BUILDING CODE OF AUSTRALIA COMPLIANCE REPORT (INCLUDING ACCESSIBILITY)

NCC 2019 AMENDMENT 1

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25 FRENCHS FOREST ROAD EAST, FRENCHS FOREST

Prepared for:	Australian Biotechnologies (John Seo) C/- Forma Projects (David Rinaldi)
Description:	Construction of a mezzanine with an enclosed room on top of the structure, at the rear of unit 4.
Report number:	220083r1
Date:	26.07.2022
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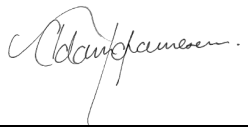
2.0. DOCUMENT CONTROL

2.1. Report History

Report No.	Date	Rev	Comment
220083	22.07.2022	1	DRAFT for comment
220083	26.07.2022	1	FINAL for DA lodgement
Prepared by		**Peer review by**	
Adam Johannesen BDC 3060		Peter Antcliffe BDC 0009	

2.2. Drawings

Drawing No.	Drawing Title	Date	Revision
A-00	ISSUE FOR DA	02/05/2022	A
A-01	SITE PLAN	02/05/2022	A
A-02	EXISTING GROUND FLOOR PLAN	02/05/2022	A
A-03	EXISTING MEZZANINE FLOOR PLAN	02/05/2022	A
A-04	DEMOLITION GROUND FLOOR PLAN	02/05/2022	A
A-05	DEMOLITION MEZZANINE FLOOR PLAN	02/05/2022	A
A-06	GROUND FLOOR PLAN	02/05/2022	A
A-07	MEZZANINE FLOOR PLAN	02/05/2022	A
A-08	GROUND FLOOR RCP	02/05/2022	A
A-09	MEZZANINE RCP	02/05/2022	A
A-10	SECTION	02/05/2022	A

3.0. REPORT SUMMARY

- This summary must be read in conjunction with Table 9.1 in this report.
- Table 3.1 lists the compliance matters that must be addressed at the construction certificate phase by way of more detailed design documentation and specifications. We note that the provision of such documentation should not warrant significant modification to the design such that a section 4.55 modification application would be required.
- Table 3.1 also lists any known project specific performance solutions.

3.1. Table 3.1: Summary

BCA clause	Comment
	BCA compliance matters for consideration at the construction certificate phase
C1.1 Type of construction required (Fire resisting construction	**New works** The new mezzanine structure must comply with table 4.1 of spec. C1.1. Steel columns on ground floor require a FRL not less than 240/--/--. The flooring of the structure need not be fire rated and neither will any of the new enclosing walls, unless they are loadbearing. **Existing building** The existing building may require upgrading to existing mezzanine internal columns and fire walls that bound units 3 & 4 and 5 & 6. Refer to section 5.6 in this report – Fire protection and structural capacity. Compliance readily achievable At the CC stage – 1. CC plans to include all FRLs nominated for the new works and any existing building part that is required to be upgraded. 2. Submit appropriate evidence of suitability in accordance with NCC Part A5: Documentation of design and construction to confirm the proposed forms of construction will comply with the BCA. 3. Structural engineer to confirm the fire walls bounding units 3 & 4, and units 5 & 6, comply for Type B construction, and BCA cl. C2.7.
C1.8 Lightweight construction	Where proposed loadbearing building elements such as steel columns on the ground floor of the new structure must be protected to achieve a FRL, the system of fire rating must comply with Specification C1.8. Where any existing building element is to be upgraded to satisfy the requirements of Type B construction, and lightweight construction is nominated, it too must comply with specification C1.8. Compliance readily achievable At the CC stage – 1. CC plans to include all building elements (new and existing) that will be protected with lightweight construction. 2. At the CC stage, submit appropriate evidence of suitability in accordance with NCC Part A5: Documentation of design and construction to confirm the proposed forms of construction will comply with the BCA.
C1.10 Fire hazard properties	The fire hazard properties of all internal linings, materials and assemblies as listed in C1.10 must comply with Specification C1.10, unless varied by C1.9(c). Compliance readily achievable At the CC stage – 1. Prepare a written register of all proposed linings. 2. All linings to be incorporated into the CC drawings.

BCA clause	Comment
	3. Submit appropriate evidence of suitability in accordance with NCC Part A5: Documentation of design and construction to confirm the proposed fire hazard properties will comply with the BCA.
C2.2 General floor area limitations	Building Anatomy have calculated the combined unit 4 & 5 fire compartment as needing to comply with Type B construction. Refer to section 5.5 of this report. Compliance readily achievable At the CC stage – 1. The plans and specification must comply with Type B construction and include such information to confirm compliance for the AHJ.
C2.7 Separation by fire walls	No new works proposed. Despite this, Building Anatomy have requested the following matters be confirmed: (refer also to section 5.6 in this report) Compliance readily achievable • C2.7(a)(i): Confirm the fire walls have the relevant FRL prescribed by specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL. **Note the units are considered to be Type B construction.** • C2.7(a)(ii): Confirm any openings in the fire walls do not reduce the FRL required by specification C1.1, except where permitted by the DtS provisions of Part C3. **In lieu of a structural engineer, an accredited practitioner of fire safety may be engaged to determine compliance.** • C2.7(a)(iii): Confirm building elements do not pass through or cross the fire walls unless the required fire resisting performance of the fire wall is maintained. Roof battens with dimensions 75mm x 50mm are permitted. In this regard, a **structural engineer** must confirm and certify that despite the purlins passing through the fire walls, the fire resistance performance of the fire walls is maintained. Where found to be deficient, remediation works are to be included in the development proposal.
C3.15 Openings for service installations	Electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrations through fire rated or fire resistant building elements (other than an external wall or roof), must comply with: • A tested system • AS1668.1 if related to mechanical ventilation or air-conditioning • Specification C3.15 for plumbing penetrations, electrical cabling, or electrical switches or the like. Compliance readily achievable At the CC stage – 1. An accredited practitioner of fire safety is to assess the existing fire walls between units 3 & 4, and 5 & 6 to identify any deficiencies with respect to the fire stopping of penetrations through those walls. 2. CC plans are to illustrate the location of penetrations that require remedial works. 3. Submit appropriate evidence of suitability in accordance with NCC Part A5: Documentation of design and construction to confirm the proposed methods of fire stopping will comply with the BCA.
D2.15 Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless in a building required to be accessible the door opens to a road or open space, and is provided with a complying AS1428.1 threshold or step ramp. In the case of a non-accessible building or part, the doorway opens to a road or open space, external stair landing or balcony, and the door sill is not more than 190mm above the finished surface of the ground to which the doorway opens. Compliance readily achievable At the CC stage – 1. CC plans to confirm all door thresholds are grade, or comply with the above requirements.
D2.16 Barriers to prevent falls	Compliance with Table D2.16a is required for all barriers that are designed to prevent falls of greater than 1 metre from a surface below: • The stairway barrier must be not less than 865mm from the top of the nosing treads.

BCA clause	Comment
	• A 150mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the nearest rail, or the floor of the landing, balcony or the like. • Openings between the rails must be not more than 460mm. Compliance readily achievable At the CC stage – 1. CC plans are to show the bottom kick plate or rail to the stairs that prevent a 150mm sphere passing through the opening between the nosing line of the stair treads and the nearest rail. 2. CC plans must show the kick plate height dimension from the new raised flooring, confirming it to be not less than 150mm in height to prevent a 150mm sphere passing through the opening between the mezz. flooring and nearest obstruction (i.e. the kick plate).
D2.21 Operation of latch	Door hardware is subject to specific provisions under D2.21. Compliance readily achievable 1. The designer is to confirm that new doorways will incorporate door hardware complying with D2.21 and submit details on the CC plans, or in a design certificate.
D3.5 Accessible car parking	Table D3.5 requires that for every 100 spaces at least 1 car parking space is an accessible space complying with AS/NZS 2890.6 Off-street parking for people with disabilities. There is no new car parking proposed. Compliance readily achievable 1. Should however council require an additional car parking space to serve unit 4, at least one car parking space (1 out of every 100 or part thereof) must comply with A/NZS2890.6. Where there is an existing and complying accessible car space allocated to unit 4, the requirement is met.
D3.8 Tactile ground surface indicators	TGSIs must comply with sections 1 and 2 of AS1428.4.1 and be provided to warn people who are blind or have a vision impairment that they are approaching: • A stairway, and • An overhead obstruction less than 2m above the floor level, other than a doorway. Compliance readily achievable 1. TGSIs are not required for the new stairway because it is subject to an exemption under D3.4, and 2. The CC plans must include details of the TGSIs (or some other barrier) to be installed adjacent to the new stair in accordance with AS1428.4.1.
E1.3 Fire hydrants	An existing hydrant system serves the building and must be maintained to the standard of performance listed in the building's fire safety schedule. The new storey (level 1) is served by an existing hydrant point at the rear of unit 4. Compliance readily achievable At the CC stage – 1. CC plans must identify the location of the hydrant point and the designer is to submit a hydrant reach plan to the AHJ.
E1.4 Hose reels	Existing fire hose reels already serve the internal parts of unit 4 and 5. The system must be maintained to the standard of performance listed in the building's fire safety schedule. The new storey (level 1) can be served by the existing fire hose reel at the rear of unit 4. Compliance readily achievable At the CC stage – 1. CC plans must identify the location of the fire hose reel drum and the designer is to submit a fire hose reel reach plan to the AHJ.
E1.5 Sprinklers	Sprinkler coverage is required to the new structure and enclosed rooms, as well as beneath the structure. The sprinklers must comply with specification E1.5 and set off a building occupant warning system (BOWS) in accordance with clause 8.

BCA clause	Comment
	Compliance readily achievable At the CC stage – 1. CC plans to show the extent of sprinkler coverage.
E1.6 Portable fire extinguishers	Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and located and distributed in accordance with Sections 1, 2, 3 and 4 of AS2444. All new parts and rooms are to be provided with coverage. Compliance readily achievable At the CC stage – 1. CC plans to show the extent of portable fire extinguisher coverage.
E1.9 Fire precautions during construction	Noted In a building under construction not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must always be provided on each storey adjacent to each required exit or temporary stairway or exit.
E4.2 Emergency lighting requirements	Emergency lighting is to be provided throughout the building in accordance with BCA E4.2: • above the landings of every required non-fire isolated exit. We highly recommend that additional emergency lighting is provided throughout all of the new parts. Compliance readily achievable At the CC stage – 1. CC plans to show the location of the required emergency lighting.
E4.4 Design and operation of emergency lighting	Every required emergency lighting system must comply with AS 2293.1-2018 (test switch to be installed at each storey). Compliance readily achievable At the CC stage – 1. CC plans or specification is to confirm compliance with AS/NZS2293.1-2018.
E4.5 Exit signs E4.6 Direction signs	E4.5: An exit sign must be clearly visible to persons approaching an exit identified in BCA clause E4.5. E4.6: Where an exit is not apparent then directional exit signs must be installed. Compliance readily achievable At the CC stage – 1. CC plans to show the location of the required exit signs and any additional exit signage nominated by the designer.
E4.8 Design and operation of exit signs	Exit signs are to operate in accordance with AS 2293.1, or for a photoluminescent exit sign specification E4.8, and always be clearly visible while the building is legally occupied. Compliance readily achievable At the CC stage – 1. CC plans or specification is to confirm compliance with AS/NZS2293.1-2018 or spec. E4.8 as required.
F3.1 Height of rooms and other spaces	Ceiling heights must be not less than 2.4m throughout the building except where permitted to be: • 2.1m in a corridor/passageway/or the like, bathroom, shower room, sanitary compartment, other than an accessible adult change facility, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like, or • 2.0m for a stairway measured vertically above the nosing line. Services cannot encroach on the minimum room heights. Compliance readily achievable At the CC stage – 1. CC plans to include sections of all new rooms and levels and confirm no encroachments form services.

BCA clause	Comment
F4.4 Artificial lighting	Artificial lighting must be provided in required stairways, passageways, ramps, sanitary compartments, bathrooms, laundries and other spaces used in common by occupants of the building complying with AS1680.0 in accordance with the requirements of Clause F4.4 of the BCA. Compliance readily achievable At the CC stage – 1. Submit appropriate evidence of suitability in accordance with NCC Part A5: Documentation of design and construction confirming the lighting will comply.
F4.5 Ventilation of rooms	Ventilation shall be provided throughout the building by means of natural ventilation complying with Clause F4.7 (borrowed form adjoining room). It is noted the proposed air conditioning units are split cycle systems only. Compliance readily achievable See below clause F4.7.
F4.7 Ventilation borrowed from adjoining room	Natural ventilation is proposed to be borrowed from an adjoining room for both the enclosed rooms on ground floor and level 1 of the new structure. Openings etc used to ventilate the room or space must be not less than 10% of the room or space, and the openings etc in the adjoining room must be not less than 10% of the combined floor areas of both rooms. See note 2 below. Note 1: The adjoining room where the ventilation is borrowed from, must include the floor area of the existing mezzanine. Note 2: If the existing room below the existing mezzanine is not mechanically ventilated in accordance AS1668.2, this must also be considered in the aggregate floor area. Compliance readily achievable At the CC stage – 1. CC plans to include calculations for the ventilating areas.
Performance solutions	
BCA Part A2.2	Nil performance solutions have been proposed.

4.0. INTRODUCTION

4.1. Location, Description

The subject development is located at **units 4 and 5, 25 Frenchs Forest Road East, Frenchs Forest**. Vehicular and pedestrian access to the lot is from Frenchs Forest Road with units 4 and 5 situated in the front building to the West of the main entry driveway.

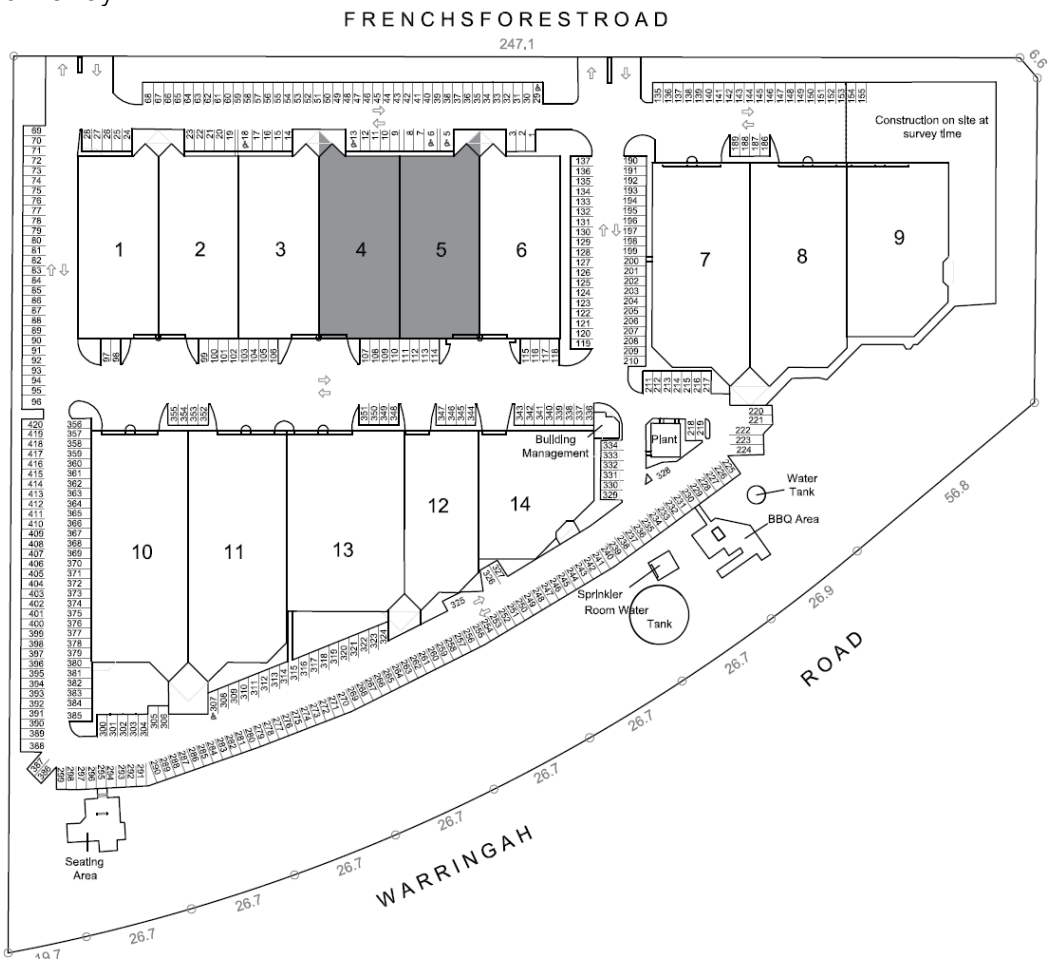


Fig.: 2.1: Forma Projects

The tenant, Australian Biotechnologies (AusBio) amalgamated units 4 and 5 to suit their operations. The ancillary class 5 offices at the front of the units have been connected by an opening on both ground floor and level one, and the warehouses at the rear of the units have also been connected by two sets of double leaf doors. These connections were completed under former approvals. Due to the nature of these connections not being protected in accordance with Part C of the BCA, it is considered that unit 4 and 5 operate as a single fire compartment.

Other internal alterations and additions that were previously undertaken include mezzanine structures in the rear warehouses.

4.2. Report Purpose

The purpose of this report is to satisfy Northern Beaches Council's Development Application lodgement requirements and assist Council to understand whether the proposal can comply with the NCC (Parts C, D, E, and F) without significant modification at the construction certificate phase.

In addition, we will attempt to satisfy the following further requests for information by Northern Beaches Council's Manager of Development Assessment, Adam Richardson, dated 30.06.2022:

Building Code of Australia Report

A 'Building Code of Australia (BCA) Assessment Report' / 'Fire Audit Report' from an appropriately qualified Registered Certifier is required to be submitted with the Development Application documentation addressing the following:

The report is to detail the extent to which the existing (relevant affected parts) and proposed building works does or does not comply with the deemed-to satisfy provisions of Sections C, D, E and F of the Building Code of Australia. The report should also take into account any Performance Solutions affected by the proposed building works.

4.3. Basis of Report

This report is based upon:

- A desktop review of the documentation submitted for assessment (refer to section 2.2 of this report),
- A site inspection undertaken on Tuesday, July 12, 2022, and
- The Deemed-to-Satisfy provisions of Parts C, D, E, and F of the National Construction Code Series (volume 1) 2019 amendment 1.

4.4. Referenced Documents

The following documentation was relied upon when preparing this report:

- The performance requirements and deemed-to-satisfy provisions of the National Construction Code (NCC) 2019 amendment 1, incorporating the NSW Appendices where applicable.
- Guide to the National Construction Code Volume 1.
- Disability (Access to Premises — Buildings) Standards 2010.
- Environmental Planning & Assessment Act 1979.

- Environmental Planning & Assessment Regulation 2021.

- Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.

4.5. Limitations and Exclusions

The limitations and exclusions of this report are as follows:

- This report is based on a review of the referenced documents.

- No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). Separate advice from an appropriately qualified access consultant should be obtained by the client to be satisfied that their obligations under the DDA have been addressed.

- Please note that whilst the NCC specifies a minimum standard of compliance with AS1428.1 and Part D3 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the Disability Discrimination Act 1992 (DDA). The DDA is complaint-based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the client should be satisfied that their obligations under the DDA have been addressed.

- This Report does not address issues in relation to the following:
  a) The structural adequacy of the building including the Fire Resistance Levels (FRL's) of any existing building elements (unless specifically referred to).
  b) The design, maintenance or operation of any existing electrical, mechanical, hydraulic or fire protection services.
  c) Environmental Planning and Assessment Act and Regulations.
  d) Local Government Act and Regulations.
  e) Occupational Health and Safety Act and Regulations.
  f) WorkCover Authority requirements.
  g) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, RTA, Council and the like.
  h) Disability Discrimination Act.
  i) Construction Safety Act.
  j) Any previous conditions of Development Consent issued by the relevant Local Council.
  k) The 'Adaptable Housing' Code (AS4299-1995)

- Building Anatomy cannot guarantee acceptance of this report by the Local Council, NSW Fire Brigades or other approval authorities.

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instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

4.6. Legislative Framework

Section 4.15 of the Environmental Planning and Assessment Act provides the matters of consideration that the consent authority must take into account in the determination of a development application.

Once development consent is granted, and pursuant to Section 19 of the EPA (Development Certification and Fire Safety) Regulation 2021 (formerly clause 145 of the EPA Regulation 2000), a certifying authority must not issue a construction certificate for building work unless:

a. the relevant building work plans and specifications include the matters required by a relevant BASIX certificate, if any, and

b. the design and construction of the building, as described in the relevant building work plans and specifications and in other information given to the certifier under section 12, is consistent with the development consent, and

c. the building will comply with the relevant requirements of the Building Code of Australia as in force at the time the application for the construction certificate was made.

5.0. BUILDING NCC DESCRIPTION

5.1. NCC Description

This review has been undertaken against the National Construction Code (NCC) 2019 amendment 1. The building is described in the following sections.

5.2. Rise in Storeys (RIS) (Clause C1.2)

The rise in storeys of unit 4 and 5 is two (2). There are only two (2) storeys contained within.

5.3. Building Classifications (Clause A3.2)

Building Levels	Classification
Ground floor:	
Unit 4	5, 7b
Unit 5	5, 7b, 8
First floor:	
Unit 4	5, 7b
Unit 5	5, 7b

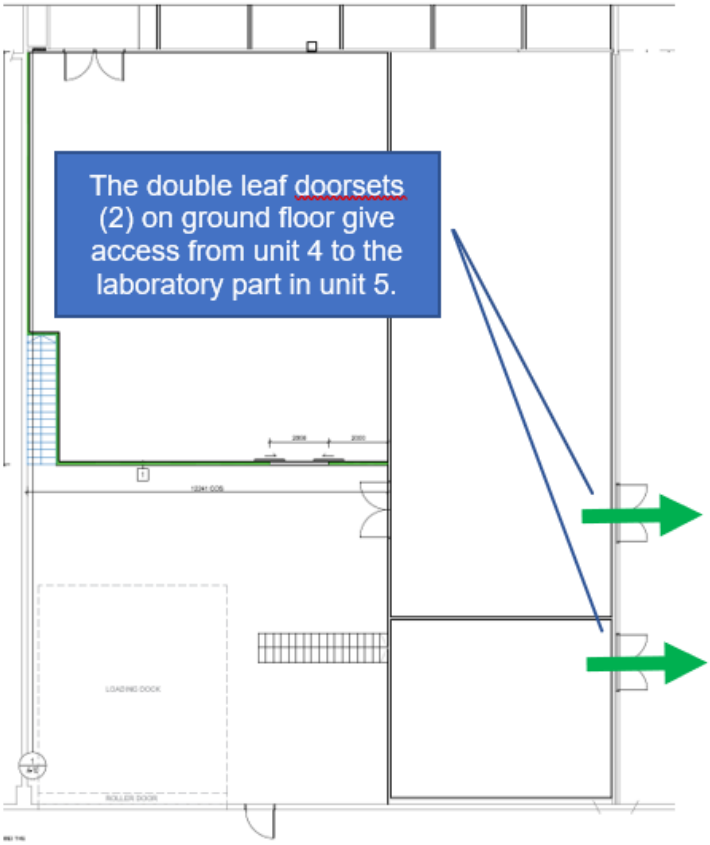


Fig.: 3.3.1: Forma Projects_unit 4 ground floor

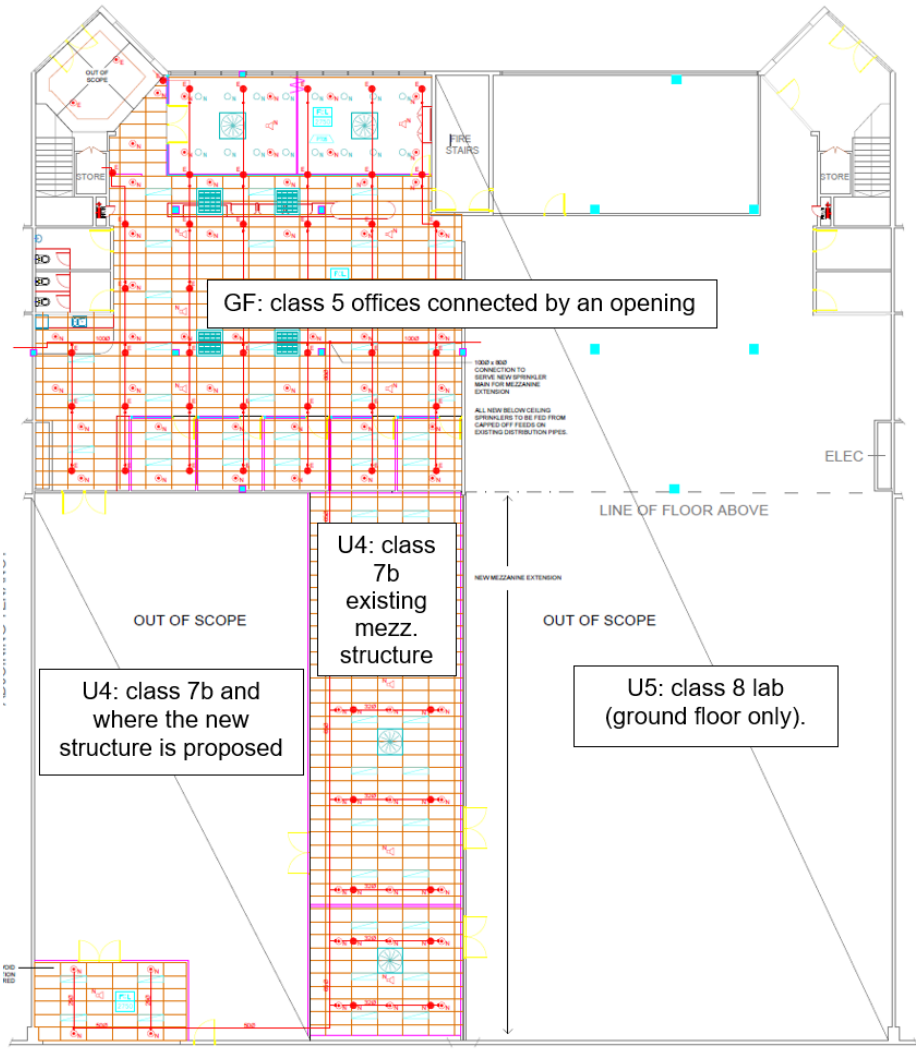


Fig.: 3.3.2: Forma Projects / Precise Fire_existing ground floor RCP of units 4 & 5

5.4. Effective Height (Clause A1.1)

The effective height of the building is less than 12m.

5.5. Type of Construction (Table C1.1) and Floor Area and Volume Limitations (Table C2.2)

The subject building fire compartment (unit 4 & 5 combined) is considered Type B construction.

Table C1.1 Type of construction required and Table C2.2 Maximum size of fire compartments or atria were both assessed.

Despite Table C1.1 identifying the type of construction as Type C, the maximum fire compartment size permitted must also be assessed. Table C2.2 describes the maximum thresholds allowed for a single fire compartment according to its classification.

Table C1.1 Type of construction required

Rise in storeys	Class of building 2, 3, 9	Class of building 5, 6, 7, 8
4 or more	A	A
3	A	B
2	B	C
1	C	C

Table C1.1: NCC 2019+A1 Volume 1

In Table C2.2 below, the maximum floor area and volume permitted for a class 5 and 7b + 8 building varies. The Guide to the BCA describes the calculation required to determine if the combined area and volume is exceeded for a specific type of construction.

Table C2.2 Maximum size of fire compartments or atria

Classification	Type A construction	Type B construction	Type C construction
5, 9b or 9c	Max *floor area*—8000 m^2 Max volume—48000 m^3	Max *floor area*—5500 m^2 Max volume—33000 m^3	Max *floor area*—3000 m^2 max volume—18000 m^3
6, 7, 8 or 9a (except for *patient care areas*)	Max *floor area*—5000 m^2 Max volume—30000 m^3	Max *floor area*—3500 m^2 Max volume—21000 m^3	Max *floor area*—2000 m^2 Max volume—12000 m^3

Table C2.2: NCC 2019+A1 Volume 1

The following information has been provided by Forma Projects:

Disclaimer: Building Anatomy cannot confirm the accuracy of the figures given and accept them on good faith. The AHJ should satisfy himself or herself the floor areas are correct.

Classification per level	Area in m²
Ground floor:	
Class 5	554
Class 7b / 8	1,260
First floor:	
Class 5	757
Class 7b	411
Total:	
Class 5	1,311
Class 7b / 8	1,671
All classes combined	2,982

Table 5.5.1: Floor area break down per level and classification (including the proposed mezzanine)

According to the values provided by Forma Projects, the total combined floor area of unit 4 and 5 is 2,982m², with the class 5 portion at 1,311m² and the class 7b and 8 portions at 1,671m².

Type C construction – Calculation under the Guide to the BCA:

- **Step 1:** take the percentage of each classification as a proportion of the actual floor area of the building
- **Step 2:** take the percentage of each classification as a proportion of the actual floor area of the building
- **Step 3:** then add each of those calculations together to come to a maximum permitted floor area for the combined classifications

Step 1:

The area of the **class 5** portion of the building is **44%** (1,311m2) of the floor area of the whole fire compartment (i.e. the combined class 7b/8 and class 5 portions).

The area of the **class 7b/8** portion of the building is **56%** (1,671m2) of the floor area of the whole fire compartment (i.e. the combined class 7b/8 and class 5 portions).

Step 2:

To determine if the fire compartment complies with Table C2.2 for Type C construction, the following calculations are necessary:

- Maximum area of class 5 allowed by Table C2.2 = 3000 m2
- The percentage of class 5 is 44% = 44% of 3000 m2 = 1,320 m2
- Maximum area of class 7b/8 allowed by Table C2.2 = 2000 m2
- The percentage of class 7b/8 is 56% = 56% of 2000 m2 = 1,120 m2
- Maximum allowable floor area = 1,320 + 1,120 = 2,440 m2

Step 3:

The maximum allowable floor area of the fire compartment is 2,440m².

The combined floor area of unit 4 and 5 (2,982m²) **exceeds** the maximum permitted for Type C construction.

The fire compartment must function as a compartment that complies with Type B construction including the existing fire walls between units 3 & 4, and units 5 & 6.

Note: It has not been deemed necessary to undertake a calculation against the Type B construction Table C2.2 values, or the volume thresholds in Table C2.2.

The implication is that the new structure is subject to Table 4.1 of specification C1.1, and the remaining (existing) structures within units 4 & 5, as well as separating fire walls between units 3 & 4, and 5 & 6, may need to be upgraded if found to possess less than the required levels of fire rating under Type B construction.

5.6. Fire protection and structural capacity – Section 14 of the Environmental Planning and Assessment (Development Certification and Fire Safety Regulation 2021 (formerly cl. 143 of the EPA Regulation 2000)

Change of use

A certifier must not issue a construction certificate for building work under a development consent that authorises a change of building use unless the fire protection and structural capacity of the building will be appropriate to its new use, and the building will comply with the Category 1 fire safety provisions that apply to the new use.

Alteration building work

A certifier must not issue a construction certificate for alteration building work unless, on completion of the building work, the fire protection and structural capacity of the building will not be reduced, assuming that the building work is carried out in accordance with the plans and specifications to which the construction certificate relates and any conditions to which the construction certificate is subject.

Fire protection and structural capacity of a building means—

a. the structural strength and load-bearing capacity of the building, and
b. the measures to protect persons using the building, and to facilitate their safe egress from the building, if there is a fire, and
c. the measures to restrict the spread of fire from the building to other buildings nearby.

The newly proposed structure at the rear of unit 4 will not change the existing building classification in that part (7b). The enclosed room on the top of the mezzanine is used for storage only and so too is the space beneath the raised flooring structure.

The proposed structure must be certified by a qualified and practicing structural engineer and confirmed not to impact the structural adequacy of the existing building. In addition, the structure must incorporate fire rated levels as required under Table 4.1 of specification C1.1. Refer to Table 9.1 and the clause-by-clause BCA assessment that describes the relevant fire rated levels required (specifically section C1.1 of Table 9.1).

The existing fire walls that separate units 4 & 3, and units 5 & 6 incorporate metal purlins that appear to pass through the fire walls and also appear to be greater than 75mm x 50mm. In addition, there are unprotected penetrations through the fire wall between unit 5 a& 6. To ensure the validity of the assumptions and advice in this report, the fire walls must be confirmed **by a structural engineer** to comply with BCA

clause C2.7 Separation by fire walls. In this regard, the following is to be assessed –

- C2.7(a)(i): The fire walls have the relevant FRL prescribed by specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL. **Note the units are considered to be Type B construction.**

- C2.7(a)(ii): Any openings in the fire walls must not reduce the FRL required by specification C1.1, except where permitted by the DtS provisions of Part C3. **In lieu of a structural engineer, an accredited practitioner of fire safety may be engaged to determine compliance.**

- C2.7(a)(iii): Building elements must not pass through or cross the fire walls unless the required fire resisting performance of the fire wall is maintained. Roof battens with dimensions 75mm x 50mm are permitted. In this regard, a **structural engineer** must confirm and certify that despite the purlins passing through the fire walls, the fire resistance performance of the fire walls is maintained. Where found to be deficient, remediation works are to be included in the development proposal.

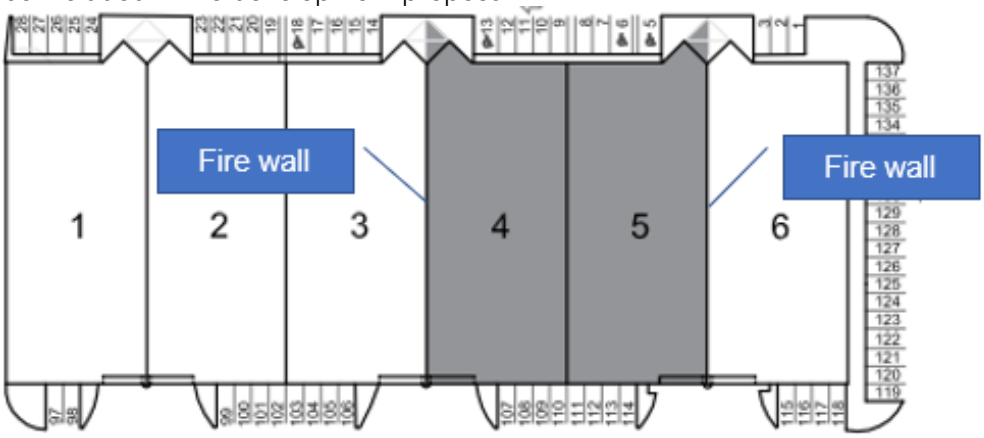


Fig.: 5.6.1: Units 4 & 5 in relation to other units

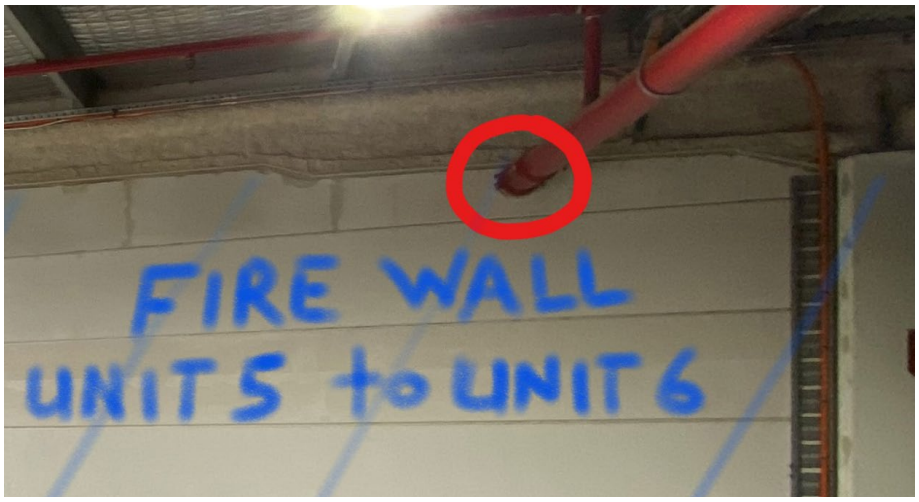


Fig.: 5.6.2: Unprotected metal pipe through fire wall (unit 5 to unit 6)

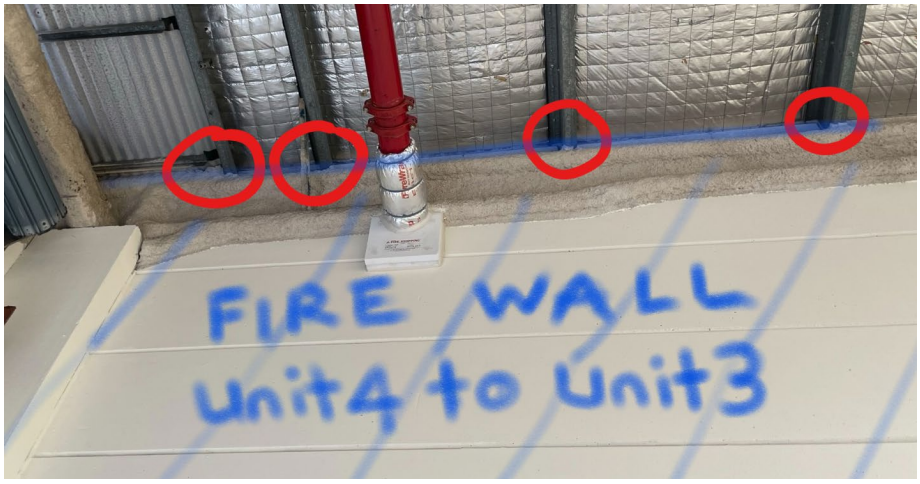


Fig.: 5.6.3: Metal purlins appear to pass through the fire walls between units 4 & 3, and 5 & 6.

If the nominated Type of construction for units 4 & 5 combined (Type B) results in a deficiency with respect to any existing building structure, including internal building elements that were approved under former tenant approvals (other mezzanines etc), or any base building element such as a fire wall (as mentioned above), the design documentation should include such upgrades as required by the findings of this report or any other relevant consultant advice as requested by this report.

The proposal does not result in any non-compliance with respect to safe evacuation routes and does not impact existing evacuation routes. It is expected that compliance will be readily achievable with respect to Part E1 Fire fighting equipment.

Building Anatomy does not anticipate that measures to restrict the spread of fire from the building to other buildings nearby, are impacted by this development proposal.

The existing essential fire safety measures for the building have been identified in the draft fire safety schedule within section 6.0 of this report. The proposed improvements must not diminish the listed fire safety measures.

5.7. Referral of certain plans and specifications to New South Wales Fire Brigades

Sections 25-29 of the Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021 (formerly clause 144 of the EPA Regulation 2000) describes the circumstances in which referral to FRNSW is required.

Those circumstances are for a class 7b building that is proposed to have:

i. a fire compartment with a total floor area of more than 2,000 square metres, or

ii. that is proposed to have a total building floor area of more than 6,000 square metres,

and where the plans and specifications for the work provide for a performance solution to meet the performance requirements contained in any one or more of the Category 2 fire safety provisions, namely, the following provisions of the Building Code of Australia: CP9, EP1.3, EP1.4, EP1.6, EP2.2 and EP3.2 in Volume One of that Code.

Building Anatomy expects that the unit 4 and 5 combined fire compartment is greater than 2,000m². The total floor area of the building (i.e. units 1 - 6) has not been provided and therefore we cannot confirm whether it exceeds 6,000m².

As the unit 4 & 5 combined fire compartment is likely greater than 2,000m², where a required performance solution must satisfy a category 2 fire safety provision, referral to Fire and Rescue NSW for an initial fire safety report will be required. The AHJ is to determine at the construction certificate stage whether referral to FRNSW is required.

6.0. FIRE SAFETY SCHEDULE - DRAFT

The **DRAFT** fire safety schedule for the proposal is set out below.

The final fire safety schedule is to be prepared prior to the issue of the Construction Certificate.

SCHEDULE

*** Indicates whether the measure is new (N), Existing (E) or Modified (M)**
****Date (DD-MM-YYYY) measure was assessed by a properly qualified person**

NOTE: The maintenance schedule must be included in the fire safety schedule - tba

Fire safety measure	Status*	Date**	Minimum Standard of Performance
Automatic fire detection and alarm system – unit 9 only	E	17/04/2020	BCA E2.2a AS1670.1 - 2004
Automatic fire suppression system - sprinkler	M	30/04/2020	AS2118-1999
Building occupant warning system	M	30/4/2020	BCA E2.2a Clause 6
Building occupant warning system – unit 9 only	E	17/04/2020	AS2220.1
Emergency lighting	M	28/04/2020	AS2293.1-1998 (Unit 4 warehouse: E4.2 & E4.4, AS/NZS2293.1-2018)
Exit signs	M	28/04/2020	AS2293.1-1998 (Unit 4 warehouse: E4.5, E4.6 & E4.8, AS/NZS2293.1-2018)
Fire dampers	E	17/04/2020	AS1682.2-1979, AS1668.1-1979
Fire detection & gas suppression system - unit 3 only (CDC 19245cdc01)	E	N/A	BCA E2.2a & As1670 – 1995 (Partial System) AS4214 - 2002
Fire doors	E	20/05/2020	AS1905.1 - 1984
Fire hose reel system	E	27/04/2020 21/05/2020	BCA E1.4 & AS2441 – Unit 9 additional hose reel Ord 70 Clause 27.2 & Spec 10 & AS2441 for remainder of the building.

Fire hydrant system including hydrant pump set	E	21/05/2020	Ord 70 Clause 27.3 & Spec 10 Booster set - BCA E1.3 & AS2419.1 – 2005.
Fire mains & water supply	E	30/04/2020	Ord 70 Clause 27.1 & Spec 10
Lightweight construction (tba: unit 4 warehouse part)	M	17/04/2020	BCA Clause C1.8 & Spec C1.8
Mechanical air handling systems	E	17/04/2020 17/04/2020 17/04/2020	AS1668.1 - 1979 E2.2 BCA & AS/NZS 1668.1-1998 (Unit 9)
Path of travel, stairway or ramp were clear of anything which may impede the free passage of persons	E	21/02/2020	EP&A Reg 2000 Clause 186
Portable fire extinguishers & fire blankets	M	21/05/2020 06/04/2020 26/05/2020 27/04/2020	AS2444 – 2001
Remote monitoring of alarms	E	28/04/2020	AS4428.6 – 1999
Warning & operational signs	E	20/05/2020	BCA Clause D2.23

7.0. CONCLUSION

Demonstrating full compliance with the National Construction Code (NCC) at DA assessment stage is not prescribed under Section 4.15 of the Environmental Planning & Assessment Act 1979. The Consent Authority however has an obligation to consider whether the proposed development application is indicatively capable of complying with the NCC and without significant modification when an application for a construction certificate is made.

The Certifying Authority is also to consider the Disability (Access to Premises – buildings) Standard 2010 and determine whether the affected part upgrade should be applied to the proposal and to what extent. As the proposal relates to alterations and additions to an existing building whereby the applicant for the works is a tenant in a multi-tenanted building, the affected part assessment is not triggered. The new works must comply with the BCA.

Building Anatomy has considered potential upgrades required to address any deficiencies in the existing fire walls and existing internal structures as a result of the unit 4 & 5 fire compartment being identified as Type B construction. It is our opinion that the construction certificate plans, when lodged with the certifying authority are expected to contain appropriate detail illustrating full compliance with the NCC (including said upgrades) and will not demand the need for any significant design changes that in turn would necessitate the submission of an application under Section 4.55 of the Environmental Planning and Assessment Act 1979. It is however the responsibility of the AHJ at the construction certificate stage to determine whether further approvals from Council will be required.

8.0. APPENDIX A – FIRE RESISTANCE LEVELS

Table 4 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS

Table 4 Type B 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 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/–	120/ 30/–	180/ 60/–	240/ 60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 30	–/ 90/ 60	–/120/ 90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* columns—				
less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non-*loadbearing* columns—				
For non-*loadbearing* columns—	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Fire-resisting stair *shafts*—				
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

9.0. APPENDIX B: BCA REQUIREMENTS - CLAUSE BY CLAUSE ASSESSMENT

The abbreviations or descriptions outlined below may be used in the table that follows.

N/A	The Deemed-to-Satisfy clause does not apply to the subject Building.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been demonstrated by the proposed design and existing building features.
Existing	No new works have been undertaken.
CRA	'Compliance Readily Achievable'. Further design detail and/or certification will be required prior to the issue of the Construction Certificate to determine compliance.
FI	Further information is necessary to determine compliance
PS	Performance Solution with respect to this Deemed-to-Satisfy Provision is possible to satisfy the relevant BCA Performance Requirements.
DNC	Does Not Comply.
DTS	Deemed-To-Satisfy provisions as defined by the National Building Code of Australia 2019 amendment 1.
Noted	Relevant note made for information purposes.

Clause	Description	Status	Comments
SECTION C – FIRE RESISTANCE			
Part C1 – Fire Resistance and Stability			
C1.1	Type of construction required	CRA	The minimum type of fire resisting construction required for the building is type B construction. Refer to table 4 'Type B Construction' in appendix A of this report. Table 4.1 of specification C1.1 requires the columns below the new structure and that support it must have a FRL not less than 240/--/--. The flooring of the structure does not require a FRL and the flooring itself does not need to be non-combustible. Note: the concession under Spec. C1.1-4.1(g) has been considered and does not apply to the proposal. See below. **Spec. C1.1-4.1(g):** In a class 5, 6, 7, 8 or 9 building, in the storey immediately below the roof, internal columns and internal walls (other than fire walls and shaft walls), need not comply with Table 4. This concession has not been applied to the structure because the **definition** of a **mezzanine** is an intermediate floor within a room. The structure incorporates an enclosed storage room on top of it therefore is **not** an intermediate floor within a room, rather it is a 2 storey part consisting of ground floor and level 1. The enclosed storage room on level 1 need not comply with Table 4 but the structural columns beneath it and supporting the flooring must comply.
C1.2	Calculation of rise in storeys	Noted	The building has a rise in storeys of two (2). There are two (2) storeys contained within. Refer to section 5.2 in this report.
C1.3	Buildings of multiple classification	Noted	For the purposes of assessment, the building is considered a class 7b building that incorporates ancillary offices and these offices are classified as class 5. Refer to section 5.3 of this report
C1.4	Mixed types of Construction	N/A	

Clause	Description	Status	Comments
C1.5	Two storey Class 2, 3 or 9c buildings	N/A	
C1.6	Class 4 parts of buildings	N/A	
C1.7	Open spectator stands and indoor sports stadiums	N/A	
C1.8	Lightweight construction	CRA	Some steel building elements such as columns or beams may need to be protected with fire rated lightweight construction. Lightweight construction must comply with Specification C1.8. Lightweight construction means construction which incorporates or comprises— • sheet or board material, plaster, render, sprayed application, or other material similarly susceptible to damage by impact, pressure or abrasion; or • concrete and concrete products containing pumice, perlite, vermiculite, or other soft material similarly susceptible to damage by impact, pressure or abrasion; or • masonry having a width of less than 70 mm.
C1.9	Non-combustible building elements	N/A	
C1.10	Fire hazard properties	CRA	The fire hazard properties of all floor linings and floor coverings, wall linings and ceiling linings, air-handling duct work, sarking type materials, and attachments to floors, ceilings, internal walls, common walls, fire walls and to the internal linings of external walls must comply with Specification C1.10. Product technical data sheets, installation guidelines, and test sheets from an authorised testing laboratory, or alternatively another form of evidence of suitability in accordance with NCC Part A5: Documentation of design and construction, must be submitted to the Certifying Authority for assessment as part of the construction certificate application.
C1.11	Performance of external walls in fire	N/A	**There are no tilt-up and pre-cast concrete panels proposed as the external walls of the building are existing.**

Clause	Description	Status	Comments
C1.12	No Provisions	N/A	
C1.13	Fire-Protective Timber	Note	Fire-protected timber in a Class 2, 3 or 5 building may be used wherever an element is required to be non-combustible, provided— (a) the building is— (i) a separate building; or (ii) a part of a building— (A) which only occupies part of a storey, and is separated from the remaining part by a fire wall; or (B) which is located above or below a part not containing fire-protected timber and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a fire wall for the lower storey; and (b) the building has an effective height of not more than 25 m; and (c) the building has a sprinkler system throughout complying with Specification E1.5; and (d) any insulation installed in the cavity of the timber building element required to have an FRL is non-combustible; and (e) cavity barriers are provided in accordance with Specification C1.13.
C1.14	Ancillary elements	N/A	

Part C2 – Compartmentation and Separation

C2.1	Application of Part	Noted	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.
C2.2	General floor area limitations	Complies	Refer to section 5.5 of this report. Building Anatomy nominate the combined unit 4 & 5 fire compartment as needing to comply with Type B construction.
C2.3	Large isolated buildings	N/A	
C2.4	Requirements for open spaces and vehicular access	N/A	
C2.5	Class 9a and 9c	N/A	

Clause	Description	Status	Comments
	buildings		
C2.6	Vertical separation of Openings in external walls	N/A	
C2.7	Separation by fire walls	CRA	No new works proposed. Despite this, Building Anatomy have requested the following matters be confirmed: (refer also to section 5.6 in this report) • C2.7(a)(i): Confirm the fire walls have the relevant FRL prescribed by specification C1.1 for each of the adjoining parts, and if these are different, the greater FRL. **Note the units are considered to be Type B construction.** • C2.7(a)(ii): Confirm any openings in the fire walls do not reduce the FRL required by specification C1.1, except where permitted by the DtS provisions of Part C3. **In lieu of a structural engineer, an accredited practitioner of fire safety may be engaged to determine compliance.** • C2.7(a)(iii): Confirm building elements do not pass through or cross the fire walls unless the required fire resisting performance of the fire wall is maintained. Roof battens with dimensions 75mm x 50mm are permitted. In this regard, a **structural engineer** must confirm and certify that despite the purlins passing through the fire walls, the fire resistance performance of the fire walls is maintained. Where found to be deficient, remediation works are to be included in the development proposal.
C2.8	Separation of classifications in the same storey	Noted	Within unit 4 and 5, the class 5 and 7b classifications need not be separated from each other as these are wholly within the same unit and according to Table 4.1 of specification C1.1 need not be fire rated.
C2.9	Separation of classifications in different storeys	N/A	
C2.10	Separation of lift shafts	N/A	There is no lift proposed.

Clause	Description	Status	Comments
C2.11	Stairways and lifts in one shaft	N/A	There is no lift proposed.
C2.12	Separation of equipment	N/A	There is no equipment proposed that will need to be separated from the remainder of the building.
C2.13	Electricity supply system	N/A	There is no electrical equipment proposed that will need to be separated from the remainder of the building.
C2.14	Public corridors in Class 2 and 3 buildings	N/A	

Part C3 – Protection of Openings

C3.1	Application of Part	Noted	The DtS provisions of this part do not apply to openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like.
C3.2	Protection of openings in external walls	N/A	
C3.3	Separation of external walls and associated openings in different fire compartments	N/A	
C3.4	Acceptable method of protection	N/A	There are no openings that require protection.
C3.5	Doorways in fire walls	N/A	
C3.6	Sliding fire doors	N/A	
C3.7	Protection of doorways in horizontal exits	N/A	
C3.8	Openings in fire isolated exits	N/A	
C3.9	Service penetrations in	N/A	

Clause	Description	Status	Comments
	fire isolated exits		
C3.10	Openings in fire isolated lift shafts	N/A	
C3.11	Bounding construction: Class 2, 3 and 4 buildings	N/A	
C3.12	Openings in floors for services	N/A	Protection not required because the flooring need not be fire rated.
C3.13	Openings in shafts	N/A	
C3.14	-	-	No provisions
C3.15	Openings for service installation	CRA	Electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrations through fire rated or fire resistant building elements (other than an external wall or roof), must comply with: • A tested system • AS1668.1 if related to mechanical ventilation or air-conditioning • Specification C3.15 for plumbing penetrations, electrical cabling, or electrical switches or the like. The existing fire walls bounding the unit 4 and 5 fire compartment must comply with C2.7 and where required remedial works should be proposed to ensure the integrity and validity of those fire walls.
C3.16	Construction Joints	N/A	
C3.17	Columns protected with lightweight construction	N/A	

SECTION D – ACCESS AND EGRESS

Part D1 – Provision for Escape

Clause	Description	Status	Comments
D1.1	Application of Part	Noted	The Deemed to Satisfy provisions of this part do not apply to the internal parts of a sole occupancy unit in a class 2 building.
D1.2	Number of exits required	Complies	A single exit is provided on level 1 and complies. Ground floor has access to more than 1 exit.
D1.3	When fire isolated exits are required	N/A	
D1.4	Exit travel distances	Complies	The new works to level 1 are within the required distance threshold of not more than 20m to the single exit.
D1.5	Distances between alternative exits	N/A	Alternative exits are not required for level 1 and ground floor complies.
D1.6	Dimensions of exits and paths of travel to exits	Complies	The new stair serving level 1 must be dimensioned on the plans and have a clear width, free of encroachments, not less than 1m wide.
D1.7	Travel via fire-isolated exits	N/A	
D1.8	External stairways in lieu of fire-isolated exits	N/A	
D1.9	Travel by Non-fire-isolated Stairways or ramps	Complies	No part of the new structure is more than 80m from open space. From level 1, the discharge point on ground floor is not more than 20m from the rear exit doorway.
D1.10	Discharge from exits	Complies	
D1.11	Horizontal exits	N/A	
D1.12	Non-required stairs, ramps or escalators	N/A	
D1.13	Number of persons accommodated	Noted	

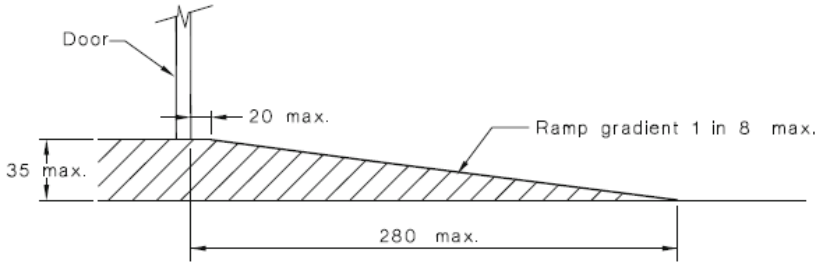
Clause	Description	Status	Comments
D1.14	Measurement of distance	Noted	
D1.15	Method of measurement	Noted	
D1.16	Plant rooms and lift machine rooms: Concession	N/A	
D1.17	Access to lift pits	N/A	
D1.18	Egress from early childhood centre	N/A	

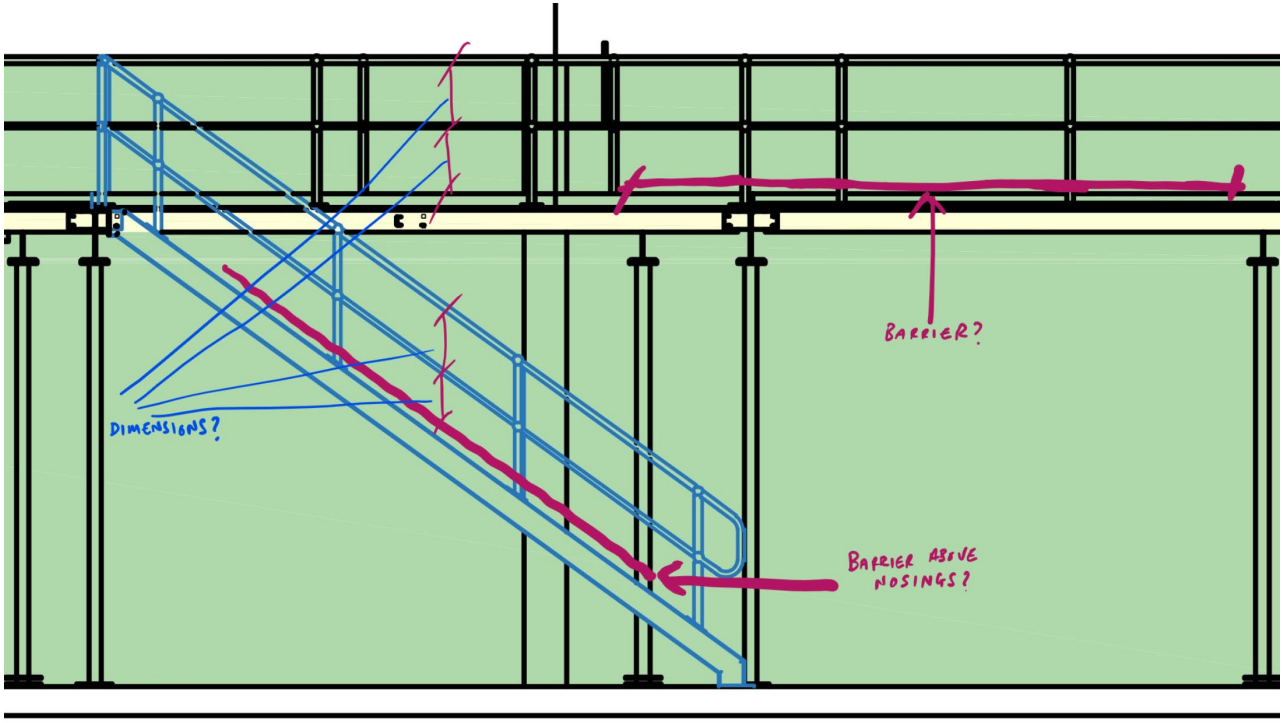
Part D2 – Construction of Exits

D2.1	Application of Part	Noted	
D2.2	Fire isolated stairways and ramps	N/A	A stairway or ramp (including any landings) that is *required* to be within a *fire-resisting shaft* must be constructed— (a) of *non-combustible* materials; and (b) so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the *shaft*. *Note that a concrete wall system utilising in situ plastic formwork cannot be used to construct the fire isolated stairway.*
D2.3	Non-fire-isolated stairways and ramps	N/A	**The building has a rise in storeys of 2 and need not comply.** In a building having a *rise in storeys* of more than 2, *required* stairs and ramps (including landings and any supporting building elements) which are not *required* to be within a *fire-resisting shaft*, must be constructed according to **D2.2**, or only of— (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m^3 at a moisture content of 12%; and

Clause	Description	Status	Comments
			(iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.
D2.4	Separation of rising and descending stair flights	N/A	
D2.5	Open access ramps and balconies	N/A	
D2.6	Smoke lobbies	N/A	
D2.7	Installations in exits and paths of travel	N/A	No new equipment being installed along a path of travel to an exit that would require protection. Services or equipment comprising— i. electricity meters, distribution boards or ducts; or ii. central telecommunications distribution boards or equipment; or iii. electrical motors or other motors serving equipment in the building may be installed in— iv. a required exit, except for fire-isolated exits specified in (a); or v. in any corridor, hallway, lobby or the like leading to a required exit, if the services or equipment are enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.
D2.8	Enclosure of space under stairs and ramps	N/A	
D2.9	Width of stairways	Noted	There are no stairs that are required to be split in this way. A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.
D2.10	Pedestrian ramps	N/A	

Clause	Description	Status	Comments
D2.11	Fire-isolated passageways	N/A	
D2.12	Roof as open space	N/A	
D2.13	Goings and risers	CRA	*For all stairs –* Risers are required to be between 115-190mm and goings between 250-355mm. *Relationship –* ALL Goings and Risers are to satisfy the equation of 2R+G=700(max) and 550(min). *Construction tolerances –* Goings and risers are to be consistent throughout in one flight other than where the allowable construction tolerances are not exceeded – i.e. the variation is as follows: *Adjacent risers, or between adjacent goings, is no greater than 5 mm; and the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm.* *Gaps –* Any gap between risers must not permit a 125mm sphere to pass through it. *Slip Resistance –* All tread surfaces and nosing strips are to achieve a slip resistance classification not less than that listed in Table D2.14 when tested in accordance with AS4586.
D2.14	Landings	N/A	There are no mid-landings in the proposed stairway.
D2.15	Thresholds	CRA	It is not expected there will be steps or a rise at new door thresholds. A threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless: - the doorway opens to a road or open space, external stair landing or external balcony; and - the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.

Clause	Description	Status	Comments
			Prior to the issue of a construction certificate full details illustrating any door thresholds that may require ramps is to be provided to the certifying authority for assessment. *Threshold ramps at doorways on a continuous path of travel shall have—* *(a) a maximum rise of 35 mm;* *(b) a maximum length of 280 mm;* *(c) a maximum gradient of 1:8; and* *(d) be located within 20 mm of the door leaf which it serves,*
			The edges of the threshold ramp shall be tapered or splayed at a minimum of 45° where the ramp does not abut a wall. NOTE: For door controls, see Clause 13.5.  DIMENSIONS IN MILLIMETRES FIGURE 21 THRESHOLD RAMP
D2.16	Barriers to prevent falls	CRA	Compliance with Table D2.16a is required for all barriers that are designed to prevent falls of greater than 1 metre from a surface below: • The stairway barrier must be not less than 865mm from the top of the nosing treads. • A 150mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the nearest rail, or the floor of the landing, balcony or the like.

Clause	Description	Status	Comments
			• Openings between the rails must be not more than 460mm. Note: There are no barriers that prevent falls greater than 4 metres from the surface below. Prior to the issue of a construction certificate full barrier details illustrating compliance are to be provided to the Certifying Authority.
			
D2.17	Handrails	Complies	For ALL staircases handrails are to be provided to at least one side of stair flights and located not less than 865mm above the nosings of stair treads and the floor surfaces of landings. Handrail extensions complying with AS1428.1 are not required.
D2.18	Fixed platforms walkways, stairways and ladders	N/A	Fixed platforms, walkways, stairways, ladders, landings, handrails, balustrades and any tread or riser in a plant room, lift motor room or the like is to comply with AS1657.

Clause	Description	Status	Comments
D2.19	Doorways and doors	Complies	
D2.20	Swinging doors	Complies	
D2.21	Operation of latch	CRA	A door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by— (i) a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3— A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm; or (ii) a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor, and (iii) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— a. not less than 500 mm from an internal corner; and b. for a hinged door, between 1 m and 2 m from the door leaf in any position; and c. for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. Prior to the issue of the construction certificate a door schedule is to be provided to the certifying authority confirming all door hardware and security requirements.
D2.22	Re-entry fire-isolated exits	N/A	

Clause	Description	Status	Comments
D2.23	Signs on doors	N/A	
D2.24	Protection of openable windows	N/A	
D2.25	Timber stairways: Concession	N/A	

SECTION D – ACCESS AND EGRESS

SECTION D3.3 – ACCESS FOR PEOPLE WITH DISABILITIES

D3.0	Deemed-to-Satisfy Provisions	Noted	
D3.1	General Building Access Requirements	Complies	Table D3.1 indicates that for a class 7b part, access is required to and within all areas normally used by occupants, except where exempted under D3.4. **Enclosed room on the new mezzanine** Building Anatomy has been informed by the design team the enclosed room on level 1 is an extension of the upper 'open' storage area and does not house equipment or materials that will need to be accessed by laboratory technicians and relevant staff to undertake their day-to-day duties. The level 1 storage area, including the enclosed room is therefore considered to be a storage facility that satisfies the exemption criteria of D3.4. Level 1 need not be accessible. **Below the new mezzanine** Access is provided to the ground floor 7b part that is under the new structure.
D3.2	Access to Buildings	N/A	An accessway[1] must be provided to a building required to be accessible – i. from the main points of a pedestrian entry at the allotment boundary, ii. from another accessible building connected by a pedestrian link; and iii. from any required accessible carparking space on the allotment. **The principal pedestrian entry** has not changed.

[1] ***Accessway*** *means a continuous accessible path of travel (as defined in AS 1428.1) to, into or within a building*

Clause	Description	Status	Comments
D3.3	Parts of Buildings to be accessible	Complies	**Pedestrian ramps and stairways** In parts of the building required to be accessible (other than areas exempted by D3.4), every pedestrian ramp and stairway must comply with, **for a stairway**, except a fire-isolated stairway, clause 11 of AS 1428.1. Note that clause 11 requires that handrails shall comply with clause 12. The proposed new stair serves an area not deemed accessible. The stair need not strictly comply with clause 11 of AS1428.1. **Concessions for floors less than 200m²** In a class 7b building, where the floor (other than the entrance floor of the building) is less than 200m² and the building contains not more than 3 storeys, wheelchair access is not required to that storey. In the context of the proposed development, the new structure floor area is circa 220m² and therefore exceeds the threshold. Wheelchair access to level 1 has nevertheless been deemed unnecessary having the D3.4 exemption applied to it.
D3.4	Exemptions	Complies	The following areas are not required to be accessible: (a) An area where access would be inappropriate because of the particular purpose for which the area is used, (b) An area that would pose a health or safety risk for people with a disability, (c) Any path of travel providing access only to an area exempted by (a) or (b) The level 1 storage room and open mezzanine area is used as general storage only. The nature of pallets being delivered through an operable balustrade section, and the method of storage within the enclosed room make the area inappropriate, and poses a health and safety risk for people with a disability. Building Anatomy confirm the application of this exemption to level 1 is entirely appropriate.

Clause	Description	Status	Comments
			
D3.5	Accessible car parking	CRA	The proposal does not trigger a change of BCA use. It is anticipated the base building existing car parking requirements have been maintained and the proposal does not trigger new car parking. Should however council require an additional car parking space to serve unit 4, at least one car parking space (1 out of every 100 or part thereof) must comply with A/NZS2890.6. Where there is an existing and complying accessible car space allocated to unit 4, the requirement is considered to be met.
D3.6	Signage	N/A	
D3.7	Hearing Augmentation	N/A	
D3.8	Tactile Ground Surface indicators	CRA	TGSIs are not required at the top and bottom of the new stair (D3.4 exemption applies to level 1). In addition, where the stair itself presents a hazard to occupants, unless a barrier of some kind is installed beneath the stairs, TGSIs must also be installed and comply with AS1428.4.1 as appropriate to warn occupants of the hazard. (a) For a building *required* to be *accessible*, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment that they are approaching – i. a stairway, other than a fire-isolated stairway; and

Clause	Description	Status	Comments
			ii. an escalator; and iii. a passenger conveyor or moving walk; and iv. a ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp; and v. in the absence of a suitable barrier – A. an overhead obstruction less than 2 m above floor level, other than a doorway; and B. an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to inD3.4, if there is no kerb or kerb ramp at that point, except for areas exempted by D3.4. (b) Tactile ground surface indicators required by (a) must comply with sections 1 and 2 of AS/NZS 1428.4.1.
D3.9	Wheelchair Seating Spaces in Class 9b Assembly Buildings	N/A	
D3.10	Swimming Pools	N/A	
D3.11	Ramps	N/A	
D3.12	Glazing on an Accessway	N/A	

SECTION E – SERVICES AND EQUIPMENT

Part E1 – Fire Fighting Equipment

E1.1	-	-	No Provisions
E1.2	-	-	No Provisions

Clause	Description	Status	Comments
E1.3	Fire Hydrants	Noted	The new storey is served by an existing hydrant point at the rear of unit 4. An existing hydrant system serves the building and must be maintained to the standard of performance listed in the building's fire safety schedule. Prior to the issue of a construction certificate the Certifying Authority must satisfy him or herself that the hydrant system is satisfactory and that no significant life safety matters exist.
E1.4	Hose Reels	Noted	The new storey is served by an existing fire hose reel at the rear of unit 4. The existing fire hose reel system must be maintained to the standard of performance listed in the building's fire safety schedule. Prior to the issue of a construction certificate the Certifying Authority must satisfy him or herself that the hydrant system is satisfactory and that no significant life safety matters exist.
E1.5	Sprinklers	CRA	Sprinkler coverage is required to the new structure and enclose rooms, as well as beneath the structure. The sprinklers must comply with specification E1.5 and set off a building occupant warning system (BOWS) in accordance with clause 8. The existing fire hose reel system must be maintained to the standard of performance listed in the building's fire safety schedule. Prior to the issue of a construction certificate the Certifying Authority must satisfy him or herself that the hydrant system is satisfactory and that no significant life safety matters exist.
E1.6	Portable fire extinguishers	CRA	Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and located and distributed in accordance with Sections 1, 2, 3 and 4 of AS2444.
E1.7	-	-	No Provisions
E1.8	Fire control centres	N/A	

Clause	Description	Status	Comments
E1.9	Fire precautions during construction	CRA	In a building under construction not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must always be provided on each storey adjacent to each required exit or temporary stairway or exit.
E1.10	Provisions for special Hazards	N/A	

Part E2 – Smoke Hazard Management

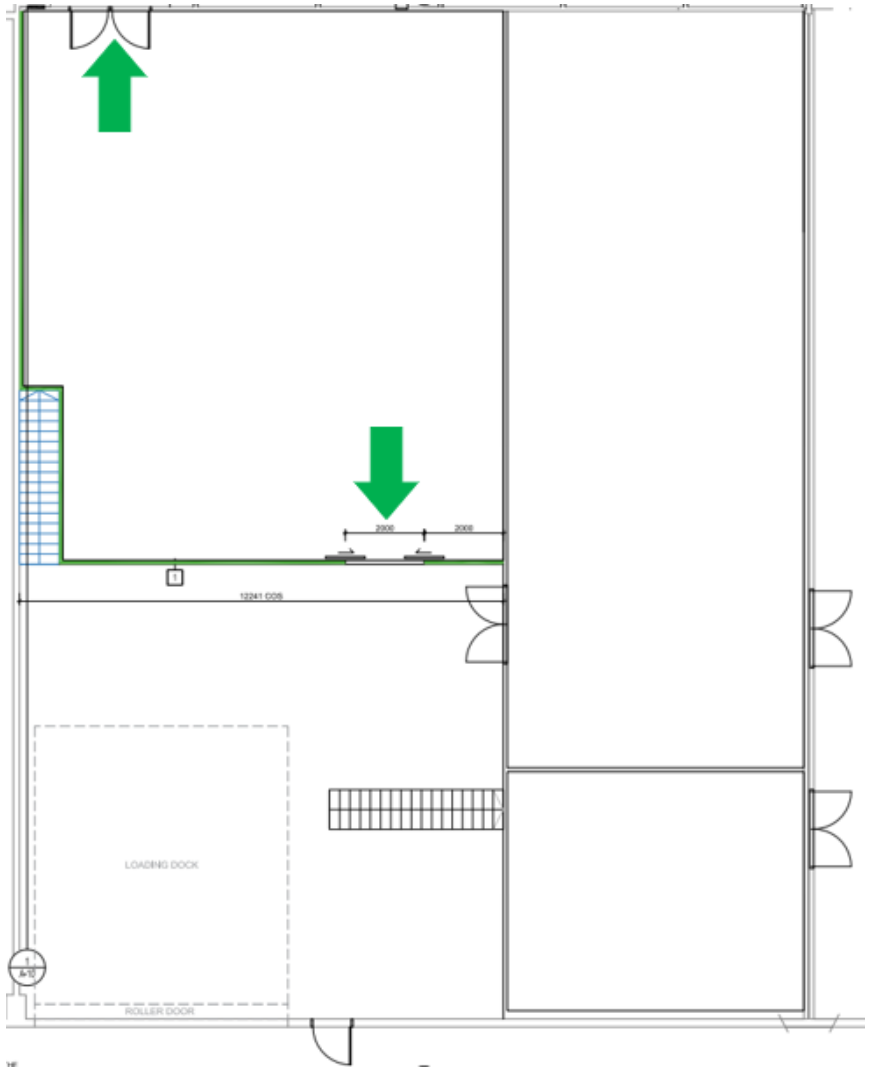
E2.1	Application of Part	Noted	The DtS provisions apply to the proposal.
E2.2	General requirements	N/A	
E2.3	Provisions for special hazards	N/A	Additional smoke hazard management measures are not deemed necessary because the proposal can readily comply with table E2.2a.

Part E3 – Lift Installations

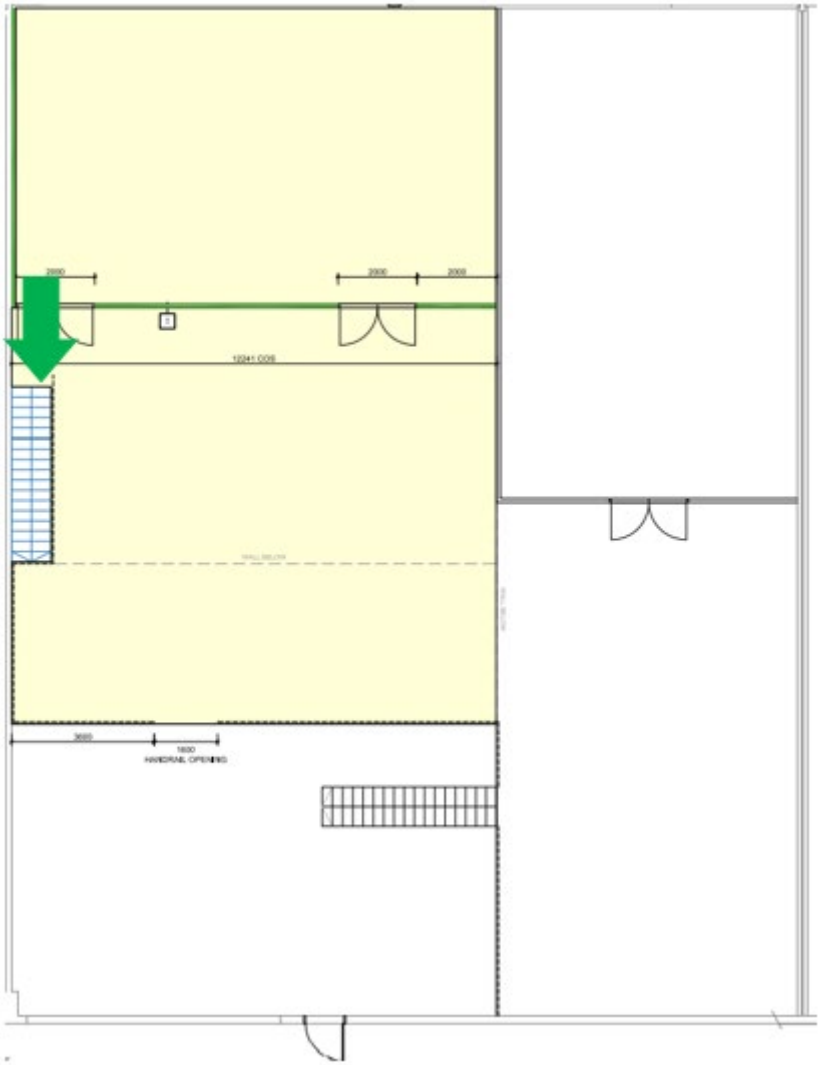
E3.1	Lift Installations	N/A	
E3.2	Stretcher facility in lifts	N/A	
E3.3	Warning against use of lifts in fire	N/A	
E3.4	Emergency lifts	N/A	
E3.5	Landings	N/A	
E3.6	Facilities for people with disabilities	N/A	
E3.7	Fire Services Control	N/A	
E3.8	Aged care buildings	N/A	
E3.9	Fire service recall control switch	N/A	
E3.10	Lift car fire service drive control switch	N/A	

Clause	Description	Status	Comments
Part E4 – Emergency Lighting, Exit Signs and Warning Systems			
A reference to a storey includes an *occupiable outdoor area* identified in Part G6.1.			
E4.1	-	-	No provisions
E4.2	Emergency lighting requirements	CRA	Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the NCC: - In every required non fire isolated stairway
E4.3	Measurement of distance	Noted	Distances, other than vertical rise, must be measured along the shortest path of travel whether by straight lines, curves or a combination of both.
E4.4	Design and operation of emergency lighting	CRA	Every required emergency lighting system must comply with AS 2293.1-2018 (test switch to be installed at each storey).
E4.5	Exit signs	CRA	Exit signs are not required on level 1 however it is highly recommended to install it at the top of the stairs. In addition An exit sign must be clearly visible to persons approaching the exit, and must be installed on, above or adjacent to each: a) door providing direct egress from a storey to— i. an enclosed stairway, passageway or ramp serving as a required exit; and ii. an external stairway, passageway or ramp serving as a required exit; and iii. an external access balcony leading to a required exit; and b) door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space; and c) horizontal exit; and d) door serving as, or forming part of, a required exit in a storey required to be provided with emergency lighting in accordance with E4.2.

Clause	Description	Status	Comments



Required exit signs: Ground floor, Unit 4



Required exit signs: Ground floor, Unit 4

Clause	Description	Status	Comments
E4.6	Direction signs	CRA	Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit in accordance with Clause E4.6 of the BCA.  (b) Left from here  (c) Right from here
E4.7	Class 2, 3 and 4 buildings: Exemptions	N/A	
E4.8	Design and operation of exit signs	CRA	Exit signs are to operate in accordance with AS 2293.1, or for a photoluminescent exit sign specification E4.8, and always be clearly visible while the building is legally occupied.
E4.9	Emergency Warning and Intercommunication Systems (EWIS)	N/A	

SECTION F – HEALTH AND AMENITY

Part F1 – Damp and Weatherproofing

F1.0	Deemed to Satisfy provisions	N/A	
F1.1	Stormwater drainage	N/A	
F1.2	-	-	No provisions
F1.3	-	-	No provisions
F1.4	External above ground membranes	N/A	
F1.5	Roof coverings	N/A	
F1.6	Sarking	N/A	

Clause	Description	Status	Comments
F1.7	Waterproofing of wet Areas in buildings	N/A	
F1.8	-	-	No provisions
F1.9	Damp-proofing	N/A	
F1.10	Damp-proofing of floors on the ground	N/A	
F1.11	Provisions of floor wastes	N/A	
F1.12	Sub-floor ventilation	N/A	
F1.13	Glazed assemblies	N/A	

Part F2 – Sanitary and Other Facilities

F2.1	Facilities in residential buildings	N/A	
F2.2	Calculation of number of occupants and facilities	Noted	• The number of persons accommodated must be calculated in accordance with D1.13 unless being determined by other more accurate means. • Unless the premises are used predominantly by one sex, sanitary facilities have been provided on the basis of equal numbers of males and females. • In calculating the number of sanitary facilities to be provided under F2.1 and F2.3, a unisex facility *required* for people with a disability (other than a facility provided under F2.9) may be counted once for each sex. • For the purposes of this part, a unisex facility comprises one closet pan, one wash basin and means for the disposal of sanitary products.
F2.3	Facilities in Class 3 to 9 buildings	Complies	The population number is satisfied in terms of the provision of existing sanitary facilities.
F2.4	Accessible sanitary Facilities	N/A	There are no additional accessible sanitary compartments proposed.

Clause	Description	Status	Comments
F2.5	Construction of sanitary compartments	N/A	There are no additional sanitary facilities proposed.
F2.6	Interpretation: Urinals and washbasins	Noted	There are no urinals proposed.
F2.7	Microbial (legionella) control	N/A	Not Applicable in NSW as the installation of hot water, warm water, and cooling water systems (and their operation and maintenance) is regulated in the Public Health Regulation, 2012, under the Public Health Act, 2010.
F2.8	Waste Management	N/A	
F2.9	Accessible adult change facilities	N/A	

Part F3 – Room Heights

F3.1	Height of rooms and other spaces	CRA	**Class 7b building:** Ceiling heights must be not less than 2.4m throughout the building except where permitted to be 2.1m in: i. a corridor, passageway, or the like, ii. a bathroom, shower room, sanitary compartment, other than an accessible adult change facility, airlock, tea preparation room, pantry, storeroom, garage, car parking area, or the like, or iii. 2.0m for a stairway measured vertically above the nosing line Any new services beneath the structure must not encroach on the minimum room heights.

Part F4 – Light and Ventilation

F4.1	Provisions of natural light	Noted	
F4.2	Methods and extent of natural light	N/A	Natural light provisions need not apply to the class 7b parts.

Clause	Description	Status	Comments
F4.3	Natural light borrowed from adjoining room	N/A	
F4.4	Artificial lighting	CRA	Artificial lighting must be provided in required stairways, passageways, and ramps. If natural light of a standard equivalent to that required by F4.2 is not available, and the periods of occupation or use of the room or space will create undue hazard to occupants seeking egress in an emergency, i. In the **class 7b parts**: provide artificial lighting to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and egress paths. The artificial lighting system must comply with AS1680.0.
F4.5	Ventilation of rooms	CRA	The level 1 storeroom facility and the ground floor storeroom facility must be provided with either natural or mechanical means of ventilation. Building Anatomy understand the proposal relies on natural ventilation to the new rooms.
F4.6	Natural ventilation	N/A	
F4.7	Ventilation borrowed from adjoining room	CRA	Natural ventilation is proposed to be borrowed from an adjoining room for the enclosed room on ground floor and enclosed room on level 1, of the new structure. Openings etc used to ventilate the room or space must be not less than 10% of the room or space, and the openings etc in the adjoining room must be not less than 10% of the combined floor areas of both rooms. See note 2 below. Note 1: The adjoining room where the ventilation is borrowed from, must include the floor area of the existing mezzanine. Note 2: If the existing room below the existing mezzanine is not mechanically ventilated in accordance AS1668.2, this must also be considered in the aggregate floor area.
F4.8	Restriction on location of sanitary compartments	N/A	No new facilities proposed.
F4.9	Airlocks	Noted	If restricted by F4.8 –

Clause	Description	Status	Comments
			Access to the toilet must be by an airlock, hallway or other room; or the sanitary compartment must be provided with mechanical exhaust ventilation. It is understood the proposal will incorporate mechanical exhaust from all of the SOU sanitary compartments and in any event comply with BCA cl. F4.8 above.
F4.10	-	-	No provisions
F4.11	Carparks	N/A	The car spaces are considered a private garage and not a class 7a car park.
F4.12	Kitchen local exhaust	N/A	

Part F5 – Sound Transmission and Insulation

F5.1 – F5.7	The deemed to satisfy provisions of this part do not apply to this proposal.