BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT REPORT

SSD Design

PROJECT:
President Private Hospital Redevelopment

PREPARED FOR:

Revision: 0
Date: 29 June 2020
Project No.: 190512

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1.0 EXECUTIVE SUMMARY

The project site is located at President Private Hospital – 368-381 President Avenue, Kirrawee. This report comprises a review of the SSD stage Design for the redevelopment of President Private Hospital comprising the proposed development of a New Main Building and demolition of redundant buildings.

The private hospital building is classified as follows:

+ **BCA Classification:**	Class 9a (Health-Care)
+ **Importance Level (Structural):**	Require IL 4 – *To be confirmed by structural engineer.*
+ **Rise in Storeys:**	Four (4)
+ **Type of Construction:**	Type A
+ **Effective Height:**	Level 2 (78.49) – Basement level 2 (66.50) = 11.99 **(EH 12m).** The effective height will need to be re-confirmed once exact levels are provided to the respective floors.
+ **Max. Fire Compartment Size:**	+ 5,000m^2 & 30,000m^3 + 2,000m^2 in Patient Care areas.
+ **Floor Area:**	Insufficient information to determine compartment areas
+ **Sprinkler protected throughout:**	Yes.
+ **Climate Zone:**	Zone 5 

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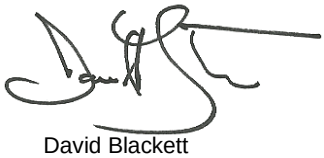
REPORT STATUS				
DATE	**REVISION**	**STATUS**	**AUTHOR**	**REVIEWED**
30.06.20	0	SSD Documentation Stage	DB	MP

Prepared by:



David Blackett
Accredited Certifier (BPB0032)
Director
Blackett Maguire + Goldsmith

Reviewed by:

Michael Potts
Senior Building Surveyor
Blackett Maguire + Goldsmith
A1 Accredited Certifier (NSW) – BPB No. 2516

2.0 INTRODUCTION

2.1 BACKGROUND

Blackett Maguire + Goldsmith Pty Ltd have been commissioned by Macquarie Health Corporation to undertake an assessment of the proposed development of a new Main Building at President Private Hospital Campus against the relevant provisions of the Building Code of Australia 2019

The proposed development includes the redevelopment of the existing hospital for expanded inpatient, surgical, ambulatory care and critical care services in a redevelopment that includes new buildings and refurbishment of existing buildings over three construction phases.

The new facility will include two (split) levels of basement carparking, with three storeys above. Retaining the operating theatres and the hydrotherapy facility.

2.2 OBJECTIVE OF REPORT

The objective of this report is to:

+ Confirm that the referenced SSD Design has been reviewed by an appropriately qualified Building Surveyor and Accredited Certifier.
+ Outline the BCA Compliance Strategy for the building and certification pathway for the project.
+ Identify BCA compliance matters that require further resolution.
+ Identify *potential* matters that are to be required to be addressed by Performance Solutions prior to issue of the Construction Certificate.
+ Enable the certifying authority to satisfy its statutory obligations the Environmental Planning and Assessment Act, 1979.
+ Identify the relevant essential fire safety measures that are applicable to the proposed development.

2.3 PROJECT TEAM

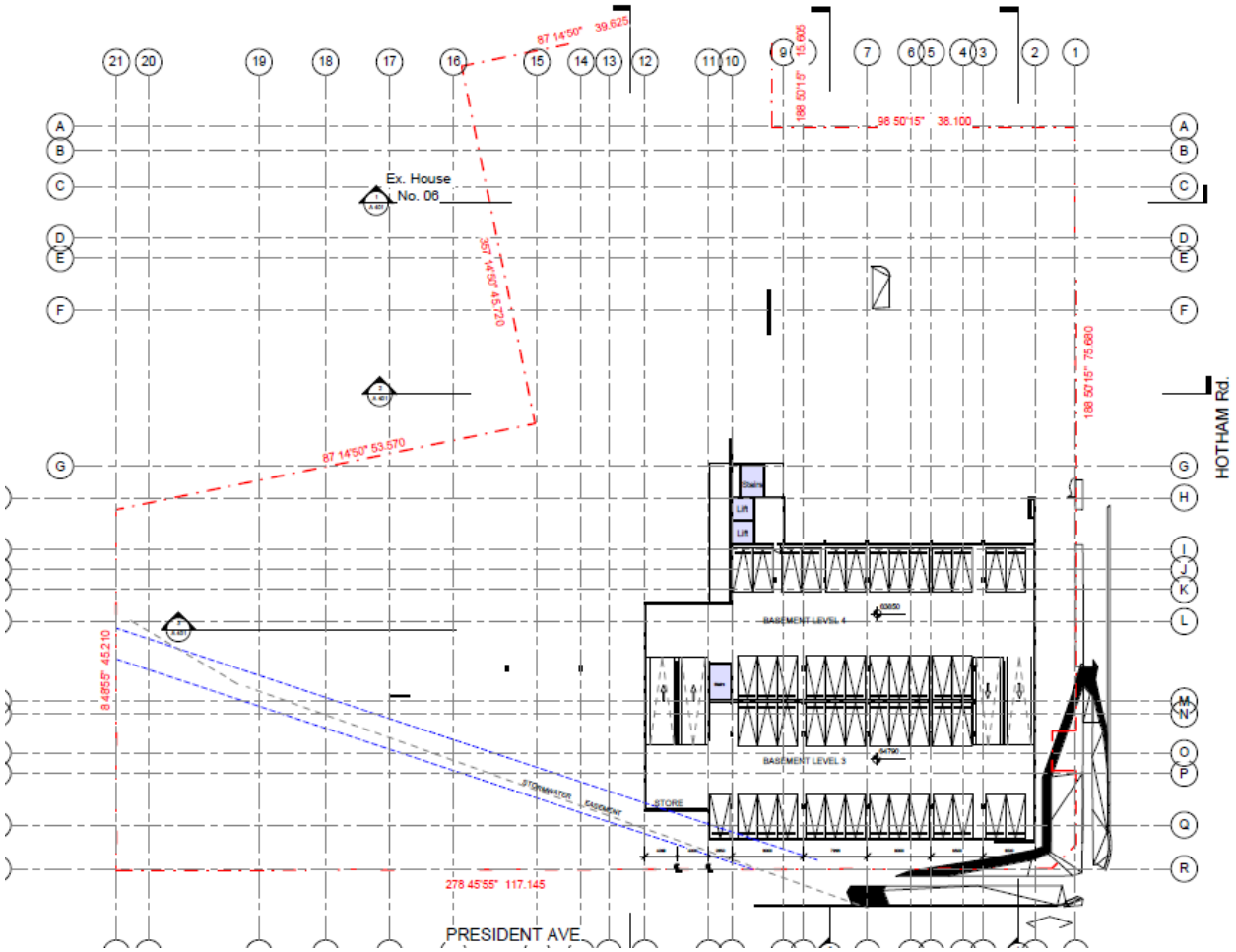
The following BM+G Team Members have contributed to this Report:

+ David Blackett – Project Director | A1 Accredited Certifier
+ Michael Potts – Associate Director | A1 Accredited Certifier

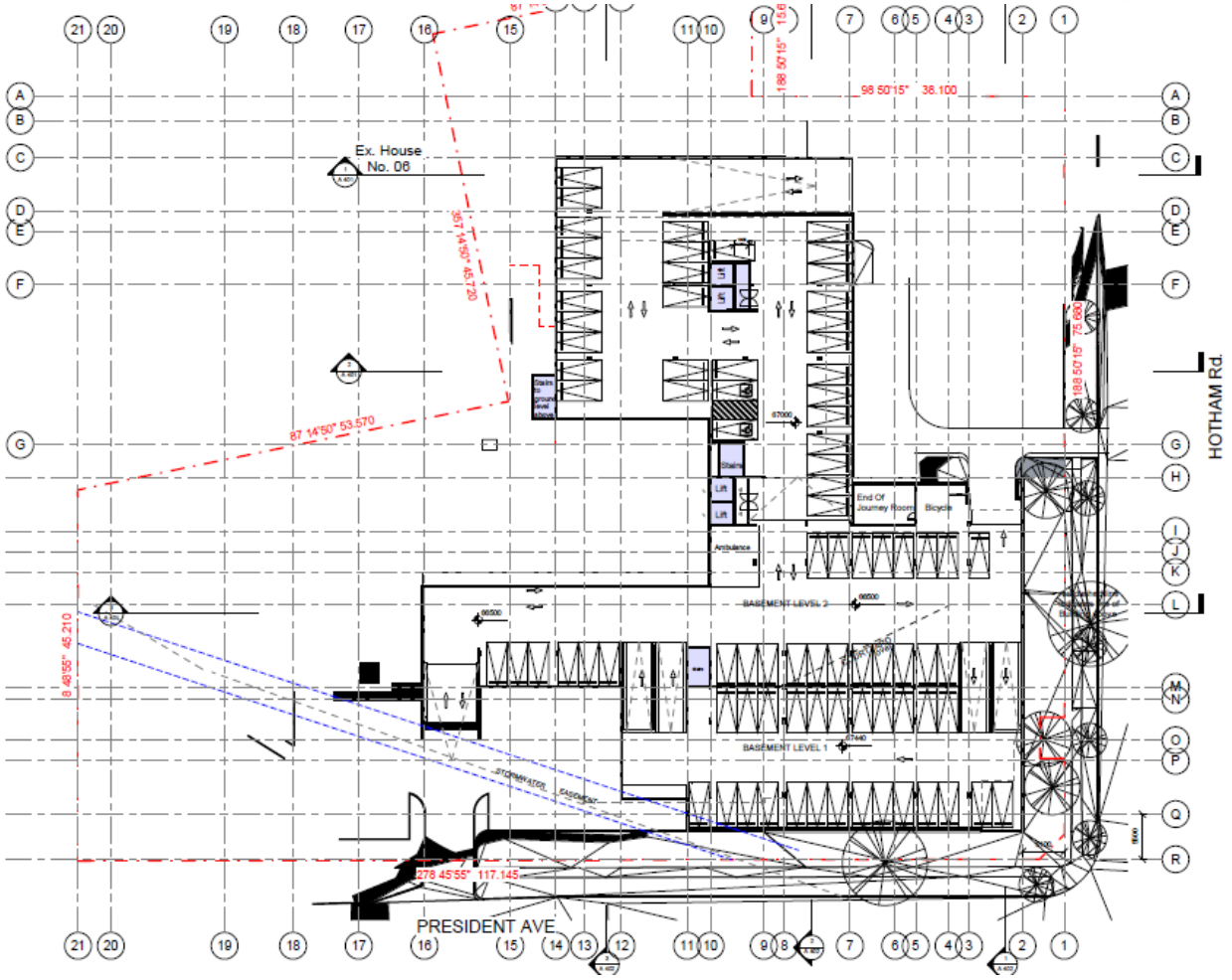
2.4 REFERENCED DOCUMENTATION

The following documentation was relied upon when preparing this Report:

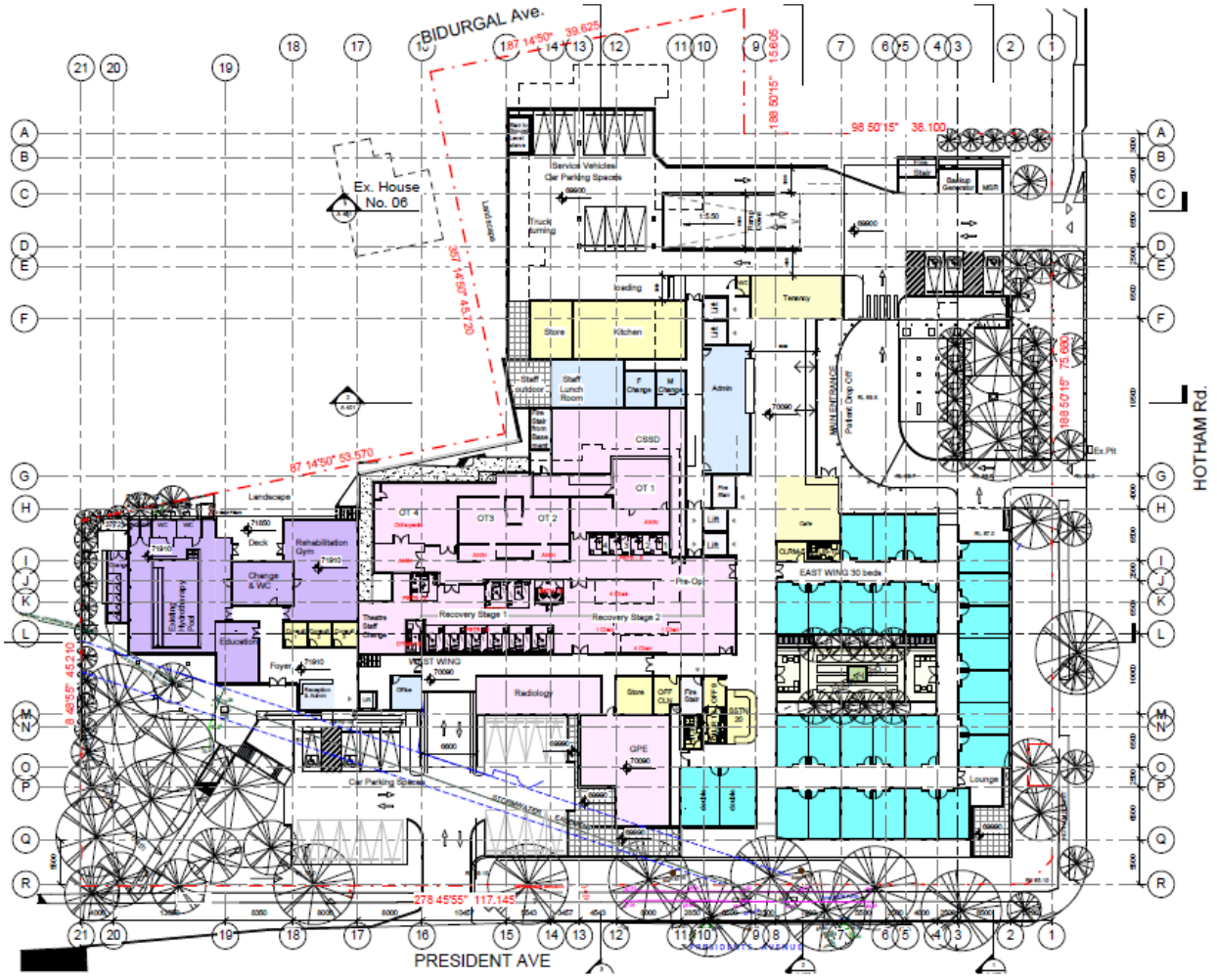
+ Building Code of Australia 2019 (BCA)
+ SSD Design Pans prepared by Imagescape Design Studio:



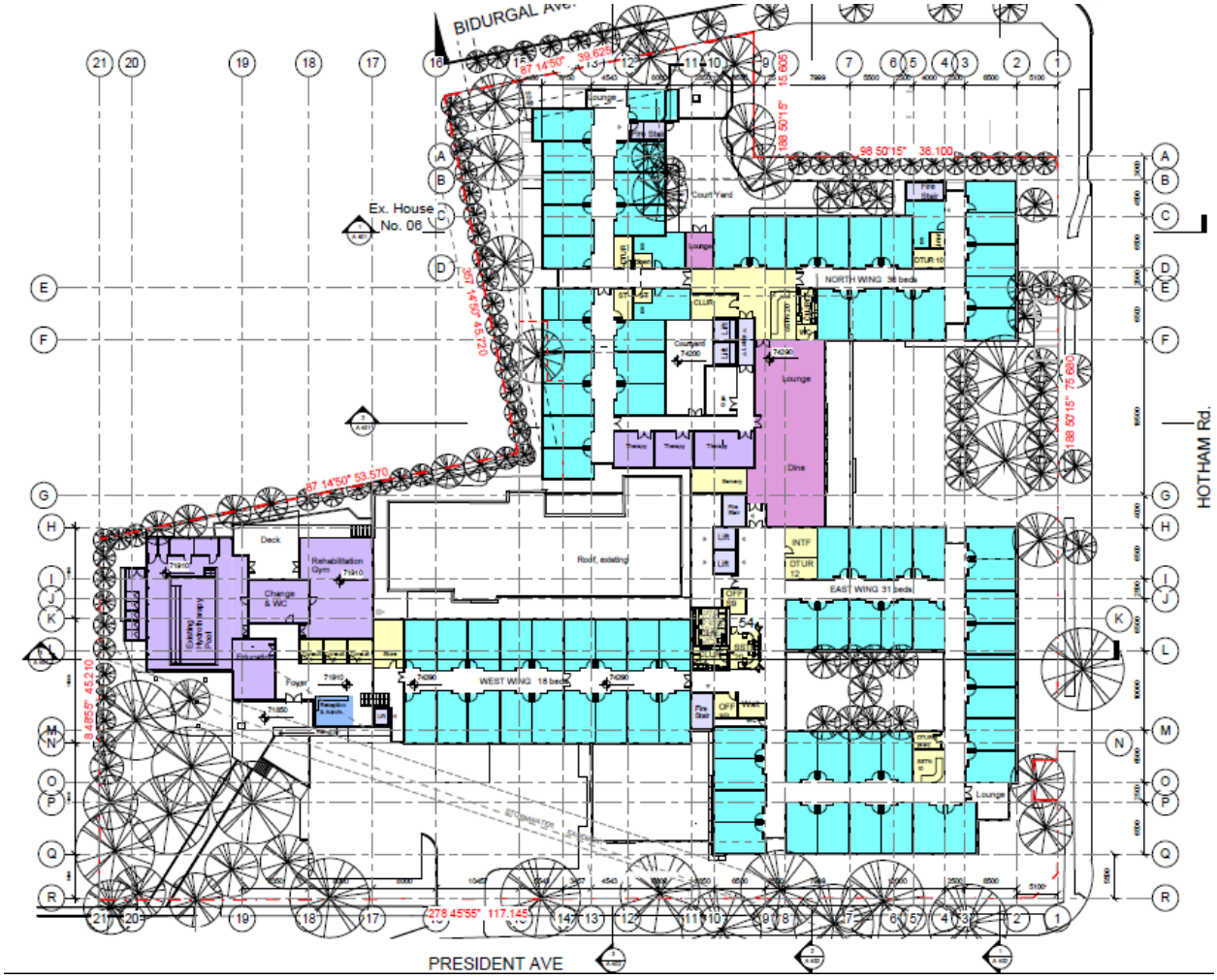
Level B2


Ex. House
No. 08
HOTHAM Rd.
PRESIDENT AVE
BASEMENT LEVEL 2
BASEMENT LEVEL 1
End Of Journey Rooms
Bicycle
Ambulance
Lift
Lift
98 50'15" 38.100
87 14'50" 45.720
87 14'50" 53.570
8 49'55" 45.210
278 45'55" 117.145
188 50'15" 15.6
188 50'15" 75.980
STORMWATER EASEMENT

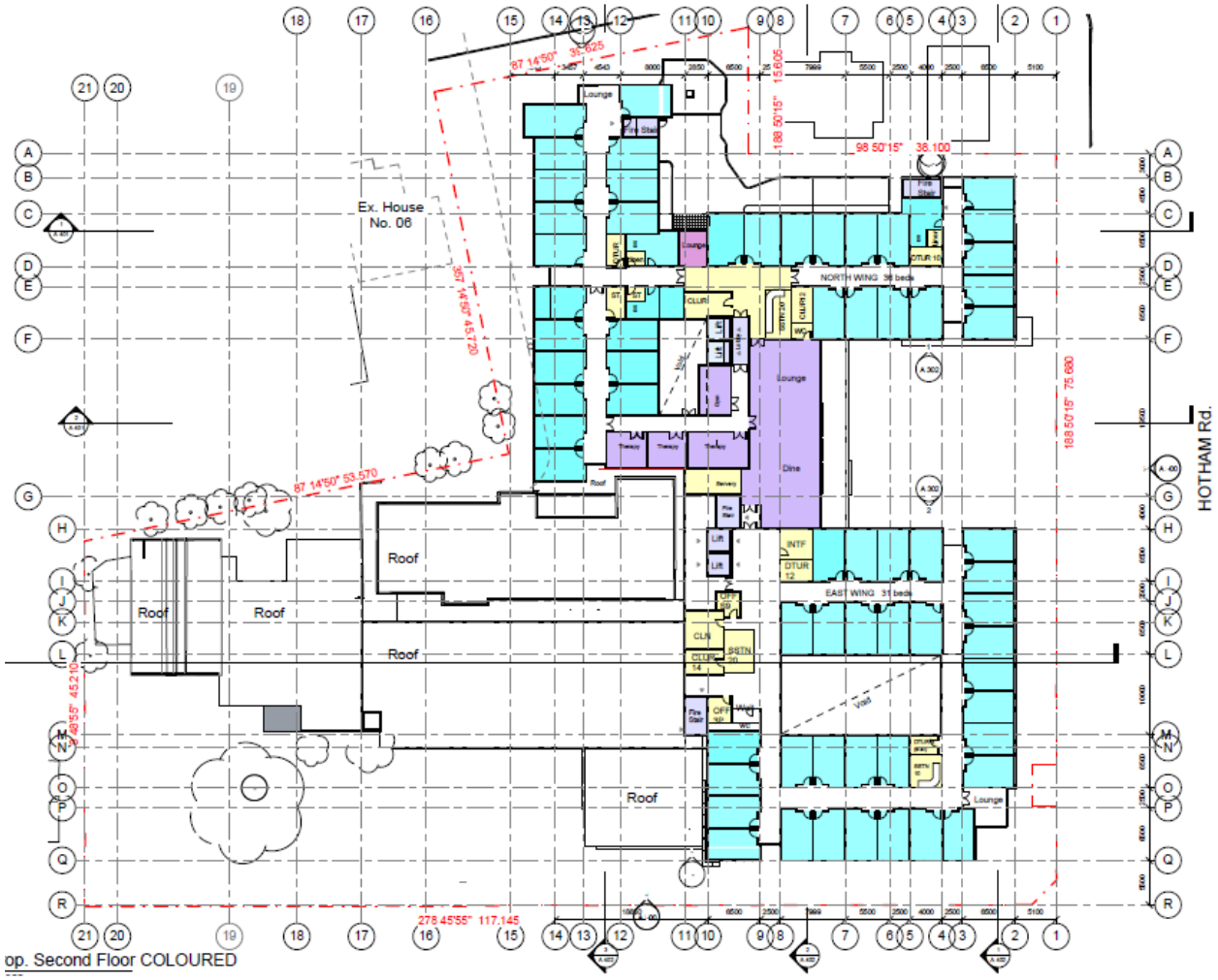
Level B1



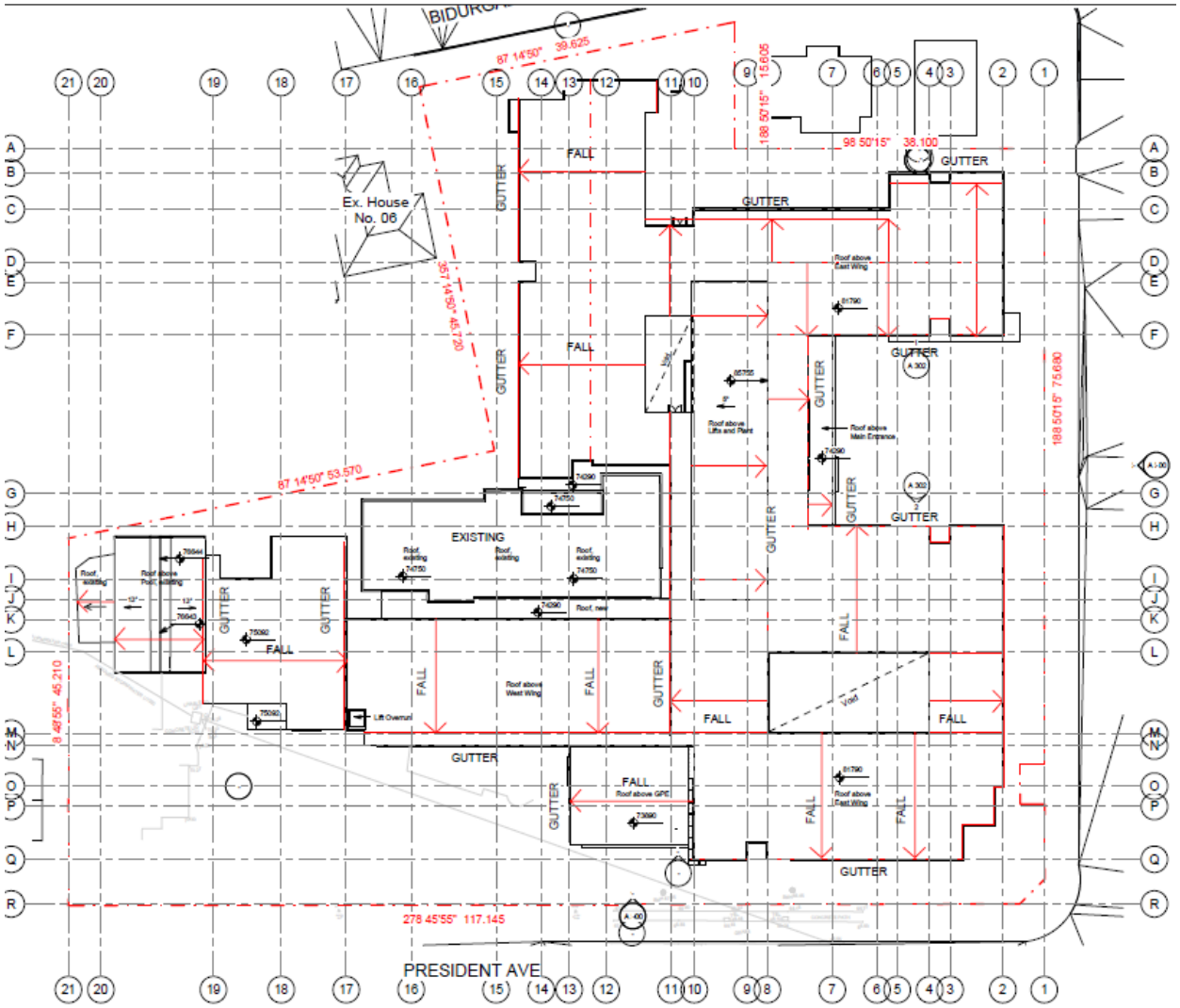
Ground Level


BIDURGAL AVE
Ex. House
No. 06
HOTHAM Rd.
PRESIDENT AVE
NORTH WING 38 beds
EAST WING 31 beds
WEST WING 18 beds
Court Yard
Lounge
Dine
Deck
Rehabilitation
Gym
Change
& WC
Foyer
Roof, existing
Lounge

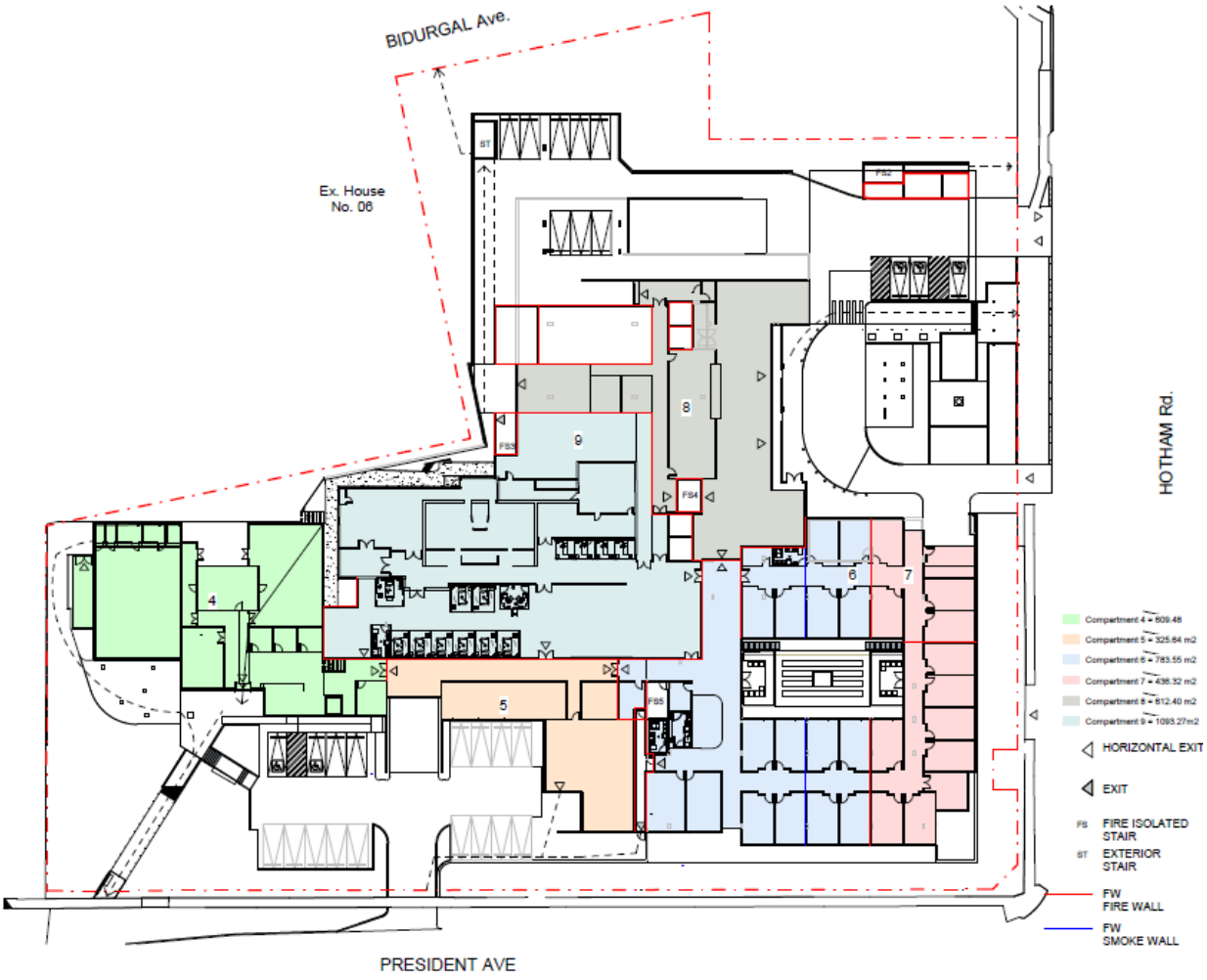
Level 1


Ex. House
No. 06
Roof
Roof
Roof
Roof
Lounge
Dine
NORTH WING 36 beds
EAST WING 31 beds
HOTHAM Rd.
op. Second Floor COLOURED

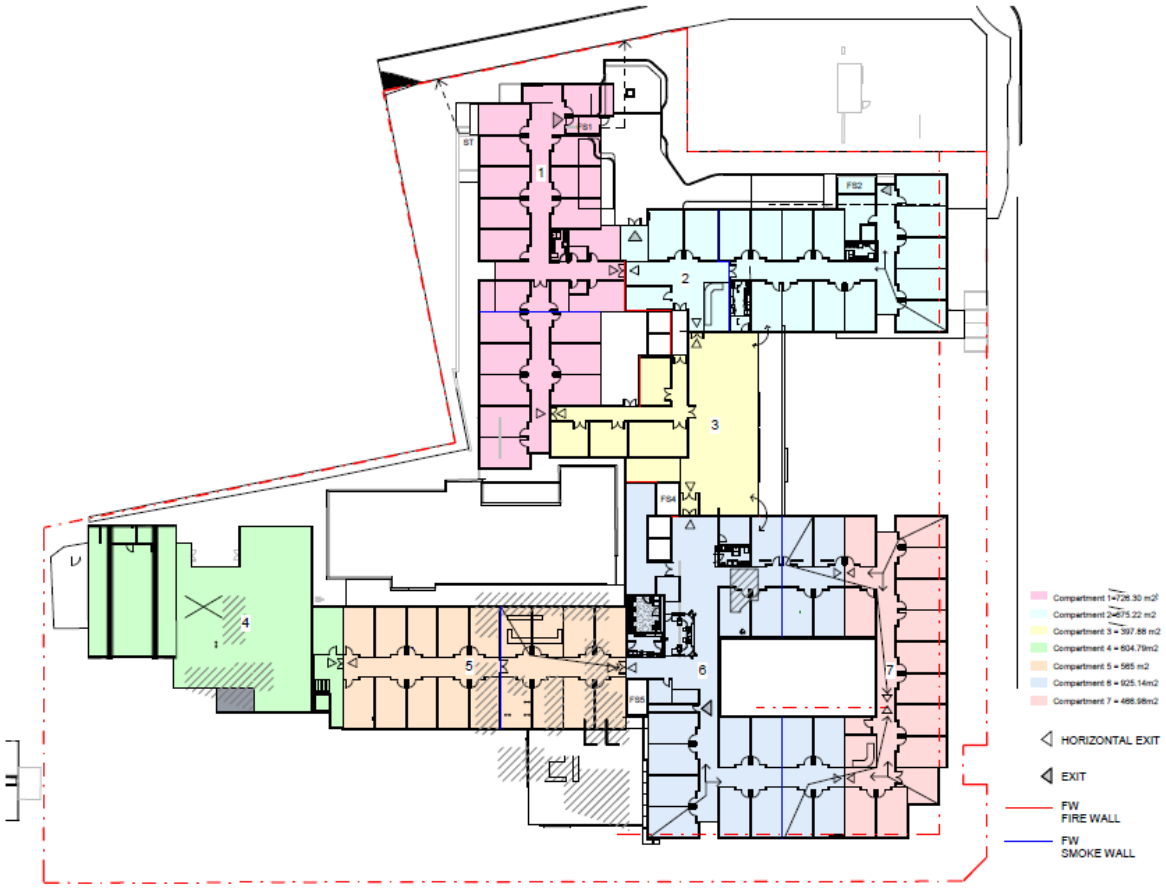
Level 2



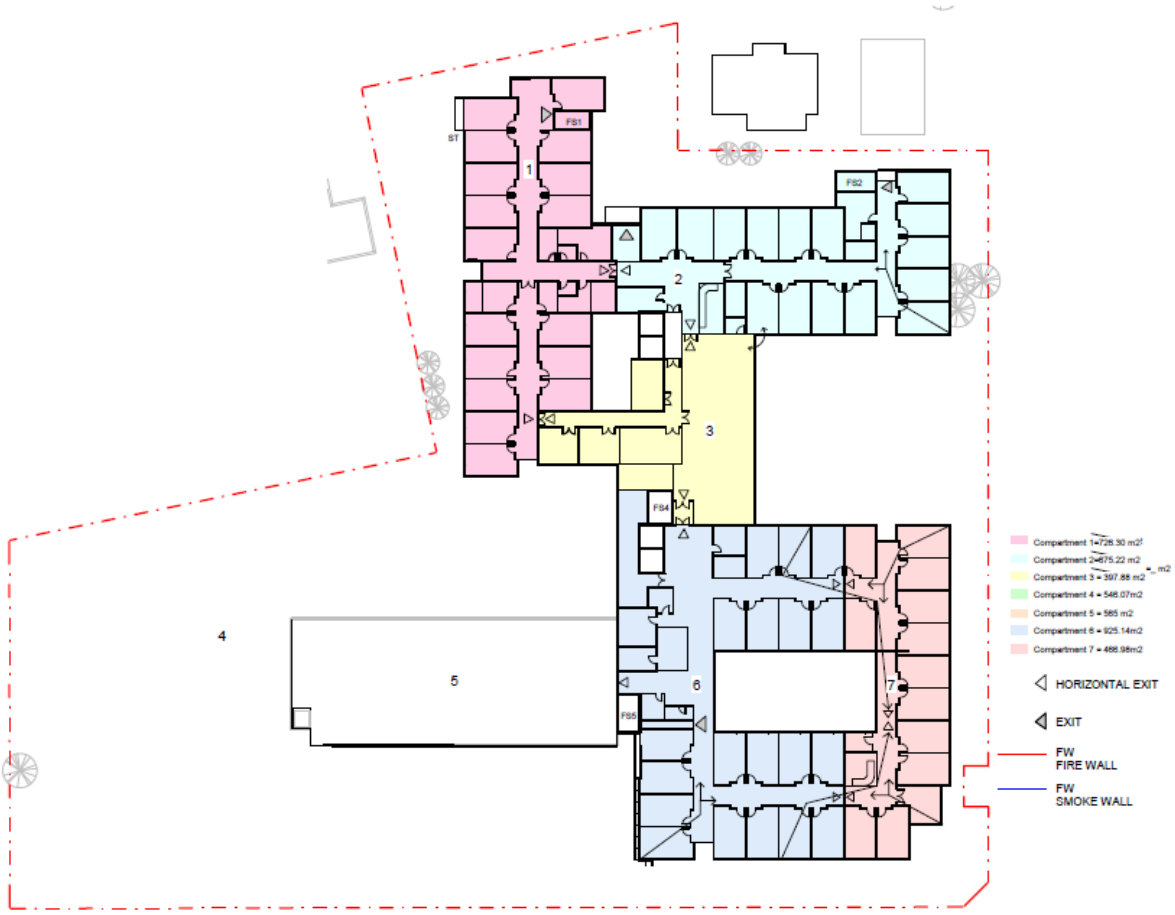
Roof



Ground Floor Compartment Plan *(Indicative)*



Level 1 Compartment Plan *(Indicative)*



Level 2 Compartment Plan *(Indicative)*

2.5 LIMITATIONS AND EXCLUSIONS

The limitations of this report are as follows:

+ This report is based on a review of the referenced documents. At this point in time, no inspection has been undertaken of the refurbishment areas to ascertain the current level of BCA compliance.
+ No assessment has been undertaken with respect to access for people with disabilities and the Disability Discrimination Act 1992 (DDA). The building owner should be satisfied that their obligations under the DDA have been addressed. In this instance, we note that an Access Consultant has been engaged to advise further in this regard,
+ The Report does not address issues in relation to the following:
  i. The design, maintenance or operation of any existing electrical, mechanical, hydraulic or fire protection services.
  ii. Work Health and Safety Act and Regulations.
  iii. Water, drainage, gas, telecommunications and electricity supply authority requirements.
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+ This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

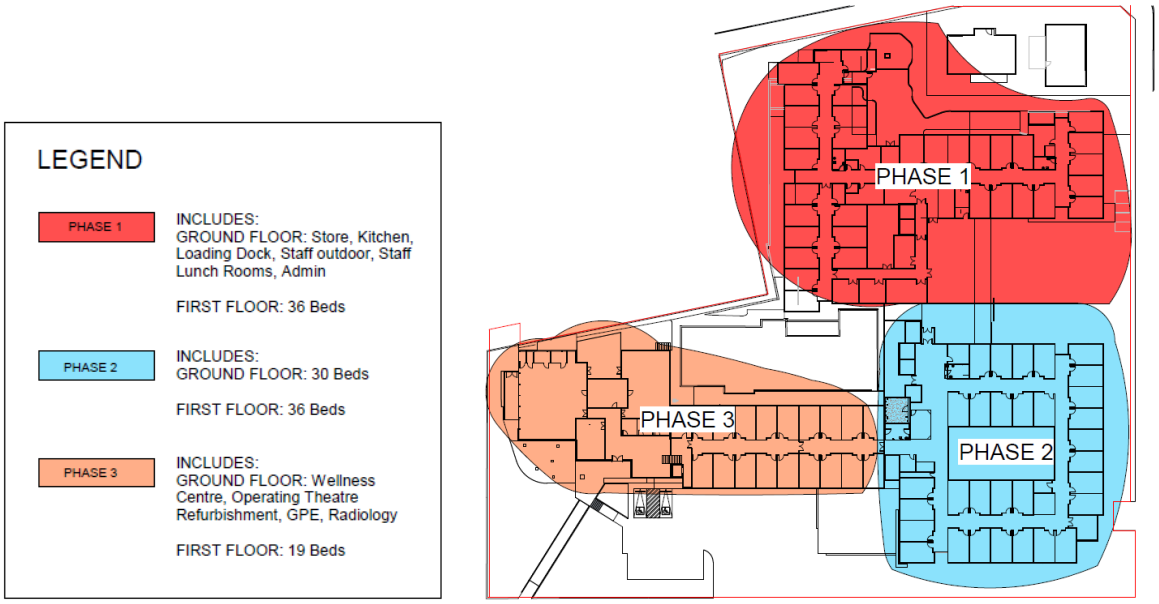
3.0 PROJECT OVERVIEW

3.1 DESCRIPTION OF DEVELOPMENT

The project site is located at President Private Hospital – 368-381 President Avenue, Kirrawee. This report comprises a review of the Concept Design for the redevelopment of President Private Hospital comprising the proposed development of a New Main Building and demolition of redundant buildings.

The proposed development includes the redevelopment of the existing hospital for expanded inpatient, surgical, ambulatory care and critical care services in a redevelopment that includes new buildings and refurbishment of existing buildings.

It is likely the works will be delivered over the following stages:



3.2 BCA COMPLIANCE METHODOLOGY

The proposed building work will be subject to compliance with the relevant requirements of BCA 2019 (Amendment 1) as required by the Environmental Planning & Assessment Act 1979.

3.3 BUILDING CHARACTERISTICS

The New Main Building is classified as follows:

+ **BCA CLASSIFICATION:**	Class 9a (Health-Care)
+ **IMPORTANCE LEVEL (STRUCTURAL):**	Require IL 4 – *To be confirmed by structural engineer.*
+ **RISE IN STOREYS:**	Four (4)
+ **TYPE OF CONSTRUCTION:**	Type A
+ **Effective Height:**	Level 2 (78.49) – Basement level 2 (66.50) = 11.99 **(EH 12m).** *The effective height will need to be re-confirmed once exact levels are provided to the respective floors.*
+ **MAX. FIRE COMPARTMENT SIZE:**	+ 5,000m^2 & 30,000m^3 + 2,000m^2 in Patient Care areas.
+ **FLOOR AREA:**	Insufficient information to determine compartment areas
+ **SPRINKLER PROTECTED THROUGHOUT:**	Yes.
+ **CLIMATE ZONE:**	Zone 5 BCA 2019 Section J Provisions to Apply

4.0 BCA ASSESSMENT – KEY ISSUES

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.

4.1 SECTION B - STRUCTURE

B1

New building works are to comply with the structural provisions of the BCA 2019 and referenced standards including AS 1170.

The Importance Level provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary. We assume IL 4 will apply in relation to structural and services design requirements.

New building works to the existing building must be compliant with earthquake provisions of AS1170.4 – Earthquake Actions in Australia.

4.2 SECTION C – FIRE RESISTANCE

C1.1

Type of Construction: As the building contains three or more storeys, Type A Construction applies to the building. The relevant FRLs as listed in Table 3 of Specification C1.1 must be adhered to.

Refer to **APPENDIX A.**

All external walls will be in excess of 3m from any allotment boundary or other building on the same allotment.

The New Main Building will be strategically fire separated from the existing SVPCH and the BOH services building by virtue of connection of the ground floor linkway.

C1.9

Non-Combustible Building Elements: Documentation is required to be provided as relevant to:

- Any external wall cladding systems.

  Note that the building will not have any bonded laminated cladding system or materials.
- Any framing or integral formwork systems. I.e. timber framing, sacrificial formwork, etc.
- Any external linings or trims. I.e. external UPVC window linings, timber window blades, etc.
- Any sarking or insulation contained within the wall assembly.
- Any proposed external signage to be fixed to the external walls of the building

This is not an exhaustive list, and any element incorporated within any external wall assembly must be identified and provided for review. Any departures from non-combustibility or deemed non-combustible materials under this clause (C1.9[e]) will require approval.

BUILDING ELEMENT	TYPE A CONSTRUCTION
External wall	Non-combustible
Common wall	Non-combustible
Floor and floor framing of lift pit	Non-combustible
All loadbearing internal walls (including those of shafts)	Concrete, masonry or fire-protected timber
Loadbearing fire walls	Concrete, masonry or fire-protected timber
Non-loadbearing internal walls required to be fire-resistant	Non-combustible
Non-loadbearing lift, ventilating, pipe, garbage and like shafts which do not discharge hot products of combustion	Non-combustible

The new building will NOT have any combustible cladding provided to the external wall systems.

C2.5

Class 9a Buildings:

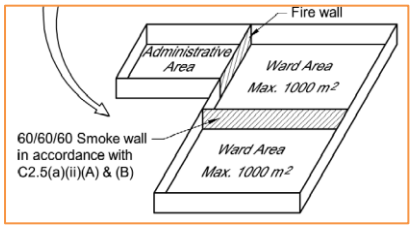
Fire and Smoke Compartments:

Patient care areas need to be separated into maximum 2,000m² fire compartments by fire walls having an FRL of 120/120/120. Non-patient care areas may be increased to maximum 5,000m² fire compartments.

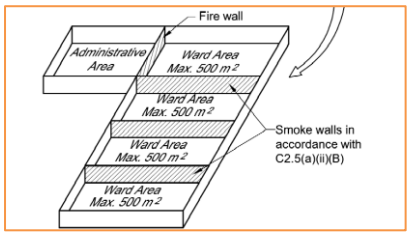
Compartmentation is to be as follows:-

A. In Ward Areas –

i) Where the floor area exceeds 1,000m^2, then it must be divided into compartments of not more than 1,000m^2, by walls with an FRL of not less than 60/60/60, and



ii) Where the floor area exceeds 500m2, then it must be separated into further compartments of not more than 500m2, by smoke proof walls complying with the requirements of Specification C2.5, and



B. Treatment areas must be divided into compartments of not more than 1,000m^2, by smoke proof walls complying with Specification C2.5.

Generally:

+ All fire walls are considered combined fire and smoke walls.
+ Ancillary use spaces are required to be 1-hour fire separated from patient care areas. Ancillary use spaces in a Class 9a comprise:
  - A kitchen and related food preparation areas having a combined floor area of more than 30m^2.
  - A room containing a hyperbaric facility.
  - A room used predominately for the storage of medical records having a floor area of more than 10m^2.
  - A laundry, where items of equipment are the type that are potential fire sources (e.g. gas fire dryers).

C2.7

Separation by Fire Walls: FRL 120/120/120 fire walls and fire doors must be provided to achieve compartmentation and to achieve horizontal exits.

Fire walls will be used throughout the building to create horizontal exits as required to satisfy egress arrangements.

C2.10

Separation of Lift Shafts: Lift shafts are required to be bound by FRL 120/120/120 construction.

C2.12 / C2.13

Separation of Equipment: 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. This is applicable to:

+ 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 24 volts and a capacity exceeding 10 ampere hours.

C3.3	Separation of Different Fire Compartments: Exposure of external walls and associated openings in different fire compartments is expected to occur. Where external walls of adjacent fire compartments cannot be protected with FRL 60/60/60 construction and glazed openings drenched externally, they will be required to be considered under a fire engineered performance solution.

4.3 PARTS D1 & D2 – PROVISION FOR ESCAPE AND CONSTRUCTION OF EXITS

D1.2	Number of Exits Required: Each storey is provided with two or more exits. Exits will consist of stairways (fire isolated and or external stairways) and internal fire walls (horizontal exits).
D1.4	Exit Travel Distances: Travel distances in patient care areas must not exceed 12m to a point of choice between two exits and 30m to a single exit. In non-patient care areas, distances must not exceed 20m to a point of choice between two exits, and 40m to a single exit. The provision of horizontal exits (within FRL 120/120/120 combined fire and smoke walls) will be required throughout the floor plate to bring travel distances down to acceptable levels. Egress arrangements at ground floor will present some design complications due to the existing building stock on the site. Egress strategy in the basement levels will require further refinement. The fire engineering report will address a number of travel distance departures from the DTS provisions of the BCA.
D1.5	Distance Between Alternative Exits: Distances between alternative exits must not exceed 45m in patient care areas, and 60m in non-patient care areas. The provision of horizontal exits (within FRL 120/120/120 combined fire and smoke walls) will be required throughout the floor plate to bring travel distances down to acceptable levels.
D1.6	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). In a required exit or path of travel to an exit there is concession for the unobstructed width of a doorway to be reduced to 850mm min in lieu of 1m, and the unobstructed height for an exit doorway can be reduced to 1,980mm min. The unobstructed width of doorways in patient care areas where patients are normally transported in beds is dependent on the width of the corridor in which the doorway provides access to or from. If the corridor is less than 2.2m, the doorway must achieve >1200mm. If 2.2m wide or greater, the doorway must achieve >1070mm. Doorways forming horizontal exits must achieve no less than 1250mm. Corridors in a Class 9a health-care facility must achieve 1.8m in corridors normally used for the transportation of patients in beds.
D1.7	Travel via Fire-Isolated Exits: Fire-Isolated exits must discharge directly to open space. Where the path of travel from the point of discharge requires passing within 6m of any part of an external wall of the same building (measured at right angles to the path of travel), that wall must achieve an FRL of 60/60/60 with openings protected in accordance with C3.4. Due to the site constraints, there will be cases where the discharge of the fire isolated stairways cannot achieve DTS compliance. A fire engineered performance solution will be proposed to not protect walls exposed to the path of discharge of fire-isolated exits based on the provision of alternative directions of egress from the exit in opposite directions.
D1.8	External Stairways or Ramps In lieu of Fire-Isolated Exits: External stairways must discharge directly to open space. They must be non-combustible throughout and protected with FRL 60/60/60 construction any part of the stairway is within 6m of the external walls of the building served. No openings are permitted within 0-3m of the exit, except for an FRL -/60/30 fire door serving as access to the exit. Openings within 3-6m of the exit must be protected in accordance with C3.4, where wall-wetting sprinklers are provided, they must be located internally. The location of the external stairways will be addressed in the FER.
D1.10	Discharge from Exits: If an exit discharges to open space that is at a different level than the public road in which it is connected to, the path of travel to the road must be via a ramp having a gradient not steeper than 1:8, or not steeper than 1:14 if required to be accessible. The discharge point of exits must be located as far away from one another as reasonably practical.

D1.11	Horizontal Exits: Horizontal exits will be required to reduce egress distances to an acceptable level. A fire engineered performance solution will be proposed to justify travel via multiple horizontal exits before reaching an exit that is not a horizontal exit.
D1.12	Non-Required Stairways, Ramps or Escalators: A non-required non-fire-isolated stairway must not be used within a patient care area of a Class 9a building. The design is considering the use of the existing central fire isolated exit to be used for circulation only, and not used for egress. This arrangement will be reviewed in the FER.
D1.16	Plant Rooms, Lift Machine Rooms and Electricity Network Substations - Concession: A ladder may be used in lieu of a stairway to provide egress from a plant room of not more than 100m^2 or all but one point of egress from a plant room of not more than 200m^2. A ladder used for this purpose must comply with AS 1657.
D2.7	Installations in Exits and Paths of Travel: Any new or altered electricity and communications cupboards located within a nominated egress paths within the proposed building will be required to be suitably smoke sealed and enclosed in non-combustible construction in accordance with D2.7(d).
D2.13 / D2.14 / D2.16 / D2.17	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. + Landings must accommodate a stretcher, 2m long and 600mm wide, throughout all flights of all stairs. This includes navigating landings that may turn 90-180°. Balustrades: + All balustrades must achieve a minimum height of 1m above finished floor level. + Balustrades (except for fire-isolated stairs) must not permit a 125mm sphere to pass through any opening. + Balustrades in fire-isolated exits must comprise no gap larger than 150mm between nosing line (or landing) and bottom rail. Other openings in the balustrade must not exceed 460mm. Handrails: + Handrails must be located on both sides of all stairways and ramps except for fire-isolated stairs. + Handrails must be provided on at least one side of all corridors or passageways normally used by patients. Handrails must be continuous in length where practical.
D2.19 / D2.20 / D2.21	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. We understand a fire engineered performance solution will be proposed to justify certain fire/smoke doors not swinging in the direction of egress due to operational requirements. In these instances, doors shall swing in the primary direction of egress. Sliding doors are generally not permitted within patient care areas of a Class 9a building. The provision of such would require justification under a fire engineered performance solution.

4.4 PART D3 - ACCESSIBILITY

Part D3	Access for People with a Disability: All access is required to comply with AS 1428.1-2009. Access must be provided to all areas normally used by the occupants. This applies to staff and patients alike.
D3.1	General Building Access Requirements: In a Class 9a health-care building, access must be provided to and within all areas normally used by the building occupants.
D3.2	Access to Buildings: An accessway must be provided to a building required to be accessible from: + The main points of a pedestrian entry at the allotment boundary. + Another accessible building connected by a pedestrian link. + Any required accessible car parking space on the allotment. An accessway must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances.

D3.3

Parts of Buildings to be Accessible:

Every ramp and stairway (except for ramps or stairways exempt from compliance under D3.4) must comply with:

+ For a ramp, Clause 10 of AS 1428.1 – 2009.
+ For a stairway, Clause 11 of AS 1428.1 – 2009.
+ For a fire-isolated stairway, Clause 11.1(f) and (g) of AS 1428.1 – 2009.

D3.4

Exemptions: Areas (including paths of travel to and from) where access for the disabled would be inappropriate or otherwise posing a risk to health and safety are exempt from complying as accessible. This will be further developed during detailed design and will generally encompass plant areas, roof-top access, etc.

D3.8

Accessible Parking: Accessible car parking spaces must comply with the requirements of AS 2890.6 – 2009. The provision of spaces is to be in accordance with the following table:

Class of building to which the carpark or car parking area is associated:		Number of accessible car parking spaces required:
Class 9a	Hospital (non-outpatient area) –	1 space for every 100 car parking spaces or part thereof.
	Hospital (outpatient area) –	
	(a) Up to 1000 car parking spaces and	1 space for every 50 car parking spaces or part thereof.
	(b) For each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces	1 space.

D3.6

Signage: Braille and tactile signage must be provided to identify each door required to be provided with an exit sign as well as identifying accessible sanitary facilities.

D3.7

Hearing Augmentation: A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning is installed in a meeting room, or a reception area where the public is screened from the service provider.

D3.12

Glazing on an accessway: On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1 - 2009.

AS 1428.1-2009

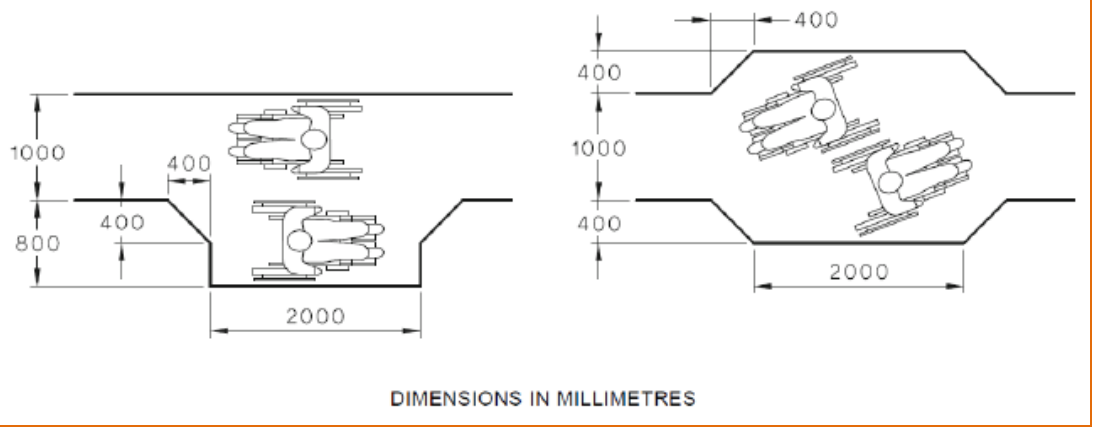
Access for People with Disabilities - Continuous Accessible Path of Travel

A continuous accessible path of travel must be provided throughout all areas required to be accessible. This requires consideration on wheelchair turning space, passing space, and the like.

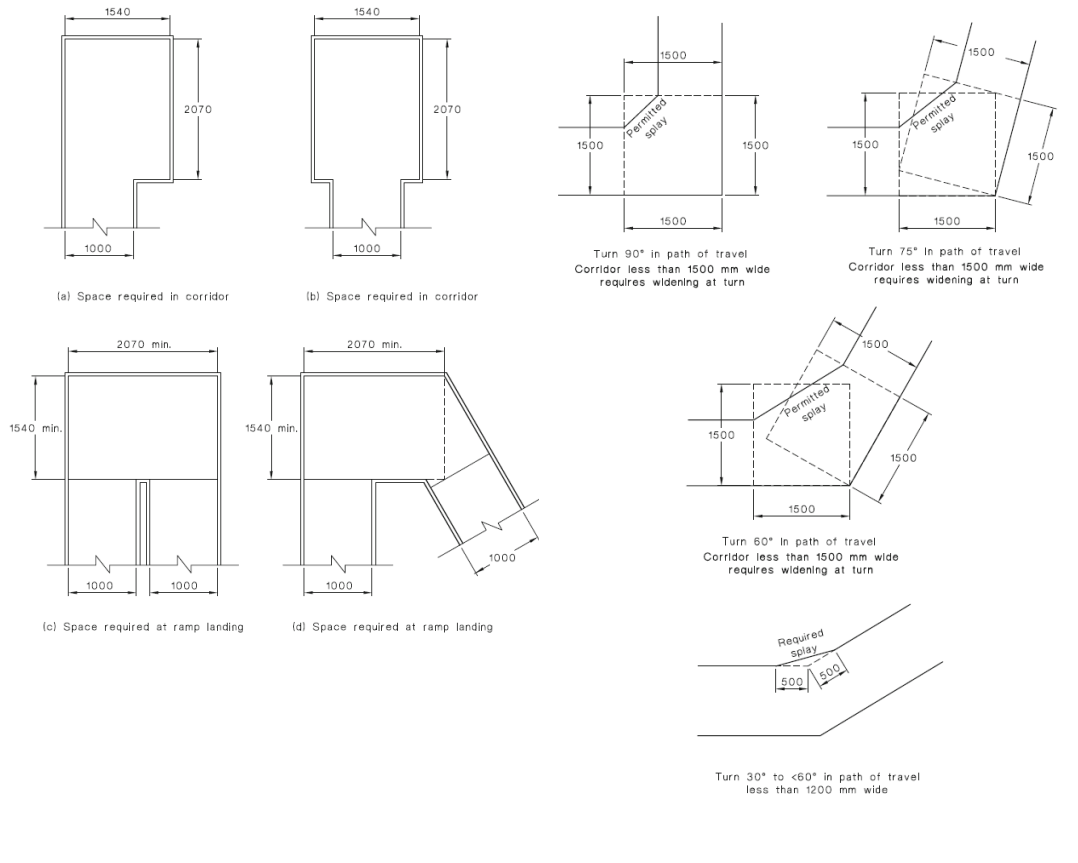
Internal Accessways:

+ Each accessway within the building is required to have:
+ Passing spaces complying with AS 1428.1 – 2009 at maximum 20m intervals on those parts of the accessway where a direct line of sight is not available; and
+ Turning spaces complying with AS 1428.1 – 2009.
+ 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.

Passing Space:



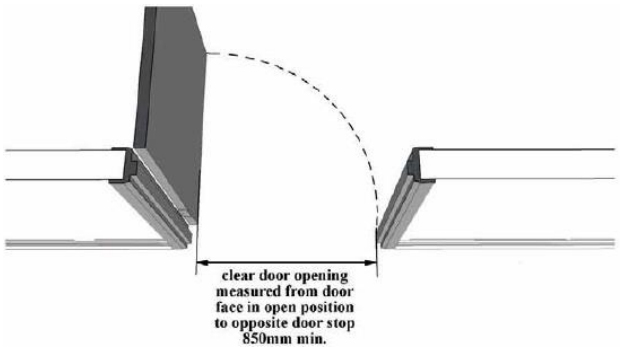
Turning Space:



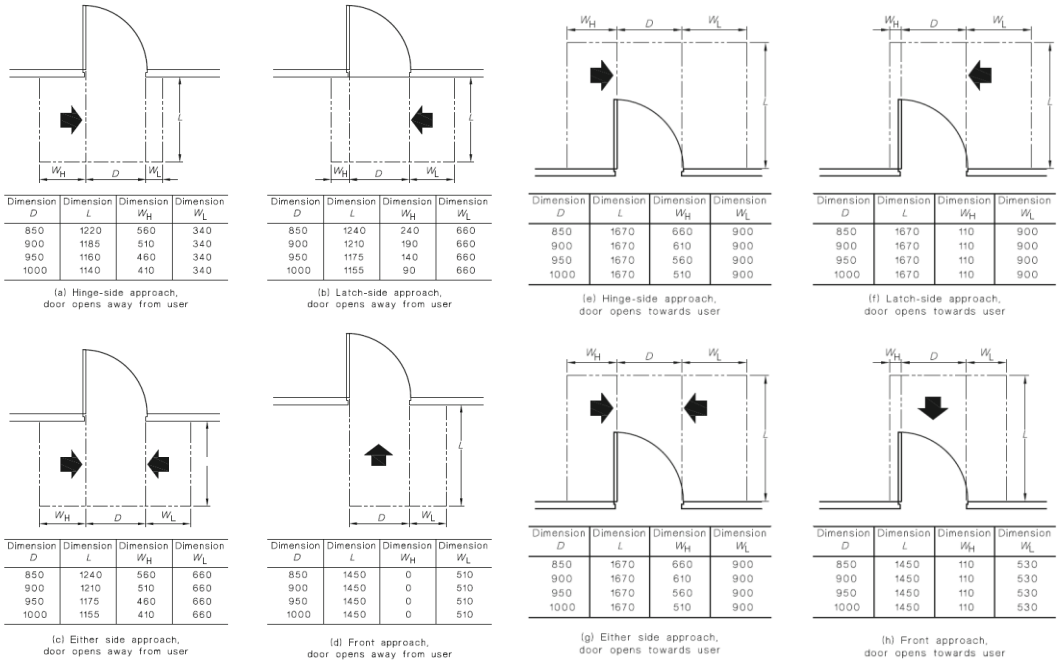
Any glazing on an accessible path of travel which is capable of being mistaken for a doorway or opening must be provided with a full-width solid and non-transparent contrasting line. The contrasting line must be not less than 75mm wide and shall extend across the full width of the glazing panel. The lower edge of the contrasting line shall be located between 900mm and 1000mm above the plane of the finished floor level.

Doorways, Doors and Circulation Space at Doorways

All doorways within the accessible path of travel must achieve a minimum width of 850mm. This relates to the clear opening of the doorway I.e. between door leaf and door jamb. This will generally require a 920mm door leaf.



Circulation space must be provided on each side of every doorway, gate, or similar entry way, on a continuous path of travel. Circulation space must be considered based on the following diagrams



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

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

(b) Latch-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

(c) Either 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

(d) Front 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

(e) Hinge-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

(f) Latch-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

(g) Either 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

(h) Front 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

Note: For specific requirements relating to sliding doors or power operated doorways. Refer to Clause 13 of AS 1428.1 – 2009.

4.5 SECTION E – SERVICES AND EQUIPMENT

E1.3

Fire Hydrants: Fire hydrant coverage is required to be provided to the building in accordance with AS 2419.1 – 2005.

+ It is likely that the existing site fire hydrant system will require significant upgrade to comply with current AS2419.1 requirements.
+ A new FH booster assembly will be required to the site.
+ The fire hydrant booster assembly must be located within sight of the main entry and must be facing the street.
+ The fire pump room must be accessed directly from open space.
+ Internal fire hydrants must be located within fire-isolated exits. Where additional fire hydrants are required for coverage, they must be within 4m of an exit (i.e. external stairways, horizontal exits, or doors leading directly to outside.

E1.4

Fire Hose Reels: Fire hose reel coverage is required to be provided to the building in accordance with AS2441-2005.

It is likely some small rooms will have smoke doors to access them and will not be provided with fire hose reel coverage. In such instances, a fire engineered performance solution will be required.

E1.6

Fire Extinguishers: To be provided and designed in accordance with AS 2444-2001.

E2.2a

Smoke Hazard Management: The following provisions are required:

+ An AS 2118.1 – 2017 Sprinkler System is to be installed throughout all parts of the buildings, including the existing hydrotherapy pool and surrounding buildigs.
+ An AS 1670.1 – 2015 Fire Detection and Alarm System is to be installed throughout the buildings.
+ All fire-isolated stairs must be provided with stair pressurisation in accordance with AS 1668.1 – 2015.
+ Any ducted mechanical air handling systems, or non-ducted systems exceeding a capacity of 1000L/s, must shut down on activation of smoke detection.

Part E3

Lifts: A minimum number of two (2) emergency lifts will be required to be provided to serve each storey of the building that are served by the passenger lifts.

The emergency lifts must be installed within separate banks so that an emergency lift is available within each bank of lifts, otherwise if they are located within the same bank, they need to be contained in separate fire rated shafts.

The following provisions are required to be provided to the lifts:

+ Fire service controls in accordance with E3.7.
+ Fire service recall control switch in accordance with E3.9.
+ Lift car fire service drive control switch in accordance with E3.10.

E4.2-E4.8

Emergency lighting and exits signs: Emergency lighting and exit signage to be installed in accordance with AS 2293.1-2005.

E4.9

Sound Systems and Intercom Systems for Emergency Purposes: An AS 1670.4-2015 Sound System and Intercom System for Emergency Purposes is required to be provided to the CSB.

4.6 SECTION F – HEALTH AND AMENITY

F2.3

Sanitary facilities: Sanitary facilities are only required to be provided in accordance with the requirements for a Class 9a healthcare facility. Sanitary facilities are only required to be counted for patients and staff (i.e. not visitors).

Sanitary Facilities for the proposed works – *Class 9 Employees*						
	Closet Pans		Urinals		Washbasins	
	Required	Proposed	Required	Proposed	Required	Proposed
Male	1 – 20	1	1 – 10	0	1 – 30	1
	>20	Add 1 per 20	11 – 25	1	>30	Add 1 per 30
			26 – 50	2		
			>50	Add 1 per 50		
Female	1 – 15	1	-	-	1 – 30	1
	> 15	Add 1 per 15	-	-	>30	Add 1 per 30

Sanitary Facilities for the proposed works – *Class 9 Patients*						
	Closet Pans		Urinals		Washbasins	
	Required	Proposed	Required	Proposed	Required	Proposed
Male	1 – 16	2			1 – 8	1
	>16	Add 1 per 8			>8	Add 1 per 8
Female	1 – 16	2			1 – 8	1
	> 16	Add 1 per 8			>8	Add 1 per 8

The following facilities are also required to be provided:

+ A kitchen and food preparation area, or area for the reheating of food.
+ Laundry facilities, or an area for the dispatch and receiving of laundry.

	+ One shower for every 8 patients or part thereof.
F2.4	Accessible Sanitary Facilities: Unisex Accessible WCs (Accessible WC) must be provided in accordance with the following: + 1 on every storey containing sanitary compartments; and + Where a storey has more than 1 bank of sanitary compartments containing male and female sanitary compartments, at not less than 50% of those banks. + Within each bank of male and female sanitary facilities, an ambulant sanitary compartment must be provided for each sex for use by a person with an ambulant disability. Where two or more Accessible WCs are provided, the number of left and right-handed mirror image facilities must be provided as evenly as possible.
Part F3	Room Heights: The ceiling height in a Class 9a building must be no less than; 2.4m in patient care areas, 3m in an operating theatre or delivery room and 2.4m in a treatment room, clinic, waiting room, passageway, corridor, or the like. Sanitary compartments, air-locks, tea preparation areas, store rooms and garages must achieve no less than 2.1m. Commercial kitchens must achieve 2.4m. The floor to ceiling height above a stairway, ramp, landing or the like must achieve no less than 2m when measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing, or the like.
F4.1	Natural Lighting: Natural lighting must be provided to all rooms used for sleeping purposes in a Class 9a building. Windows providing natural light. A window which is required for the purposes of providing natural light must be located no less than 3m from an allotment boundary, a wall of the same building, or a wall of another building on the same allotment. There are a number of instances, due to building constraints on the site, that patient ward rooms may be less than 3m distance from the boundaries. This situation will need to be addressed with a performance solution in relation to health and amenity.
F4.5	Ventilation of Rooms: Any room occupied by a person for any purpose must be provided with natural ventilation complying with this clause, or a mechanical ventilation or air-conditioning system complying with AS 1668.2 and AS 3666.1.
Section J	Energy Efficiency: The new building works subject to compliance with the Energy Efficiency Provisions of Section J relating to: + J1: Building Fabric + J2: External Glazing + J3: Building Sealing + J5: Air-conditioning and ventilation systems + J6: Artificial lighting and power + J7: Hot water supply + J8: Access for maintenance The architect, mechanical, electrical, and hydraulic engineers are to incorporate details demonstrating compliance with the above provisions (as applicable to their respective disciplines).

5.0 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 pending the outcomes of the final Fire Safety Engineering Review to confirm the works are permissible and do not contradict the base building Performance Solutions.

Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Access Panels, Doors & Hoppers	BCA Clause C3.13 & AS 1530.4 – 2014 and Manufacturer's specifications		✓
Alarm Signalling Equipment	AS 1670.3 – 2004	✓	✓
Automatic Fail Safe Devices	BCA Clause D2.21		✓

Statutory Fire Safety Measure	Design / Installation Standard	Existing	Proposed
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 – 2015	✓	✓
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS 2118.1 – 2017		✓
Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5, Clause 8 and Clause 3.22 of AS 1670.1 – 2015	✓	✓
Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001		✓
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 – 2005	✓	✓
Emergency Evacuation Plan	AS 3745-2010	✓	✓
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8; and AS 2293.1 – 2005	✓	✓
Fire Blankets	AS 3504 – 1995 & AS2444 – 2001	✓	✓
Fire Dampers	BCA Clause C3.15, AS 1668.1 – 2015 & AS 1682.1 & 2 – 1990 and manufacturer's specification	✓	✓
Fire Doors	BCA Clause C2.12, C2.13, C3.4, C3.5, C3.7, C3.8, AS 1905.1 – 2015 and manufacturer's specification	✓	✓
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005	✓	✓
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1 – 2005		✓
Fire Seals	BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2005 and manufacturer's specification	✓	✓
Lightweight Construction	BCA Clause C1.8 & AS 1530.4 – 2014 and manufacturer's specification	✓	✓
Mechanical Air Handling Systems (automatic shutdown)	BCA Clause E2.2, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012		✓
Paths of Travel	EP&A Regulation Clause 186	✓	✓
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001	✓	✓
Pressurising Systems (fire isolated stairways)	BCA Clause E2.2 & AS/NZS 1668.1 – 2015		✓
Required Exit Doors (power operated)	BCA Clause D2.19(b)	✓	✓
Smoke Hazard Management Systems	BCA Part E2 & AS/NZS 1668.1 –2015		✓
Smoke Dampers	AS/NZS 1668.1 – 2015	✓	✓
Smoke Doors	BCA Spec C3.4 & C2.5	✓	✓
Sound System & Intercom Systems for Emergency Purposes (EWIS)	BCA E4.9 and AS1670.4 - 2015	✓	✓
Wall-Wetting Sprinklers	BCA Clause C3.4 & AS 2118.2 – 2010		✓
Warning & Operational Signs	Section 183 of the EP&A Regulation 2000, AS 1905.1 – 2015, BCA Clause D2.23, D3.6 & E3.3	✓	✓

APPENDIX A – TYPE A CONSTRUCTION

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

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

Notes:

1. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification C1.8.
2. All elements of an external wall assembly (except those allowed under Clause C1.9) must be non-combustible. This includes, framing, integral formwork, insulation, sarking, façade coverings, and the like. Any departures from this will require consideration under CV3 or potentially, a fire engineered performance solution.

3. Fire rated shafts are required to be enclosed at the top and bottom by construction having an FRL of not less than what the shaft requires (in both directions)
4. The concession granted under clause C3.5 results in the roof of the building not being required to be fire rated (the building is provided throughout with sprinklers). Notwithstanding, the Atrium provisions override this general concession in BCA Specification C1.1.
5. Lift shafts are required to be enclosed at the top of the shaft with fire rated construction having an FRL of 120/120/120.
6. Fire isolated exits are to be provided with a fire rated "lid" that achieves an FRL of 120/120/120.
7. Where roof lights are proposed they are required to be located not less than 3 metres from a roof light in an adjoining fire separated part; and must not be more than 20% of the area of the roof.
8. Any loadbearing internal walls or loadbearing fire walls are to be masonry or concrete.
9. External walls must be non-combustible construction. Non-loadbearing parts of an external wall that are more than 3m from a fire source feature need not be fire rated.
10. Internal columns in this building (being less than 25m in effective height) that are in the storey immediately below the roof, can be constructed as follows:
    a. Building with a rise in storeys exceeding 3 – FRL 60/60/60