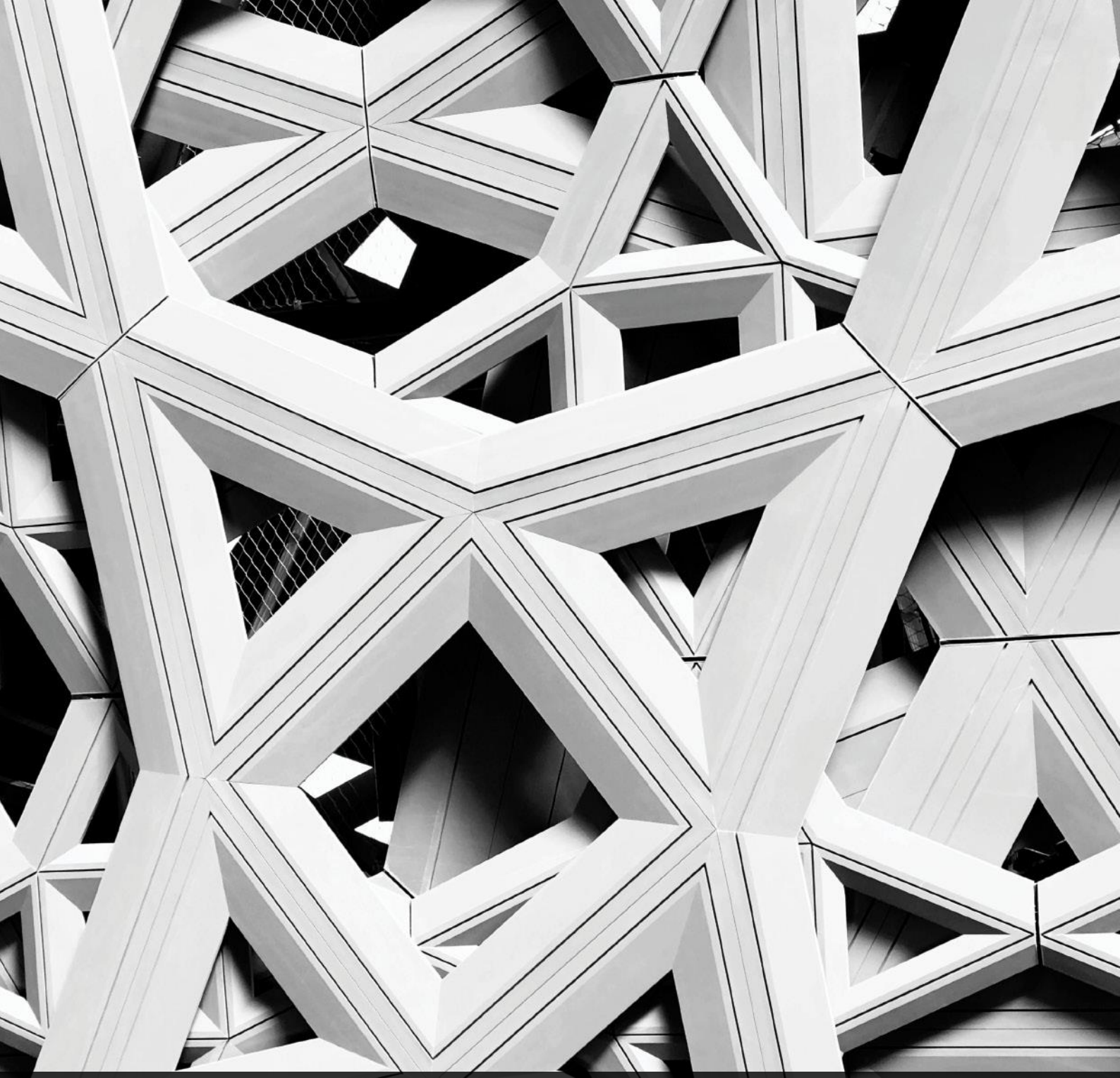


BCA/DDA Assessment Report

Grafton Base Hospital Redevelopment
Acquistion Site

Prepared for:
Health Infrastructure

Revision 3
12th September, 2024
Reference: N230007

bm+g

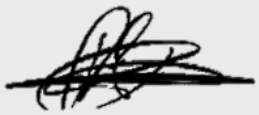
bmplusg.com.au

+ Contents

Report Status

Date	12.09.2024
Revision	3
Status	Updated - review
Author	Rick Beardwood
Reviewed	Jake Hofner

Prepared by:



Rick Beardwood
Senior Building Surveyor | QLD Manager
BM+G

Reviewed by:

Jake Hofner
Newcastle Region Manager & Associate Director
BM+G
Building Surveyor-Unrestricted (NSW)

Revision History

Revision	0	**Date**	28 August 2023
Status	Draft – for review and comment		
Revision	1	**Date**	29 September 2023
Status	Updated – review		
Revision	2	**Date**	19 July 2024
Status	Updated – final		
Revision	3	**Date**	12 September 2024
Status	Updated - review		

1.0 Description of Project

1.1 Proposal

BM+G Pty Ltd have been commissioned by Health Infrastructure to undertake a due diligence review of existing buildings to assist in informing the extent of the required refurbishment; namely the Grafton Base Hospital site with focus on buildings with potential retention values and potential acquisition site as depicted within the Master plan against the Building Code of Australia 2022 (BCA) and Disability (Access to Premises – Buildings) Standards 2010.

The proposed development includes planning for expansion of the existing Grafton Base Hospital Redevelopment (GBHR) with a new 5 storey main hospital including east and west clinical IPU, BOH facilities with plant and helipad on the roof. The master plan will seek to refurbish three existing buildings noted for retention into community and ambulatory care. The potential acquisition site to be refurbished into education and administration and staff accommodation buildings is the focus of this report.

The GBHR primary focus is to replace the existing old, dilapidated buildings on the current campus with a new contemporary facility that will facilitate contemporary models of care.

An assessment of BCA compliance with respect to the new works is included within Section 3. This report is limited to the review of updated Gaol acquisition site.

1.2 Aim

The aim of this report is to:

- Enable the Public Authority to satisfy its statutory obligations under Section 6.28 of the Environmental Planning and Assessment Act, 1979.
- 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.
- Identify non compliances that will be required to be assessed as part of the proposed Fire Engineering Assessment to be prepared by the appointed Fire Safety Engineer.
- Identify a list of essential fire safety measures that are required to be installed.

1.3 Project Team

The following BM+G team members have contributed to this Report:

- **Rick Beardwood** – Report Preparation (Senior Building Surveyor) | QLD Team Manager
- Jake Hofner – Project PCA/Peer Review (Newcastle Region Manager & Associate Director) | Building Surveyor-Unrestricted

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 2022 (BCA)
- The Guide to the Building Code of Australia 2022
- Architectural Plans prepared by STH issued 16/08/2024

1.5 Regulatory Framework

(Pursuant to S6.28 of the Environmental Planning and Assessment Act 1979, the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time of the date of invitation for tenders to carry out the Crown building work

Change of use to be confirmed by Consent Authority. Pursuant to Section 62 of the Environmental Planning and Assessment Regulation 2021, the Consent Authority must:

- Consider whether the fire protection and structural capacity of the building will be appropriate to the building's proposed use, and
- Not grant consent to the change of building use unless the consent authority is satisfied that the building complies, or will, when the development is completed, comply, with the Category 1 fire safety provisions that are applicable to the building's proposed use.

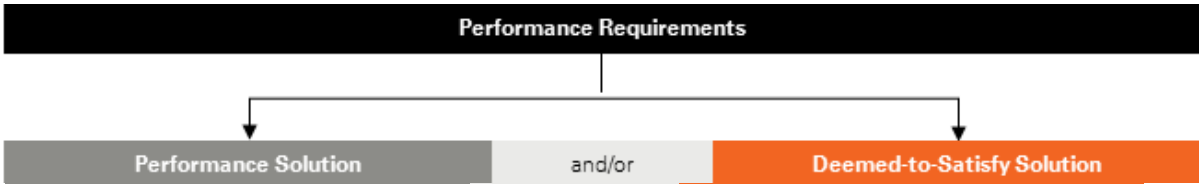
1.6 Relevant Version of the NCC Building Code of Australia

Pursuant to Section 6.28 of the Environmental Planning and Assessment Act 1979, the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time of the date of invitation for tenders to carry out the Crown building work. The current BCA that is in force is BCA 2022, with BCA 2025 coming in to force 1 May 2025. As the invitation to tender is likely to be / has been lodged after 1 May 2023, this report assesses the design against compliance with the requirements of BCA 2022

The following parts of the BCA are subject to transitional provisions:

- NCC 2022 Energy Efficiency provisions – 1 October 2023.
- NCC 2022 Condensation Management provisions under BCA Part F8 – 1 October 2023.

1.7 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.

Where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*, the following steps must be undertaken:

+ Prepare a performance-based design brief in consultation with relevant stakeholders.
+ Carry out analysis, using one or more of the Assessment Methods listed in A2G2(2), as proposed by the performance-based design brief.
+ Evaluation the results against the acceptance criteria in the performance-based design brief.
+ Prepare a final report that includes:
  - All Performance Requirements and/or Deemed-to-Satisfy provisions identified through A2.2(3) or A2G4(3) as applicable; and
  - Identification of all Assessment Methods used; and
  - Details of steps (a) to (c); and
  - Confirmation that the Performance Requirement has been met; and
  - Details of conditions or limitations, if any exist, regarding the Performance Solution.

1.8 Legislative framework

The following represents the relevant legislative and BCA/AS requirements forming part of the assessment presented in the below report;

- Disability Discrimination Act 1992,
- Disability (Access to Premises Buildings) Standards 2010
- National Construction Code (NCC) (BCA 2022)
- AS 1428.1-2009 - Design for access and mobility, Part 1: General requirements for access - new building work
- AS 1428.1-2021 (Draft) - Design for access and mobility, Part 1: General requirements for access - new building work
- AS 1428.2-1992 - Design for access and mobility, Part 2: Enhanced and additional requirements - Buildings and facilities
- AS 1428.4.1-2009- Design for access and mobility, Part 4.1: Means to assist the orientation of people with vision impairment - Tactile ground surface indicators.
- AS1428.4.2-2018 - Design for access and mobility Means to assist the orientation of people with vision impairment - Wayfinding signs.
- AS1428.5-2010 - Design for access and mobility, Part 5: Communication for people who are deaf or hearing impaired.
- AS1680.2.1-2008 - Interior and workplace lighting Part 2.1: Specific applications— Circulation spaces and other general areas
- AS1735.12-1999 - Lifts, escalators and moving walks Facilities for persons with disabilities.
- AS2890.6-2009 - Parking facilities Off-street parking for people with disabilities
- HB198-2014 - Guide to the specification and testing of slip resistance of pedestrian surfaces.

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 D4 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.

+ No assessment has been undertaken with respect to the following areas of the NCC:

  - Structural
  - Weatherproofing
  - Waterproofing
  - Acoustic
  - Passive Fire Protection
  - DDA / Accessibility
  - Section J / ESD
  - Fire Safety Engineering

+ No assessment has been undertaken with respect to SEPP (Housing) 2021. It is understood that suitably qualified consultants will be engaged to determine the relevance of any Council planning requirements or SEPP requirements and provided detailed assessment reports where applicable.

  Where relevant to this development, it is assumed that these assessments will be undertaken by others.

+ This report does not consider BCA Part G5 (Volume 1) which makes provision for construction of buildings in bushfire-prone areas, therefore no assessment has been undertaken in consideration of RFS, Planning for Bushfire Protection and AS 3959. Where Part G is applicable to the site, then it is required that assessment / due diligence is undertaken by a specialist consultant to verify compliance.

+ This report does not constitute a detailed assessment of the architectural documentation against the requirements of Section J. It is understood that a suitably qualified consultant will be engaged to determine compliance in this regard.

+ BM+G has not undertaken an assessment of any Performance 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:

  - Work Health and Safety Act and Regulations.
  - Work Cover Authority requirements.
  - Water, drainage, gas, telecommunications and electricity supply authority requirements.
  - Disability Discrimination Act 1992.

+ BM+G cannot guarantee acceptance of this report by Local Council, Fire & Rescue NSW or other approval authorities.

+ This report may not be relied upon under the provisions of the Design and Building Practitioners Act & Regulation for the purposes of issuing a Design Compliance Declaration.

+ No part of this document may be reproduced in any form or by any means without written permission from BM+G. This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

1.10 Report Terminology

BCA Completion Certificate – A certificate issued at the completion of works which confirms the building is suitable for occupation in accordance with its classification under the BCA.

BCA Crown Certificate – A certificate issued against building works carried out by or on behalf of the Crown which verifies that the works comply with the requirements of the BCA prior to works commencing, subject to S6.28 of the Environmental Planning and Assessment Act 1979.

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 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 C2D2 and Specification 5, except as allowed for:

- certain Class 2, 3 or 9c buildings in C2D6; and
- a Class 4 part of a building located on the top storey in C2D4(2); and
- open spectator stands and indoor sports stadiums in C2D8.

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:

- structural adequacy; and
- integrity; and
- 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.

Health-care building: A building whose occupants or patients undergoing medical treatment generally need physical assistance to evacuate the building during an emergency and includes—

- a public or private hospital; or
- a nursing home or similar facility for sick or disabled persons needing full-time care; or
- a clinic, day surgery or procedure unit where the effects of the predominant treatment administered involve patients becoming non-ambulatory and requiring supervised medical care on the premises for some time after the treatment.

Horizontal exit: A required doorway between 2 parts of a building separated from each other by a fire wall.

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.

Occupiable outdoor area means a space on a roof, balcony or similar part of a building:

- that is open to the sky; and
- to which access is provided, other than access only for maintenance; and
- that is not open space or directly connected with open space.

Occupation 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.

Patient Care Area – A part of a health-care building normally used for the treatment, care, accommodation, recreation, dining and holding of patients including a ward area and treatment area.

Performance-based Design Brief – Means the process and the associated report that defines the scope of work for the performance-based analysis, the technical basis for analysis, and the criteria for acceptance of any relevant Performance Solution as agreed by stakeholders.

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.

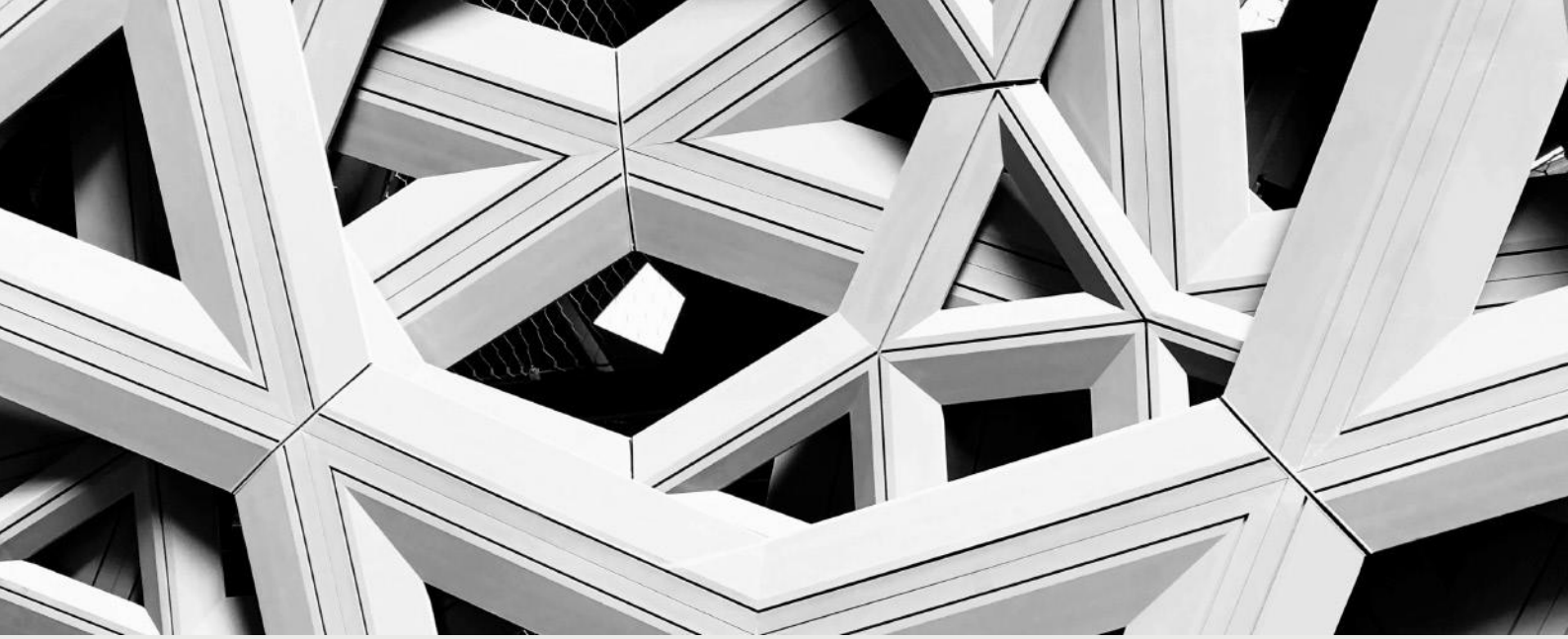
Compliance with the Performance Requirements can only be achieved by-

- complying with the Deemed-to-Satisfy Provisions; or
- formulating an Alternative Solution which-
  - complies with the Performance Requirements; or
  - is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or
- a combination of the above.

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

Treatment area – An area within a patient care area such as an operating theatre and rooms used for recovery, minor procedures, resuscitation, intensive care and coronary care from which a patient may not be readily moved.

Ward area – That part of a patient care area for resident patients and may contain areas for accommodation, sleeping, associated living and nursing facilities.



2.0 Building Characteristics

2.1 Proposed Development

The proposed Acquisition site is intended for office/ education and training.

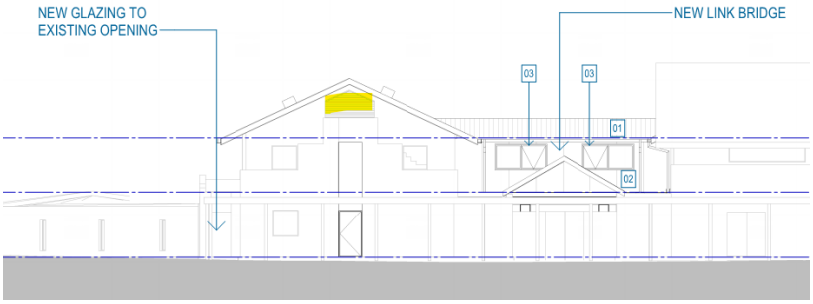
The building is classified as follows:

BCA Classifications:	Block A – Class 5/9b (Lv01) and Class 5 (Lv02) Block B – Class 5/9b (Lv01) and Class 5 (Lv02) Gatehouse – Class 5
Rise in Storeys:	Rise of one (1) and two (2)
Storeys Contained:	One (1) and Two (2)
Type of Construction:	Type C (see notes)
Importance Level (Structural)	2 (under 300 person assumed)
Sprinkler Protected Throughout	No
Effective Height	<12m
Floor Area	Building A – 1,091 m^2 Building B – 812 m^2 Gatehouse – 86 m^2
Largest Fire Compartment	1,091 m^2
Climate Zone	Zone 2

Notes:

- Block A is considered a separate building to Block B. Refer report for confirmation they are not connected by roof.
- Both Block A and B can be considered Type C construction where upper storey is Class 5 (office) use only. This has been indicated in DTM and shall be confirmed if not the case. Where Class 9b assembly/school shared use is intended in upper storey Type B Construction will be applicable.

- The gatehouse use is to be confirmed, assumed Class 5 general area not Class 9b assembly building.
- The building is indicated to have a plant room above level 1 which is not reflected on previous floor plans. The report proceeds on the basis that this is either not defined as a storey or not included in the rise in storeys however provision of plans depicting the use to be provided to confirm.



2.2 Items Requiring Further Information or Re-design

	+ BCA (DTS) Clause	+ Description
1.	**C3D13**	Doors to MSB which are adjacent to the external wall require -/120/30.
2.	**D3D9**	Provide further information on the fire rating of under stair storage areas.
3.	D3D14/ D3D15/ D3D20/ D3D22	Provide further details on stairs, including handrails and balustrades.
4.	**D4D4**	Confirm if accessible areas are to be subject to a performance solution for turning spaces and 1m path of travel or re-design.
5.	**E3**	The lift swinging door does not comply with either AS1735 (must open horizontally) or AS1428.1, noting no latch side clearance has been provided.

2.3 Fire Engineering Scope

Note the below fire engineering scope is current however may be subject to change pending review from projects fire engineer in future design stages.

	+ BCA (DTS) Clause	+ Description
1.	**C2D2 Spec 5 C3D8**	The interconnecting roof located between Block A and Block B shall be subject to performance solution to ensure they are treated as separate buildings.
2.	D2D7/ D2D8/ D2D9/ D2D10/ D2D11	Potential performance solution for a reduced width to the path of travel in the training rooms if seating is proposed to be fixed.
3.	**D2D15**	Where persons must pass back under roofed structures, gangway or through adjacent building (gatehouse) in order to reach public road this shall be addressed by way of fire engineered strategy.
4.	**E1D3**	+ Where fire hose reels are located >4m from the exit this is required to be included within the fire engineered strategy. On site investigations had some exits areas where this is applicable, additional areas to be monitored as the design progresses. + To permit FHR to provide coverage under stair enclosures which are required to be fire rated

2.4 DDA Performance Solution Scope

Note the below fire engineering scope is current however may be subject to change pending review from projects fire engineer in future design stages.

+ BCA (DTS) Clause		+ Description
1.	**D4D3 (1)– AS1428.1 Cl. 7**	Location of spoon drains in accessible path of between accessible buildings and allotment boundary do not comply with abutment of surfaces requirements of AS1428.1. A ramp infill is required to be provided over the top and be subject to assessment within performance solution.
2.	**D4D4 (f)**	A performance solution is proposed to omit access to upper storey on Block B on basis upper storey is Class 5 and under 200m2 however lower floor has Class 9b part by way of connected out of scope hall being Class 9b which does not comply with requirements of this Clause.
3.	**D4D4 AS1428.1 Cl. 6.5**	Where a turning space in accordance with AS 1428.1 – 2009 is not achieved within 2m of the end of the accessway, this will be subject to a Performance Solution.
4.	**D4D4 AS1428.1 Cl. 13.2 / 13.3**	Doors to rooms that have doorways with less than 850mm clear width (920mm door) shall be subject to performance solution.

2.5 Additional Performance Solutions

+ BCA (DTS) Clause		+ Description
1.	**F3P1**	A damp and weather proofing performance solution shall be provided for new external wall, door or window elements.
2.	**F4**	Facilities not separately labelled for employees and students on basis of integrated learning environment. Separate buildings share facilities which are located in Block A and gatehouse only.

2.6 Fire Compartment Floor Area Limitations

Maximum size of fire compartment/atria is:

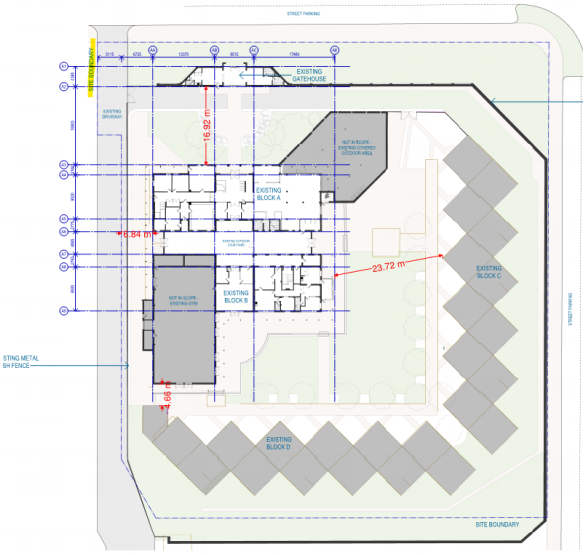
+ Classification		+ Type A	+ Type B	+ Type C
5, 9b or 9c	**Max. floor area**	8,000m^2	5,500m^2	3,000m^2
	Max. volume	48,000m^3	33,000m^3	18,000m^3

2.7 Distance to Fire Source Features

The fire source features for the proposed refurbishment are the side and rear lot boundaries and other building on the allotment that is not Class 10. A detailed site plan is required to confirm extent of exposure however from the below it is expected both adjacent lot boundaries and buildings will not be within 3m adjacent buildings or allotments.

Confirmation is required if any lot amalgamation is proposed as a result of the Development Application.

Note – distance to fire source feature is assessed on the basis each building is Type C construction with upper floor limited to Class 5 (office) use only. Where Class 9b (education/ general assembly) is required in upper storey Class 9b rigger required Type B construction with FRL required <18m from FSF.



Note: 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.

3.0 BCA Assessment

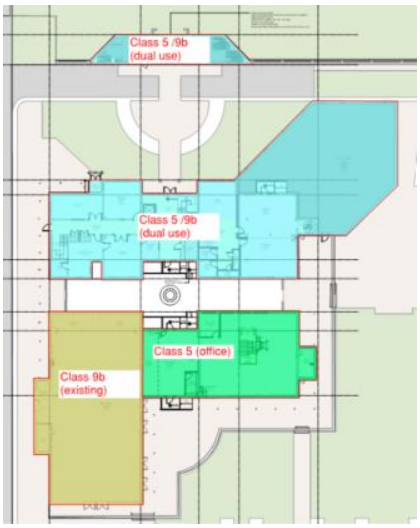
We note the following BCA compliance matters with relation to proposed building works are capable of complying with the BCA. Please note that this is not a full list of BCA clauses, they are the key requirements that relate to the proposed work and the below should be read in conjunction with the BCA.

3.1 Section A – Governing Requirements

Part A

Governing Requirements: Both Block A and B can be considered separate buildings of Type C construction where the upper storey is of Class 5 (office) use only. This has been indicated in DTM and shall be confirmed if not the case.

The assessment is based on following BCA Classifications. Upper floor has been confirmed and is now documented as Class 5 use.

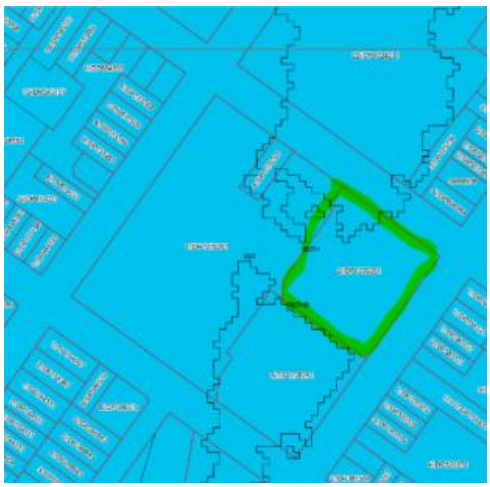


3.2 Section B – Structure

Part B1

Structural Provisions:

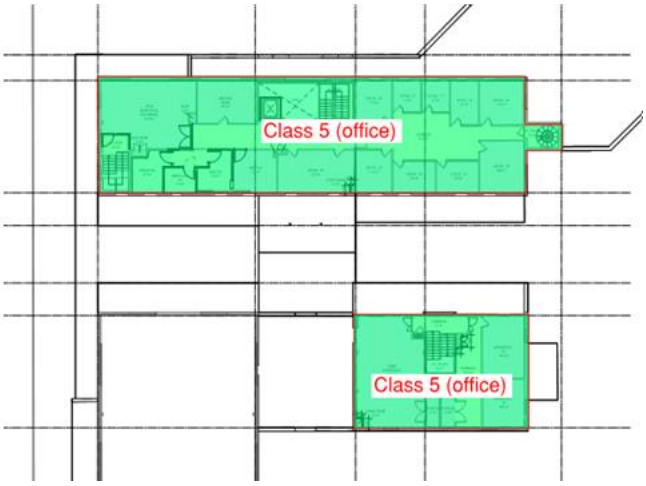
- New building works are to comply with the structural provisions of the BCA 2022 and referenced standards including AS 1170. Consideration may be given to compliance with AS 3826-1998 - Strengthening existing buildings for earthquake for any required remedial works to the existing building where appropriate.
- All balustrades and fixed screening to be included within design certificate from structural NER confirming compliance.
- The structural engineer will need to certify that the structural capacity of any will not be reduced as a result of the new works and that the building is considered structurally adequate for its intended use.
- The Importance Level 2 provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary. Architect plans confirm <300 persons can being trigger importance level 3.
- New building works to the existing building must be compliant with earthquake provisions of AS1170.4 – Earthquake Actions in Australia. All new building work to comply with AS1170.4
  - design certificates to reference compliance with the standard. Any architectural features 2m to have seismic restraint this includes storage racks and the like.
- The building is located within flood zone on previous planning portal mapping. Council DA or REF to confirm specific requirements in addition to BCA Part B.



3.3 Section C – Fire Resistance

C2D2 / Spec 5

Type of Construction Required: The acquisition site has been assessed on the basis that Block A and Block B are separate buildings. The client has confirmed the upper storey will be staff / office use only which enables Type C construction for each building as per C2D2. Any student use of the upper storey shall be confirmed which will trigger Type B construction and higher FRLs.



All / any connecting roof space shall be confirmed on plan. A fire engineered solution is required to omit the fire rating to external loadbearing columns where <3m from fire source feature (Block A and Block B).

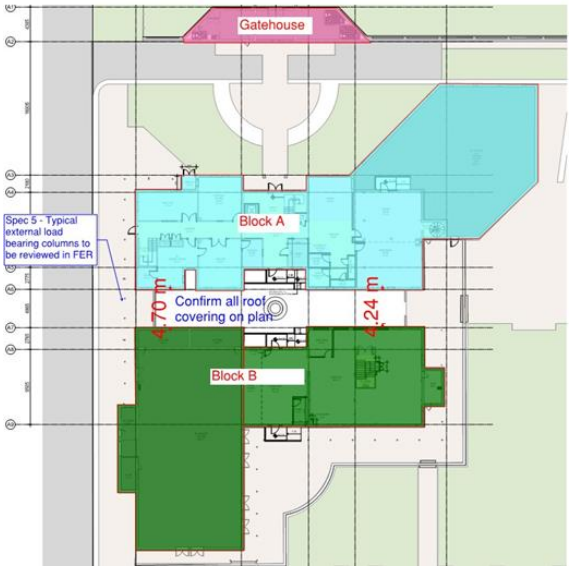
All buildings are required to comply with the requirements of Type C Construction as stated within Specification 5. The table below provides an overview of the requirements of each. Refer to Table 5 of Appendix 1 for the FRL requirements of Type C Construction. Also refer Spec 6 for walls of certain Class 9b Buildings (lightweight).

+ Type C Construction:
+ External walls (and columns incorporated within) need not achieve an FRL if >3m from a boundary or separate building. Where required, external walls of Type C Construction only require an FRL from the outside and not in both directions.
+ Floors need not achieve an FRL, subject to S5C3.
+ Roofs need not achieve an FRL.
+ Internal columns need not achieve an FRL.

Comment: Based on Type C construction each separate building is more than 3m apart. The interconnecting roof and associated external columns are be reviewed by the project fire engineer.

The existing out of scope hall is considered part of Block B as not fire separated.

Any roofs connecting sperate building shall be reviewed by project fire engineer, performance solution to demonstrate buildings are not connected by roof in a detrimental manner.



Confirmation of detailed site plan with lot boundaries and any proposed lot amalgamation is required to confirm FRL required.

C2D11 & Spec. 7

Fire Hazard Properties: A schedule of all wall, floor, and ceiling linings along with associated test reports are to be provided for review to ensure compliance with the fire hazard property requirements of the BCA. Noting:

- Minimum Group Numbers apply to wall and ceiling linings. AS 5637 test reports must be provided to determine compliance.
- Minimum Critical Radiant Flux values apply to floor linings. AS ISO 9239.1 test reports must be provided to determine compliance

Refer to Table 2 and 3 in Appendix 1 below for the required fire hazard properties.

Comment: Architect to confirm all propose linings will comply with the requirements of this Clause. This also applies to items such as acoustic panels and the like.

C3D3

General Floor Area and Volume Limitations: The building is to achieve fire compartment sizes not in excess of the DtS requirements of this clause.

Comment: The following maximum fire compartment sizes apply to the building inclusive of the existing Gym for Type C Construction.

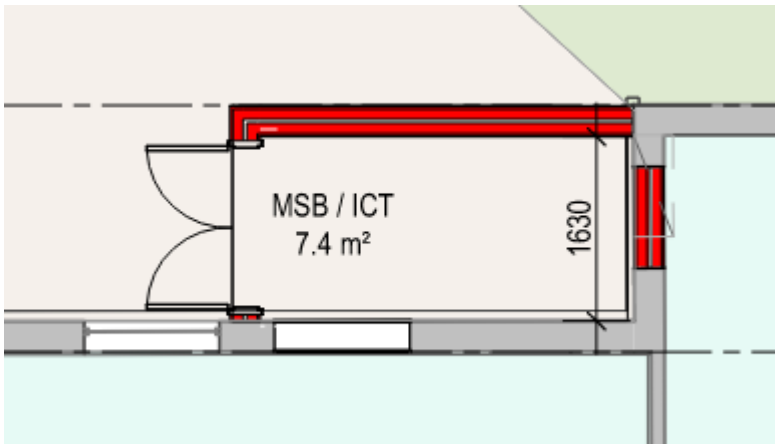
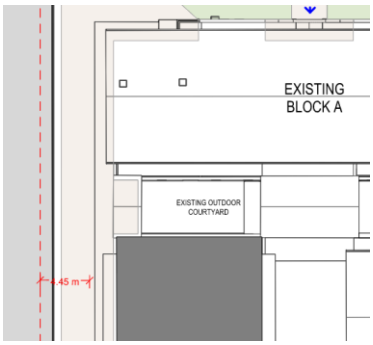
- Max floor areas 3,000 m^2
- Max Volume 18,000 m^3

Plans comply with this criterion with each separable building being less than 3000m^2. The floor area of each building have been measured as follows –

- Building A- 1,091m^2
- Building B – 812m^2
- Gatehouse – 86m^2

Note plant area not considered in rise of storeys will not exceed Type C limitations.

Fire engineer to demonstrate that any roofs between separate buildings do not connect separate buildings / fire compartments.

C3D13	**Separation of Equipment / Electricity Supply Systems:** Dependent on plant and equipment to be housed within the plant rooms, FRL 120/120/120 fire separation may be required to separate these areas from the building remainder. The following equipment required FRL120/120/120 fire separation from the building: + Main switch rooms / boards; or + Electricity substations; or + Light motors and lift control panels; or + Emergency generators used to sustain emergency equipment operating in the emergency mode; or + Central smoke control plant; or + Boilers; + A battery or batteries installed in the building that have a voltage exceeding 12 volts and a capacity exceeding 200kWh. **Comment:** Current plans depict external fire rated MSB and internal comms rooms. Electrical engineer to confirm if the internal comms/MSB rooms meet the above criteria, which would trigger 120-minute fire-rated construction including self-closing fire doors. Where the above criteria are not met/exceeded, smoke separation is required. This will be monitored as the design progresses. Refer to the below snippet for the typical arrangement. 
C4D3 & C4D5	**Protection of Openings in External Walls:** Openings within 3m of a fire-source feature are required to be protected in accordance with C4D5.  **Comment:** Note
C4D13 **C4D14**	**Openings in floors and ceilings for services/ shafts:** Allowances are to be made to treat any new or existing service penetrations through fire rated slab min FRL 30 minutes. Note this is applicable should the building be classified as Type B construction (i.e. where the upper storey contains a Class 9b part).

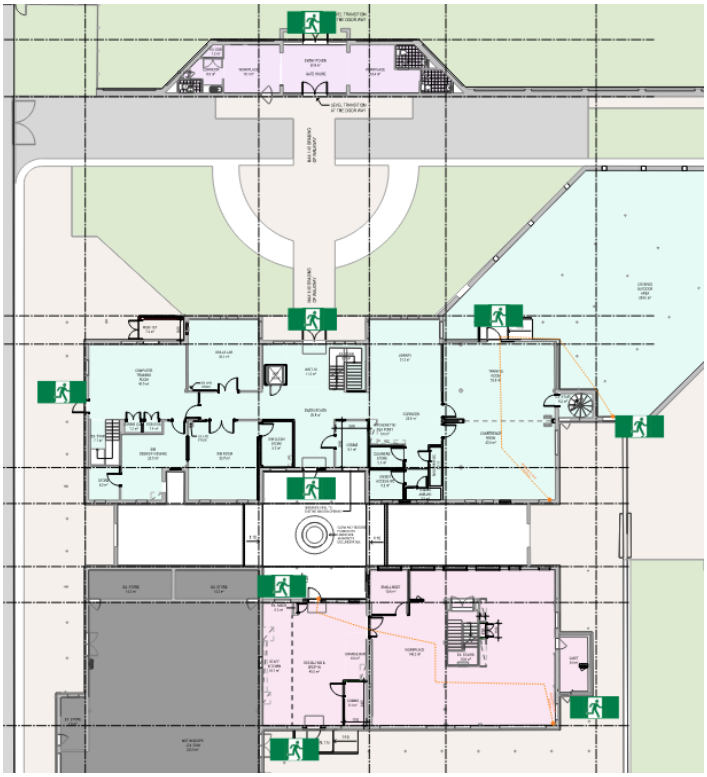
3.4 Part D – Provision for Escape and Construction of Exits

D2D3

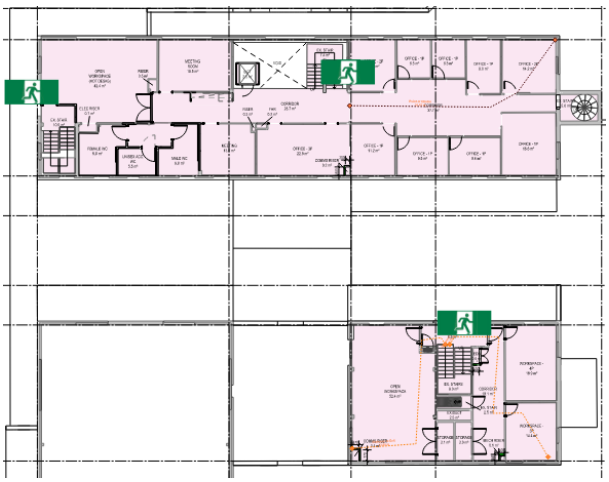
Number of Exits Required: The building is required to be provided with 1 exit to each storey however additional exits may be required for travel distance.

Comment: Two exits are required for each storey. The exit is the point at which open space is reached. Roof plan to be provided to confirm open space location.

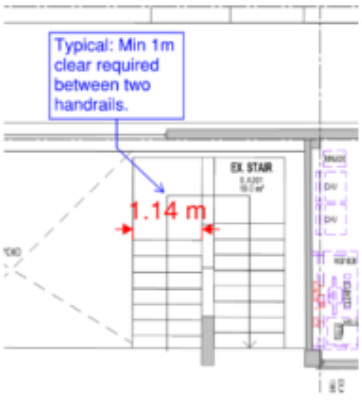
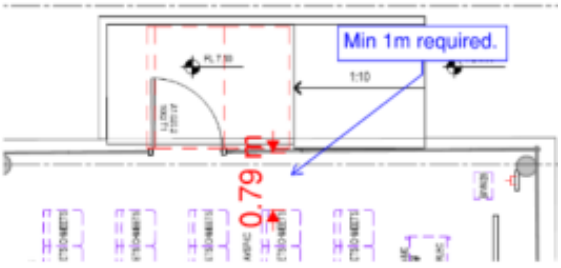
Level 1



Level 2



Note existing circular stair does not comply for egress as <1m wide. It is therefore not required to be considered a required exit for the scoped works.

D2D4	**When Fire-Isolated Stairways and Ramps are Required:** This clause sets out the requirements for stairways and ramps to be fire-isolated in buildings. A required exit stair must be fire-isolated if it connects, passes through, or passes by more than two storeys in a Class 5/ 9b building. An additional storey is permitted to be included in certain circumstances. **Comment:** Stairs connect two storeys only and are not required to be fire isolated in accordance with the requirements of this Clause.
D2D5 **D2D6**	**Exit Travel Distances:** Exit travel distances within the building are required to be not more than 20m to a point of choice between alternative exits and 40m to the nearest one from Class 5/ 9b areas. **Distance Between Alternative Exits:** The maximum distance permitted between alternative exits in Class 9 areas is 60m. This must be measured back through the point of choice. Alternative egress paths are not permitted to converge to less than 6m, and alternative exits must be located more than 9m apart. **Comment:** Generally, travel distances comply. The following is noted regarding egress: + External courtyards has breakout exit for travel to point of choice. + Quiet room can achieve compliant travel distance where the external door serves as exit to remove dead end travel distance >20m from a point of choice. Exit sign and lever action hardware required. (this has been assumed). + Exit doors required to swing in the direction of egress (current plans comply). See D3D35. + The lower floor can achieve complaint egress however FER to address discharge back under parts of the building (TBC) in order to reach open space. + The upper floor is capable of complying with travel distance requirements with the number of egress stairs depicted. The circular stairs are not suitable for egress due to <1m clear width. Travel distance can be achieved without reliance on therefore stairs considered non required for egress.
D2D7/ **D2D8/** **D2D9/** **D2D10/** **D2D11**	**Dimensions of Paths of Travel to an Exit:** The minimum clear height through all egress paths is required to be no less than 2m, and a minimum of 1m wide (this width dimension is measured clear of any obstructions such as handrails and joinery). Aggregate exit widths must be achieved which are driven by occupancy numbers of each floor. **Comment:** The arch plans are to ensure the minimum clear egress widths are maintained throughout. Provide confirmation if the seating is loose within the training room.   Architect to note and action min width and height requirements to be implemented into design. Existing out of scope spiral stairs are not required for access or egress and are not to be used. See below.

D2D14

Travel Via Non Fire Isolated Required Stairways: 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.

The distance from any point on the floor to a point of road or open space must not exceed 80m. The stair must discharge at a point not more than 20m to a point of road or open space, or from a fire-isolated passage, or 40m from one of two such points.

Comment: All stairs are considered non fire isolated exits (expect non required stair with winders). <20m travel from point of discharge to open space is achievable.

D2D15

Discharge of 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.

Comment: Confirmation is required that once exited the building persons can reach public road without passing back under parts of the buildings or another structure.

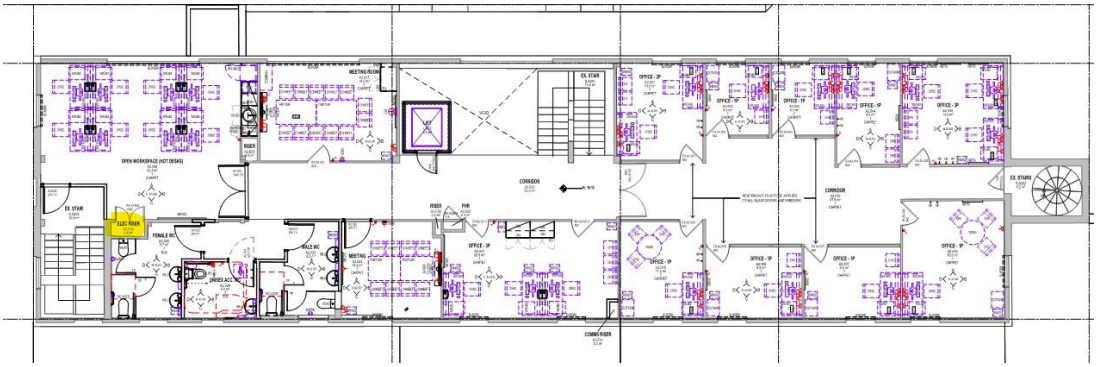
The egress strategy is to public road requires persons to pass back under roofs, gangways / through adjacent building in order to reach public road this shall be addressed by way of fire engineered strategy. All roofed areas shall be confirmed on plan for FER consideration noting this is also an compliance issue for connection of buildings - see Part C.

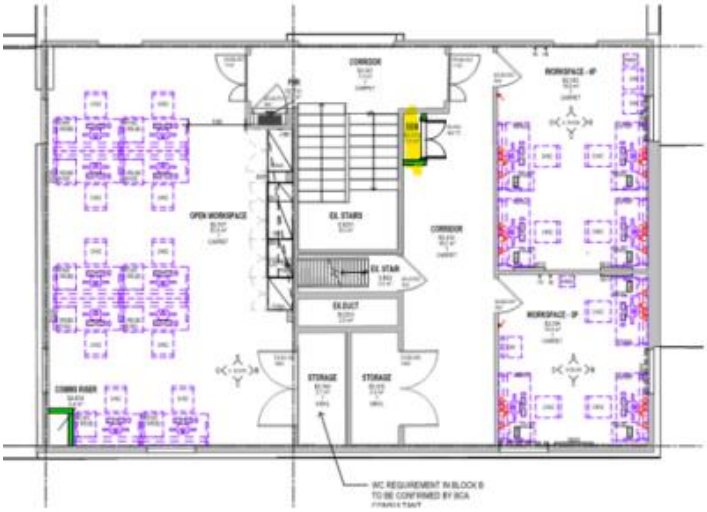
D3D8

Installation in exits and paths of travel: Smoke separation is required to all DB boards in the like on path of travel to exits. This included non-combustible enclosure, solid core door with flash plate and smoke seals. All penetrations to be suitably smoke sealed.

Comment: Any additional DB boards to be confirmed on plans. Arch plans depict some green wall indicative of smoke separation, all DB and Comms rooms to be smoke sealed. Allow to upgrade existing.


CONTINUATION REFER TO 61-L1-0002



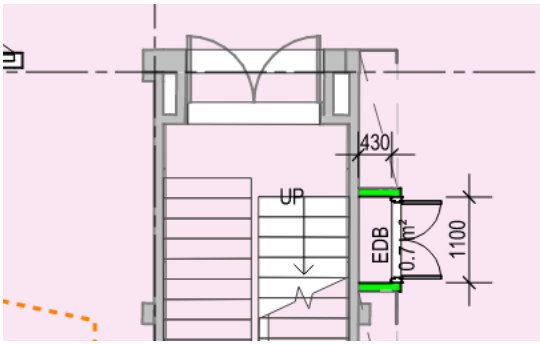


D3D9

Enclosure under stairs: The non fire isolated stairs, enclosed below, shall be with FRL 60-minute construction and self-closing -/60/30 fire door.

Comment:

Storage under stairs appears to be at the level 1 workplace room.

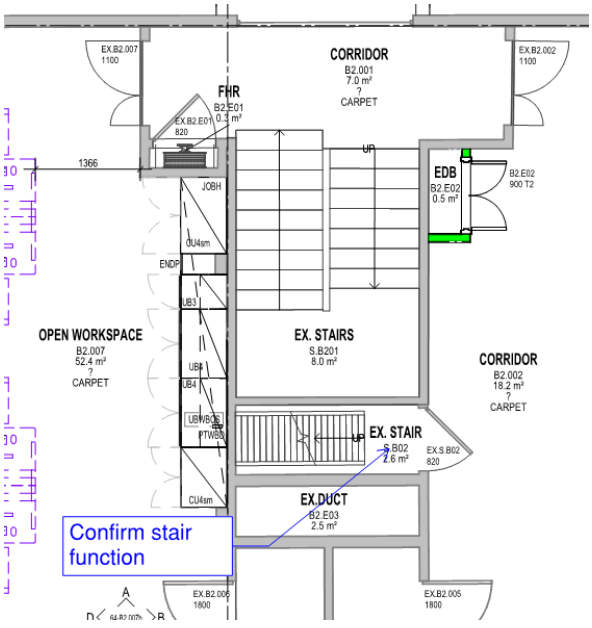


D3D14/ D3D15/ D3D20/ D3D22

Stairways, Balustrades, and Handrails:

Stairways:

- A stairway must have no more than 18, nor less than 2, risers in each flight.
- Landings must be not less than 750mm in length.
- In a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°.
- Plans depict two stair flights adjacent to each other, additional details required to confirm compliance.



Balustrades:

- All balustrades must achieve a minimum height of 1m above finished floor level.
- Balustrades must not permit a 125mm sphere to pass through any opening.
- A barrier required by D3D17, located on a floor more than 1m above the surface beneath, must not incorporate horizontal or near horizontal elements that could facilitate climbing between 150mm and 760mm above the floor.

  This does not apply to fire isolated stairways, fire-isolated ramps and other areas used primarily for emergency purposes, other than –

  - external stairways; and
  - external ramps; and

Handrails:

- Handrails must be located on both sides of all stairways and ramps except for fire-isolated stairs. Handrails must comply with AS 1428.1 as relevant.
- Allow to upgrade handrails to comply on both sides of the stair. See DDA report for further information.

Comment: Is understood the existing building has several handrails and balustrade non-compliances to be resolved/upgraded throughout the design stage. Stairs shall be confirmed to comply and have slip resistant surfaces and colour contrasting nosing strips. Balustrades shall be upgraded to comply for heights >1m and no gaps less than 125mm. Architect plans note provision to upgrade existing handrails and balustrades.

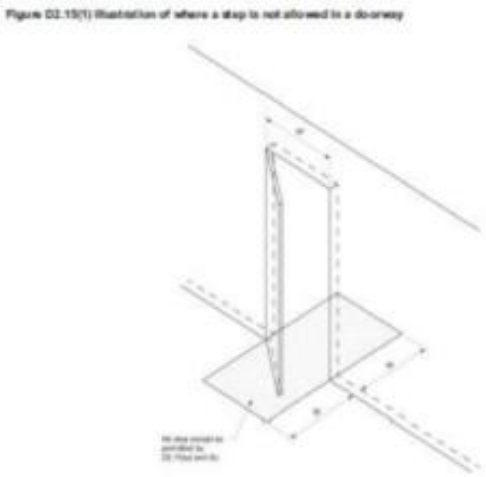
D3D16

Threshold: All The thresholds of a door must not incorporate a step or ramp at any point closer to the door than the width of the doorway unless:

- In building required to be accessible the doorway open direct to open space; and
- Is provided with a threshold ramp or step ramp in accordance with AS1428.1.

In other cases, the door opens to a road or open space, external stair landing or external balcony and the door sill is not more than 190mm above FFL.

Comment: The accessible entry points and exit locations are to be confirmed/ finalized (See DDA report). All differences in levels with the building, particularly GL to be confirmed on plan. Updated plans have the facility to comply, see DDA assessment for further details. Step ramps are provided at door threshold locations for DDA. All other areas that serve as exit only shall not be more than 190mm step.

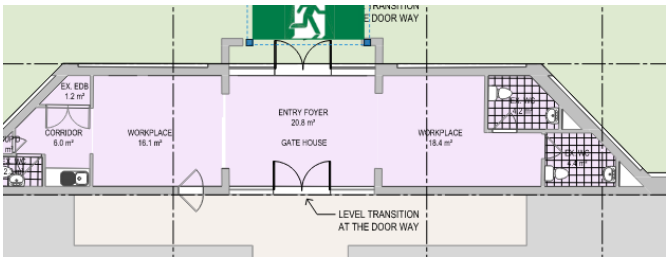


D3D25 / D3D26

Doors and Latching: All egress doorways must swing in the direction of egress and must be readily openable without a key from the side that faces a person seeking egress, by a single handed downward or pushing action on a single device which is located between 900mm and 1100mm from the floor.

Comment: All exits are required to swing in the direction of egress except where provided with a device capable of holding the door in the open position and where the door is serving a <200m^2 part.

The gatehouse entry door to be upgraded for DDA compliance. The door is also serving as an egress path for Black A and B therefore is to swing outwards (direction of egress). Ensure at least one leaf is min 920mm for DDA compliance. The plan now shows this area complies.

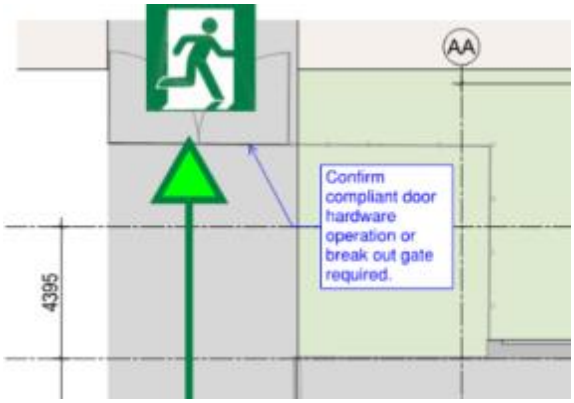


Any power operated doors serving as required exits are required to auto open upon activation of smoke detection.

Any sliding doors are required for egress strategy, hardware to be confirmed to comply with BCA D3D26.

Comment: Site inspection indicated non-compliant door hardware and height throughout. All door hardware shall be upgraded to comply with the requirements of this Clause i.e., lever action hardware in heights permitted.

Large gates serving as security/ vehicle entry point have potential to not comply for latch type and door/ gate force. Confirmation is required in this regard or break out swing exit required.



D3D29	**Protection of openable windows:** Protection of openable windows is required in accordance with the requirements of this Clause for the upper storey. **Comment:** Window restrictors to be implemented into the design as required in upper storey. A number of openable windows exceeded 125mm. Architect plans note provision to upgrade.
Part D4	**Access for People with a Disability:** The extent of access required depends on the classification of the building. Buildings and parts of buildings must be accessible as set out in Table D3.1 unless exempted by Clause D4D5. The building is required to comply with AS1428.1-2009. **Comment:** The affected part provision of the Access to Premises Standard (2010) apply to the refurbished parts of the building. The affected part provisions require the existing paths of travel from the main building entry to each of the area's refurbishment (which is deemed as the 'affected part') to comply with the access provisions of the BCA & AS 1428.1-2009 in terms of access pathways, doorways within the path of travel to the new works, provision of accessible lifts etc. A lift is required to achieve access between buildings which is depicted in current design.
D4D2	**General building access requirements:** For Class 5 and 9b buildings, access must be provided to and within all areas normally used by the occupants. **Comment:** Access required throughout in accordance with the Clause and Access to premises standard.

D4D3

Access to building: Accessways must be provided to accessible buildings from the main points of pedestrian entry at the allotment boundary and any accessible car parking space or accessible associated buildings connected by a pedestrian link.

An accessway must be provided to a building required to be accessible-

- From the main points of a pedestrian entry at the allotment boundary; and
- From another accessible building connected by a pedestrian link; and
- From any required accessible car parking space on the allotment (none provided therefore n/a).
- In a building required to be accessible, an accessway must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances including the principal pedestrian entry.

Comment: Gradients of walkways to be depicted on plans for review.

Confirmation is required on designated accessible entry points. The following is considered to be the accessible pedestrian entry point; Note site plan suggest two option, final option including accessible path of travel to be confirmed.

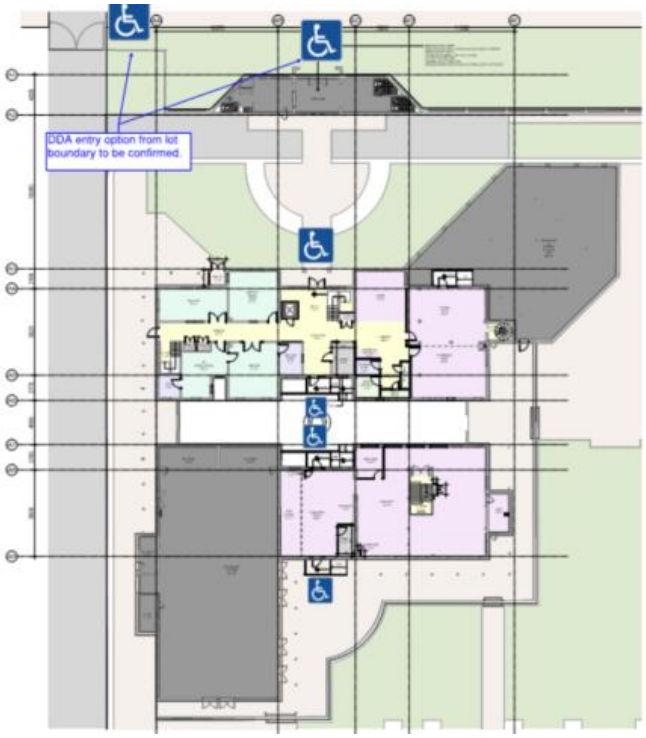
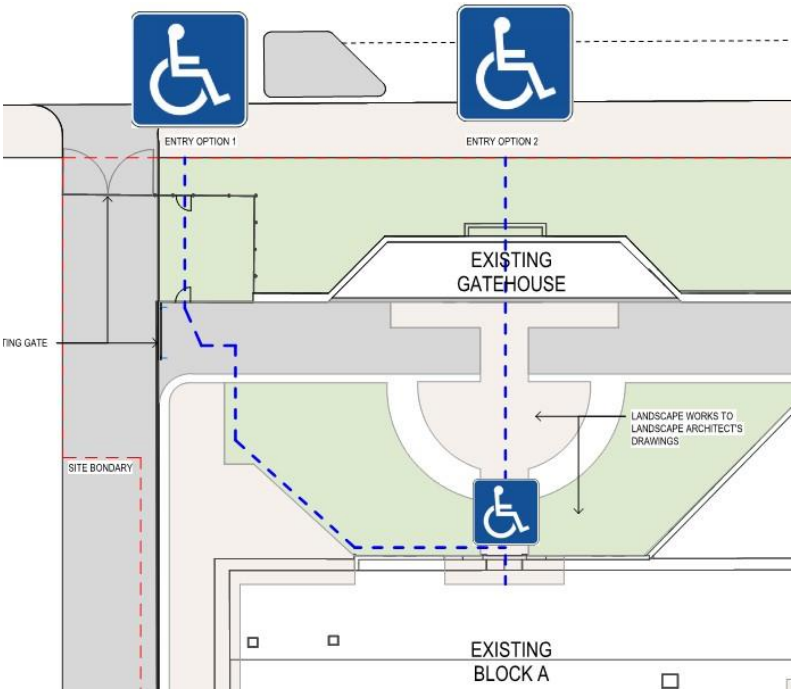


Figure 1

A compliant accessway from lot boundary and any accessible car parking (where parking is provided) shall be confirmed. It is noted no parking proposed in current design therefore n/a at this stage. To be monitored as the design progresses.

Access via the lot boundary is to be confirmed. Current plans depict grass only in front of entry/ foyer. Plans required to demonstrate an accessway to the entry point of both buildings.



A performance solution is proposed for the following:

D4D3 (1) – Location of spoon drains in accessible path of between accessible buildings and allotment boundary do not comply with abutment of surfaces requirements of AS1428.1. A ramp infill is required to be provided over the top and be subject to assessment within performance solution.

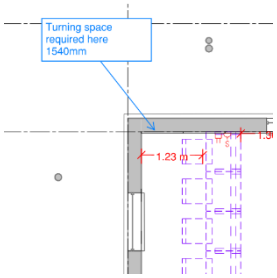
D4D4 (f) – A performance solution is proposed to omit access to upper storey on Block B on basis upper storey is Class 5 and under 200m^2 however lower floor has Class 9b part by way of connected out of scope hall being Class 9b which does not comply with the requirements of this Clause.

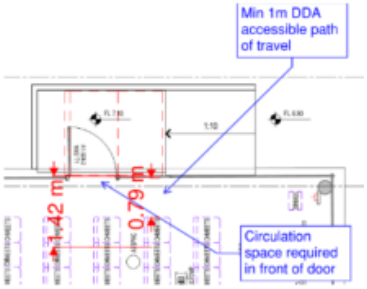
D4D4 AS1428.1 - 2009

Parts of buildings to be accessible: The following high level criteria from AS1428.1 – 2009 is to be incorporated into the design;

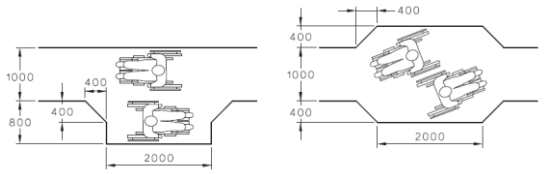
- AS1428.1 Cl. 6.1 General - A continuous accessible path of travel shall not include a step, stairway, turnstile, revolving door, escalator, moving walk or other impediment.
- AS1428.1 Cl. 6.2 Height of paths - The minimum unobstructed height of a continuous accessible path of travel shall be 2000 mm or 1980 mm at doorways.
- AS1428.1 Cl. 6.3 Widths of paths - Unless otherwise specified (such as at doors, curved ramps and similar), the minimum unobstructed width of a continuous accessible path of travel shall be 1000 mm.

Comment: Areas where this is not achieved, compliance to be confirmed throughout.



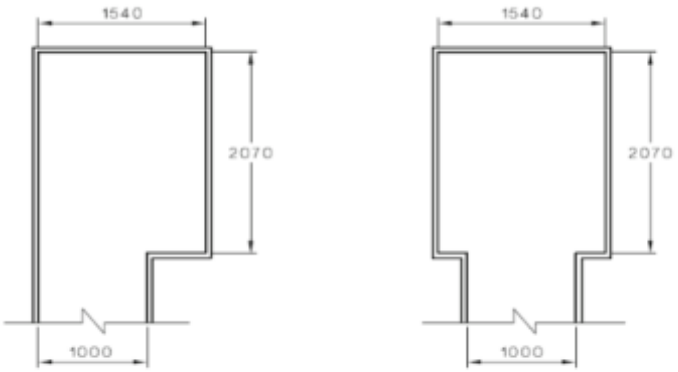


AS1428.1 Cl. 6.4 Passing Space - Accessways must have passing spaces complying with AS 1428.1 at maximum 20m intervals on those parts of an accessway where a direct line of sign is not available.



DIMENSIONS IN MILLIMETRES

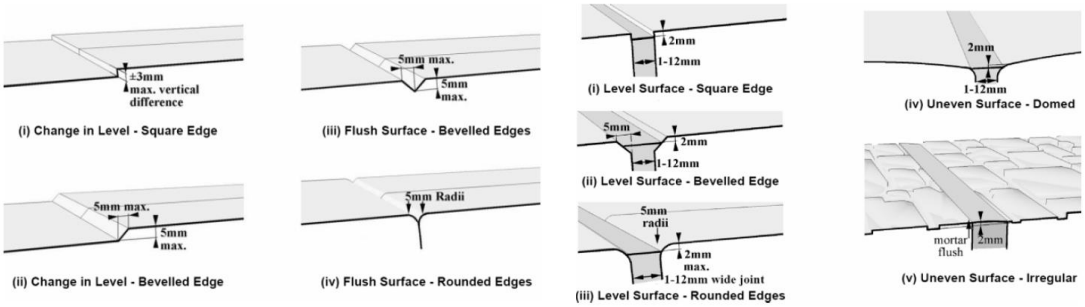
AS1428.1 Cl. 6.5 - Turning Space: Turning spaces must comply with AS1428.1 and located within 2m of the end of accessways where it is not possible to continue travelling along the accessway, and at maximum 20m intervals along the accessway. Scaled plans suggest less than 1540mm, confirm min 1.54m on plans.



(a) Space required in corridor (b) Space required in corridor

Comment: Numerous area where turn space was not achieved. Rectification is required in some areas, others to be addressed by way of Performance solution. Typical below see marked plan for further information.

AS1428.1 Cl. 7 - Floor Transition/s - Transitions between floor finishes will need to comply with Clause 7.2 of AS1428.1-2009.



Comment: Accessible paths of travel required to comply with the requirements of this Clause. Spoon drain locations require DDA performance solution, threshold type ramp required over top to enable Access. Further information required.

AS1428.1 Cl. 11.1 - Stairway Construction

+ Where the intersection is at the property boundary, the stair shall be set back by a minimum of 900 mm so that the handrail (complying with Clause 12) and TGSIs do not protrude into the transverse path of travel.

- Where the intersection is at an internal corridor, the stair shall be set back so that handrails or TGSIs do not protrude in to the path of travel.
- Stairs shall have opaque risers.
- Stair nosings shall not project beyond the face of the riser and the riser maybe vertical or have a splay backwards up to a maximum 25 mm.
- Stair nosing profiles shall—
  - have a sharp intersection;
  - be rounded up to 5 mm radius; or
  - be chamfered up to 5 mm × 5 mm.
- At the nosing, each tread shall have a strip not less than 50 mm and not more than 75 mm deep across the full width of the path of travel. The strip may be set back a maximum of 15 mm from the front of the nosing. The strip shall have a minimum luminance contrast of 30% to the background. Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall comply with Clause 7.2 and Clause 7.3.
- Where the luminance contrasting strip is not set back from the front of the nosing then any area of luminance contrast shall not extend down the riser more than 10 mm.
- TGSIs shall be installed in accordance with AS 1428.4.1.

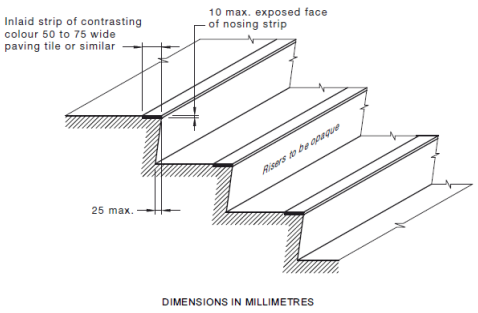


Figure 3

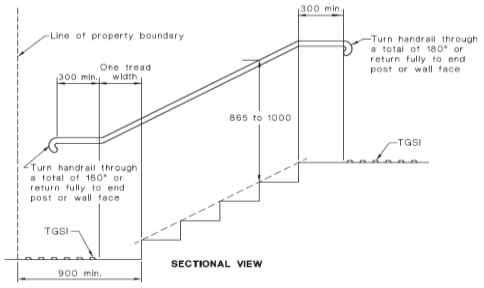


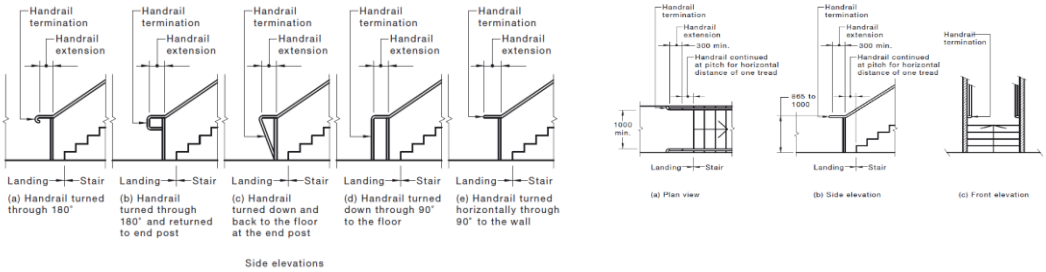
Figure 2

Comment: Architect plans do not provision to upgrade stairs and nosing's

AS1428.1 Cl. 11.2 - Stairway Handrails

Handrails shall be continuous throughout the stair flight and, where practicable, around landings and have no obstruction on or above up to a height of 600 mm and as follows:

- The design and construction of handrails shall comply with Clause 12 of AS 1428.1 – 2009.
- Handrails shall be installed on both sides of the stairs.
- Handrails shall have no vertical sections and shall follow the angle of the stairway nosings.
- Where a handrail terminates at the bottom of a flight of stairs, the handrail shall extend at least one tread depth parallel to the line of nosings plus minimum of 300 mm horizontally from the last riser.
- The handrail shall extend a minimum of 300 mm horizontally past the nosing on the top riser.
- Where the handrail is continuous, the 300 mm extension is not required in the inner handrail at intermediate landings.
- The dimensions indicating the heights of handrails shall be taken vertically from the nosing of the tread to the top of the handrail or from the landing to the top of the handrail.



AS1428.1 Cl. 12 - Handrails

The design and construction of handrails shall comply with the following:

- The cross-section of handrails shall be circular or elliptical, between 30-50mm dia. for a width of not less than 270° around the uppermost surface.
- Exposed edges shall have a radius of not less than 5mm.
- The top of handrails shall be between 865-1000mm above the nosing line of a stairway, or the plane of finished floor otherwise.
- The height of the top of the handrail shall be consistent through any stair, ramp, and landing.
- Handrails shall be securely fixed and rigid, and their ends shall be turned through a total of 180°, or to the ground, or returned fully to end post or wall face.
- The clearance between a handrail and an adjacent wall surface or other obstruction shall be not less than 50mm.

AS1428.1 Cl. 13.1 Luminance Contrast

All doorways shall have a minimum luminance contrast of 30% provided between—

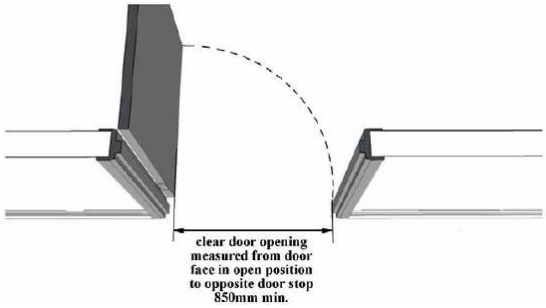
- door leaf and door jamb;
- door leaf and adjacent wall;
- architrave and wall;
- door leaf and architrave; or
- door jamb and adjacent wall.

The minimum width of the area of luminance contrast shall be 50 mm.

Comment: Luminance contrast of doors to accessible rooms. A number of existing glazed doors are understood to achieve this by coloured aluminium frame. Architect to ensures compliance throughout.

AS1428.1 Cl. 13.2 / 13.3 Doorways

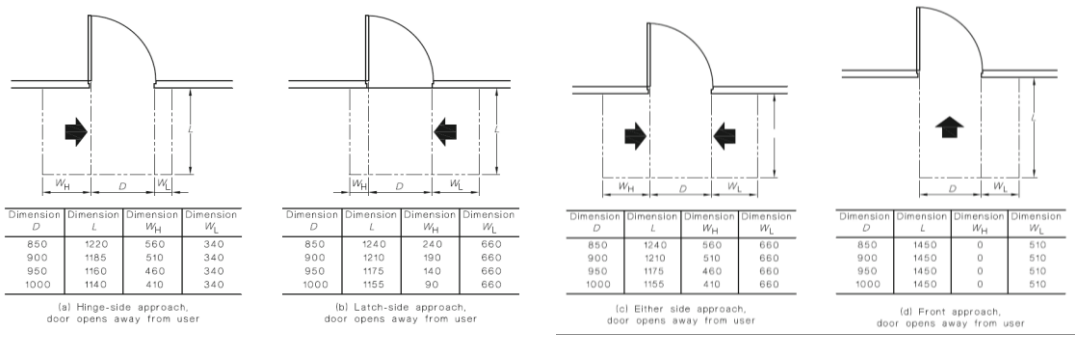
The minimum width of an accessible doorway must have a *clear opening* width of not less than 850mm in accordance with AS1428.1. Where double doors are provided, at least one leaf must have a clear unobstructed width of 850mm. Typical example below, rectify all doors in accessway to be min 850mm clear (920mm door).



Comment: Numerous existing doors depicted to be less than 850mm clear width required by this Clause. This is required to be captured by way of Performance Solution.

Circulation space is required to all doorways throughout the building that are required to be accessible in accordance with Section 13 of AS 1428.1 – 2009 (see diagrams below). Circulation space is not required to be provided to rooms where access for a person with a disability is not required i.e. dirty utility / clean utility rooms, plant rooms, comms rooms etc. See below required doorway circulation space for swinging and sliding doors.

Circulation space shall be provided for one of the below options either side of the door.



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1220	560	340
900	1185	510	340
950	1160	460	340
1000	1140	410	340

(a) Hinge-side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	240	660
900	1210	190	660
950	1175	140	660
1000	1155	90	660

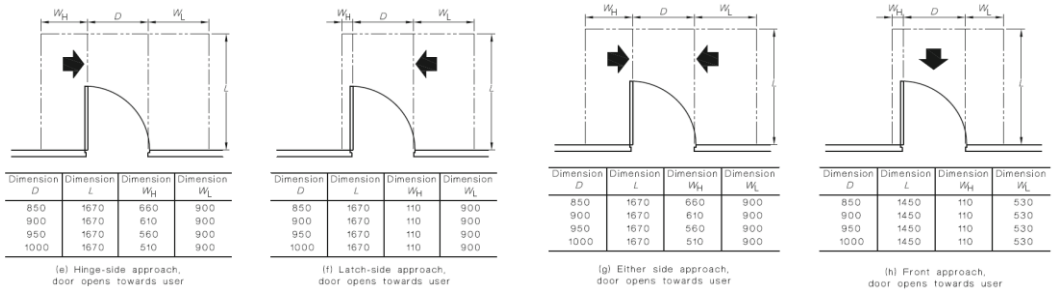
(b) Latch-side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach, door opens away from user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

(d) Front approach, door opens away from user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(e) Hinge-side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

(f) Latch-side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(g) Either side approach, door opens towards user

Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

(h) Front approach, door opens towards user

AS1428.1 Cl.13.5 Door Controls - Door handles and hardware to rooms required to be accessible must comply with the requirements of Clause 13.5 of AS 1428.1 – 2009.

Confirm gatehouse sliding door latch type i.e. is this power operated with green push button >500mm from internal corner.

AS1428.1 Cl.14.1 Switches and GPO's - All switches and controls shall be positioned at a height of 900-1000mm above the FFL and be no closer than 500mm to any corner.

Comment: Architect to note above criteria and develop into design.

D4D5

Exemptions: The following areas, and any path of travel providing access only to these areas, are not required to be accessible:

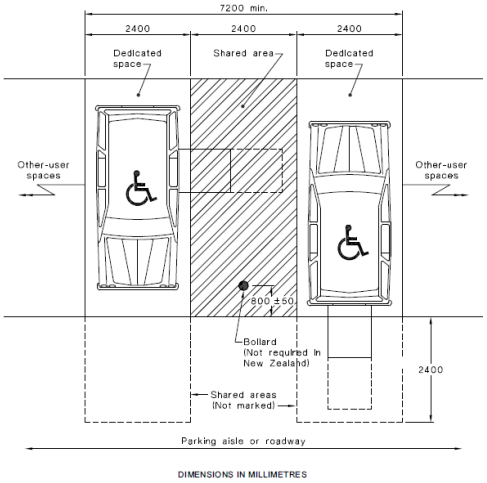
- An area deemed inappropriate to access due to the areas particular use
- An area that would pose a health or safety risk for people with a disability.

Comment Plant, storerooms and the like are considered inappropriate for access in accordance with BCA D4D5. See marked plans for rooms considered in appropriate for access (shaded red). Client to confirm if any specific access requirements to any of these spaces.

D4D6

Accessible carparking spaces –

- Must be provided in accordance with the ratios set out in this clause.
- Must comply with AS 2890.6-2009



Comment: Where parking is provided, they shall be provided at ratio comply with BCA D4D6 and comply with AS2890.6 – 2009. Current design does not provide parking therefore this Clause is non applicable at this stage. To be monitored as design progresses.

D4D7

Signage: In a building required to be accessible, braille and tactile signage must be provided to all:

+ Required accessible sanitary facilities
+ Spaces with hearing augmentation
+ Ambulant sanitary facilities
+ Non-accessible pedestrian entrances
+ Each door required to be provided with an exit sign

Braille and tactile signage is to comply with sub-clause (a) and Specification 15.

Comment: Architect to note and implement into design as required.

Where signage is required to support performance solution i.e directional signage to accessible space they shall be in a manner that complies with BCA D4D7.

D4D8

Hearing Augmentation: A hearing augmentation system must be provided where an inbuilt amplification system (excluding emergency warning systems) is present in the following areas:

+ In a room in a Class 9b
+ A hearing augmentation system is required to comply in the following way:
+ An induction loop – it must serve >80% of the floor area of the spaced served by the inbuilt amplification system; or
+ A system requiring the use of receivers or the like. It must be available to not less than 95% of the floor of the space served and provide the applicable number of receivers;
+ 500 people – 1 receiver for every 25 persons and a minimum of 2 receivers
+ Any screen or scoreboard capable of displaying public announcements must be capable of supplementing any public address system.

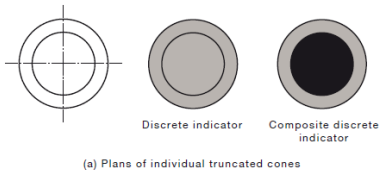
The below symbol shall be provided on a sign in ultramarine blue in accordance with clause 5.1 of AS 1428.5-2010

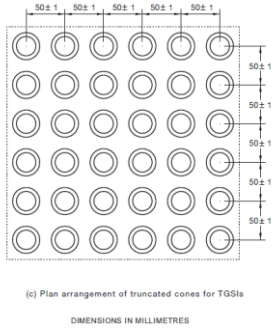
Comment: A number of rooms expected to have inbuilt amplification systems to which this Clause applies. Architect and electrical engineer to note and implement into design.

D4D9

Tactile Indicators: Tactile ground surface indicators must be provided to:

- A stairway, other than a fire-isolated stairway; and
- An escalator or passenger conveyor; and
- A ramp other than a fire-isolated ramp; and
- In the absence of a suitable barrier-
- An overhead obstruction <2m above floor level; and
- An accessway meeting a vehicular way adjacent to any pedestrian entrance to a building including a pedestrian entrance serving an area referred to in D4D5, if there is no kerb or kerb ramp at that point.
- Tactile indicators are required to be designed in accordance with AS 1428.4.1-2009.





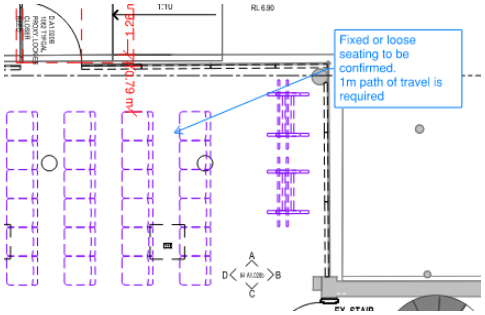
Comment: A number of areas require TGSI's in accordance with the requirements of this Clause. Any overhead obstruction <2m require either TGSI's or another barrier e.g slab soffit. Is overhead obstruction.

D4D10

Wheelchair Seating Spaces in Class 9b Assembly Buildings: Where fixed seating is provided in a Class 9b assembly building, wheelchair seating spaces complying with AS 1428.1 must be provided in accordance with the requirements of this clause.

Comment: Seating area proposed, confirmation is required if intended to be fixed or loose. Clear 1m is required around the perimeter and clear 1.5m turn space required in corners.

Remove chairs from end of table and allow 1540mm turn space. Typical below:



D4D12

Ramps: Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS1428.1

On an accessway—

- a series of connected ramps must not have a combined vertical rise of more than 3.6 m; and
- a landing for a step ramp must not overlap a landing for another step ramp or ramp

AS1428.1 Cl 10.1 Walkways, Ramps, and Landings – Generally - Walkways, ramps and landings that are provided on a continuous accessible path of travel shall be as follows:

+ Sharp transitions shall be provided between the planes of landings and ramps.
+ Landings shall be provided at all changes in direction in accordance with Clause 10.8.
+ Landing or circulation space shall be provided at every doorway, gate, or similar opening.
+ For walkways and landings having gradients in the direction of travel shallower than 1 in 33, a camber or crossfall shall be provided for shedding of water and shall be no steeper than 1 in 40, except that bitumen surfaces shall have a camber or crossfall no steeper than 1 in 33.

NOTE: For requirements for ground surfaces, see Clause 7.

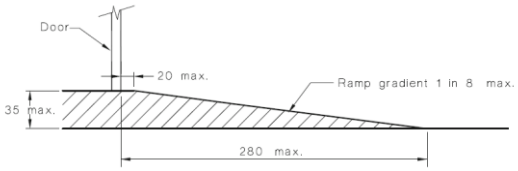
AS1428.1 Cl. 10.3 Ramps - Ramps to comply with the following:

+ Maximum gradient of a ramp exceeding 1900mm shall be 1 in 14.
+ The gradient of a ramp shall be constant throughout its length.
+ Ramps shall be provided with landings:
  - For ramp gradients of 1 in 14, at intervals not greater than 9m.
  - For ramp gradients steeper than 1 in 20, at intervals not greater than 15m.
  - For ramp gradients between 1 in 14 and steeper than 1 in 20, at interpolated intervals.
+ Handrails must be provided on either side complying with Clause 12.
+ TGSIs shall be installed in accordance with AS 1428.4.1.
+ Ramps shall be set-back at internal corridors so that handrail extensions do not protrude in to paths of travel.

Ramps and intermediate landings shall have kerbs or kerb rails on either side.

AS1428.1 Cl. 10.5 - Threshold Ramps - Threshold ramps at doorways on a continuous path of travel shall have—

+ a maximum rise of 35 mm;
+ a maximum length of 280 mm;
+ a maximum gradient of 1:8; and
+ be located within 20 mm of the door leaf which it serves.



AS1428.1 Cl. 10.6 Step Ramps - Step ramps shall have—

+ a maximum rise of 190 mm;
+ a length not greater than 1900 mm; and
+ a gradient not steeper than 1 in 10.

The edges of step ramp shall have a 45° splay where there is pedestrian cross traffic.

Otherwise, it shall be protected by a suitable barrier, such as—

- a wall or suitable barrier with a minimum height of 450 mm; or
- where an open balustrade is provided a kerb or kerb rail shall be provided.

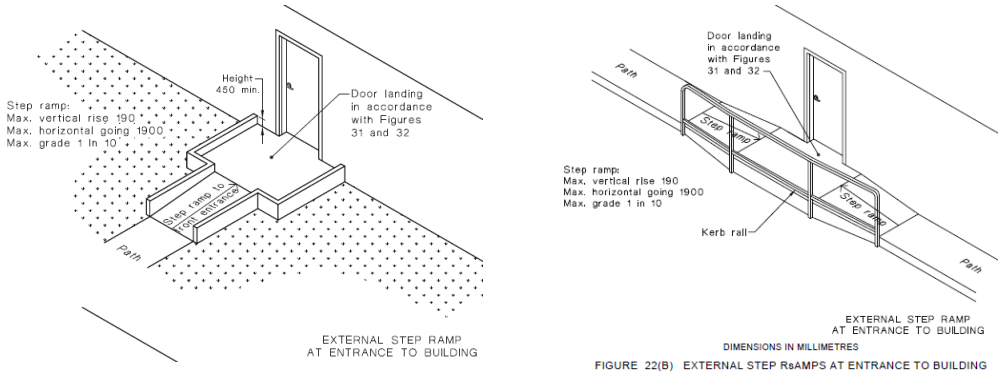
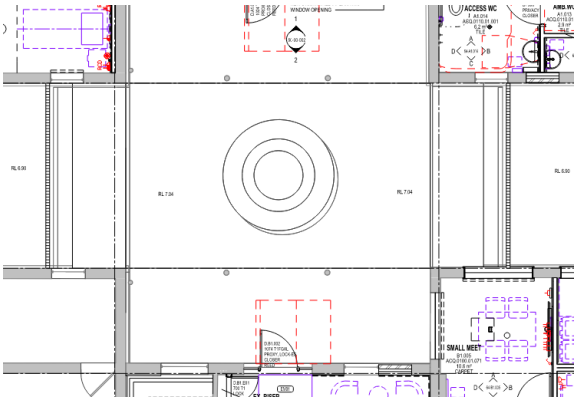


FIGURE 22(B) EXTERNAL STEP RsAMPS AT ENTRANCE TO BUILDING

Comment: It is understood an updated step ramp proposal is suggested to mitigate these issues. Confirmation to be confirmed on plan.



D4D13

Glazing on an Accessway: Where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights, including any glazing capable of being mistaken for a doorway or opening, shall be clearly marked for their full width with a solid and non-transparent contrasting line.

The contrasting line shall be not less than 75 mm wide and shall extend across the full width of the glazing panel. The lower edge of the contrasting line shall be located between 900 mm and 1000 mm above the plane of the finished floor level.

Any contrasting line on the glazing shall provide a minimum of 30% luminance contrast when viewed against the floor surface or surfaces within 2 m of the glazing on the opposite side.

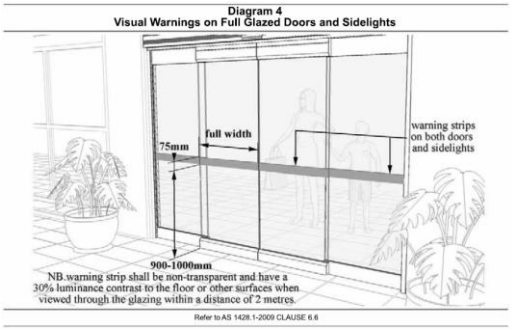
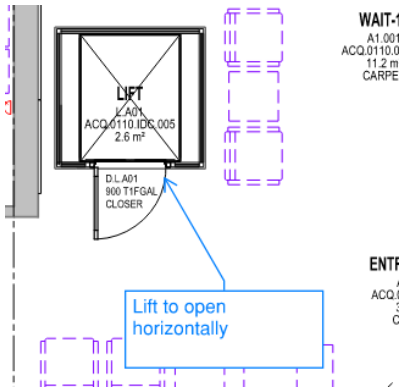


Figure 4

Comment: Architect to note and implement into design for all glazed areas in accordance with the requirements of this Clause.

3.5 Section E – Services and Equipment

E1D2	**Fire Hydrants:** Fire hydrant coverage is required to be provided to the building in accordance with AS2419.1 – 2021. **Comment:** It is understood the existing building has ordinance 70 hydrant which is not supported by FRNSW. Fire service designer provides a system that complies with AS2419.1 – 2021 for whole buildings including attached gym. Wet fire design to provide coverage plans for hydrants noting none are depicted on arch floor plans. Where internal hydrants are proposed they are to be located within 4m of an exit or addressed by way of fire engineered solution. Where external they shall be no closer than 10m from non-sprinkler protected building. Any required boosters are to be depicted on the architectural plans.
E1D3	**Fire Hose Reels:** Fire hose reels are required to be provided to all areas except upper storey Class 5 parts (client to confirm non-Class 9b requirements). Fire hose reels are to comply with AS 2441 – 2005. **Comment:** All FHRs are to be located <4m from an exit. Exit locations are to be exhausted prior to supplementary FHR located on the path of travel. Wet fire designer to note accordingly. It is understood that the existing building has FHR >4m from exit locations in upper storey which is permissible for Class 5 use only as non-required. FHR on lower storey shall be <4m from the exit. Architect and wet fire plans to document on lower floor. FHR omission fire rated cupboard under stairs to be subject to fire engineered strategy.
E1D14	**Fire Extinguishers:** To be provided and designed in accordance with AS 2444-2001. **Comment:** Allowances to made with design, installation certificate required at Completion stage.
E2D4/ E2D9/ E2D11/ E2D12/ E2D13	**Smoke Hazard Management:** The following smoke hazard management systems are to be installed to the building and will be required throughout: + The building must be provided with automatic shutdown of mechanical air handling units system (other than non-ducted individual rooms) on the activation of smoke detectors installed complying with S20C6. This is required to be extended throughout the building. **Comment:** Indications are that the building is intended to be naturally ventilated. Where any ducted air conditioning is proposed this will require auto shut down on smoke detection in accordance with the requirements of this Clause. Existing FIP is located on site serving both building, existing smoke hazard management to be maintained to support Fire engineered solutions.
Part E3	**Lifts:** The building requires a lift in for access between the two stories. The following provisions are required to be provided to the lifts: All passenger lifts are to possess appropriate internal dimensions of not less than 1100mm (width) x 1400mm (depth) (NCC E3.6) to meet the minimum accessibility requirements. The sizing of the lift cars will be nominated by the lift consultant. All lifts must be provided with minimum components to meet NCC E3.6, including handrails, tactile and Braille control buttons, and further enhanced features for people with disabilities to meet the parameters of AS 1735.12:1999, including however not limited to, delayed door closing device, visual and audible indication upon lift arrival and arrival at each landing. **Comment:** Lift dimensions min 1100mm x 1400mm required. Compliance readily achievable. The swinging door does not comply with either AS1735 (must open horizontally) or AS1428.1, latch side clearance.



E4D2 - E4D8	**Emergency Lighting and Exits Signs:** Emergency lighting and exit signage to be provided in accordance with E4D2 - E4D5 complying with AS 2293.1 – 2018. **Comment:** Electrical engineer to confirm compliance, emergency lighting to be provided at all non-fire isolated stairs. It is noted the existing gym or the like is not considered a public hall to which EWIS applies.

3.6 Section F – Health and Amenity

Part F1	**Damp and Weatherproofing:** Damp and weatherproofing to comply with the prescriptive requirements of this part. **Comment:** F3P1 damp and weatherproofing performance solution to include external waterproofing details including junctions at doorways demonstrating compliance with AS4654 part 1 and 2 as DDA requirements for smooth and level transition is contrary to waterproofing details depicted within the Australian standard.
Part F2	**Wet Areas and Overflow Protection:** Where urinals are installed, an impervious wall lining must be provided up to the top of the urinal. Where any floor waste is installed (including floor wastes not required by the BCA), they must be provided with falls in accordance with F2D3. **Comment:** Architect to note and develop into the design as applicable. Wet areas with floor waste require floor grading in accordance with report requirements.
Part F3	**Roof and Wall Cladding:** This section contains DtS provisions for the weatherproofing of certain external wall and roof designs. + Roof coverings must comply with F3D2. + Sarking must comply with F3D3. + Glazed assemblies must comply with F3D4. + Wall cladding must comply with F3D5. **Comment:** A Performance Solution is required to be obtained in relation to the departures from F3D5 with respect to wall cladding systems. Architect to prepare the Performance Based Design Brief (PBDB) and Performance Solution Report.
Part F4	**Sanitary Facilities:** Sanitary facilities must be provided to comply with the requirements of this part. The architect plans nominate a max expected population of; Workplace/ Office – 32 – 50 persons. Education 15 – 80 persons Max total is 130 persons.

It is understood the building will have an integrated learning facility for students and a performance based approach is proposed to not have labeled employee or students as required by Part F4.

Both block A and B are considered separate

Notwithstanding this the upper storey is Class 5 office use only to maintain Type C Construction.

Comment: Block A does not have enough sanitary facilities for 130 persons whether calculated all as employees under performance basis OR student / employees. Based on the current provision max population is

Workplace/ Office – 32 – 50 persons. Education 15 – 80 50 persons

Max total is 100 persons facilities can cater for.

Additional facilities are required on the lower storey to meet design intent being:

Male – 40 requires 2 pans, 1 urinal and 2 washbasins. (1 extra urinal required and access to basin required)

Female – 3 pans 2 washbasins (1 x extra pan required and access to washbasin).

Option to comply:

1) Confirm staff and students can use gatehouse facilities (separate male and female required). This would be performance solution, signage indicating location of additional facilities would be required within Block A bank; or
2) An additional accessible unisex facility can be counted once for each sex would comply with the above additional criteria needed. Confirm location on plan e.g external covered area Block A or Block B.

Compliance to be confirmed on plan.

+ The lower storey ambulant facilities have facility to comply with AS1428.1 for be updated to comply with AS1428.1 with 900-920mm between walls and circulation space depicted.
+ The upper storey ambulant facilities do not comply in regards to drop down rails. Also this is located within doorway. Further design development of this aspect required.

All ambulant facilities to comply with the below:

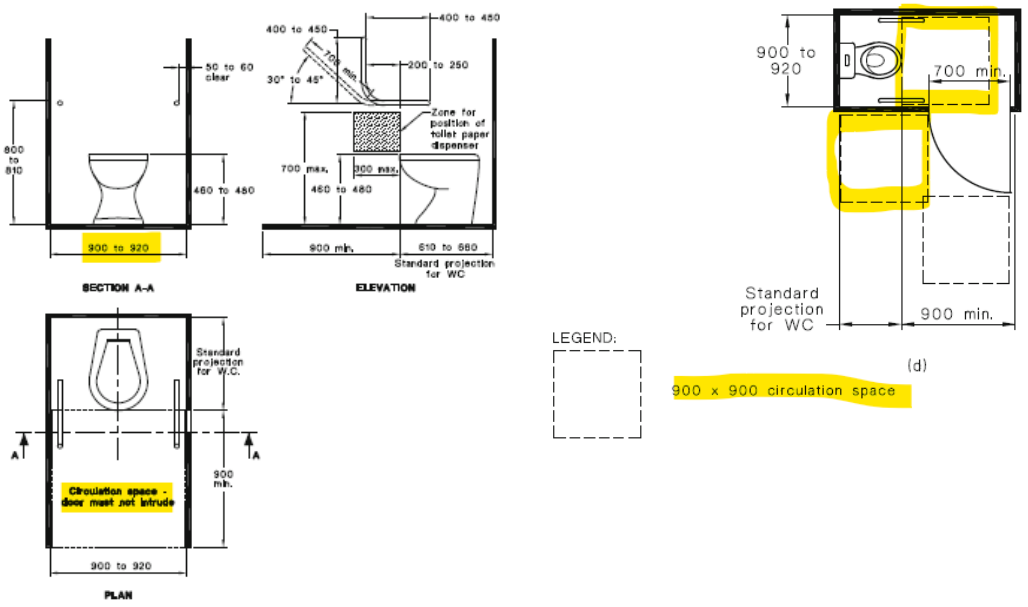
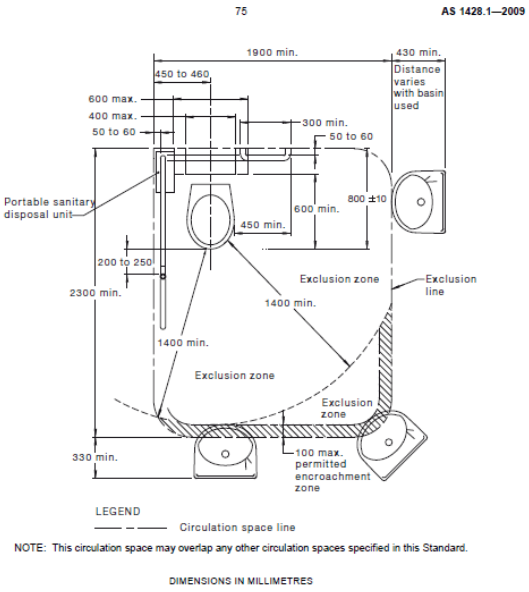


FIGURE 53(A) SANITARY COMPARTMENT FOR PEOPLE WITH AMBULANT DISABILITIES—PLAN AND ELEVATION

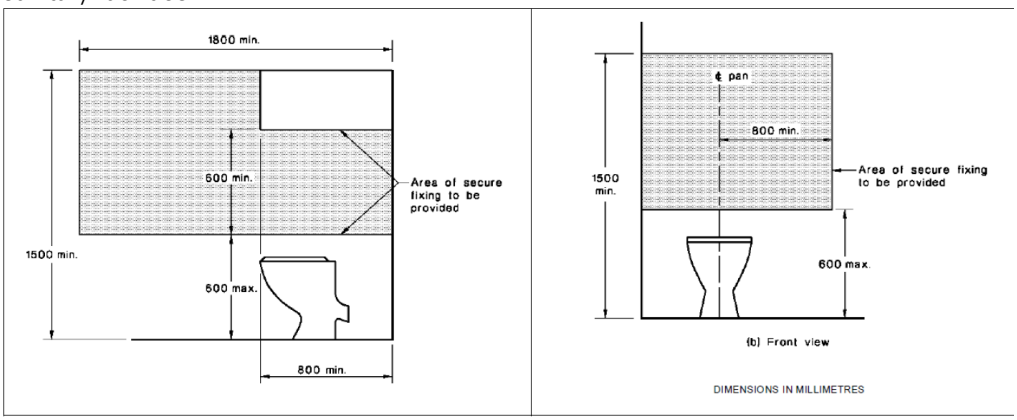
Accessible Sanitary Facilities: Accessible unisex sanitary compartments must be provided, in accordance with F4D6 and unisex showers must be provided in accordance with Table F4D7, in buildings or parts that are required to be accessible.



+ Unisex Accessible WCs

1) Tap sets will need to be specified with lever of capstan handles in the accessible sanitary facilities.

2) Provision of wall strengthening for grab-rails will need to be provided adjacent to sanitary facilities.



3) The location and installation of washbasins must comply with the requirements of AS 1428.1-2009.

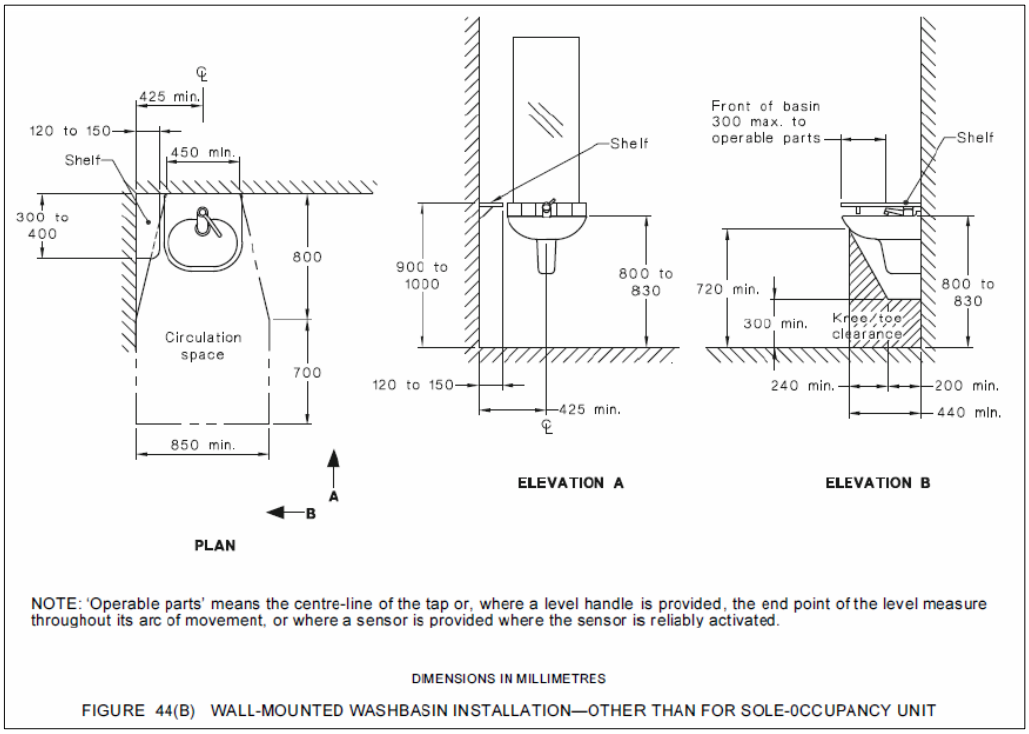


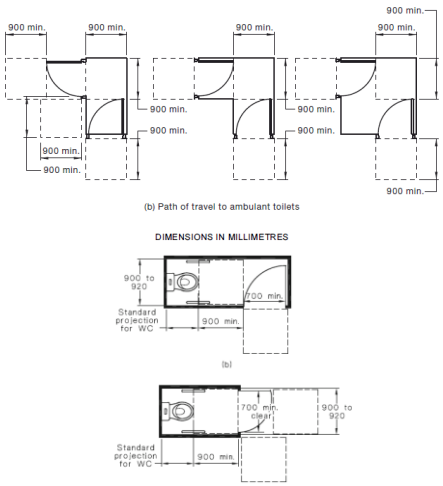
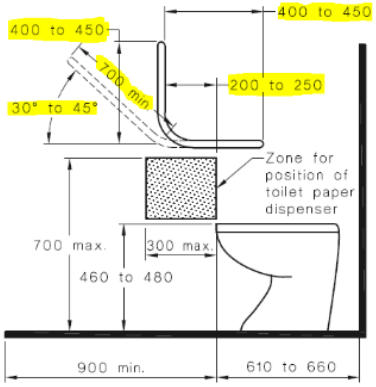
FIGURE 44(B) WALL-MOUNTED WASHBASIN INSTALLATION—OTHER THAN FOR SOLE-0CCUPANCY UNIT

+ Checklist for Accessible WCs	
+ Entry Door	The detailing of the circulation at doorways shall comply with the provisions of Clause 13 of AS1428.1:2009
+ Entry Door	The luminance contrast provisions at the doorway shall comply with the provisions of Clause 13.1 of AS1428.1:2009
+ Force Required to Operate Door	The force required to operate the door if fitted with a door closer is a maximum of 20N. It is assumed that auto-doors will not be installed
+ Door Hardware	The position of door hardware is to be located between 900-1100mm AFFL.
+ WC Pan Circulation	1900×2300mm
+ Hand Basin Circulation	850×1500mm, the basin may encroach a maximum of 100 mm into the circulation space of the adjacent WC pan circulation
+ WC Pan Offset From Side Wall	450/460 mm
+ WC Pan Offset From Rear Wall	800±10 mm

+ WC Pan Backrest	To code requirements
+ WC Pan Toilet Seat	The toilet seat will need to be the full round type, securely fixed in position, be rated 250 KG and have a minimum limits contrast of 30% with the background pan, wall or floor against which it is viewed.
+ WC Pan Grab Rails	Grab rail to be mounted 800 mm above finish floor level, length of grab rail to be 1050 mm from rear wall, install 300mm grab rail to left-hand side of the WC pan. It is assumed that the walls to which the grab rails are fixed will have the required 1100N force rating wall reinforcement required by the standard
+ Hand Basin Mounting Height	Top of hand basin to be 800/830 mm above finish floor level
+ Hand Basin Clearances	The clearances around and under the hand basin need to comply with the provisions of clause 15.3 of AES 1428.1:2009. Specific attention is drawn to the plumbing installation where the required clearances under the hand basin necessitate special consideration of the bottle trap associated with the hand basin
+ Hand Basin Selection	The detailing of the hand basin requires the installation of a shelf unit. It may be possible to specify a hand basin that incorporates a shelf section thereby eliminating an additional component to be installed in the USAT
+ Hand Basin Mirror	The mirror is to be flush mounted on the wall above the sink the bottom of the mirror is to be no more than 900 mm above the finish floor level and the top of the mirror is to be a minimum of 1850 mm above the finish floor level
+ Hand Basin Tap	It is recommended that a lever hand basin tap be installed in lieu of the capstan type
+ Toilet Roll Holder	The position of the toilet roll holder is to be in accordance with code requirements
+ Coat Hooks	Coat hooks are to be installed 1200 to 1350 mm above finish floor level and not closer than 500 mm from an internal corner. The coat hook can be installed on the wall or on the back of the door
+ Soap Dispensers/Hand Towel	These items are to be able to be operated by one hand and shall be installed so that the tap or dispenser is not less than 900 and not more than 1100 mm above the finish floor level.
+ Braille Tactile Signage	The detailing of the Braille Tactile Signage will need to comply with the provision of NCC Clause D3.6 and NCC Specification D3.6. The location of the Braille Tactile sign is to be mounted on the latchside wall. The sign is to indicate the handing of the grabrails to the WC Pan. The following is an example of the type of information to be provided in the Braille Tactile Sign.

+ Ambulant WCs

+ Checklist for Ambulant WCs	
+ Entry Door	The entry doorway is to achieve a clear width of no less than 750mm.
+ Door Hardware	+ Shall be provided with an in-use indicator and a bolt or catch. + Where a snip catch is used, the snib-handle shall have a minimum length of 45mm from the centre of the spindle. + In an emergency, the latch mechanism shall be openable from the outside.
+ Internal Dimensions	Width between internal walls is to achieve between 900 – 920mm. A 900x900 clear area must be provided in front of the toilet pan, fixtures (including door swing) cannot encroach on this distance, except for grab rails.

	
+ Grab Rails	Grab rails are to be located on either side of the toilet pan and must be located between 800 – 810mm above finished floor level. + Grab rail length and up-turn to be in accordance with Figure 53(A) of AS 1428.1 – 2009. + Grab rails shall have an outside diameter of 30 – 40mm. + Exposed edges and corners of grab rails shall have a radius of not less than 5mm.  + The fastenings and the materials and construction of grab rails shall be able to withstand a force of 1100 N applied at any position. + Clearance between the grab rail and the adjacent wall shall be between 50 – 60mm.
+ Toilet Roll Holder	The position of the toilet roll holder is to be in accordance with code requirements
+ Coat Hook	A coat hook shall be provided within the sanitary compartment at a height between 1350mm to 1500mm from the floor.
+ Braille Tactile Signage	The detailing of the Braille Tactile Signage will need to comply with the provision of NCC Clause D3.6 and NCC Specification D3.6. The location of the Braille Tactile sign is to be mounted on the latch-side wall. Signage content is to comply with the requirements of Clause 8 of AS 1428.1 – 2009.

Part F5

Ceiling Heights: The floor to ceiling heights must be as follows:

The minimum ceiling heights in a Class 9b building are as follows:

+ Office areas min 2.4m except that a corridor or passageway shall not be less than 2.1m; and
+ School classroom, or other assembly building or part accommodating not more than 100 persons - 2.4m.
+ Assembly building or part accommodating more than 100 persons - 2.7m.

In any building:

+ Bathrooms, sanitary compartments, tea preparations rooms, pantries, store rooms or the like – 2.1m,
+ A commercial kitchen – 2.4m,
+ Above a stairway, ramp, landing or the like – 2m.

	Comment: Architect to confirm compliance on RCP, note where more than 100 person proposed 2.7m high ceilings required.
Part F6	**Light and Ventilation:** Artificial lighting systems are required to comply with Clause F4.4 and AS 1680. All mechanical or air-conditioning installations must be undertaken in accordance with Clauses F6D6 and AS 1668.2.-2012. **Comment:** Mechanical engineer to confirm how ventilation will be achieved for the building. New artificial lighting to comply with BCA F6D5.5

3.7 Section G – Ancillary Provisions

Part G5	**Construction in Bushfire Prone Areas:** In a designated bushfire prone area the following must comply with Specification 43: **Comment:** The building whilst having educational purpose is not considered a school to which this Clause applies.
Part G6	**Occupiable Outdoor Areas:** Occupiable Outdoor Areas (such as the communal rooftop space) are required to comply with the fire hazard property, provision for escape, construction of exits, firefighting equipment, lift installations, visibility in an emergency, exit signs and warning systems, and light and ventilation provisions of the BCA (as specifically prescribed under this part) as if it were an internal building part. **Comment:** Compliance required in accordance with the requirements of this Clause.

3.8 Section J – Energy Efficiency

Part J	**Energy Efficiency:** The new building works subject to compliance with the Energy Efficiency Provisions of BCA 2022 Section J relating to: + J1: Energy Efficiency Performance Requirements + J2: Energy Efficiency + J3: Elemental Provisions for a Class 2 Building and a Class 4 Part + J4: Building Fabric + J5: Building Sealing + J6: Air-Conditioning and Ventilation + J7: Artificial Lighting and Power + J8: Heated Water Supply and Swimming Pool and Spa Pool Plant + J9: Energy Monitoring and On-Site Distributed Energy Resources The documentation from the architect, mechanical, electrical, and hydraulic engineers are to incorporate details demonstrating compliance with the above provisions (as applicable to their respective disciplines). **Comment:** Section J consultant to confirm compliance for new works. Consideration to be given to upgrades as necessary. Ensure any insulation proposed to external walls is non combustible.

4.0 Conclusion

This report contains an assessment of the referenced architectural documentation for the proposed Grafton Base Hospital Redevelopment – Acquisition Site against the deemed-to-satisfy provisions of the Building Code of Australia 2022.

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 as the design develops.

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 this report.

Appendices

+ Appendix 1 – References Tables

Table 1: Fire Hazard Properties Requirements – Floor Linings

+ Table S7C3 of Specification 7 Critical Radiant Flux or Floor Linings and Floor Coverings			
+ Class of Building	Building Not Fitted with a Sprinkler System	Building Fitted with a Sprinkler System (other than a FPAA101D or FPAA10H System)	Fire-isolated Exits and Fire Control Rooms
Class 9b	2.2 kW/m2	1.2 kW/m2	2.2 kW/m2

Table 2: Fire Hazard Properties Requirements – Wall and Ceiling Linings

+ Table S7C4 of Specification 7 – Wall and Ceiling Lining Materials (Materials Groups Permitted)				
Class of Building	Fire-isolated Exits and Fire Control Rooms	Public Corridors	Special Areas	Other Areas
Class 5, 6, 7, 8 or 9b schools, Unsprinklered	Walls: 1 Ceilings: 1	Walls: 1, 2 Ceilings: 1, 2	Walls: 1, 2, 3 Ceilings: 1, 2	Walls: 1, 2, 3 Ceilings: 1, 2, 3
Class 5, 6, 7, 8 or 9b schools, Sprinklered	Walls: 1 Ceilings: 1	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3	Walls: 1, 2, 3 Ceilings: 1, 2, 3

Table 3: Fire-Resisting Construction – Type C Construction

TYPE C 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 within it) or other external building element, where the distance from any fire-source feature to which it is exposed is**:**				
For loadbearing parts:				
Less than 1.5m	90/90/90	90/90/90	90/90/90	90/90/90
1.5 to less than 3m	–/–/–	60/60/60	60/60/60	60/60/60
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN - Not incorporated in an external wall				
Less than 1.5m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3m	–/–/–	60/–/–	60/–/–	60/–/–
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS	90/90/90	90/90/90	90/90/90	90/90/90
INTERNAL WALLS				
Bounding public corridors, public lobbies and the like:	60/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units:	60/60/60	–/–/–	–/–/–	–/–/–
Bounding a stair if required to be rated:	60/60/60	60/60/60	60/60/60	60/60/60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

Notes:

1. New external walls that are located 1.5m or more from an allotment boundary / fire source feature require no FRL's.
2. Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must typically achieve the same FRL. Where that part is also required to be non-combustible, the supporting part must also be non-combustible.
3. An external wall required to have an FRL is only required from the outside.
4. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification 6.
5. 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.
6. No structural elements are permitted to pass through fire-rated walls.

+ Appendix 2 – Fire Safety Schedule

The following table is a list of the required fire safety measures within the building. These measures may be subject to further change in further reports or pending any fire engineering proposed.

Table 4: Fire Safety Schedule

+ Statutory Fire Safety Measure	+ Design/Installation Standard	+ Existing	+ Proposed
Automatic Fail Safe Devices	BCA 2022 Clause D3D24		✓
Automatic Fire Detection & Alarm System	BCA 2022 NSW Clause E2D16 Spec. 20C6 AS 1670.1 – 2018		✓
Emergency Lighting	BCA 2022 Clause E4D2 & E4D4 AS 2293.1 – 2018		✓
Emergency Evacuation Plan	AS 3745 - 2010		✓
Exit Signs	BCA 2022 Clauses E4D5, NSW E4D6 & E4D8 AS 2293.1 – 2018		✓
Fire Blankets	AS 3504 – 1995 & AS2444 – 2001		✓
Fire Doors	BCA 2022 Clause C3D13, C3D14 & D3D9 AS 1905.1 – 2015 and Manufacturer's Specification		✓
Fire Hose Reels	BCA 2022 Clause E1D3 AS 2441 – 2005		✓
Fire Hydrant Systems	BCA 2022 Clause E1D2 AS 2419.1 – 2021		✓
Fire Seals	BCA 2022 Clause C4D15, AS 1530.4 – 2014 & AS 4072.1 – 2014 and Manufacturer's Specification		✓
Lightweight Construction	BCA 2022 Clause C2D9 AS 1530.4 – 2014 and Manufacturer's Specification		✓
Mechanical Air Handling Systems (Automatic Shutdown)	BCA 2022 NSW Clause E2D16 AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012		✓
Portable Fire Extinguishers	BCA 2022 Clause E1D14 AS 2444 – 2001		✓
Warning & Operational Signs	BCA 2022 Clause D3D28, D4D7, E4D4 AS 1905.1 – 2015 & Section 108 of the EP&A (DCFS) Regulation 2021		✓

Fire Engineered Performance Solutions relating to: 1. TBC	BCA 2022 Performance Requirements … Fire Safety Engineering Report prepared by ... Report No. ... Revision ... dated ...		✓