

# BCA Assessment Report

RPA Hospital Redevelopment  
Medical Gas Compound  
REF 5 – EW7 Submission

**Prepared for:**  
Health Infrastructure

**Revision 2**  
19 February 2024  
Reference: 230087



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## + Report Status

+ Date	06 March 2024
+ Revision	3
+ Status	Issued for REF 5 – EW7 Submission
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## + Revision History

+ Revision	0	+ Date	14.02.2023
+ Status	REF 5 Submission		
+ Revision	1	+ Date	13.02.2024
+ Status	REF 5 – EW7 Submission		
+ Revision	2	+ Date	19.02.2024
+ Status	REF 5 – EW7 Submission		
+ Revision	3	+ Date	06.03.2024
+ Status	REF 5 – EW7 Submission		

## 1.0 Description of Project

### 1.1 Proposal

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BM+G Pty Ltd have been commissioned by Health Infrastructure C/- Capital Insight Pty Ltd to undertake an assessment of the proposed alterations and additions to the Capital Infrastructure and Engineering (CI & E) building loading dock located off Rochester Street in the RPA Hospital West Campus against the relevant provisions of the Building Code of Australia 2022 (BCA).

Specifically, the works are to establish a reconfigured and expanded Medical Gas Compound (MGC) and consist of the following scope:

- + Removal of redundant services;
- + Existing road surface to be saw cut;
- + New MGC enclosure comprising fire rated walls and sliding door to house new main primary and secondary oxygen tanks (60kL), emergency oxygen tank (20kL) and new vaporisers;
- + Install new hard stand on road for filling point;
- + Install new bollards;
- + Install new roof mounted fans;
- + New oxygen pipe distribution system infrastructure within confines of MGC area.

An assessment of BCA compliance with respect to the new works is included within Section 3.0.

*Figure 1: Wyong Option Locations within Wyong Hospital Campus*

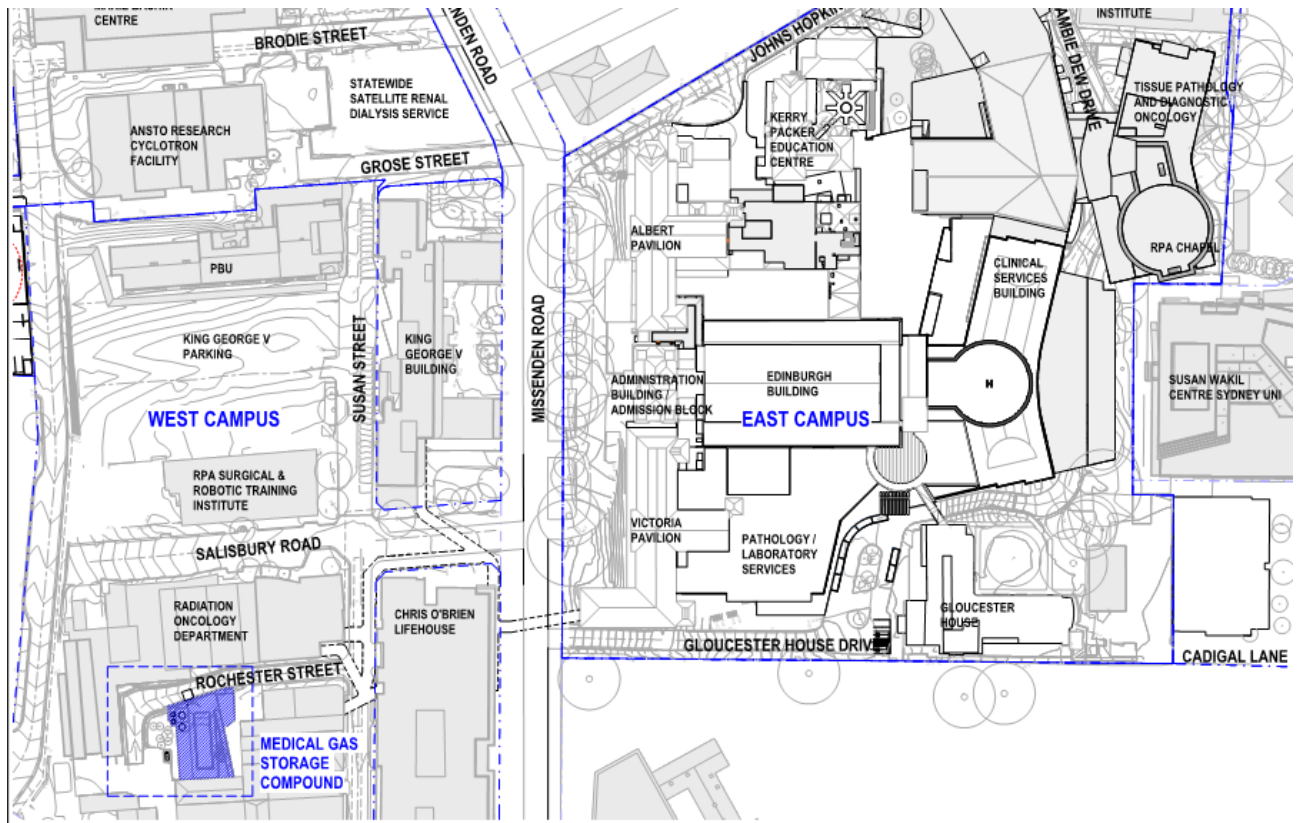


Figure No. 1 – Location of the expanded Medical Gas Compound

## 1.2 Aim

The aim of this report is to:

- + Undertake an assessment of the proposed development against the deemed-to-satisfy provisions of the BCA.
- + Identify matters that require plan amendments in order to achieve compliance with the BCA.
- + Identify matters that are to be required to be addressed by Performance Solutions.
- + Enable the Public Authority to satisfy its statutory obligations under Section 6.28 of the Environmental Planning and Assessment Act, 1979.
- + Identify matters relating to the existing building that are required to be addressed as an upgrade strategy to accommodate the new works and / or to deal with significant fire safety issues within the building.

## 1.3 Project Team

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

- + **Adam Durnford** – Report Preparation (Associate Director) | Building Surveyor-Unrestricted
- + **David Blackett** – Peer Review (Director) | Building Surveyor-Unrestricted



## 1.4 Referenced Documentation

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

- + Building Code of Australia 2022 (BCA)
- + NSW Health Infrastructure Design Guidance Note 32.
- + NSW Health Engineering Services Guide dated 12 December 2022.
- + Architectural Drawing prepared by Jacobs as follows:

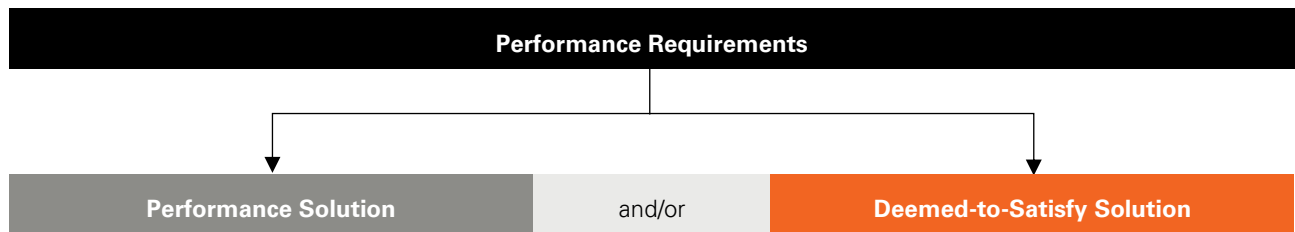
+ Drawing No.	+ Rev	+ Date
RPA-ARC-JAC-DRG-REF5-000000	H	19.02.24
RPA-ARC-JAC-DRG-REF5-000001	G	19.02.24
RPA-ARC-JAC-DRG-REF5-000002	H	19.02.24
RPA-ARC-JAC-DRG-REF5-000003	I	19.02.24
RPA-ARC-JAC-DRG-REF5-000004	I	19.02.24
RPA-ARC-JAC-DRG-REF5-180001	H	19.02.24
RPA-ARC-JAC-DRG-REF5-400001	I	19.02.24

## 1.5 Regulatory Framework

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

## 1.6 Relevant Version of the NCC Building Code of Australia

Pursuant to Section 6.28 of the Environmental Planning and Assessment Act 1979, the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time of the date of invitation for tenders to carry out the Crown building work. In this instance, the proposed building works is subject to compliance with NCC 2022.



Compliance with the NCC is achieved by complying with:

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

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

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

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

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

## 1.7 Limitations and Exclusions

The limitations and exclusions of this report are as follows:

- + No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). The building owner needs be satisfied that their obligations under the DDA have been addressed.
- + Please note that whilst the BCA specifies a minimum standard of compliance with AS1428

(Parts 1-3) and Part D4 of the BCA for access and facilities for people with disabilities, compliance with such requirements may not necessarily preclude the possibility of a future complaint made under the DDA 1992. The DDA is a complaint based legislation and is presently not identified by the State Building Codes and Regulations. In this regard the building owner should be satisfied that their obligations under the DDA have been addressed.

- + No assessment has been undertaken with respect to the following areas of the NCC:
    - Structural
    - Weatherproofing
    - Waterproofing
    - Acoustic
    - Passive Fire Protection
    - DDA / Accessibility
    - Section J / ESD
    - Fire Safety Engineering
  - + No assessment has been undertaken with respect to SEPP (Housing) 2021. It is understood that suitably qualified consultants will be engaged to determine the relevance of any Council planning requirements or SEPP requirements and provided detailed assessment reports where applicable.
- Where relevant to this development, it is assumed that these assessments will be undertaken by others.
- + This report does not consider BCA Part G5 (Volume 1) which makes provision for construction of buildings in bushfire-prone areas, therefore no assessment has been undertaken in consideration of RFS, Planning for Bushfire Protection and AS 3959. Where Part G is applicable to the site, then it is required that assessment / due diligence is undertaken by a specialist consultant to verify compliance.
  - + This report does not constitute a detailed assessment of the architectural documentation against the requirements of Section J. It is understood that a suitably qualified consultant will be engaged to determine compliance in this regard.
  - + **BM+G** has not undertaken an assessment of any Performance Solution Reports at the time of the preparation of this report.
  - + The Report does not address matters in relation to the following Local Government Act and Regulations:
    - Work Health and Safety Act and Regulations.
    - Work Cover Authority requirements.
    - Water, drainage, gas, telecommunications and electricity supply authority requirements.
    - Disability Discrimination Act 1992.
  - + **BM+G** cannot guarantee acceptance of this report by Local Council, Fire & Rescue NSW or other approval authorities.
  - + This report may not be relied upon under the provisions of the Design and Building Practitioners Act & Regulation for the purposes of issuing a Design Compliance Declaration.
  - + No part of this document may be reproduced in any form or by any means without written permission from **BM+G**. This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of such instructions.

## 1.8 Report Terminology

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

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

**Building Code of Australia** – Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in

NSW under the provisions of the Environmental Planning & Assessment Act & Regulation.

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

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

**Construction Type** – The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C2D2 and Specification 5, except as allowed for:



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

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

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

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

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

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

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

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

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

- + structural adequacy; and
- + integrity; and

- + insulation.

and expressed in that order.

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

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

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

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

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

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

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

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

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

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

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

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

Compliance with the Performance Requirements can only be achieved by-

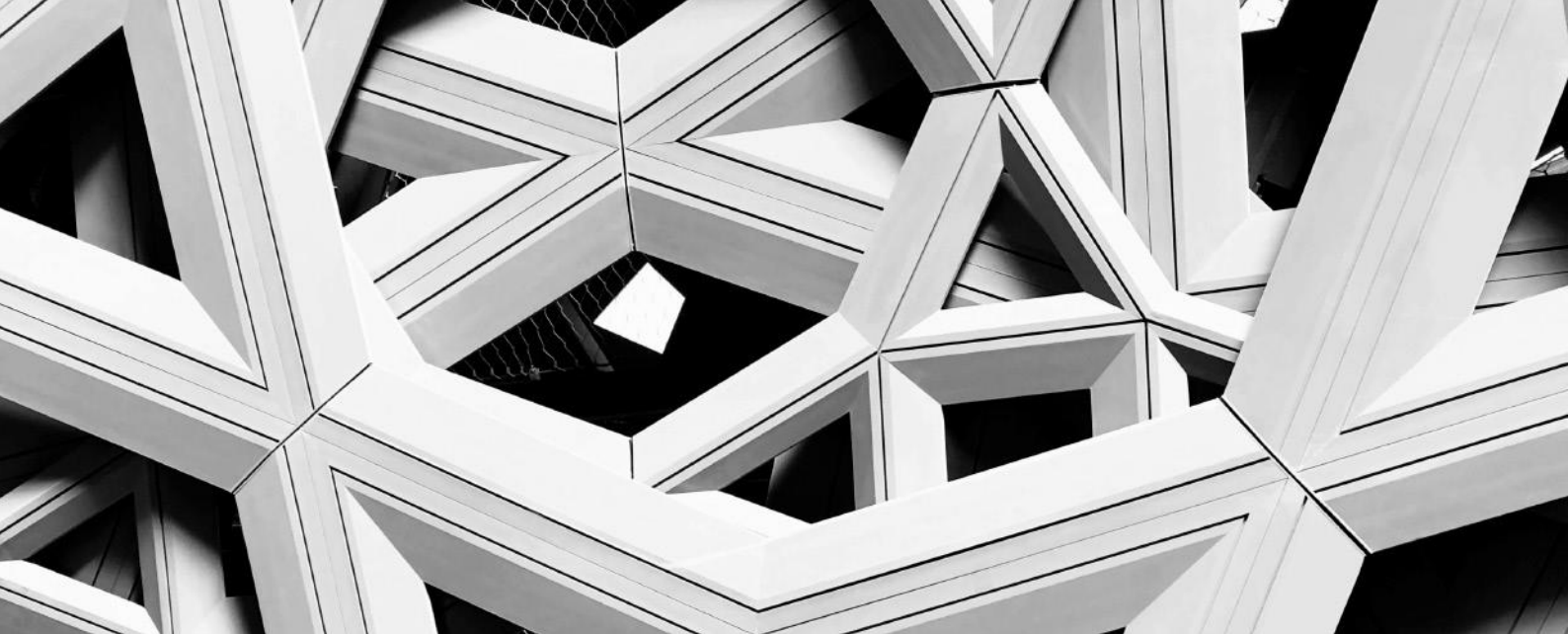
- + complying with the Deemed-to-Satisfy Provisions; or
- + formulating an Alternative Solution which-
  - complies with the Performance Requirements; or

- is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or
- + a combination of the above.

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

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

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



## 2.0 Building Characteristics

### 2.1 Proposed Development

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The existing building is classified as follows:

+ BCA Classifications:	Class 10 (non-habitable building structure)
+ Rise in Storeys:	One (1)
+ Storeys Contained:	One (1)
+ Type of Construction:	Type C Construction
+ Importance Level (Structural)	Importance Level 2.
+ Sprinkler Protected Throughout	No
+ Effective Height	< 12 m
+ Climate Zone	Zone 5

## 2.2 Fire Compartment Floor Area Limitations

Maximum size of fire compartment/atria is:

+ Classification		+ Type A	+ Type B	+ Type C
6, 7, 8 or 9a	Max. floor area	5,000m <sup>2</sup>	3,500m <sup>2</sup>	2,000m <sup>2</sup>
	Max. volume	30,000m <sup>3</sup>	21,000m <sup>3</sup>	21,000m <sup>3</sup>
5, 9b or 9c	Max. floor area	8,000m <sup>2</sup>	5,500m <sup>2</sup>	3,000m <sup>2</sup>
	Max. volume	48,000m <sup>3</sup>	33,000m <sup>3</sup>	18,000m <sup>3</sup>

There is no fire compartment sizes applicable to a Class 10a structure.

## 2.3 Distance to Fire Source Features

Based on the building classification and the location of the openings in the external wall, there is no requirement for the protection of openings within the external wall.

## 3.0 BCA Assessment

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

### 3.1 Section B – Structure

#### Part B1

#### Structural Provisions:

- + New building works are to comply with the structural provisions of the BCA 2022 and referenced standards including AS 1170.
- + The structural engineer will need to certify that the structural capacity of any existing building will not be reduced as a result of the new works and that the building is considered structurally adequate for its intended use.
- + The Importance Level provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary.

### 3.2 Section C – Fire Resistance

#### Part C2 Fire Resistance and Stability

#### C2D2 / Spec 5

#### Type of Construction Required:

Based on the building classification, which is Class 10 a, there is no requirement for the external walls of the enclosure to have an FRL.

Notwithstanding the minimum requirements of the BCA, it is noted that three (3) external walls of the compound are proposed to be constructed of blockwork walls with a minimum FRL of 240/240/240.

#### C2D10 / C2D14

#### Non-Combustible Building Elements:

All materials and or components incorporated in an external wall must be non-combustible. This includes but not limited to:

- + Any external wall claddings.
- + 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.

This is not an exhaustive list, and any element incorporated within any external wall assembly must be identified and approved prior to the issue of a Crown Certificate.

Refer to Table 1 in Appendix 1 for the elements required to be non-combustible.

Note that these works are subject to NSW HI Design Guidance Note No. 32 and as such bonded laminate cladding is not permitted.



**Ancillary Elements:** An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible, unless it is in accordance with this clause.

## Part C3 Compartmentation and Separation

### C3D13 Separation of Equipment:

There is no require for the separation of equipment within the Medical Gas Compound in accordance with Clause C3D13.

Notwithstanding the requirements of the BCA, it is noted that the enclosures containing the medical gas equipment is proposed to be fire separated by fire rated walls with a minimum FRL of 240/240/240.

## Part C4 Protection of Openings

### C4D3 Protection of Openings in External Walls:

Based on the building classification and the location of the openings in the external wall, there is no requirement for the protection of openings within the external wall.

## 3.3 Parts D – Provision for Escape and Construction of Exits

## Part D2 Provision for Escape

### D2D3 Number of Exits Required:

The minimum number of exits has been provided from the medical gas compound.

### D2D5 Exit Travel Distances:

Egress travel distance complies from the medical gas compound.

### D2D7/ D2D8/ D2D9/ D2D10/ D2D11 Dimensions of Paths of Travel to an Exit:

The minimum unobstructed exit width within the medical gas compound between equipment is to be a 1000 mm.

The exit doorways are required to have a clear unobstructed exit width of 750 mm.

## Part D3 Construction of Exits

### D3D15 Landings:

Slip resistance ratings should be provided as follows:

- + External concrete pathway – P4
- + Within the medical gas compound – P2

### D3D24 Doorways and Doors:

It is noted that a sliding door is proposed to be used as the exit door from the medical gas compound. The sliding door is to be opened manually under a force of not more than 110 N.

### D3D26 Operation of Latch:

exit doors and doors in a path of travel are required to be provided with door hardware that is openable by a single-handed downward action without recourse to a key or locking device and meet the following criteria:

- + The door hardware is to be of a design that the hand of a person who cannot grip will not slip from the handle during the operation of the latch: and
  - + 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 35mm and not more than 45mm more.
- The door hardware is to be positioned between 900 – 1100mm from the ground.

## Part D4 Access for People with a Disability

### Part D4D2 General Building Access Requirements:

Access for a person with a disability is not required to be provided to and within the medical gas compound.

## 3.4 Section E – Services and Equipment

### Part E1 Fire Fighting Equipment

#### E1D1 Fire Hydrants:

A fire hydrant system is not required to serve the medical gas compound as it has a floor area less than 500 m<sup>2</sup>.

Notwithstanding the minimum requirements of the NCC, verification should be sought from the LHD that there is no requirement for compliant fire hydrant coverage to be provided to medical gas compound.

#### E1D3 Fire Hose Reels:

A fire hose reel system is not required to serve the medical gas compound as it has a floor area less than 500 m<sup>2</sup>.

Notwithstanding the minimum requirements of the NCC, verification should be sought from the LHD that there is no requirement for compliant fire hose reel coverage to be provided to medical gas compound.

#### E1D4 – E1D13 Sprinklers:

Since the medical gas compound is a stand alone building, an Automatic Fire Suppression System is not required to be installed.

#### E1D14 Fire Extinguishers:

Portable fire extinguishers are required to be installed in accordance with clause E1.6 and AS 2444 – 2005 to serve the medical gas compound.

### Part E2 Smoke Hazard Management

#### E2D4/ E2D9/ E2D11/ E2D12/ E2D13 Smoke Hazard Management:

An Automatic Fire Detection & Alarm System is not required to be installed throughout the medical gas compound in accordance with BCA Specification E2.2a & AS 1670.1 – 2018.

Notwithstanding the minimum requirements of the NCC, verification is required as to whether the LHD want any form of detection installed within the medical gas compound connected back to the campus wide Fire Indicator Panel.

### Part E4 Visibility in Emergency, Exit Signs and Warning Systems

<b>E4D2 - E4D8</b>	<b>Emergency Lighting and Exits Signs:</b> Emergency lighting and exit signage is required to be provided in accordance with E4D2 - E4D5 complying with AS 2293.1 – 2018.
<b>E4D9</b>	<b>Emergency Warning &amp; Intercom Systems (EWIS): A</b> An Emergency Warning and Intercom System is not required to be installed within the medical gas compound.

### 3.5 Section F – Health and Amenity

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<b>Part F5</b>	<b>Ceiling Heights</b>
<b>Part F5</b>	<b>Ceiling Heights:</b> The minimum ceiling height required within the medical gas compound is 2100 mm.
<b>Part F6</b>	<b>Light and Ventilation</b>
<b>Part F6</b>	<b>Light and Ventilation:</b> <i>Artificial Lighting</i> Artificial lighting is required to be provided— <ul style="list-style-type: none"> <li>+ in required passageways and ramps; and</li> <li>+ if natural light of a standard equivalent to that required by F6D3 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, artificial lighting must be provided to all rooms that are frequently occupied, all spaces required to be accessible, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress.</li> </ul> Artificial lighting system is required to be designed in accordance with AS/NZS 1680.0.

### 3.6 Section F – Energy Efficiency

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<b>Part J</b>	<b>Energy Efficiency:</b> The provisions of Section J are not applicable to the Class 10a medical gas compound.
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## 4.0 Conclusion

This report contains an assessment of the referenced Architectural Design Documentation for the proposed modifications to the existing medical gas compound to be constructed as part of the RPA Hospital Redevelopment against the deemed-to-satisfy provisions of the Building Code of Australia 2022.

Arising from our initial assessment we are satisfied that the project design will be able to satisfy the requirements of the NCC 2022 if the works are designed and constructed in accordance with the requirements of this BCA Report along with the Architectural and Services Design Reports.



## Appendices



## + Appendix 1 – References Tables

**Table 1: Non-Combustibility Requirements**

+ 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 the like shafts which do not discharge hot products of combustion.	Non-combustible (subject to conditions outlined in C2D10)