. The Part number Part J2 has been retained so as not to change the numbering of the current NCC from that of NCC 2016. | - |
| **J3**<br>Building Sealing | The proposed building envelope will be required to be sealed to prevent air infiltration in accordance with the requirements of Clauses J3.0 to J3.6. Details or certification that the proposed building design complies with the requirements of Part J3 is required to be provided | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |
| **J4** | - | - |
| **J5**<br>Air-Conditioning & Ventilation Systems | Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of Part J5 will be required to be provided from the mechanical engineer. | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |
| **J6**<br>Artificial Lighting & Power | All artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of Part J6 will be required to be provided from the electrical engineer | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |
| **J7**<br>Hot Water Supply & Swimming Pool & Spa Pool Plant | Any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of Part J7 (Section 8 of AS 3500.4). | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |
| **J8**<br>Access for Maintenance & Facilities for Monitoring | See NSW Subsection J8 for access to maintenance.<br>Access must be provided to all plant, equipment and components that require maintenance in accordance with Part I2. | **Compliance Readily Achievable**<br>Design statement and/or or Section J/JV3 Report to be provided at Construction Certificate stage. |

## APPENDIX 2- PRELIMINARY FIRE SAFETY SCHEDULE

The following schedule comprises a list of the required fire safety measures within the building. These measures may be subject to further change pending the outcomes of the final Fire Safety Engineering Review to confirm the works are permissible and do not contradict the base building Performance Solutions.

The proposed Ignis Stage 2 development, the existing O'Neil, Vaughan and Therry buildings are all deemed a single building from a BCA compliance perspective. As such, while separate Annual Fire Safety Statements (AFSS) have been issued previously for each part, the following comprises a combined schedule for all parts of the building.

| STATUTORY FIRE SAFETY MEASURE | DESIGN / INSTALLATION STANDARD | EXISTING | NEW/ALTERED (IGNIS STAGE 2) |
|---|---|---|---|
| Access Panels, Doors & Hoppers | BCA Clause C3.13 & AS 1530.4 – 2014 and Manufacturer's specifications | | ✓ |
| Alarm Signalling Equipment | AS 1670.3 – 2018 | | ✓ |
| Automatic Fail-Safe Devices | Therry Building: BCA 2016 Clause D2.19 & D2.21<br>Vaughn Building & Library: BCA C3.5, C3.8 & Spec. C3.4 | ✓ | |
| | BCA Clause D2.19 and D2.21 | | ✓ |
| Automatic Fire Detection & Alarm System | O'Neil Science Lab: AS 1670.1-2004, AS 1670.3-2004<br>Therry Building: BCA 2016 Spec. E2.2A & AS1670.1-2015, AS/NZS1668.1-2015 and Fire Engineering Report Prepared by Umow Lai, Report No. S.SIR-0101/R001 Rev E, Dated 23 February 2018:<br>a) A smoke detection system to BCA Spec E2.2a Clause 4 and AS1670.1-2015 is to be provided.<br>b) Reduced detector spacing of 5m is to be provided to the staff room and adjacent break out learning area on Level 1, Level 2 and Level 3 to ensure better coverage of route.<br>c) The building is to be provided with an AS 1670.4-2015 system with intercommunication points omitted as part of a fire engineered performance solution i.e. no warden intercom point (WIP) handsets are to be provided.<br>d) The building is to be configured as a single alarm zone to ensure simultaneous evacuation of all levels<br>Vaughn Building & Library: BCA Spec E2.2a (4), AS1670 as modified by Holmes Fire Engineering Report 100039-r001b dated 2/11/2007 for new library. Reduced grid spacing of 6.5m x 6.5m with maximum wall to detector spreading of 3.25m on Level 4 and on Level 3 in the library foyer and adjacent computer room and library stacks | ✓ | |
| | BCA Spec. E2.2a & AS 1670.1 – 2018 | | ✓ |
| Building Occupant Warning System | Therry Building: BCA 2016 Spec. E1.5, BCA Spec. E2.2A & AS1670.1-2015 Clause 3.22 and Fire Engineering Report prepared by Umow Lai, Report No. S.SIR-0101/r001 Rev E, dated 23 February 2018 | ✓ | |
| | Clause 3.22 of AS 1670.1 – 2018 | | ✓ |
| Emergency Lighting | O'Neil Science Lab: AS 2293.1-1998 | ✓ | |

| STATUTORY FIRE SAFETY MEASURE | DESIGN / INSTALLATION STANDARD | EXISTING | NEW/ALTERED (IGNIS STAGE 2) |
|---|---|---|---|
| | Therry Building: BCA 2016 Clause E4.2, E4.4 & AS/NZS 2293.1-2005<br>Vaughn Building & Library: BCA 2006 Cl E4.2, E4.4, AS 2293.1 | | |
| | BCA Clause E4.4 & AS 2293.1 – 2018 | | ✓ |
| Emergency Evacuation Plan | Therry Building: AS 3745-2002 Fire Engineering Report prepared by Umow Lai, Report No. S.SIR-0101/r001 Revision E, dated 23 February 2018 | ✓ | |
| | AS 3745-2010 | | ✓ |
| Exit Signs | O'Neil Science Lab: AS 2293.1-1998<br>Therry Building: BCA 2016 Clauses E4.5, NSW E4.6 & E4.8 and AS/NZS 2293.1-2005<br>Vaughn Building & Library: BCA 2006 Cl E4.5, E4.6, E4.8, AS 2293.1 | ✓ | |
| | BCA Clauses E4.5, E4.6 & E4.8; and AS 2293.1 – 2018 | | ✓ |
| Fire Blankets | O'Neil Science Lab: AS 2444-2001 | ✓ | |
| | AS 3504 – 2006 & AS2444 – 2001 | | ✓ |
| Fire Dampers | Vaughn Building & Library: BCA Clause C3.15, AS/NZ 1668.1 | ✓ | |
| | BCA Clause C3.15, AS 1668.1 – 2015 & AS 1682.1 & 2 – 2015 and manufacturer's specification | | ✓ |
| Fire Doors | O'Neil Science Lab: AS 1905.1-1997<br>Therry: BCA 2016 Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8, SPEC C3.4 and AS 1905.1-2015, Fire Engineering Report Prepared by Umow Lai, Report No. S.SIR-0101/r001 Rev. E, dated 23 February 2018:<br>a) Fire doors provided between the Therry Building and the O'Neil Wing are to comply with BCA Clause C3.7 protection of doorways in horizontal exits, including self-closing or automatic closing<br>Vaughn Building & Library: BCA Spec C3.4, C2.10, AS1905.1-2005, AS 1735.11 | ✓ | |
| | BCA Clause C2.12, C2.13, C3.5, C3.7, C3.8; and AS 1905.1 – 2015 and manufacturer's specification | | ✓ |
| Fire Hose Reels | O'Neil Science Lab: AS 2441-1988<br>Therry Building: BCA 2016 Clause E1.4 & AS 2441-2005<br>Vaughn Building & Library: BCA Cl E1.4, AS 2441-2005 | ✓ | |
| | BCA Clause E1.4 & AS 2441 – 2005 | | ✓ |
| Fire Hydrant Systems | O'Neil Science Lab: AS 2419.1-1994<br>Therry Building: BCA 2016 Clause E1.3 & AS2419.1-2005 and Fire Engineering Report prepared by Umow Lai, Report No. S.SIR 0101/r001 Rev E, dated 23 February 2018<br>a) Provision of fire hydrant points at the horizontal exits into the O'Neil Wing at Level 2 and Level 3<br>Vaughn Building & Library: BCA Cl E1.4, AS 2419.1-2005 | ✓ | |
| | Clause E1.3 & AS 2419.1 – 2005 | | ✓ |
| Fire Seals | Therry Building: BCA 2016 Clause C3.15, C3.16 & AS1530.4-2014 | ✓ | |

| STATUTORY FIRE SAFETY MEASURE | DESIGN / INSTALLATION STANDARD | EXISTING | NEW/ALTERED (IGNIS STAGE 2) |
|---|---|---|---|
| | Vaugh Building & Library: BCA Cl C3.12, C3.15, AS 4072.1 | | |
| | BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2005 and manufacturer's specification | | ✓ |
| Fire Resistance and Compartmentation | Section 3 of Fire Engineering Report prepared by Umow Lai, Report No. S.SIR-0101/r001 Rev E, dated 23 February 2018:<br>a) The external wall construction of the Therry Building is to achieve FRL 60/60/60 for a minimum length of 4m, with fire door to achieve FRL -/60/30<br>b) The internal wall separating the Therry Building and the O'Neil Wing is to achieve FRL 120/120/120<br>c) The wall construction below the O'Neil wing windows is to achieve FRL 60/60/60 for the length of the classroom<br>d) Mechanical ventilation shafts to be non-combustible and smoked stopped in lieu of fire rated construction | ✓ | |
| Lightweight Construction | Therry Building: BCA 2016 Clause C1.8, C3.17 & AS1530.3-1999<br>Vaughn Building & Library: Spandrels, ceiling to library and other elements. BCA C1.8, Spec C1.8 (for walls), Spec A2.3(5) (for comns). Manufacturers Spec for all other installations. Lightweight Construction to spandrels, ceilings and other installations. | ✓ | |
| | BCA Clause C1.8 & AS 1530.4 – 2014 and manufacturer's specification | | ✓ |
| Mechanical Air Handling Systems | Therry Building: BCA 2016 Clause E2.2, AS/NZS 1668.1-2015 | ✓ | |
| | BCA Clause E2.2, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012 | | ✓ |
| Mechanical Ventilation | Vaughn Building & Library: BCA Clause F4.5, AS/NZ 1668.1 | ✓ | |
| Paths of Travel | O'Neil Science Lab: EP&A Regs Part 9 DIV 7<br>Therry Building: EP&A REG 2000 Clause 186 and Fire Engineering Report prepared by Umow Lai, Report No. S.SIR-0101/r001 Rev E, dated 23 February 2018:<br>a) Exits and dimensions are required to permit the open non-fire isolated Stair to connect up to 3 x storeys under a Fire Engineered Performance Solution<br>b) The exits shown in the report are to comply with the BCA DTS egress provisions for required exits including D2.20 swinging doors, and D2.21 operation of latch<br>c) Extended travel distances of up to 30m to a point of choice, where the DTS limit is 20m, from the staff rooms as shown in the report<br>d) BCA DTS compliance with D1.9 shall be achieved (maximum of 80m from any point on the floor via non fire isolated stairs to a road or open space.<br>Vaugh Building & Library: EP&A Reg. Part 9 DIV 7 | ✓ | |
| | EP&A Regulation Clause 186 | | ✓ |

| STATUTORY FIRE SAFETY MEASURE | DESIGN / INSTALLATION STANDARD | EXISTING | NEW/ALTERED (IGNIS STAGE 2) |
|---|---|---|---|
| Portable Fire Extinguishers | O'Neil Science Lab: AS 2444-2001<br>Therry Building: BCA 2016 Clause E1.6 & AS 2444-2001<br>Vaughn Building & Library: BCA Cl E1.6, AS 2444-2005 | ✓ | |
| | BCA Clause E1.6 & AS 2444 – 2001 | | ✓ |
| Required Exit Doors (power operated) | BCA Clause D2.19(b) | ✓ | ✓ |
| Smoke Hazard Management Systems | BCA Part E2 & AS/NZS 1668.1 –2015 | | ✓ |
| Emergency Warning & Intercom System (EWIS) | O'Neil Science Lab: AS 1670.4, AS 4428.4-2004<br>Vaughn Building & Library: EWIS BCA CL E4.9, AS 1670.4-2004, AS 4428.4-2004 as modified by Section 13 of Holmes Fire Report dated 2/11/2007. EWIS with no WIPS but otherwise complying with AS 1670.4-2004 and AS 4428.4-2004 | ✓ | |
| | BCA E4.9, Clause 5 of BCA Spec G3.8 and AS1670.4 - 2018 | | ✓ |
| Wall-Wetting Sprinklers | BCA Clause C3.4 & AS 2118.2 – 2010 and FER (TBC) | | ✓ |
| Warning & Operational Signs | Vaughn Building & Library: EP & A Regs. Part 9 DIV 7-183 | ✓ | |
| | Clause 183 of the EP&A Regulation 2000, AS 1905.1 – 2015, BCA Clause D2.23, D3.6 & E3.3 | | ✓ |
| Clause 164B Exemption | Therry Building: BCA 2016 CLAUSE D2.19 & D2.21 | ✓ | |
| Fire engineered Alternative Solutions relating to O'Neil Building:<br>1. Combination of fire and smoke separating construction to the central Vaughn stair to prevent fire and smoke spread into the stair.<br>2. Fire separating construction to the Therry Building to prevent spread of fire throughout each floor.<br>3. Non fire rated ceiling to the top floor of building.<br>4. Reduction in vertical separation in external wall. | Fire Safety Engineering Report prepared by Holmes Fire Report dated June 2001 | ✓ | |
| Fire engineered Alternative Solutions relating to Vaughn Building & Library:<br>1. Fire detection to library and EWIS system Holmes Fire Report dated 2/11/2007<br>2. Internal fit out – Travel Distances<br>3. Fire and smoke separation to Level 3 surrounding library foyer, computer room and library stacks<br>4. Concealed space in roof between Level 4 ceiling<br>5. Incipient spread ceiling to Level 4<br>6. Management storage of combustibles to Vaugh Building<br>7. School Management – Arson<br>8. Evacuation procedures AS 3745-2002<br>9. Smoke and fire rated construction in accordance with Holmes Fire Report dated June 2001 | Fire Safety Engineering Report prepared by Holmes Fire 100039-R001B prepared by dated 2/11/2007 | ✓ | |

| STATUTORY FIRE SAFETY MEASURE | DESIGN / INSTALLATION STANDARD | EXISTING | NEW/ALTERED (IGNIS STAGE 2) |
|---|---|---|---|
| 10. Maintenance – all active fire services in the building. | | | |
| Fire engineered Alternative Solutions relating to Therry Building:<br>1. It is proposed for non-fire isolated stairways to pass by 3 x consecutive levels (plus 1 x external), where the BCA DTS limit is 2 x levels<br>2. Extended travel distances up to 30 m to a point of choice, where the DTS limit is 20 m.<br>3. It is proposed to permit up to 4 storeys where the BCA DTS provisions allow up to 3 storeys where a non-combustible roof is provided in lieu of a fire rated roof.<br>4. Spandrels are proposed to be omitted throughout the building, between each level, which would otherwise be required to meet BCA DTS provisions.<br>5. Exposure between fire compartments in adjacent building parts, where to meet DTS provisions a minimum separation of 4 m is required. At Level 2 and 3 where the O'Neil Wing meets the Therry Building.<br>6. The BCA DTS provisions nominate a sound system and intercom system for emergency purposed (SSISEP) be provided to the Therry Building. It is proposed to not provide an intercom system for the building.<br>7. A distance of 5.7 m between the Therry Building and St Johns House is proposed where the BCA DTS provisions require a 6 m separation distance of unprotected openings.<br>8. The FRL fire rating of mechanical ventilation shafts is proposed to be omitted, where all services penetrations through slabs must be fire stopped to meet BCA DTS provisions, even where within the same fire compartment. | BCA Performance Requirements CP1, CP2, DP4, DP5, EP2.2 & EP4.3<br>Fire Safety Engineering Report prepared by Umow Lai Report No. S.SIR-0101/R001 Revision E dated 23/2/2018 | ✓ | |
| Fire engineered Alternative Solutions relating to Ignis Stage 2. | BCA Performance Requirements (TBA<br>Fire Safety Engineering Report (TBA) | | ✓ |

## APPENDIX 3- FRL OF BUILDING ELEMENTS

**Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS**

| Building element | Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation* | | | |
|---|---|---|---|---|
| | 2, 3 or 4 part | 5, 7a or 9 | 6 | 7b or 8 |
| **EXTERNAL WALL** (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is— | | | | |
| For *loadbearing* parts— | | | | |
| less than 1.5 m | 90/ 90/ 90 | 120/120/120 | 180/180/180 | 240/240/240 |
| 1.5 to less than 3 m | 90/ 60/ 60 | 120/ 90/ 90 | 180/180/120 | 240/240/180 |
| 3 m or more | 90/ 60/ 30 | 120/ 60/ 30 | 180/120/ 90 | 240/180/ 90 |
| For non-*loadbearing* parts— | | | | |
| less than 1.5 m | –/ 90/ 90 | –/120/120 | –/180/180 | –/240/240 |
| 1.5 to less than 3 m | –/ 60/ 60 | –/ 90/ 90 | –/180/120 | –/240/180 |
| 3 m or more | –/–/– | –/–/– | –/–/– | –/–/– |
| **EXTERNAL COLUMN** not incorporated in an *external wall*— | | | | |
| For *loadbearing* columns— | 90/–/– | 120/–/– | 180/–/– | 240/–/– |
| For non-*loadbearing* columns— | –/–/– | –/–/– | –/–/– | –/–/– |
| **COMMON WALLS and FIRE WALLS—** | 90/ 90/ 90 | 120/120/120 | 180/180/180 | 240/240/240 |
| **INTERNAL WALLS—** | | | | |
| *Fire-resisting* lift and stair *shafts*— | | | | |
| *Loadbearing* | 90/ 90/ 90 | 120/120/120 | 180/120/120 | 240/120/120 |
| Non-*loadbearing* | –/ 90/ 90 | –/120/120 | –/120/120 | –/120/120 |
| Bounding *public corridors*, public lobbies and the like— | | | | |
| *Loadbearing* | 90/ 90/ 90 | 120/–/– | 180/–/– | 240/–/– |
| Non-*loadbearing* | –/ 60/ 60 | –/–/– | –/–/– | –/–/– |
| Between or bounding *sole-occupancy units*— | | | | |
| *Loadbearing* | 90/ 90/ 90 | 120/–/– | 180/–/– | 240/–/– |
| Non-*loadbearing* | –/ 60/ 60 | –/–/– | –/–/– | –/–/– |
| Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion— | | | | |
| *Loadbearing* | 90/ 90/ 90 | 120/ 90/ 90 | 180/120/120 | 240/120/120 |
| Non-*loadbearing* | –/ 90/ 90 | –/ 90/ 90 | –/120/120 | –/120/120 |
| **OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—** | 90/–/– | 120/–/– | 180/–/– | 240/–/– |
| **FLOORS** | 90/ 90/ 90 | 120/120/120 | 180/180/180 | 240/240/240 |
| **ROOFS** | 90/ 60/ 30 | 120/ 60/ 30 | 180/ 60/ 30 | 240/ 90/ 60 |

NOTE:

1. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification C1.8.
2. 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.
3. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
4. Fire rated shafts are required to be enclosed at the top and bottom by construction having an FRL of not less than what the shaft requires (in both directions).
5. The concession granted under clause C3.5 allows omission of the above FRL to the roof provided that 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.
6. Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 120/120/120.
7. Fire isolated exits are to be provided with a fire rated “lid” that achieves an FRL of 120/120/120 when tested in both directions.
8. Where roof lights are proposed they are required to be located not less than 3 metres from a roof light in an adjoining fire separated part; and must not be more than 20% of the area of the roof.
9. Internal columns in this building (being less than 25m in effective height) that are in the storey immediately below the roof, can be constructed with an FRL 1hr in lieu of 2hrs as prescribed in the table above.

## APPEXDIX 4 – PLAN OF EXIT LOCATIONS & AVAILABLE EGRESS WIDTHS


**Figure 18 – Level -1 (Basement)**

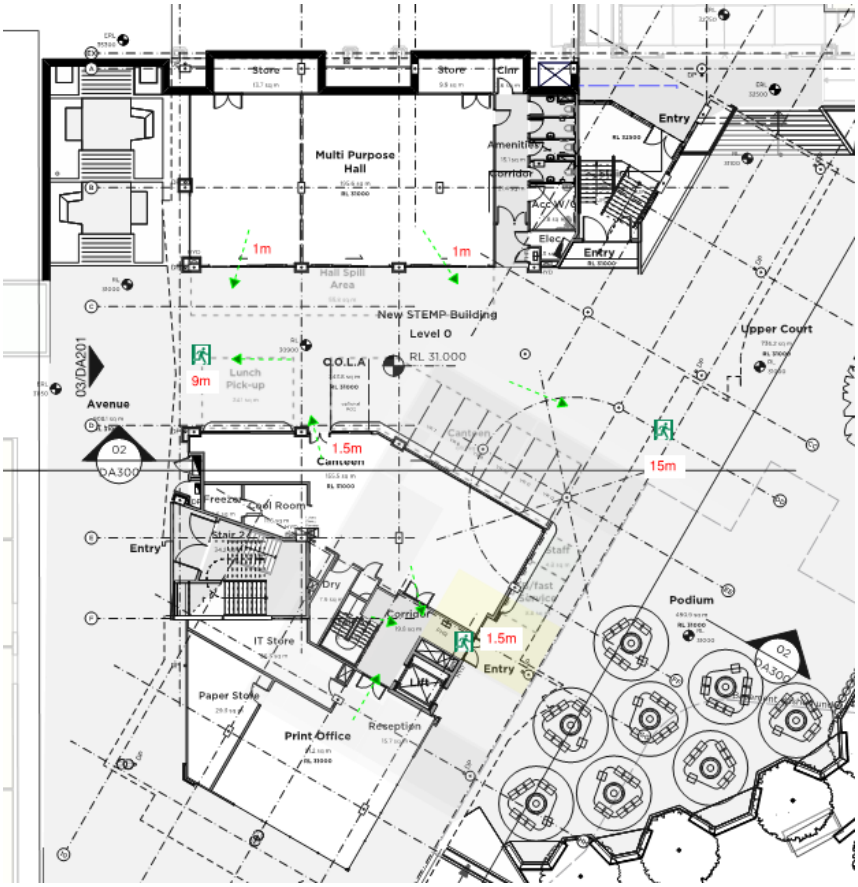



**Figure 19 – Level 0**

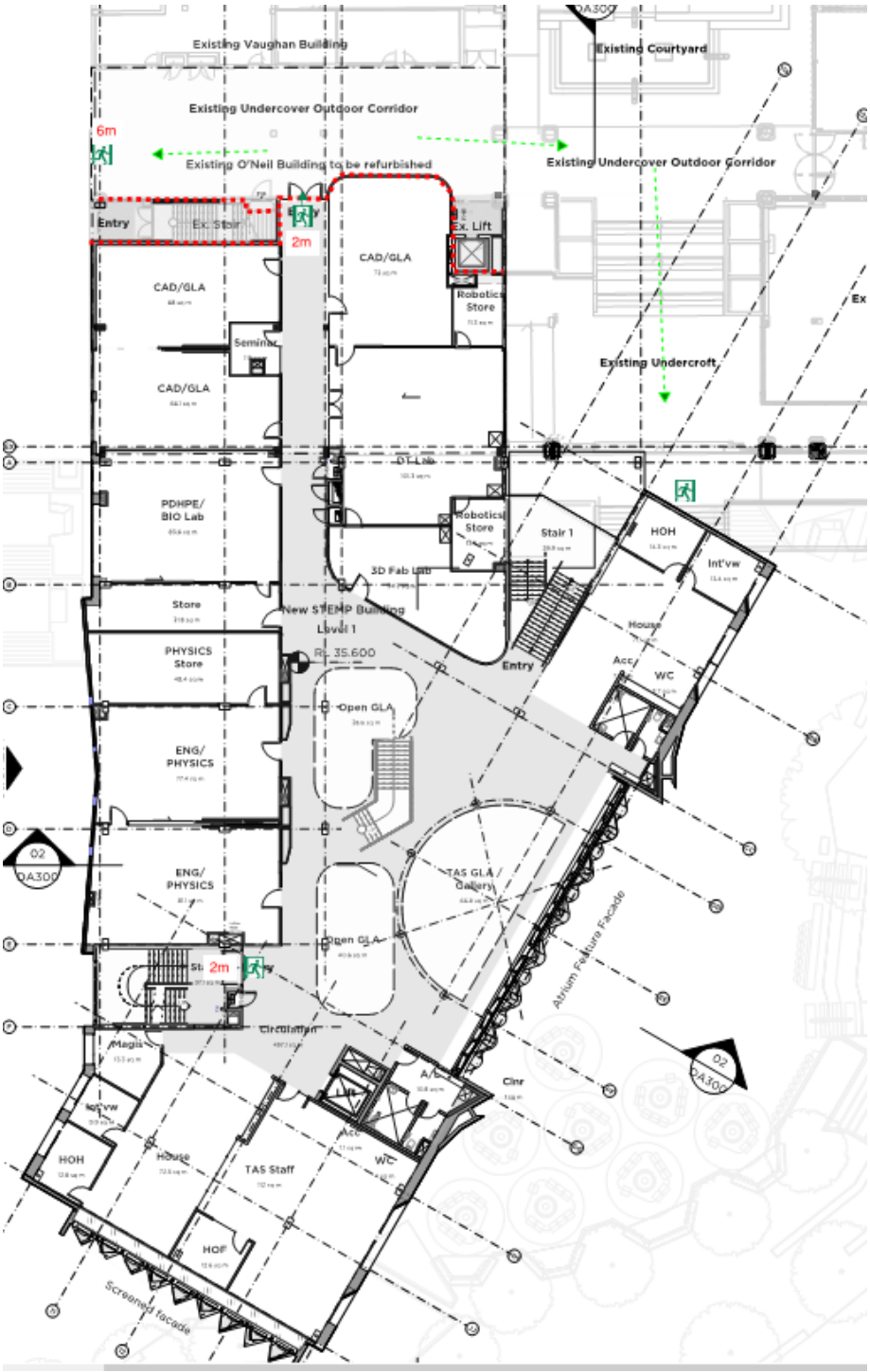



**Figure 20 – Level 1**


**Figure 21 – Level 2**


**Figure 22 – Level 3**

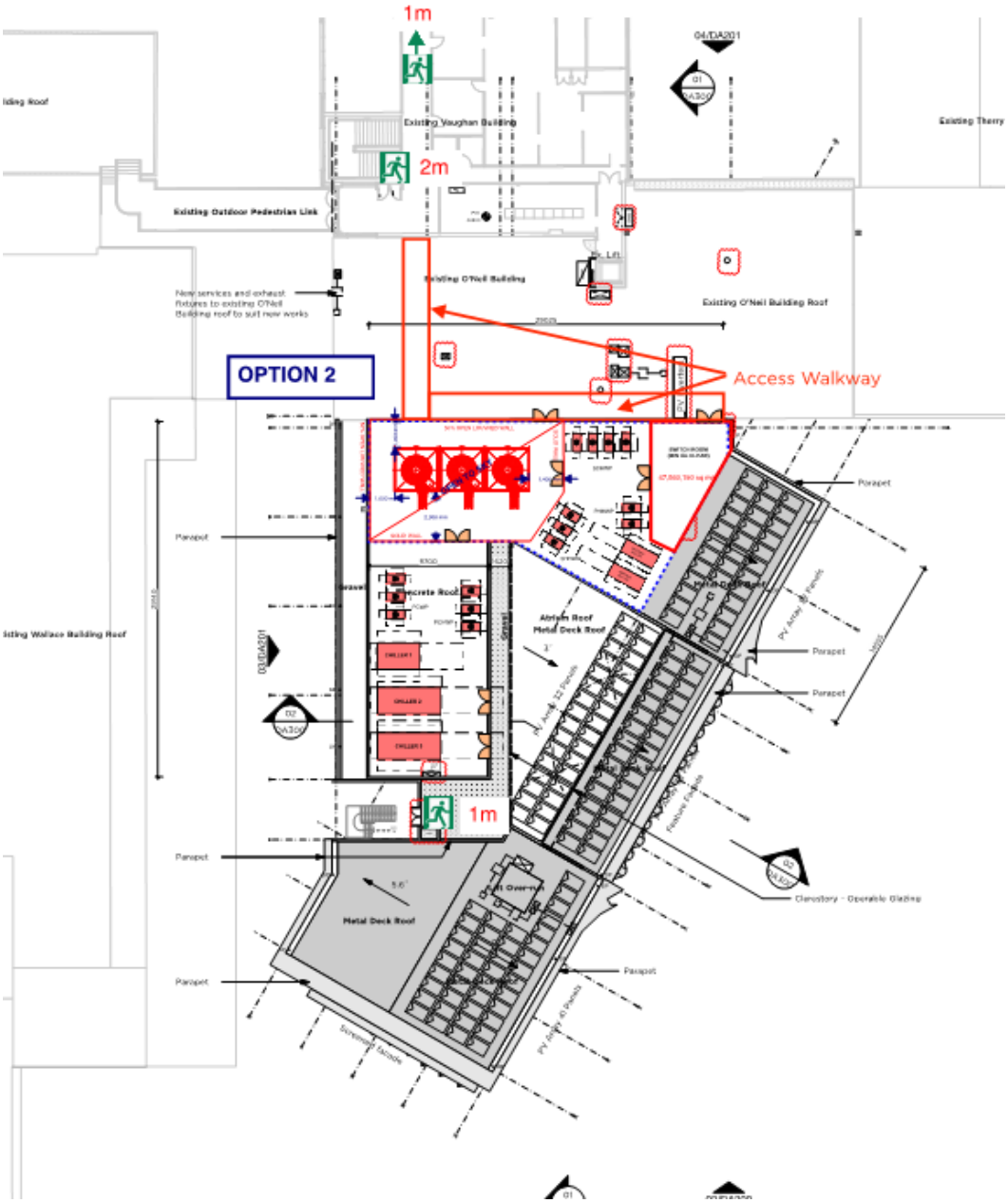



**Figure 23 – Level 4/Roof**

## APPENDIX 5 – REQUIRED FIRE SEPARATION

120/120/120 FRL (2hrs) Required

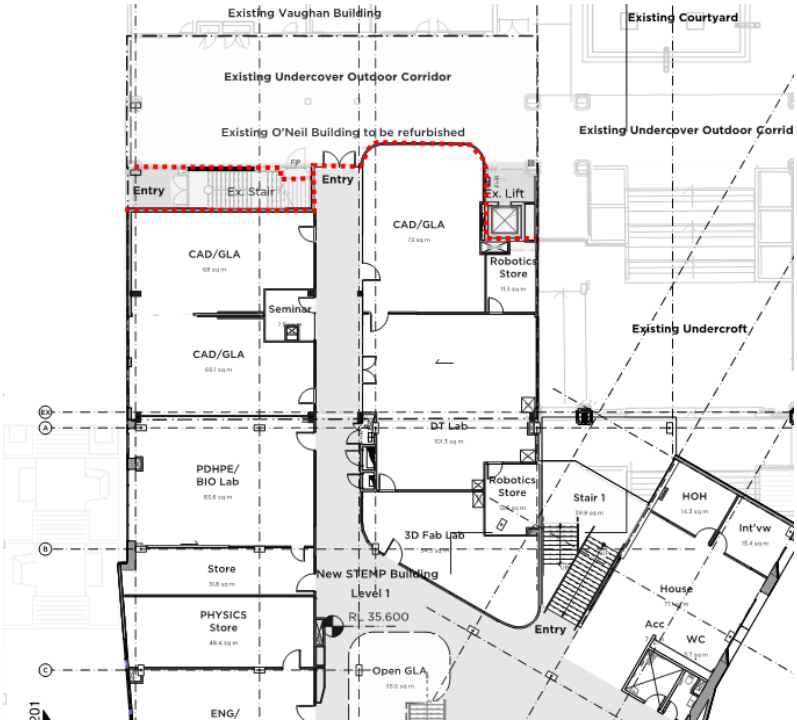



**Figure 24 – Level 1**

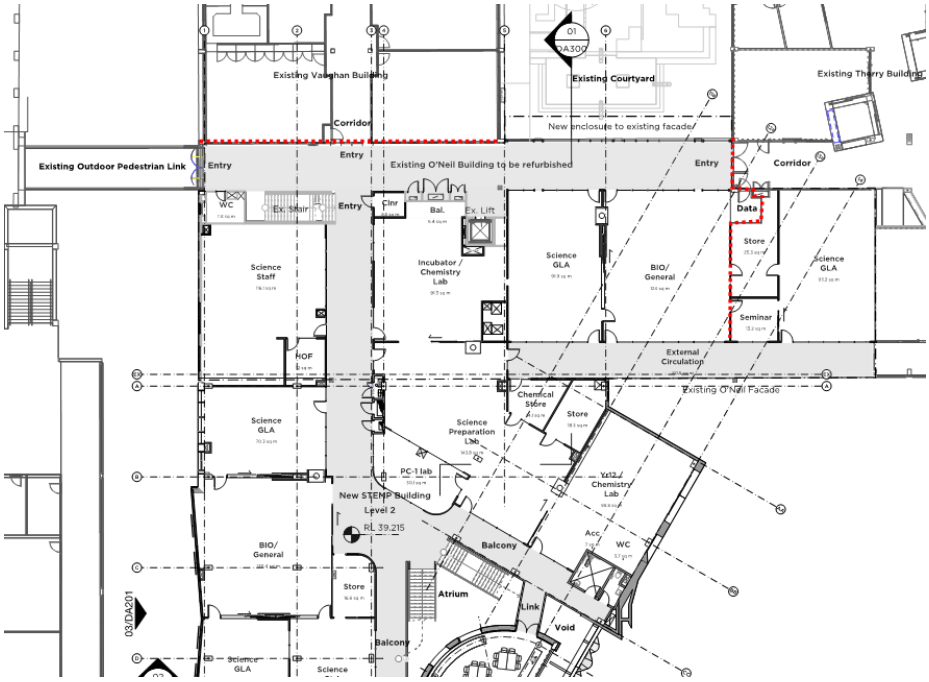



**Figure 25 – Level 2**

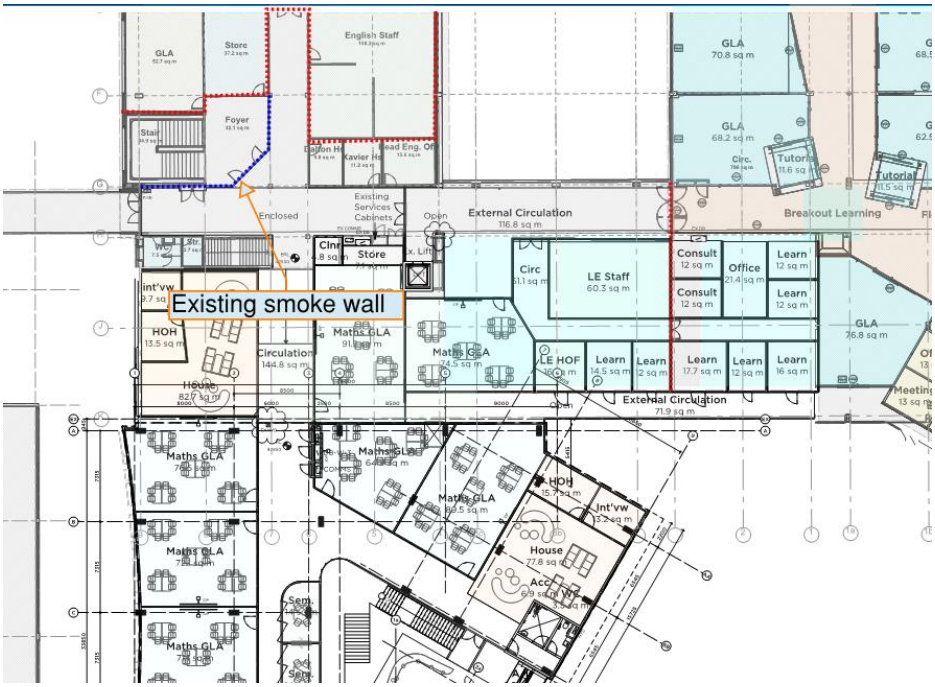
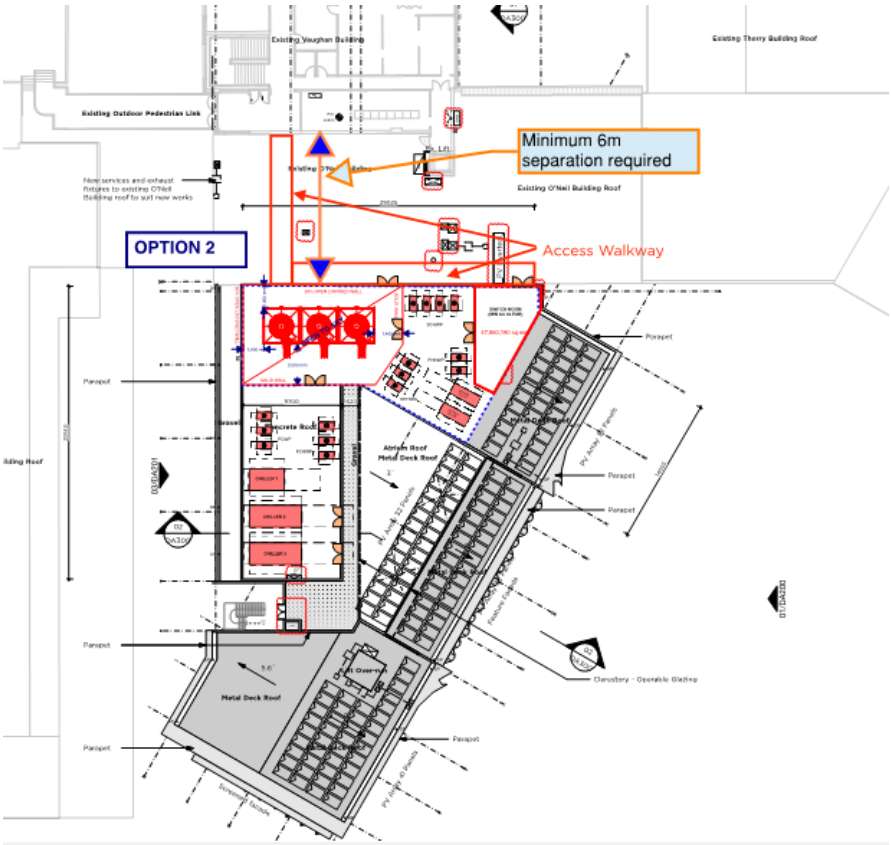



**Figure 26 – Level 3**




*Note: Fire separation between new and existing not required provided that minimum 6m separation is provided between the external walls. Switchroom to be fire separated in accordance with BCA clause C2.13.*

**Figure 27 - Level 4**