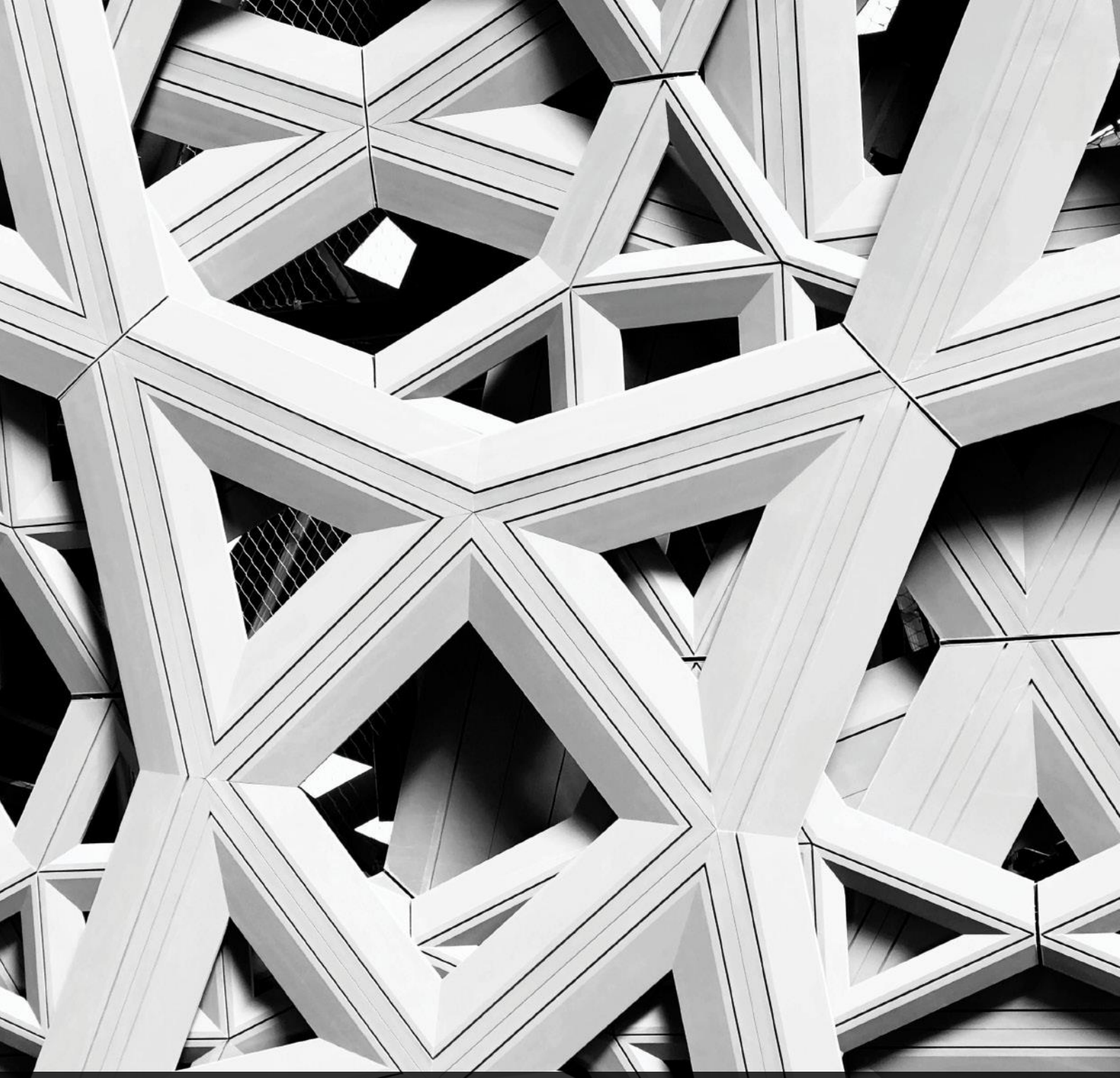

BCA Assessment Report

Schematic Design – REF Submission
World Class End of Life Program
Wyong Hospital

Prepared for:
Health Infrastructure

Revision 2
26 March 2024
Reference: 230224

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Executive Summary

The following comprises a summary of the key compliance issues identified under the clause-by-clause assessment in Section 3.0 and 4.0 that will be addressed prior to the issue of the BCA Crown Certificate for the project.

A. Key Compliance Items:

+	+ BCA (DTS) Clause	+ Description
1.	B1D3	*Importance Level* The Importance Level provisions of BCA (Section B) are to be acknowledged by the Structural Engineer and addressed to the degree necessary. If the refurbishment works are not proposed to be designed and constructed in accordance with Importance Level 4, then approval will need to be sought from Health Infrastructure's Project Director in accordance with Design Guidance Note No. 24.
2.	C2D7	*Class 4 Parts of Buildings:* The Class 4 overnight room is required to be separated from the remainder of the storey by construction which achieves a minimum FRL of 60/60/60.
3.	C2D10	*Non-Combustible External Walls* All materials and or components incorporated in an external wall or fire-rated 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 DGN 32 and as such bonded laminate cladding is not permitted.
4.	C3D6	*Compartmentation and Separation:* The existing fire wall separating the proposed refurbishment area from the existing hospital will be required to be verified as a fire wall with an FRL of 90/90/90. Any existing service penetrations that are not adequately protected within the fire wall or defects in the fire wall itself will be required to be upgraded accordingly. The refurbishment area containing the inpatient unit (ward area) will be required to be separated into smoke compartments with a maximum floor area of 500 m^2.
5.	C4D4	*Protection of External Walls and associated Openings in Different Fire Compartments*

		If there are any modifications to the external walls or openings where exposure occurs between fire compartments as detailed above, then compliance with Clause C4D4 will be required to be achieved either via DTS compliant design or via a Fire Engineering Performance Solution. Verification is required to be provided by BVN in this instance as to any new openings or modifications to the external walls in these locations.
6.	**Spec.11**	*Use of Timber Noggins in Smoke Walls* All parts of smoke walls are required to be constructed of non-combustible construction which extends to timber noggins, plywood used within fire walls. It is understood that timber noggins are likely to be proposed to be located within the internal fire and smoke walls throughout the building in order to support services, handrails etc. The use of timber noggins within smoke walls (both existing and new) throughout the refurbishment will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA.
7.	**Spec.12**	*Swing of Smoke Doors* There are a small number of fire safety doors located in fire and smoke walls serving the refurbishment area building that will not swing in the direction of egress i.e., in both directions, as required by Specification 12. The proposed swing of the doors in one direction / against the direction of egress will be required to assessed as part of the Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.
8.	**D3D24**	*Sliding Doors* Doorways located in a patient care area must not incorporate a sliding door unless that door leads directly to open space and is able to be manually opened under a force of not more than 110 N and open automatically upon fire trip or power failure. Doors in the path of travel in patient care areas are not permitted to be sliding doors. The provision of sliding doors within patient care areas as identified on the drawings will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.
9.	**D3D25**	*Swing of Horizontal Exit Doors* All exit doors including horizontal exit doors are required to swing in the direction of egress. The horizontal exit doors serving the refurbishment area swing against the direction of egress as detailed in the figure below. The swing of the horizontal exit doors will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.

10.	**Part D4**	*Access for a Person with a Disability from the Property Boundary* In accordance with the Access to Premises Standards, access will be required to be provided from the Main Entrance of the building to the refurbishment area. In this instance, an inspection of the affected path from the main entrance through to the refurbishment area will be required to be undertaken to ensure that the path of travel complies with the requirements of the BCA and AS 1428.1 – 2009.
11.	E1D2	*Fire Hydrants* Fire hydrant coverage is required to be provided to the building in accordance with AS2419.1–2021. Verification is required as to the standard of performance of the existing fire hydrant system from the Fire Services Consultant. *Internal Hydrants* Internal fire hydrants are required to be located within 4 m of exits leading directly to open space. If additional internal fire hydrants are required to be installed within the confines of the building in order to achieve compliance coverage i.e. , within 4 m of horizontal exits then a Fire Engineering Performance Solution will be required to be prepared by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA. *External Hydrants* External hydrants are required to be located not less than 10m from the external wall of the building unless fire protection is provided to the fire hydrant in accordance with Clause 3.5.5 of AS 2419.1 – 2021. Internal fire hydrants will be required to be installed in compliant locations as the current external hydrants within the internal courtyard are in non-compliant locations, unless external hydrants are provided in compliant locations to the serve the refurbishment area. The Fire Services Consultant is to provide verification as to the proposed location of the fire hydrants serving the refurbishment area.
12.	E1D2	*Fire Hose Reels* Fire hose reels are required to be installed throughout the refurbishment area exits in accordance with AS 2441 – 2005. *Location* Fire hose reels are required to be located within 4m of an exit (including a horizontal exit) or adjacent to an internal fire hydrant.
13.	E1D4	*Sprinklers* An Automatic Fire Suppression System is not required to be installed throughout the building in accordance with Clause E1D3 due to the building having a rise in storeys of one (1). Notwithstanding the minimum requirements of the BCA, written verification is required to be provided from Health Infrastructure that sprinklers are not required to be installed within the refurbishment area and extension in accordance with Health Infrastructure's Engineering Services Guidelines.

14.	E2D3 – E2D21	*Automatic Fire Detection & Alarm System* An Automatic Fire Detection & Alarm System is required to be installed throughout the refurbished area and extension in accordance with AS 1670.1 - 2018. *Manual Call Points* Manual call points are required to be installed in evacuation routes so that no point on a floor is more than 30m from a manual call point. All Manual Call Points that activate the buildings Fire Alarm System are required to be red. *Manual Call Points in Fire Hose Reel / Fire Hydrant Cupboards* In accordance with AS 1670.1 – 2018, manual call points are required to be mounted between 750 mm and 1200 mm above floor level and a clear space of 300 mm on both sides and 600 mm directly in front are required to be provided in an arc in front of the manual call points. Where manual call points are installed within fire hose reel cupboards to avoid them being visible and being subject to unintended use, the clearance requirements of AS 1670.1 – 2018 around the manual call point will be unable to be achieved. Verification is required as to whether any manual call points are proposed to be installed within fire hose reel cupboards. If they are proposed to be installed in cupboards, then the clear space around the manual call points will be required is proposed to be assessed as part of the Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA. *Mechanical Air Handling Systems* Any air-handling system which does not form part of the Zone Smoke Control System (other than non-ducted systems with a capacity not more than 1000 litres/second, systems serving critical treatment areas and miscellaneous exhaust air system installed in accordance with Sections 5 and 6 of AS/NZS 1668.1) must shut down automatically on the activation of the Automatic Fire Detection & Alarm System and Automatic Fire Suppression System.
15.	E4D9	*Emergency Warning & Intercom Systems (EWIS)* An Emergency Warning and Intercom System is required to be modified as required in accordance with AS 1670.4 – 2018 throughout the refurbishment area. *Rationalisation of EWIS Speakers* It is noted that EWIS speakers will likely be rationalized within the patient bedrooms and other sensitive environments where the activation of the speaker within the room may cause trauma to the patient. The rationalization of EWIS system from within patient care areas will be required to be assessed as part of the Fire Engineering Assessment undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.
16.	F4D4	*Island-Type Plunge Bath in Storeys Containing Ward Areas*

		The DTS Provisions of the BCA require that within ward areas of a hospital, one (1) island type plunge bath is required to be provided. If an island-type plunge bath is not proposed to be provided with ward areas due to the clinical requirements of the LHD, then omission of the island type plunge bath will be required to be assessed as part of a Performance Solution to be prepared by the Architect or independent BCA Consultant. Any proposed Performance Solution will require written consent from the LHD. *Wc's for Staff* Anticipated total staffing numbers within the department at any one time is required to be confirmed to ensure that the sanitary facilities documented for staff are sufficient to cater for the expected staff numbers within the building at any one time. Furthermore, verification as to whether the proposed accessible sanitary facility will be available for use by both staff and patients / public. *Wc's for Patients* The Schematic Design Architectural Documentation indicates that an adequate ratio of water closets has been provided for patients throughout the patient care area of the building.
17.	F4D5	*Accessible Sanitary Facilities* Sanitary facilities for a person with a disability are required to be provided as follows: + A unisex accessible sanitary facility for a person with a disability is required to be provided for patients. + A unisex accessible sanitary facility for a person with a disability is required to be provided for staff. + A unisex ambulant sanitary compartment is required to be provided for patients. + A unisex ambulant sanitary compartment is required to be provided for staff. This Report details the required provision of sanitary facilities including a markup of sanitary facilities to be dedicated for a person with a disability. *Provision of Unisex Ambulant Sanitary Compartment* Ambulant Sanitary Compartments are required to be provided separately for males and females and unlike Unisex Accessible Sanitary Facilities receive no concession for the provision of unisex facilities. The provision of unisex ambulant sanitary compartments in lieu of separate facilities for males and females throughout the building will be required to be assessed as part of a Performance Solution to be prepared by an independent Access Consultant.

B. Summary of Items Requiring a Fire Engineering Performance Solution:

+ BCA DTS Clause		+ BCA Performance Requirement	+ Description
1.	**S11C2**	C1P1, C1P2, C1P3, C1P4	Timber noggins located within smoke walls.
2.	**S12C4**	C1P3, D1P2	Swing of fire safety doors against the direction of egress.
3.	**D3D25**	CP3, D1P2	Swing of horizontal exit door against the direction of egress
4.	**E4D9**	E2P1, EP43	Rationalization of EWIS speakers within ward areas

C. Summary of Items Requiring a Performance Solution:

+ BCA (DTS) Clause		+ BCA Performance Requirement	+ Description
1.	**F4D4**	F4P1	Omission of island-type plunge bath
2.	**F4D4**	F4P1	Males and females sharing unisex ambulant sanitary compartments

+ Contents

+ Report Status

+ Date	26 March 2024
+ Revision	3
+ Status	Issued for Schematic Design Phase – REF Submission
+ Author	Adam Durnford
+ Reviewed	David Blackett

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+ Status	Masterplan Report Phase		

+ Revision	1	**+ Date**	17.10.2023
+ Status	Concept Design Phase		

+ Revision	2	**+ Date**	15.02.2024
+ Status	Schematic Design Phase		

+ Revision	3	**+ Date**	26.03.2024
+ Status	Schematic Design Phase – REF Submission		

1.0 Description of Project

1.1 Proposal

BM+G Pty Ltd have been commissioned by Health Infrastructure C/- Capital Insight Pty Ltd to undertake an assessment of the Schematic Design for the REF Submission comprising delivery 12 palliative care beds for Wyong Hospital within footprint of the existing hospital linking the Palliative care unit to surrounding departments at Pacific Highway, Hamlyn Terrace NSW against the relevant provisions of the Building Code of Australia 2022 (BCA).

Three locations were considered to locate the new palliative care unit with option 2 being agreed on as the preferred option to take through to Concept Design.

- Option 1 University of Newcastle Podiatry Clinic Site - refurbishment to the existing University of Newcastle Podiatry Clinic building.
- Option 2 Education Centre Site - refurbishment to the existing education centre block C, built in 1980s.
- Option 3 Acute Services Building (ASB) Block H, level 05 (cold shell) - ft-out of the L05 IPU shell in new Acute Services Building

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

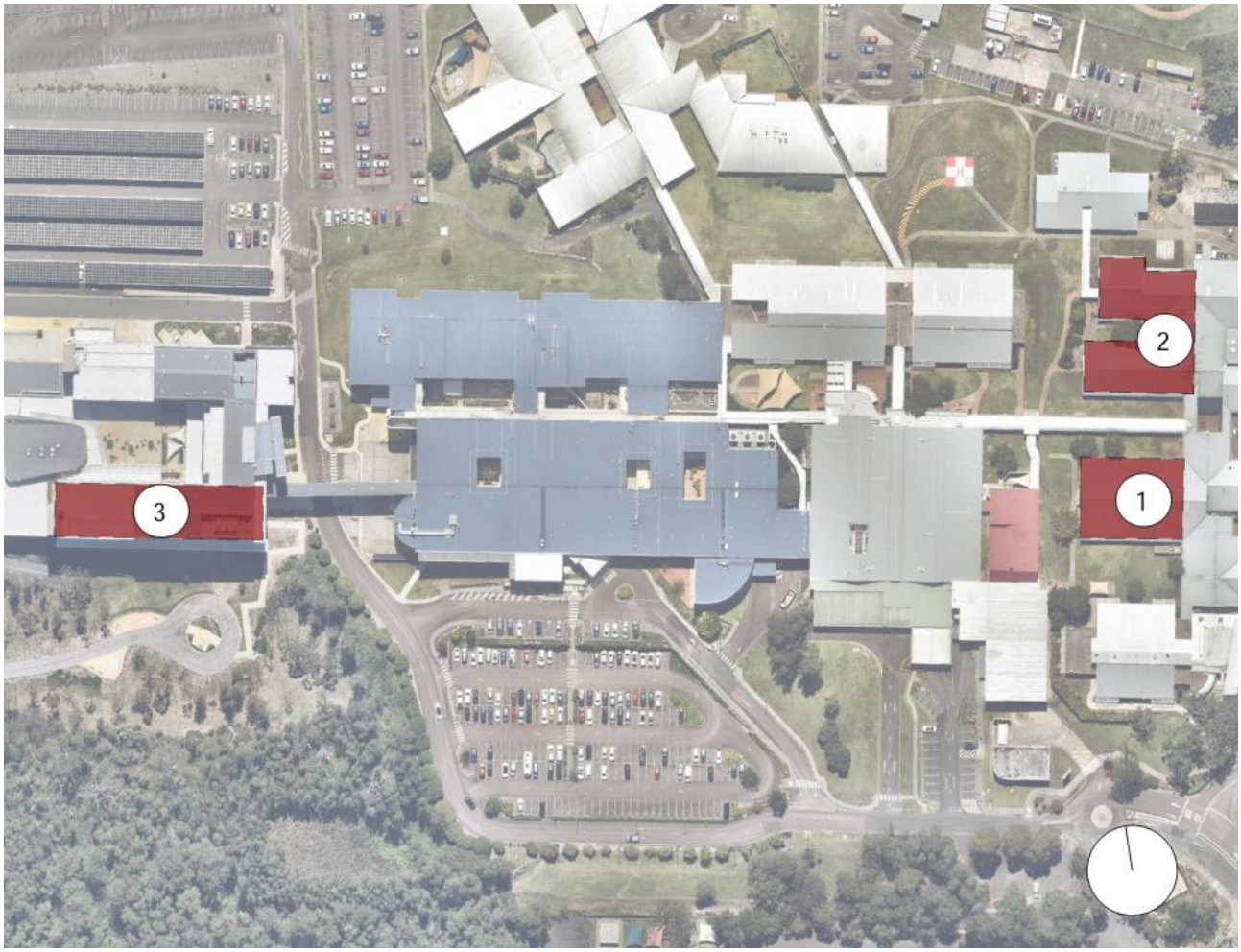


Figure 1: Wyong Option Locations within Wyong Hospital Campus

1.2 Aim

The aim of this report is to:

- Undertake an assessment of the proposed Schematic Architectural Documentation for the REF Submission 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 Heath Engineering Services Guide dated 12 December 2022.
- Schematic Architectural Documentation prepared by BVN dated 29 January 2024.

1.5 Regulatory Framework

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

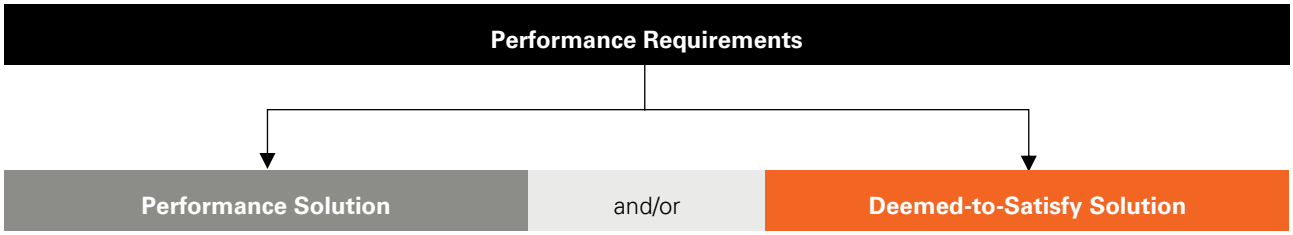
1.6 Relevant Version of the NCC Building Code of Australia

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

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

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

1.7 Compliance with the National Construction Code



Compliance with the NCC is achieved by complying with:

- the Governing Requirements of the NCC; and

- the Performance Requirements.

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

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

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

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

Figure 2: Floor plan of proposed refurbishment area

1.8 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.

1.9 Report Terminology

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

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

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

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

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

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

+ certain Class 2, 3 or 9c buildings in C2D6; and

+ a Class 4 part of a building located on the top storey in C2D4(2); and

+ open spectator stands and indoor sports stadiums in C2D8.

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

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

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

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

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

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

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

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

- structural adequacy; and
- integrity; and
- insulation.

and expressed in that order.

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

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

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

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

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

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

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

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

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

Patient Care Area – A part of a health-care building normally used for the treatment, care,

accommodation, recreation, dining and holding of patients including a ward area and treatment area.

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

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

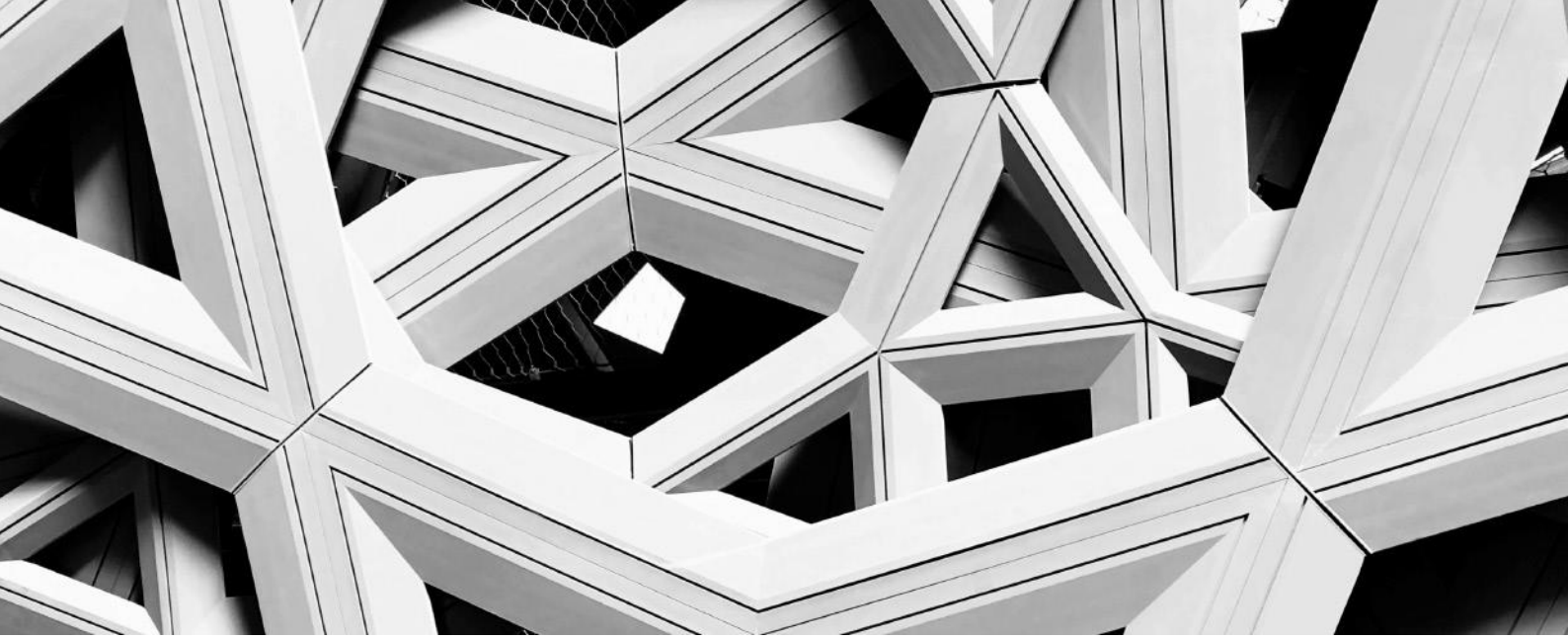
Compliance with the Performance Requirements can only be achieved by-

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

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

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

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



2.0 Building Characteristics

2.1 Proposed Development

The existing building is classified as follows:

BCA Classifications:	Class 9a (health care building) Class 4 (overnight room) Class 5 (office administration / consultation areas)
Rise in Storeys:	One (1)
Storeys Contained:	One (1)
Type of Construction:	Type C Construction
Importance Level (Structural)	Importance Level 4. To be discussed further with the consultant team and Health Infrastructure
Sprinkler Protected Throughout	No
Effective Height	< 12 m
Floor Area	TBC
Largest Fire Compartment	TBC
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^2	3,500m^2	2,000m^2
	Max. volume	30,000m^3	21,000m^3	21,000m^3
5, 9b or 9c	Max. floor area	8,000m^2	5,500m^2	3,000m^2
	Max. volume	48,000m^3	33,000m^3	18,000m^3

2.3 Distance to Fire Source Features

Based upon a review of the plans, it is noted that each elevation of the building is located within the following distances from fire source features on the site.

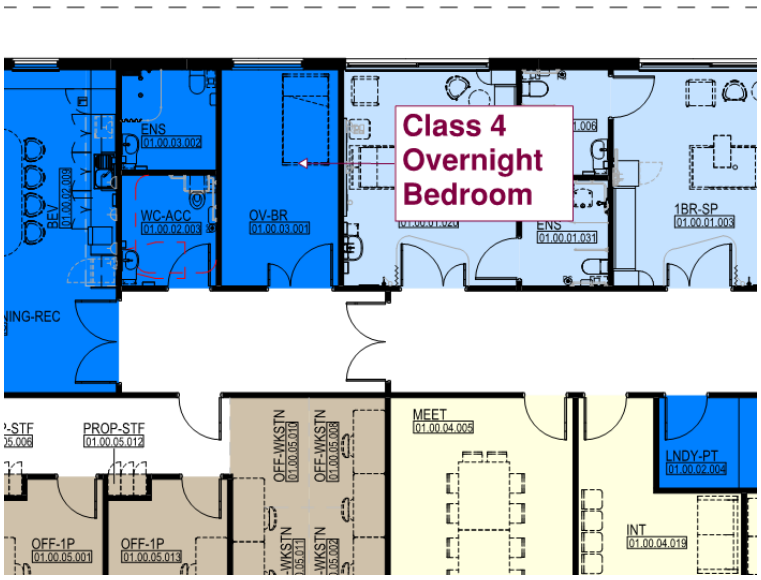
+ Elevation	+ Fire Source Feature	+ Distance
North	Building on same allotment	> 3m
East	Building on same allotment	> 3m
West	Building on same allotment	> 3m
South	Building on same allotment	> 3m

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

3.0 BCA Assessment

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

3.1 Section A – Governing Requirements

Part A6	Building Classification
A6G4 & AG69	**Class 4 Buildings & Class 9a Buildings:** The proposed refurbishment works are classified as Class 4 (dwelling) and Class 9a (health care building). The Class 4 classification is derived from the Overnight Bedroom (for either family or staff) which has bene provided within the palliative care unit. Verification is required to be provided from the LHD that there are no other overnight rooms provided with the building, as this will change the classification from Class 4 to Class 3.  Figure No. 2 – Overnight Bedroom which is classified as Class 4. It is understood that the remaining parts of the building contain Class 5 parts including office administration and consultation areas.

3.2 Section B – Structure

Part B1	**Structural Provisions:** + New building works are to comply with the structural provisions of the BCA 2022 and referenced standards including AS 1170. + 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. If the refurbishment works are not proposed to be designed and constructed in accordance with Importance Level 4, then approval will need to be sought from Health Infrastructure's Project Director in accordance with Design Guidance Note No. 24. + New building works to the existing building must be compliant with earthquake provisions of AS1170.4 – Earthquake Actions in Australia. + Consideration may be given to compliance with AS 3826-1998 - Strengthening existing buildings for earthquake for any required remedial works to the existing building where appropriate.

3.3 Section C – Fire Resistance

Part C2	**Fire Resistance and Stability**
C2D2 / Spec 5	**Type of Construction Required:** The building is required to comply with the requirements of Type C Construction as stated within Specification 5. The table below provides an overview of the requirements of each. Refer to Table 6 of Appendix 1 for the FRL requirements of Type C Construction. **+ Type C Construction:** + External walls (and columns incorporated within) need not achieve an FRL if >3m from a boundary or separate building. Where required, external walls of Type C Construction only require an FRL from the outside and not in both directions. + Roofs need not achieve an FRL. + Internal columns need not achieve an FRL. All new works will be required to be constructed in accordance with the requirements of the Type C Construction as applicable.

C2D7

Class 4 Parts of Buildings:

A Class 4 part of a building requires the same FRL for building elements and the same construction separating the Class 4 part from the remainder of the building as Class 2 part in the same Type of Construction.

In this instance, the Class 4 overnight room is required to be separated from the remainder of the storey by construction which achieves a minimum FRL of 60/60/60.

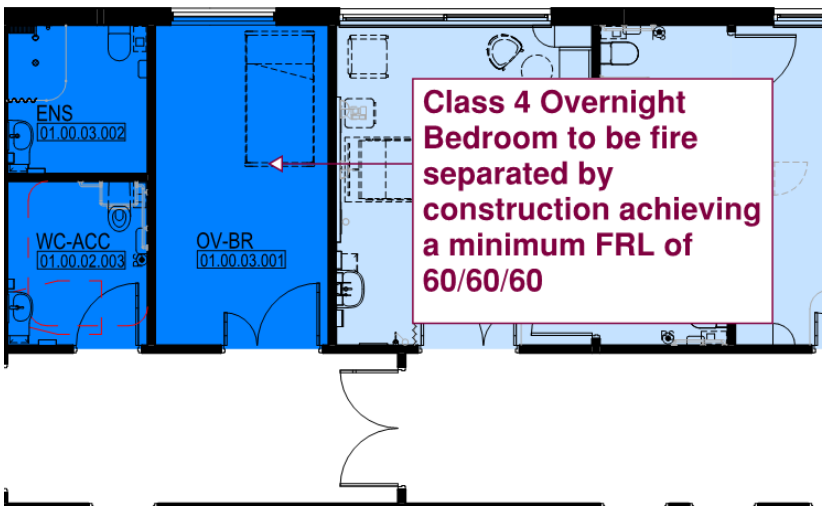


Figure No. 3 – Required fire separation of the Class 4 Overnight Bedroom

C2D10 / C2D14

Non-Combustible Building Elements:

All materials and or components incorporated in an external wall or fire-rated 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 Components within the External Wall Assembly

NCC 2022 permits the following building elements to be constructed within an external wall of a building of Type A or B Construction (or a building subject to HI DGN 32).

- Caulking
- Sealants
- Termite management systems
- Thermal breaks associated with –

- Glazing systems, or
- External wall systems, where the thermal breaks –
  - Are no larger than necessary to achieve thermal objectives, and
  - Do not extent beyond one storey, and
  - Do not extend beyond one fire compartment.

+ Damp proof courses
+ Compressible fillers and backing materials, including those associated with articulation joints, closing gaps not wider than 50 mm.
+ Isolated—
  - construction packers and shims; or
  - blocking for fixing fixtures; or
  - fixings, including fixing accessories; or
  - acoustic mounts.
+ Waterproofing materials applied to the external face, used below ground level and up to 250 mm above ground level.
+ Joint trims and joint reinforcing tape and mesh of a width not greater than 50 mm.
+ Weather sealing materials, applied to gaps not wider than 50 mm, used within and between concrete elements.
+ Wall ties and other masonry components complying with AS 2699 Part 1 and Part 3 as appropriate and associated with masonry wall construction.
+ Reinforcing bars and associated minor elements that are wholly or predominately encased in concrete or grout.
+ A paint, lacquer or a similar finish or coating.
+ Adhesives, including tapes, associated with stiffeners for cladding systems.
+ Fire-protective materials and components required for the protection of penetrations.

The following materials, when entirely composed of itself, are non-combustible and may be used wherever a non-combustible material is required:

+ Concrete.
+ Steel, including metallic coated steel.
+ Masonry, including mortar.
+ Aluminium, including aluminium alloy.
+ Autoclaved aerated concrete, including mortar.
+ Iron.
+ Terracotta.
+ Porcelain.
+ Ceramic.
+ Natural stone.
+ Copper.
+ Zinc.

- Lead.
- Bronze.
- Brass.

The following materials may be used where a non-combustible material is required:

- Plasterboard
- Perforated gypsum lath with a normal paper finish
- Fibrous-plaster sheet
- Fibre-reinforced cement sheeting
- Pre-finished metal sheeting having combustible surface finish not exceeding 1mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
- Sarking type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5.

Note: Bonded laminated materials (façade panels) are not permitted to be installed on the external façade of the building in accordance with Health Infrastructure Design Guidance Note 32 for external wall construction.

C2D11 & Spec. 7

Fire Hazard Properties:

The fire hazard properties of all new building materials and assemblies as well as all new floor materials, floor coverings, wall and ceiling lining materials used in the development must comply with the requirements of Specification C1.10 of the BCA.

In accordance with Specification C1.10, we note the following requirements:

Critical Radiant Flux of Floor Materials and Floor Coverings

- Patient Care Areas – 4.5 kW/m²
- Non-Patient Care Areas – 2.2 kW/m²

Wall and Ceiling Lining Materials – Group Number

- Public Corridor – Group 1
- Patient Care Areas – Group 1, 2 or 3
- Other Areas – Group 1, 2 or 3

Rigid and flexible air handling ductwork will be required to comply with fire hazard properties set out in AS 4254 Parts 1 and 2.

Material test data sheets will need to be submitted for further assessment to ensure compliance with the above.

Artistic Graphic on Walls

Any proposed artistic graphics, photographs etc installed on walls are required to comply with the abovementioned requirements. Any proposed unique wall lining should have Test Reports / Certificates sourced and verified prior to procurement to verify compliance.

The below are typical examples of wall graphics that are being installed within Health Infrastructure Projects.

Figure No. 4 – Wall Linings installed to walls of Public Corridors in HI projects.

Any wall linings installed in Public Corridors that do not achieve a Group Material No. of 1 or 2 will be required to be reviewed

Part C3 Compartmentation and Separation

C3D3

General Floor Area and Volume Limitations:

The maximum size of any fire compartment with a Class 9a building cannot exceed 2,000m² & 12,000m³.

Note: the size of fire compartments within patient care areas is also limited to a maximum of 2,000m² as detailed in Clause C3D6 below.

The Schematic Architectural Drawings indicate that compliance is achieved in this instance with no fire compartment within the Class 9a refurbishment exceeding 2,000m² & 12,000m³.

C3D6

Class 9a Buildings:

The following fire and smoke compartmentation requirements apply to Class 9a patient care areas.

<table>
<tr><th colspan="2">Area Use</th><th colspan="2">Max. Compartment Size</th></tr>
<tr><td rowspan="3">Patient Care Area (max 2,000m²)</td><td rowspan="2">Ward Area</td><td>Where total floor area is less than 500m² :</td><td>Where total floor area is greater than 500m², but less than 1000m² :</td></tr>
<tr><td>Separate from other areas with Smoke Walls</td><td>Separate with smoke walls into areas less than 500m²</td></tr>
<tr><td>Treatment Area</td><td colspan="2">Where total floor area is less than 1000m² :</td></tr>
<tr><td colspan="2"></td><td colspan="2">Separate from other areas with Smoke Walls</td></tr>
</table>

- The existing fire wall separating the proposed refurbishment area from the existing hospital will be required to be verified as a fire wall with an FRL of 90/90/90. Any existing service penetrations that are not adequately protected within the fire wall or defects in the fire wall itself will be required to be upgraded accordingly.

Figure No. 5: Required fire separation of proposed refurbishment and extension from existing hospital.

- Fire and smoke compartmentation within the refurbishment area will be required to be provided in accordance with the above table. In this instance, the refurbishment area containing the inpatient unit (ward area) will be required to be separated into smoke compartments with a maximum floor area of 500 m^2.

Figure No. 6: Required smoke separation within the proposed inpatient unit.

+ 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 30m².
  - A room containing a hyperbaric facility.
  - A room used predominately for the storage of medical records having a floor area of more than 10m².
  - A laundry, where items of equipment are the type that are potential fire sources (e.g., gas fire dryers).

C3D8

Separation by Fire Walls:

Fire walls required by Clause C3D6 above, must extend from the floor slab to the underside of the floor slab above or where no floor is provided above the roof sheeting, with no penetrations by building elements through the fire wall other than roof battens with a dimension of 75mm x 50mm or sarking.

All fire walls are required to achieve the required FRL of 90/90/90 in both directions.

Verification will be required from the Architect / Structural Engineer / Head Contractor that no proposed building elements have been designed to pass through or over the fire walls.

Note: -

No building elements penetrating fire walls includes steel brackets supporting electrical cable trays or any other structural elements supporting another building element.

The proposed refurbishment will be a separate fire compartment to the existing building. The existing fire wall will be required to be verified as complying with the provisions of Clause C3D8.

Particular attention is drawn to where internal fire (smoke) walls intersect at the external wall. The internal fire (smoke) walls are required to extend to the backpan of the curtain wall with no internal void or space between adjoining compartments where fire or smoke could spread between compartments.

Part C4 Protection of Openings

C4D3 & C4D5

Protection of Openings in External Walls:

From a review of the Schematic Architectural Drawings reviewed to date, there are no new openings in the external wall of the building that are exposed to a fire source feature being another stand alone building on the property or an allotment boundary line.

C4D4

Separation of external walls and associated openings in different fire compartments:

External walls and openings of adjacent fire compartments must be protected in accordance with this clause where exposed to one another. The extent of fire-rating is driven by the angle of exposure, refer to the below table for the applicable distances.

+ Angle between walls	+ Min. Distance
0^0 (walls opposite)	6m
More than 0^0 to 45^0	5m
More than 45^0 to 90^0	4m
More than 90^0 to 135^0	3m
More than 135^0 to 180^0	2m
0^0 or more	Nil

Exposure between fire compartments occurs in the following instances as detailed in the figure below.

Figure No. 7: Locations where exposure occurs between fire compartments

If there are any modifications to the external walls or openings where exposure occurs between fire compartments as detailed above, then compliance with Clause C4D4 will be required to be achieved either via DTS compliant design or via a Fire Engineering Performance Solution.

Verification is required to be provided by BVN in this instance as to any new openings or modifications to the external walls in these locations.

C4D6

Doorways in Fire Walls:

Any doors located within fire walls must be fire rated to achieve the same rating as the fire wall itself i.e., 90 mins.

All fire doors are required to be self-closing or automatic closing. All automatic closing doors are required to close upon activation of the fire alarm system within the building i.e., Automatic Fire Detection & Alarm System.

Smoke detectors must be installed within 1500 mm of the automatic closing doors (on both sides of the door).

C4D8

Protection of Doorways in Horizontal Exits:

All horizontal exits are required to have a FRL of -/90/30.

All horizontal exit doors are required to be self-closing or automatic closing. All automatic closing doors are required to close upon activation of the fire alarm system within the building i.e., Automatic Fire Detection & Alarm System.

Smoke detectors must be installed within 1500 mm of the automatic closing doors (on both sides of the door).

C4D12

Bounding Construction: Class 2 and 3 buildings and Class 4 Parts:

The doorway leading to the Class 4 overnight bedroom is required to be protected by a self closing, tight fitting, solid core door, not less than 35 mm thick.

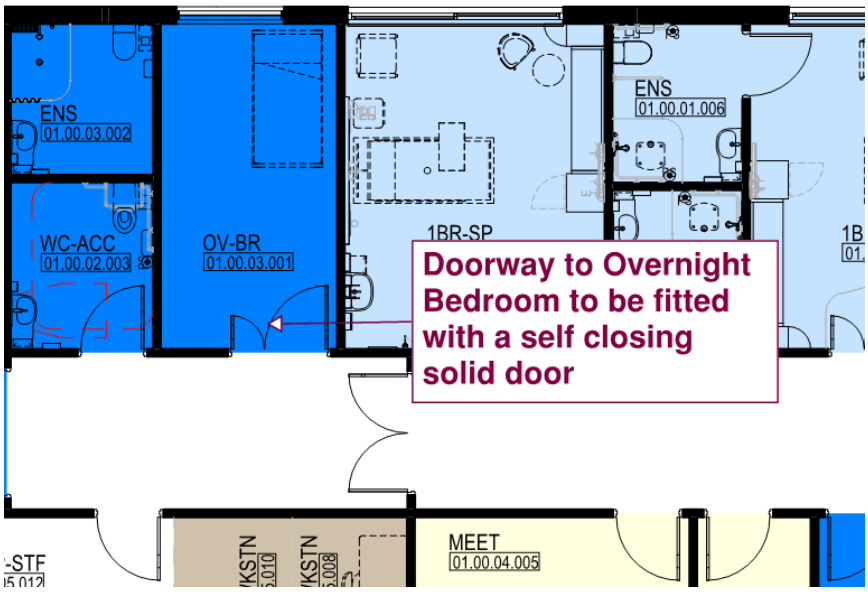


Figure No. 8: Sold core door required to be provided to overnight room

C4D15

Openings For Service Installations:

Where service installations penetrate the walls or floors required to have an FRL with respect to integrity and insulation they are to be protected by fire seals having an FRL of the building element concerned. Fire seals are required to comply with Specification 13. Where the mechanical ventilation system penetrates floors or walls that require an FRL the installation is to comply with AS/NZS 1668.1.

The proposed installation of pipework containing combustible liquids or gas (i.e., natural gas) is prohibited in accordance with Clause C4D15 unless it is a tested system.

Note 1: -

Where a wall is required to achieve both smoke and fire compartmentation, the penetrations must be protected to accommodate both i.e., combined fire and smoke dampers through all fire walls that bound or separate patient care areas throughout the building.

All fire walls double up as smoke walls when they are within or bound patient care areas and thus must be combined fire and smoke dampers.

The motorised component of the Damper is to be located no more than 600mm from the fire/smoke wall.

Note 2: -

A pipe system comprised entirely of metal that is not normally filled with liquid must not be located within 100mm, for a distance of 2000mm from the penetration of any combustible building element or a position where a combustible material may be located and must be constructed of:

+ Copper alloy or stainless steel with a wall thickness of at least 1mm; or
+ Cast iron or steel (other than stainless steel) with a wall thickness of at least 2 mm.

Note 3: -

All pipes normally filled with water cannot be less than 200mm from another service penetration unless protected with a fire wrap installed in accordance with a Tested System approved by a registered Testing Authority.

Note 4: -

A Tested System approved by a registered Testing Authority may be used as an alternative to complying Specification 13.

Spec 11 Smoke Proof Walls in Health Care and Residential Care Buildings

Spec. 11

Smoke Proof Walls in Health Care Buildings:

The new smoke proof walls within all patient care areas (or bounding patient care area) are required to comply with the following:

+ Be non-combustible and extend to the underside of –
  - The floor above; or
  - A non-combustible roof covering; or
  - A ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes.
+ Not incorporate any glazed areas unless the glass is safety glass as defined in AS 1288.
+ Only have doorways which are fitted with smoke doors.
+ Have all openings around penetrations and the junctions of the smoke-proof wall and the remainder of the building stopped with non-combustible material to prevent the free passage of smoke.
+ Incorporate smoke dampers where air-handling ducts penetrate the wall unless the duct forms part of a smoke hazard management system required to continue air movement through the duct during a fire.

Note: -

All ducts that penetrate fire and smoke walls within patient care areas that do not form part of the zone smoke control system must be provided with smoke dampers.

+ All required smoke doors are required to be provided with a smoke reservoir which extends for a minimum of 400 mm above the smoke door and extends to the underside of the following:
  - A roof covering; or
  - The floor above; or
  - An imperforate false ceiling that will prevent the free passage of smoke

The existing smoke (and fire) wall separating the refurbishment will be required to be verified as complying with the above.

	Use of Timber Noggins in Smoke Walls All parts of smoke walls are required to be constructed of non-combustible construction which extends to timber noggins, plywood used within fire walls. It is understood that timber noggins are likely to be proposed to be located within the internal fire and smoke walls throughout the building in order to support services, handrails etc. The use of timber noggins within smoke walls (both existing and new) throughout the refurbishment will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA.
Spec. 12	**Fire Doors, Smoke Doors, Fire Windows and Shutters:** All required smoke doors are required to swing in the direction of egress. The smoke doors located within the required fire and smoke wall separating the refurbishment area from the existing hospital swing against the direction of egress as detailed in the figure below. Furthermore, the new smoke doors to be installed within the new smoke walls will likely only swing in one direction. The swing of the smoke doors will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA.

Figure No. 9: Swing of horizontal exit doors against the direction of egress

3.4 Parts D – Provision for Escape and Construction of Exits

Part D2	Provision for Escape
D2D3	**Number of Exits Required:** T The building is required to be provided with a minimum of 2 exits from all patient care areas. The proposed design provides the minimum number of exits from the refurbishment area.
D2D5	**Exit Travel Distances:** The following is noted in relation to egress travel distance: + Travel distances are permitted to extend to 20m to a point of choice and 40m to a single exit in non-patient care areas. + Travel distances in patient care areas are permitted to extend to 12m to a point of choice and 30m to a single exit.

Based on the provision of exits as detailed in the figure below, travel distance will comply with the DTS Provisions of the BCA.

Exits from the refurbishment area have been identified as follows:

Figure No. 10: Required exits from the refurbishment area

D2D5

Distance Between Alternative Exits:

The maximum distance permitted between alternative exits is 45m. This must be measured back through the point of choice. Alternative egress paths are not permitted to converge to less than 6m, and alternative exits must be located more than 9m apart.

Based on the provision of exits as detailed in the figure above, travel distance between alternative exits complies.

D2D7/ D2D8/ D2D9/ D2D10/ D2D11

Dimensions of Paths of Travel to an Exit:

The unobstructed height throughout an exit or a path of travel to an exit must not be less than 2000 mm, except for doorways which may be reduced to not less than 1980 mm.

In addition, the unobstructed width of any new exit or a path of travel to an exit must not be less than 1000 mm except where patients are normally transported in beds within treatment and ward areas in which case a minimum of 1800 mm corridor and passageway widths are required.

	The unobstructed width of new doors throughout the patient care areas where patients are normally transported in beds are as follows: + Doorways leading to or from a corridor with a corridor width of less than 2200 mm must not be less than 1200 mm, or + Doorways leading to or from a corridor with a corridor width greater than 2200 mm must not be less than 1070 mm. All other doorways other than the above are to achieve an unobstructed width of not less than 850mm. All external egress paths are to achieve a minimum clear width of not less than 1000 mm. This the minimum width required by the DTS Provisions of the BCA and in this instance, it is recommended that a minimum width of 1200 - 1500mm be adopted for all external egress paths. The proposed design can comply with the above requirements.
D2D15	**Discharge from Exits:** In accordance with the DTS provisions of the BCA, once an exit discharges to open space, the path of travel leading from the exit to the public roadway cannot incorporate any stairways or steps. In this instance verification is required to be provided that no stairways are provided in the path of travel once occupants egress from the subject building in gaining access to the public roadway. Where ramps are used, the gradient cannot exceed 1:8 at any part or 1:14 where the ramp is also used for access for a person with a disability. Handrails are required to be installed to all ramps used for external egress from the building.
D2D16	Horizontal Exits: In accordance with the BCA, a horizontal exit may be counted as a required exit if the path of travel from a fire compartment leads by one or more horizontal exits directly into another fire compartment which has at least one required exit which is not a horizontal exit. Travel via the horizontal exit serving the refurbishment area complies with the DTS Provisions of the BCA with occupants able to access an exit leading directly to outside once they pass through the horizontal exit.

Part D3 Construction of Exits

D3D8	**Installations in Exits and Paths of Travel:** Any electrical meters, distribution boards or ducts, central communications distribution boards or equipment or electrical motors are permitted to be located within corridors, hallways etc. leading to exits subject to the enclosures being suitably sealed against smoke spreading from the enclosure and be constructed of non-combustible construction or a fire protected covering. *Note:* *The smoke sealing is required around the entire enclosure and not simply up to ceiling level.*
D3D16	No steps can be located within the internal or external door thresholds unless the doorway is within a patient care area and the door sill is not more than 25mm above the finished level to which the doorway opens.

In areas other than patient care areas, where there are any steps within door thresholds, a threshold or step ramp is required to be installed in accordance with Clause 10 of AS 1428.1 which requires the following:

- Maximum rise of 35 mm
- Maximum length of 280 mm
- Maximum gradient of 1:8
- Be located within 20 mm of the door leaf it serves.

Where the threshold ramp does not abut a wall, the edges of the threshold ramp are required to be tapered or splayed at a minimum of 45°.

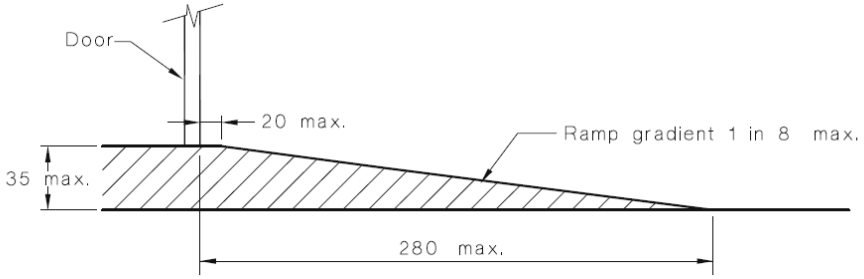


Figure No. 11: Threshold ramp dimensions

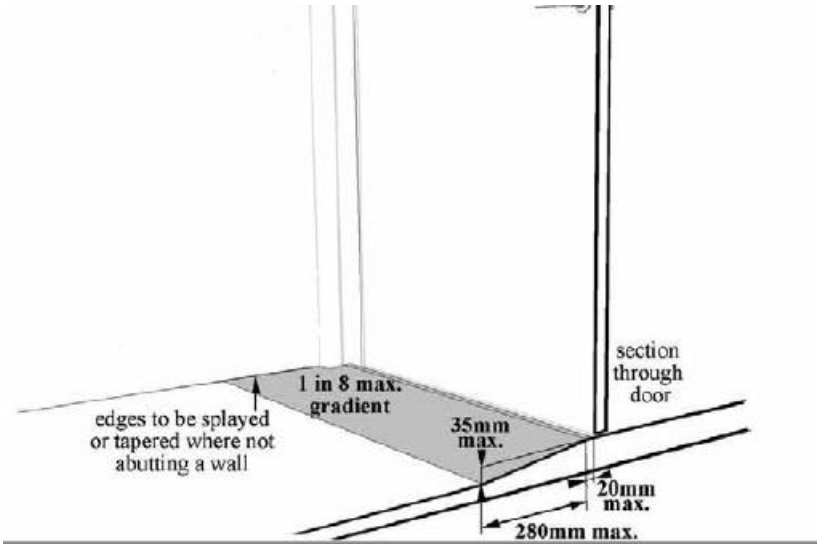


Figure No. 12: Threshold Ramp

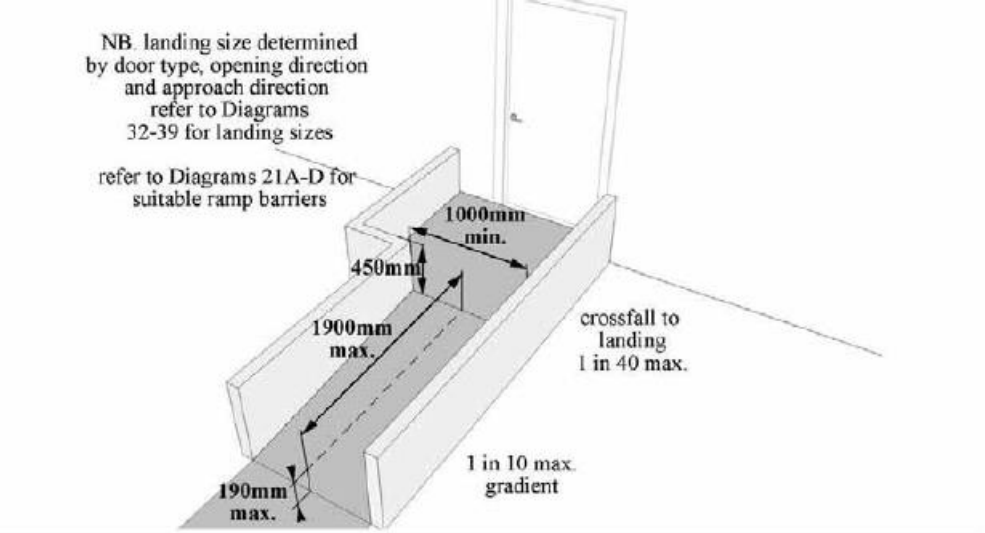


Figure No. 13: Step Ramp at External Doorway – Front Approach

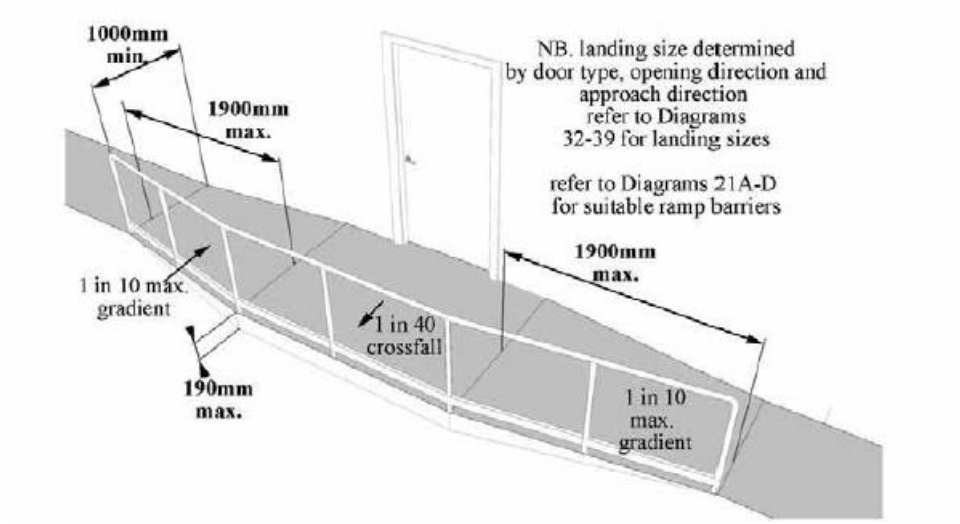


Figure No. 14: Step Ramp at External Doorway – Side Approach

D3D24

Doorways and Doors:

Sliding Doors

Doorways located in a patient care area must not incorporate a sliding door unless that door leads directly to open space and is able to be manually opened under a force of not more than 110 N and open automatically upon fire trip or power failure.

Doors in the path of travel in patient care areas are not permitted to be sliding doors.

The provision of sliding doors within patient care areas as identified on the drawings will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.

Figure No. 15: Sliding doors located within the patient care area

D3D25

Swinging Doors:

All exit doors including horizontal exit doors are required to swing in the direction of egress.

The horizontal exit doors serving the refurbishment area swing against the direction of egress as detailed in the figure below.

The swing of the horizontal exit doors will be required to be assessed as part of a Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.

Figure No. 16: Swing of horizontal exit doors against the direction of egress

D3D26

Operation of Latch:

All 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 35 mm and not more than 45 mm more.

The door hardware is to be positioned between 900 – 1100 mm from the ground.

Doors providing re-entry to the building from balcony areas etc. must be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied so that the door can yield to pressure.

D3D28

Signs on Doors:

All self-closing fire and/or smoke doors located within fire and smoke walls are to be provided with signage that states:

FIRE SAFETY DOOR

DO NOT OBSTRUCT

DO NOT KEEP OPEN

All automatic closing fire and/or smoke doors located within fire and smoke walls are to be provided with signage that states:

FIRE SAFETY DOOR

DO NOT OBSTRUCT

Part D4 Access for People with a Disability

D4D2

General Building Access Requirements:

Access for persons with disabilities must be provided, at a minimum, to and within all areas normally used by the occupants throughout the refurbishment. This includes too and within all beds, throughout all patient care areas, staff areas and communal areas.

Based on a review of the Schematic Design Documentation, the proposed development works can comply with the requirements of Part D4 of the BCA.

D4D3

Access to Buildings:

In accordance with the Access to Premises Standards, access will be required to be provided from the Main Entrance of the building to the refurbishment area.

In this instance, an inspection of the affected path from the main entrance through to the refurbishment area will be required to be undertaken to ensure that the path of travel complies with the requirements of the BCA and AS 1428.1 – 2009.

Accessible Path of Travel

- The minimum unobstructed height of a continuous accessible path of travel is required to be 2000 mm and 1980 mm at doorways.

  Unless otherwise specified (such as at doors, curved ramps and similar), the minimum unobstructed with of a continuous accessible path of travel is required to be 1000 mm and following elements cannot intrude into the minimum width:

  - Fixtures and fittings such as lights, awnings, windows that when open intrude into the circulation space, telephones, skirtings, and similar objects.
  - Essential fixture and fittings such as fire hose reels, fire extinguishers and switchboards.
  - Door handles less than 900 mm above the finished floor.

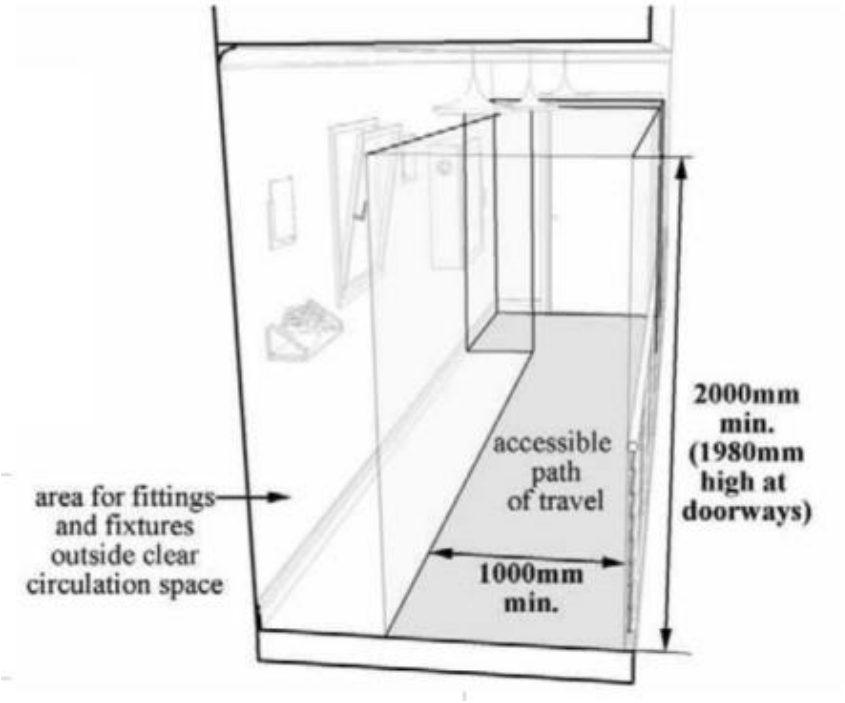


Figure No. 17: Minimum height and width of accessible path of travel

+ The minimum width of an accessible doorway must have a clear opening width of not less than 850mm in accordance with AS1428.1. Where double doors are provided, at least one leaf must have a clear unobstructed width of 850mm.

Note: -

Please refer to Clause D2D7 - D2D11 above having regard to the clear width of doorways where patient transportation in beds is required.

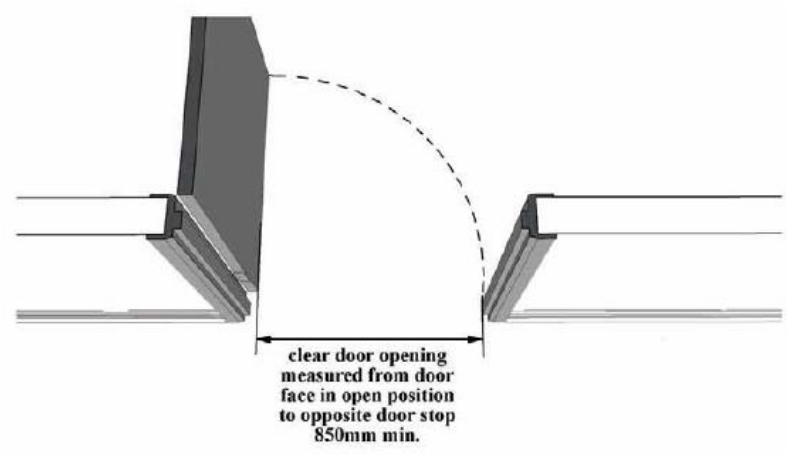


Figure No. 18: Clear Unobstructed Width of Doorway

+ All new doorways shall have a minimum luminance contrast of 30% provided between -
  - (a) door leaf and door jamb;
  - (b) door leaf and adjacent wall;
  - (c) architrave and wall;
  - (d) door leaf and architrave; or

- (e) door jamb and adjacent wall.

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

Doorways providing access to rooms that are not required to be accessible, are not required to be provided with a luminance contrast i.e., clean utility rooms, dirty utility rooms, equipment stores etc.

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

Note: -

Where doorways are provided with one and half leaves, the half leaf is required to permit the required latch side circulation space as required by AS 1428.1 – 2009.

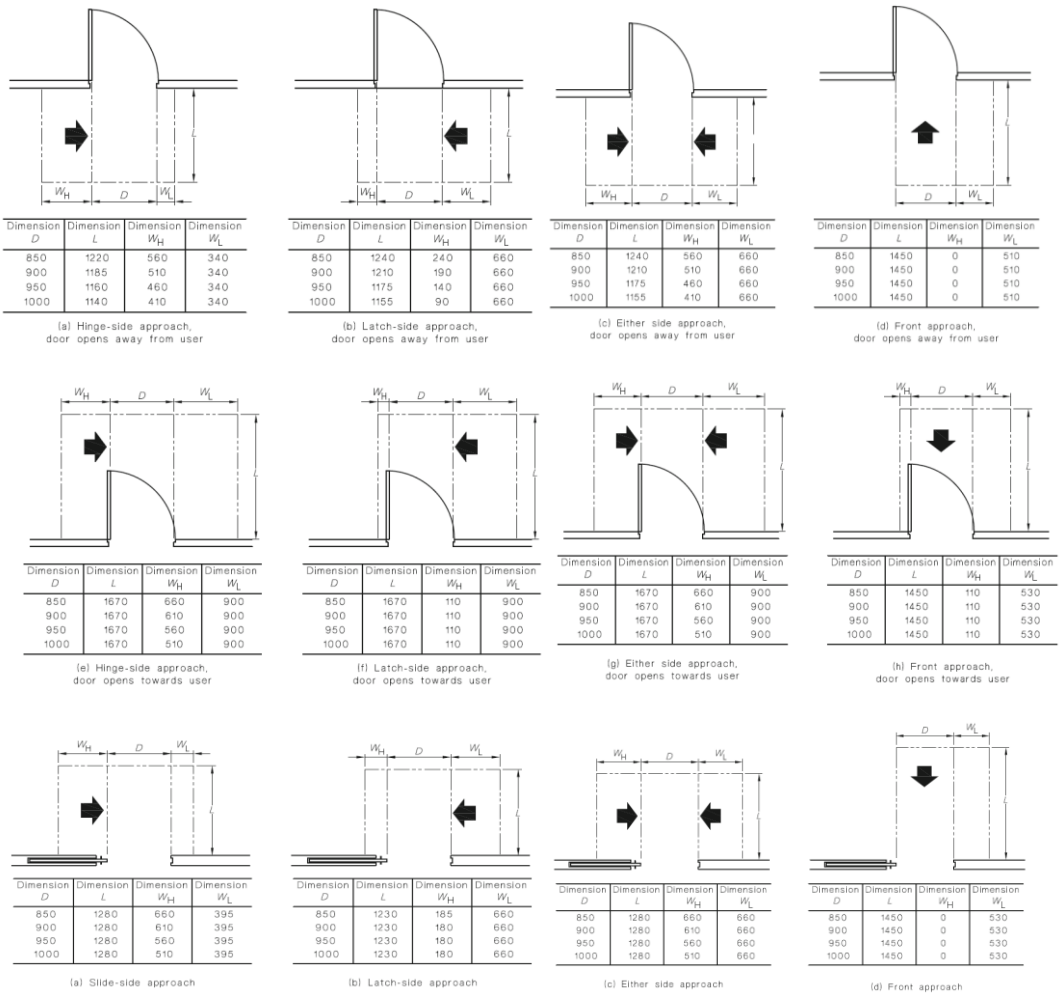


Figure No. 19: Circulation Space at Swing Doors

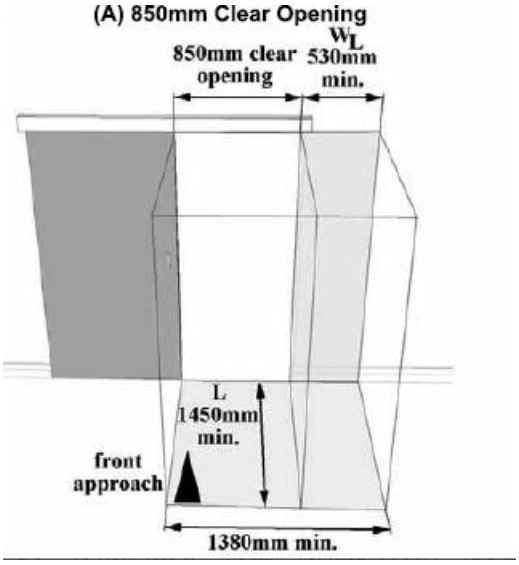


Figure No. 20: Circulation Space dimensions at swing doors

Figure No. 21: Doorways that are required to maintain latch side clearance as the design progresses

D4D4

Parts of Buildings to be Accessible:

Accessways

+ Accessways throughout the building are required to have –
  - Passes spaces complying with AS 1428.1 at a maximum 20m intervals on those parts of an access where a direct line of sight is not available; and

- Turning spaces complying with AS 1428.1 –
  - Within 2 m of the end of accessways where it is not possible to continue travelling along the accessway, and
  - At maximum 20 m intervals along the accessway

+ All dead-end corridors where a person in a wheelchair is required to make a 90o to 180o turn is required to be not less than 2070mm in the direction of travel and not less than 1540 mm wide.

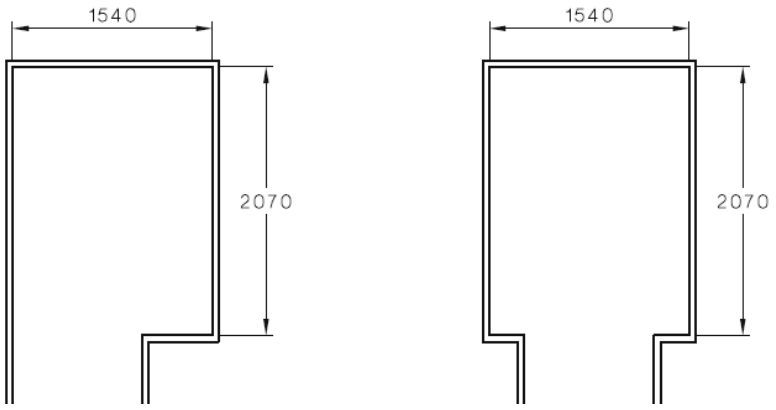


Figure No. 22: Minimum space required for >90o to 180o turn.

Accessible Walkways (AS1428.1 – 2009 Section 10.2):

The requirements for walkways serving the development are as follows:

+ Walkways can have a gradient up to 1:20. Anything steeper is a ramp and requires kerbs or kerb rails plus handrails to both sides.
+ A walkway with a gradient less than 1 in 33 does not require landings but does require a crossfall of maximum 1 in 40 (maximum cross fall of 1 in 33 if the surface is bitumen).
+ Walkways steeper than 1 in 33 do not require a crossfall to the main walkway but do require a crossfall of 1 in 40 to landings.

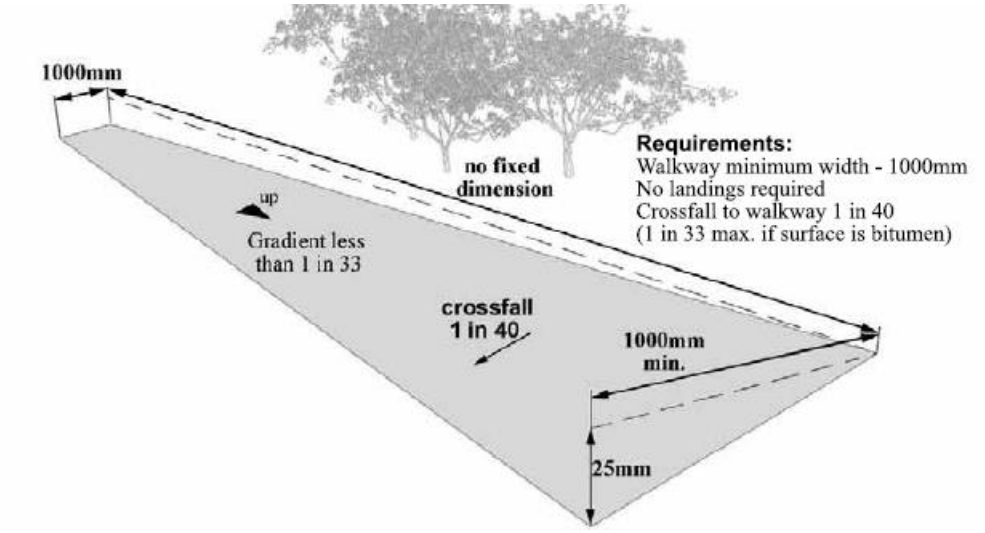


Figure No. 23: Requirements for a Walkway with a Gradient Less Than 1 in 33

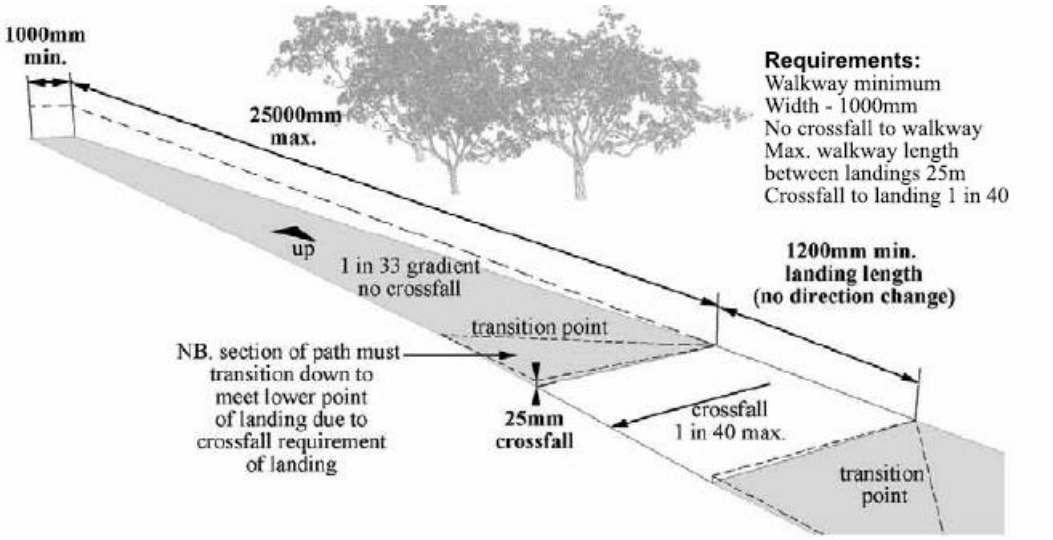


Figure No. 24: Requirements for a Walkway with a 1 in 33 Gradient

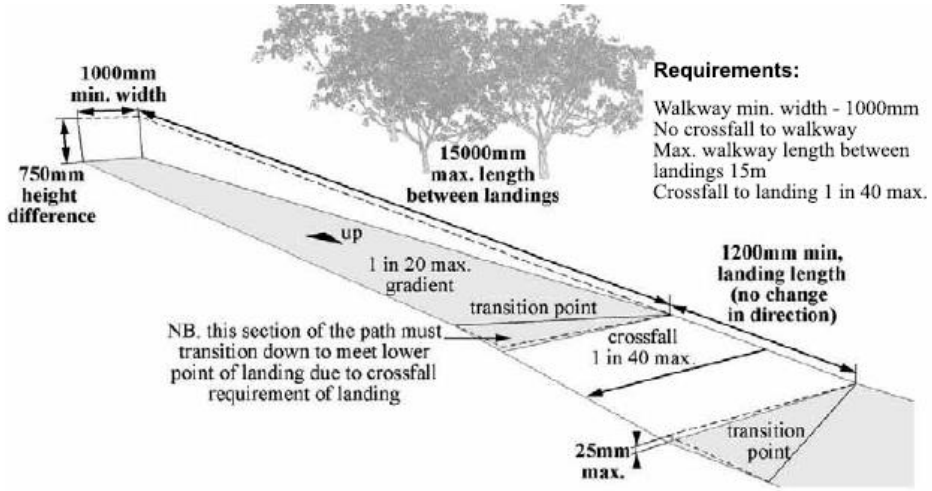


Figure No. 25: Requirements for a Walkway with a 1 in 20 Gradient

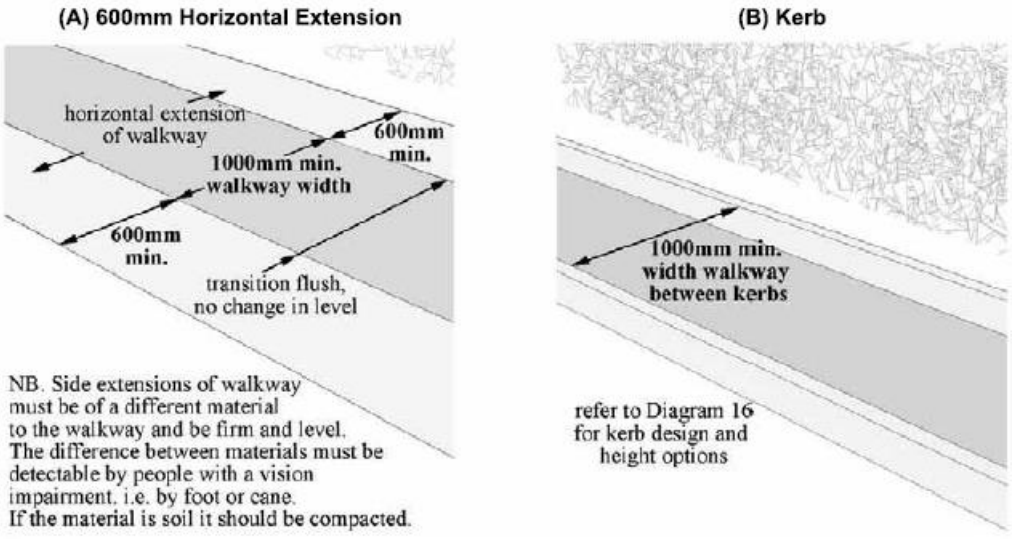


Figure No. 26: Requirements for Edges of Walkways

Access Control

Access control swipe readers are required to be installed between 900 – 1100mm above FFL and not closer than 500 mm to an internal corner.

Door release buttons are required to be located between 900 – 1100mm above FFL and closer than 500mm to an internal corner. Door release buttons will need to be large format switches (35mm x 35mm rocker style switches) or a 'mushroom' push button type.

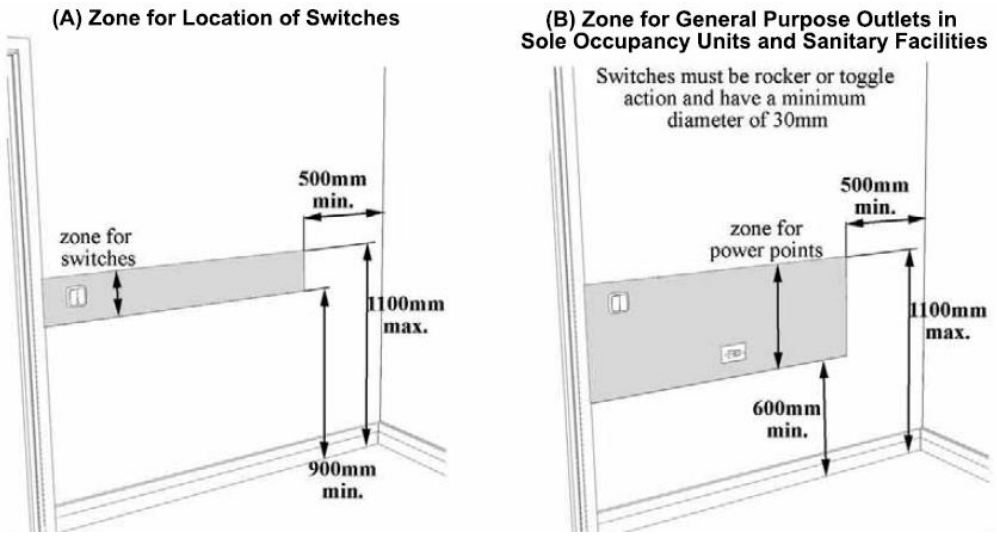


Figure No. 27: Zones for the location of switches and power outlets

Clear Turning Space Behind Workstations

A minimum clearance of 1550mm is required to be provided between the edge of workstations / desks and the wall behind or between workstations located back-to-back to ensure that a staff member who is wheel chairbound has sufficient space to ensure manoeuvrability.

Wheelchair Seating in Waiting Areas

Within the waiting areas at least one zone of 1300mm x 800mm is required to be provided for a wheelchair seating location for a person with a disability.

Accessible Counters

The reception counters associated with the entrance to the building or department entries is to include a portion of the counter that is accessible to a person with a disability. The height of the counter should be 850mm +/- 20mm.

The knee and foot clearances below the counter or bench are required to be provided in accordance with AS 1428.2 – 1992.

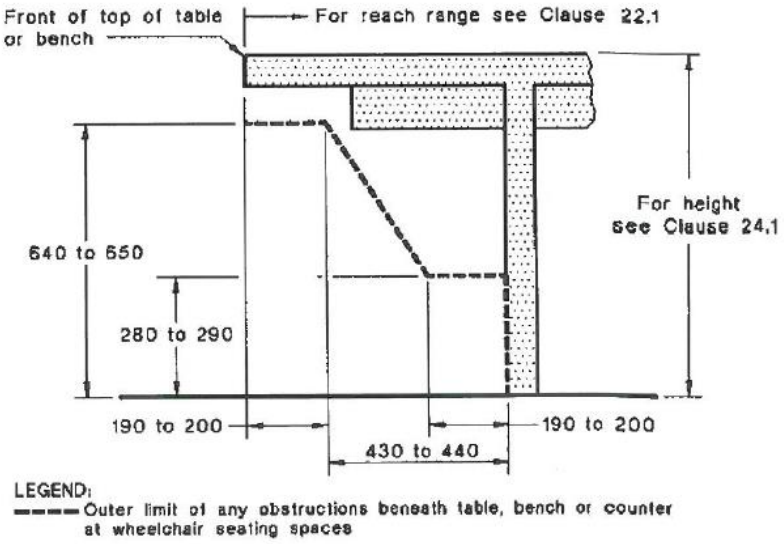


Figure No. 28: Clearances below an accessible counter or bench

Beverage Bays

Where Beverage Bays are proposed to be installed, they are required to be designed as follows:

- If the beverage bays are located within a room, the circulation space within the room will be required to comply with the provisions of AS 1428.1 – 2009 with a zone of 1500mm x 1500mm provided to ensure that that an occupant can make a 180o turn.
- The distance between the beverage bay counter and any adjacent wall cannot be less than 1540mm.
- Where the beverage bay is located adjacent to a doorway, circulation space around the doorway is required to be provided as detailed above.
- Water zip taps cannot be located closer than 500mm from an internal corner.
- Side reach access to the tap hardware of the beverage bay is permitted. Side reach access is required to be provided in accordance with AS 1428.2 – 1992 as detailed in the below Figure.

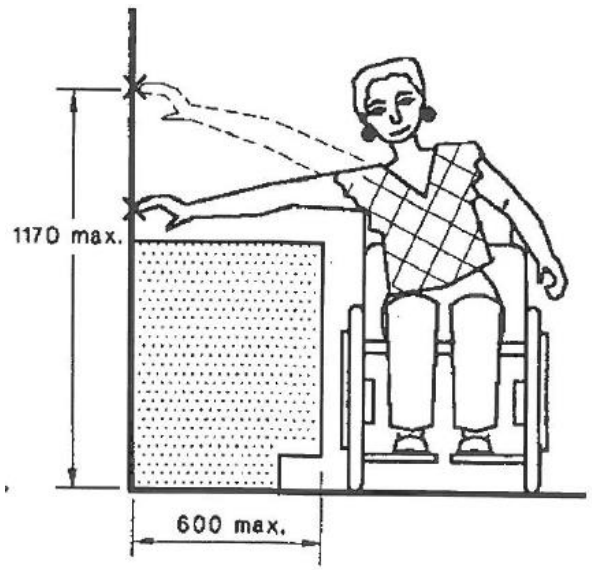


Figure No. 29: Side reach requirements for a wheelchair user

Carpet

The pile height or pile thickness cannot exceed 11 mm and the carpet backing thickness cannot exceed 4 mm.

Exposed edges of floor covering are required to be fastened to the floor surface and is required to have a trim along the entire length of any exposed edge.

At the leading edges, carpet trims and any soft flexible materials are required to have a vertical face no higher than 3 mm or a rounded bevelled edge no higher than 5mm or above that height a gradient of 1 in 8 up to a total maximum height of 10 mm.

Note: In accordance with Clause D4D4 (h), the dimensions of 10mm, 6mm and 4mm are to be replaced with 11 mm, 4mm and 15 mm respectively.

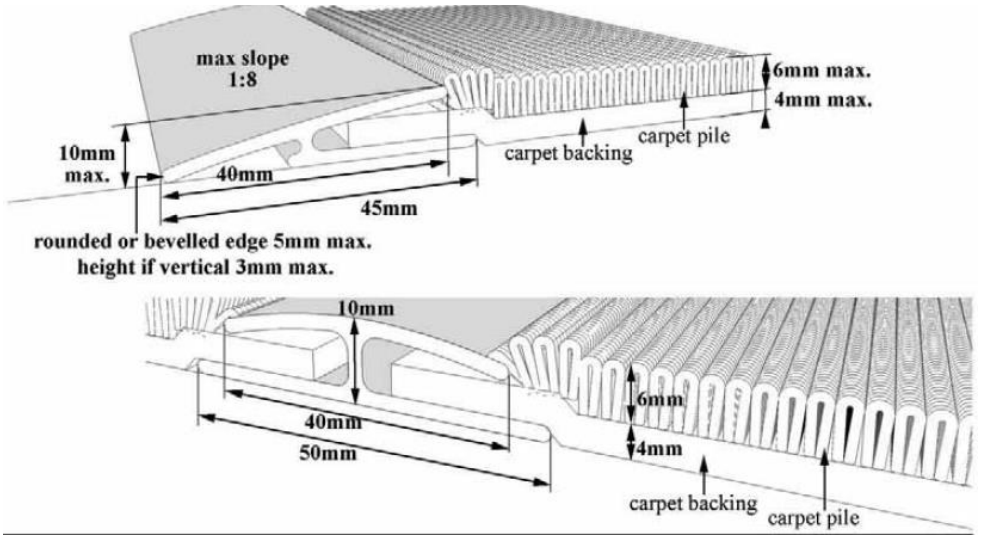


Figure No. 30: Carpet joints on an accessible path of travel

Recessed Matting

Matting recessed within a continuous accessible path of travel is required to comply with the following:

- Where of metal and bristle type construction or similar, its surface cannot be more than 3 mm if vertical or 5 mm if rounded or bevelled, above or below the surrounding surface; and
- Where a mat or carpet type material, it is required to have the fully compressed surface level with or above the surrounding surface with a level difference no greater than 3 mm if vertical or 5 mm if rounded or bevelled.

Grates

Grates installed are required to comply with the following:

- Circular openings cannot be greater than 13 mm in diameter.
- Slotted openings cannot be greater than 13 mm wide and be orientated so that the long dimension is transverse to the dominant direction of travel.

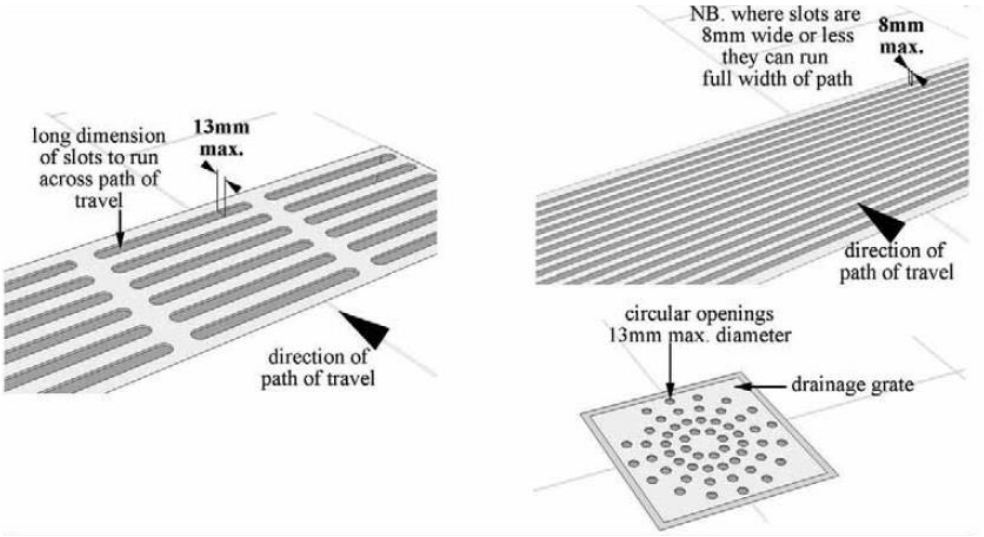


Figure No. 31: Maximum size of openings in grates

Accessible Fixtures & Fittings:

- All fixtures, fittings and door hardware are to comply with Section 13.5 & Section 14 of AS1428.1-2009.
- Door hardware to swing doors is to be in accordance with the following diagrams:

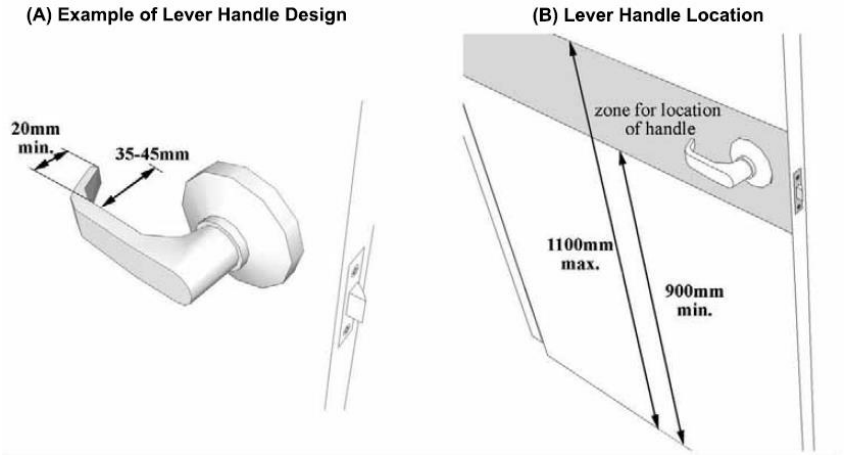


Figure No. 32: Door hardware to swing doors.

Door hardware to sliding doors is to be in accordance with the following diagram:

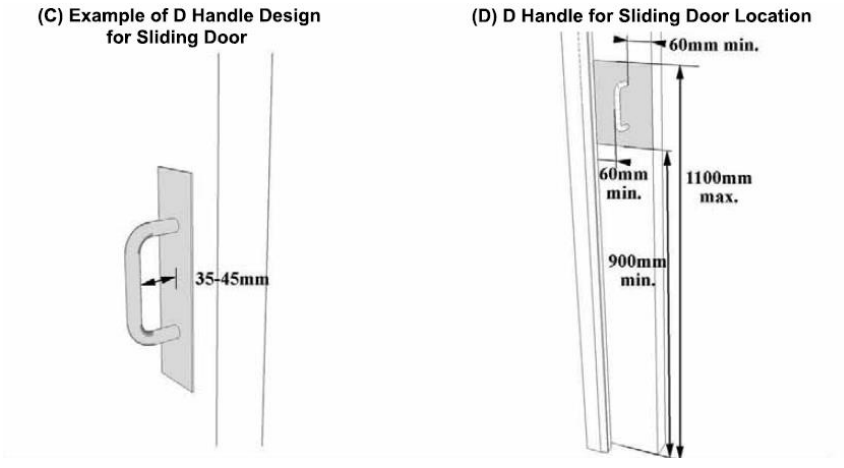


Figure No. 33: Door hardware to sliding doors.

- Toggle style light switches and GPO outlets etc. should be provided within all patient care areas and to all accessible sanitary facilities (unless automatic lighting is provided within the sanitary facility)
- Braille tactile signage will be required to be installed throughout the building identifying accessible sanitary facilities, exits and lifts in accordance with the DTS Provisions of the BCA and AS 1428.1.
- Signage to identify any ambulant or accessible sanitary facility is required to be located on the wall on the latch side of door or on the door itself leading to the sanitary facility.

D4D5

Exemptions:

The following areas are not required to be accessible:

- An area where access would be inappropriate because of the particular purpose for which the area is used.
- An area that would pose a health or safety risk for people with a disability.
- Any path of travel providing access only to an area exempted by (a) or (b).

Areas / rooms that may not be required to be accessible for a person with a disability include the following:

- Dirty Utility Rooms
- Clean Utility Rooms
- Equipment Storerooms
- General Storerooms
- Cleaners Rooms
- Disposal Rooms
- Back of House Area containing the Bulk Store, General Waste Room etc
- Plant Rooms
- Pump Rooms
- Main Switch Room, Chamber Sub, UPS / EDB / Comms Rooms

The LHD are to provide written confirmation that access for any staff members with a disability is not required to be provided to the abovementioned rooms.

Figure No. 34: Rooms that are available to achieve a Clause D4D4 concession

D4D6

Accessible Car Parking:

It is understood that no new car parking is provided in association with the redevelopment works.

D4D7

Signage:

Braille and tactile signage complying the requirements of Specification 15 is required to:

- Incorporate the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 and identify each -
- Sanitary facility; and
- A space with a hearing augmentation system; and
- Identify each door required by E4D5 (door to be provided with exit signs) to be provided with an exit sign and state –
- "Exit"; and
- "Level" followed by the floor number.
- Signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within a room containing a hearing augmentation system identifying –
  - The type of hearing augmentation; and
  - The are covered within the room; and
  - If receivers are being used and where the receivers can be obtained
- Signage in accordance with AS 1428.1 must be provided for accessible unisex sanitary facilities to identify the facility is suitable for left or right-handed use.

- Signage to identify an ambulant accessible sanitary facility in accordance with AS 1428.1 must be located on the door of the facility.
- Where a pedestrian entrance is not accessible, directional signage incorporating the international symbol of access, in accordance with AS 1428.1 must be provided to the location of the nearest accessible pedestrian entrance.
- Where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility, directional signage incorporating the international symbol of access in accordance with AS 1428.1 must be placed at the location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex sanitary facility.
- Signs identifying a door required by E4D5 to be provided with an exit sign must be located:

  i). On the side that faces a person seeking egress; and

  ii). On the wall on the latch side of the door with the leading edge of the sign located between 50mm and 300mm from the architrave; and

  iii). Where (ii) is not possible, the sign may be placed on the door itself.

  The provision of Braille and tactile exit signage with the message, for example. "Exit - Level 1" assists people with vision impairment to orientate themselves in case of an emergency and to find an exit and evacuate the area in a safe and equitable manner.

The provision of Braille and tactile exit signage with the message, for example. "Exit - Level 1" assists people with vision impairment to orientate themselves in case of an emergency and to find an exit and evacuate the area in a safe and equitable manner.

Location of Braille and Tactile Signs

Braille tactile signage including symbols, numbering and lettering is required to be designed in accordance with the following: -

- Braille and tactile components of the sign must be located not less than 1200 - 1600mm above the ground or floor surface.
- Signs with single lines of characters are to have the line of the tactile characters not less than 1250 mm and not more than 1350 mm above the floor or ground surface.
- Signs identifying rooms containing features or facilities listed in D4D7 are required to be located –
  - On the wall on the latch side of the door with the leading edge of the sign located between 50 mm and 300 mm from the architrave; and
  - Where the above is not possible, the sign is permitted to be located on the door itself.
- Signs identifying a door required to by Clause E4D5 to be provided with an exit must be located –
  - On the side that faces a person seeking egress; and
  - On the wall on the latch side of the door with the leading edge of the sign located between 50 mm and 300 mm from the architrave; and

The Braille & tactile egress signage is to be located adjacent or on (see above) each door that: -

- Provides direct egress into a fire isolated stairway
- Provides direct discharge from the storey into a passageway or lobby (airlock) associated with the fire isolated stairway
- Provide direct discharge from a fire isolated stairway to open space (discharge door)
- Horizontal exit doors providing egress into an adjoining fire compartment.

- Provides direct egress to a roadway or open space

The below signage is an example of what will be required: -

Signage Specification: -

- Tactile characters must be raised or embossed to a height of not less than 1 mm and not more than 1.5 mm.
- Title case must be used for all tactile characters, and
  - Upper case tactile characters must have a height of not less than 15 mm and not more than 55 mm, except that the upper-case tactile characters on a sign identifying a door required by Clause E4D5 to be provided with an exit sign must have of not less 20 mm and not more than 55 mm; and
  - Lower case tactile characters must have a minimum height of 50% of the related uppercase characters.
- Tactile characters, symbols, and the like, must have rounded edges.
- The entire sign, including any frame, must have all edges rounded.
- The background, negative space or fill of signs must be of matt or low sheen finish.
- The characters, symbols, logos and other features on signs must be matt or low sheen finish.
- The minimum letter spacing of tactile characters on signs must be 2 mm.
- The minimum word spacing of tactile characters on signs must 10 mm.
- The thickness of letter strokes must not be less than 2 mm and not more than 7mm.
- Tactile text must be left justified, except that single words may be centre justified.
- Tactile text must be Aerial typeface.

D4D8

Hearing Augmentation:

A hearing augmentation system will be required to be installed to all rooms / areas where a built-in amplification system is installed.

A built-in amplification system is a system where either speakers are installed within a room or a wall mounted monitor has built in speakers. Such installations are typically found in meeting rooms, training rooms and waiting areas.

Where the wall mounted screen is not capable of broadcasting sound and any audio is provided way of speakers attached to a laptop or that are portable, the hearing augmentation provisions will not need to be applied.

If a hearing augmentation system is:

- An induction loop, it must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system; or
- A system requiring the use of receivers or the like, it must be available to not less than 95% of the floor area of the room or space served by the inbuilt amplification system, and the number of receivers must not be less than -
  - If the room or space accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and

	▲ If the room or space accommodates more than 500 persons but not more than 1000 persons, 20 receivers plus 1 receiver for every 33 persons or part thereof in excess of 500 persons.
D4D9	**Tactile Indicators:** Any external stairways and ramps providing access to and from the building will be required to be provided with tactile ground surface indicators.
D4D13	**Glazing on an Accessway:** On an accessway where there is no chair rail, handrail or transom provided to all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly line marked in accordance with the following: + Must be clearly marked for the full width of the glazed element, + Must be a solid and non-transparent contrasting line, + The contrasting line must have a minimum of 30% luminance contrast when viewed against the floor surface or surfaces within 2m of the glazing of the opposite side. + Must be not less than 75mm in width, + The lower edge of the contrasting line must be located between 900mm and 1000mm above the finished floor level.

3.5 Section E – Services and Equipment

Part E1	**Fire Fighting Equipment**
E1D1	**Fire Hydrants:** Fire hydrant coverage is required to be provided to the building in accordance with AS2419.1–2021. Note: The below comprises a limited summary of requirements under AS 2419.1 – 2021. Refer to the full standard for all applicable requirements. *Internal Hydrants* Internal fire hydrants are required to be located within 4 m of exits leading directly to open space. If additional internal fire hydrants are required to be installed within the confines of the building in order to achieve compliance coverage i.e. , within 4 m of horizontal exits then a Fire Engineering Performance Solution will be required to be prepared by the appointed Fire Safety Engineer in order to demonstrate compliance with the nominated Performance Requirements of the BCA. *External Hydrants* External hydrants are required to be located: + Not less than 10m from: ▲ The external wall of the building unless fire protection is provided to the fire hydrant in accordance with Clause 3.5.5 of AS 2419.1 - 2021 ▲ Any high voltage electrical distribution equipment such as transformers and distribution boards

- Any electric vehicle charging station regardless of voltage
- Any stored quantity of dangerous goods
- Any external combustible storage

+ Not less than 3m from the vent terminal of any gas assembly or gas measurement systems
+ Not less than 3m from the discharge outlet of any building exhaust system when operating in fire mode.

Internal fire hydrants will be required to be installed in compliant locations as the current external hydrants within the internal courtyard are in non-compliant locations, unless external hydrants are provided in compliant locations to the serve the refurbishment area.

The Fire Services Consultant is to provide verification as to the proposed location of the fire hydrants serving the refurbishment area.

E1D3

Fire Hose Reels:

Fire hose reels are required to be installed throughout the refurbishment in accordance with AS 2441 – 2005.

Location

Fire hose reels are required to be located within 4m of an exit (including a horizontal exit) or adjacent to an internal fire hydrant.

Note: -

1. *A fire hose reel need not be located adjacent to every exit or internal fire hydrant provided system coverage can be achieved.*
2. *Where coverage cannot be achieved by locating a hose reel in accordance with the above, additional fire hose reels may be in paths of travel to an exit to achieve coverage.*
3. *Fire hose reels are not permitted to pass through fire and smoke doors separating compartments.*
4. *Fire hose reels are permitted to pass through fire doors serving shafts or doors serving equipment or electrical supply systems i.e., main switchboard, electrical conductors etc.*

Services within cupboards Housing FHRs

In accordance with AS 2441 – 2005, the cupboards housing fire hose reels are not permitted to contain non-fire equipment services.

Doors to Cupboards Housing FHR's

Doors to cupboards housing fire hose reels and fire hydrants are to be designed in such a manner that when they are open, they do not impede on the path of travel leading to an exit. In this instance, doors to cupboards will be required to swing 180o open against the wall face or in some instances, two smaller doors may need to be provided to cupboards so as not to impede the width of exits. Special attention is required to cupboards located directly adjacent to fire safety doors throughout the building.

E1D4 – E1D13

Sprinklers:

An Automatic Fire Suppression System is not required to be installed throughout the building due to the building having a rise in storeys of one (1).

	Notwithstanding the minimum requirements of the BCA, written verification is required to be provided from Health Infrastructure that sprinklers are not required to be installed within the refurbishment area in accordance with Health Infrastructure's Engineering Services Guidelines.
E1D14	**Fire Extinguishers:** Portable fire extinguishers are to be provided and designed in accordance with AS 2444-2001. In accordance with Clause E1.6, Type E Extinguishers are permitted to be installed nurse and staff stations. Powder Type fire extinguishers are not permitted to be provided within any patient care areas.

Part E2 Smoke Hazard Management

E2D4/ E2D9/ E2D11/ E2D12/ E2D13

Smoke Hazard Management:

The following smoke hazard management systems are to be installed to the refurbishment area of the building:

- An Automatic Fire Detection and Alarm System complying with AS 1670.1 – 2018 and S20C4.
- Automatic shut-down of mechanical air handling systems upon fire trip in accordance with Section 5 and 6 of AS 1668.1.

Automatic Fire Detection & Alarm System

An Automatic Fire Detection & Alarm System is required to be installed throughout the building in accordance with AS 1670.1 - 2018. Photoelectric type smoke detectors are required to be installed in patient care areas and in paths of travel to exits from patient care areas.

Key elements of Specification 20 and AS 1670.1 - 2018 which require close attention are as follows:

- Photoelectric type smoke detectors are required to be installed in all patient care areas in paths of travel to exits from patient care areas.
- In rooms where there is the likelihood of spurious alarms i.e., Dirty Utilities, Cleaners Rooms etc smoke detectors may be replaced with thermal detectors.
- Where a sole occupancy unit i.e., bedroom consists of one main room and water closet/shower/bathroom (which is not used for other purposes i.e., laundry), it may be protected by one smoke detector located in the main room provided that the total area of the whole unit is less than 50m² i.e., when less than 50m², the water closet/shower/bathroom is not required to be protected.
- Where an area is divided into sections by walls, partitions, or storage racks reaching within 300 mm of the ceiling (or the soffits of the joists where there is no ceiling) each section is to be treated as a room and is required to be protected.
- Where full height curtains are proposed to be installed within treatment areas, ward areas etc, they must be of open mesh material for at least 300mm to permit smoke to pass through, otherwise the curtains will be considered a wall and smoke detectors will have to be installed either side of the curtains.
- A clear space of at least 300 mm radius, to a depth of 600 mm is required to be maintained from the smoke detector.
- Detectors are required to be located a minimum distance of 900 mm from supply air fans or ceiling fans.
- Detectors are required in all sanitary facilities with a floor area greater than 3.5 m^2.

- Any cupboard with a floor area > 3 m^3 is required to be protected.
- All electrical cupboards, comms cupboards etc. irrespective of the size are required to be protected.

Manual Call Points

Manual call points are required to be installed in evacuation routes so that no point on a floor is more than 30 m from a manual call point. All Manual Call Points that activate the buildings Fire Alarm System are required to be red.

Manual Call Points in Fire Hose Reel / Fire Hydrant Cupboards

In accordance with AS 1670.1 – 2018, manual call points are required to be mounted between 750 mm and 1200 mm above floor level and a clear space of 300 mm on both sides and 600 mm directly in front are required to be provided in an arc in front of the manual call points.

Where manual call points are installed within fire hose reel cupboards to avoid them being visible and being subject to unintended use, the clearance requirements of AS 1670.1 – 2018 around the manual call point will be unable to be achieved.

Verification is required as to whether any manual call points are proposed to be installed within fire hose reel cupboards.

If they are proposed to be installed in cupboards, then the clear space around the manual call points will be required is proposed to be assessed as part of the Fire Engineering Assessment to be undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA.

Mechanical Air Handling Systems

Any air-handling system which does not form part of the Zone Smoke Control System (other than non-ducted systems with a capacity not more than 1000 litres/second, systems serving critical treatment areas and miscellaneous exhaust air system installed in accordance with Sections 5 and 6 of AS/NZS 1668.1) must shut down automatically on the activation of the Automatic Fire Detection & Alarm System and Automatic Fire Suppression System.

Part E4 Visibility in Emergency, Exit Signs and Warning Systems

E4D2 & E4D4

Emergency Lighting:

Emergency Lighting is required throughout the building in accordance with AS/NZS 2293.1 - 2018 in the following locations:

- In every passageway, corridor, hallway or the like that is part of the path of travel to an exit;
- In every passageway, corridor, hallway or the like serving a treatment area or a ward area;
- In every room having a floor area of more than 120 m^2 in a patient care area, corridors, passageways, hallways or the like leading to required exits; and
- All covered balconies, walkways etc. that a person is required to egress under.

E4D5, E4D6 & E4D8

Exits Signs:

Exit signs are to be installed throughout the building in accordance with AS/NZS 2293.1 - 2018 in the following locations:

- Horizontal exit doors;
- Fire Safety Doors (i.e., fire/smoke doors) separating compartments;

	+ Doors leading directly to open space; + Doors leading from balcony areas, courtyards etc. back into the building; and + Above doorways in a path of travel where the location of the exit is not clear. Directional exit signs are to be installed throughout the building where the exits are not readily apparent to occupants in accordance with AS/NZS 2293.1 -2018.
E4D9	**Emergency Warning & Intercom Systems (EWIS):** A An Emergency Warning and Intercom System is required to be modified as required in accordance with AS 1670.4 – 2018 throughout the refurbishment area. *Rationalisation of EWIS Speakers* It is noted that EWIS speakers will likely be rationalized within the patient bedrooms and other sensitive environments where the activation of the speaker within the room may cause trauma to the patient. The rationalization of EWIS system from within patient care areas will be required to be assessed as part of the Fire Engineering Assessment undertaken by the appointed Fire Safety Engineer to demonstrate compliance with the nominated Performance Requirements of the BCA. *Location of Warden Intercom Points (WIP)* Warden Intercom Points (WIP) are required to be in the following areas: + On each floor as determined by the emergency control organisation defined in AS 3745; + At the designated building entry point (in accordance with AS 1670.1), if remote from the Emergency Intercom Control and Indicating Equipment (EICIE); + In each emergency zone as determined by the emergency control organisation defined in AS 3745; + If required by FRNSW, in or adjacent to the pump rooms, sprinkler valve rooms and hydrant relay booster pumps; and + Adjacent to the Fire Detection Control Indicating Equipment (FDCIE) (if remote from the EICIE).

3.6 Section F – Health and Amenity

Part F1	Surface Water Management, Rising Damp & External Waterproofing
F1D3	**Stormwater Drainage:** All new Stormwater Drainage serving the development is required to be designed and construction in accordance with AS/NZS 3500.3 – 2021.
F1D4	**Exposed Joints:** Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must – + Be protected in accordance with Section 2.9 of AS 4654.2; and

	+ Not be located beneath or run through a planter box, water feature or similar part of the building.
F1D5	**External Above Ground Membranes:** A roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane – + Consisting of materials complying with AS 4654.1; and + Designed and installed in accordance with AS 4654.2
F1D6	**Damp-Proofing:** Moisture from the ground must be prevented from reaching – + The walls above the damp-proof course; and + The underside of a suspended floor construction of a material other than timber, and the supporting beams or girders. Where a damp-proof course is provided, it is required to consist of: + A material that complies with AS/NZS 2904; or + Impervious sheet material in accordance with AS 3660.1.
F1D7	**Damp-Proofing of Floors on the Ground:** If a floor of a room is laid on the ground or on fill, moisture from the ground is required to be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870. The requirements above do not apply where – + Weatherproofing is not required; or + The floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means.
Part F2	**Wet Areas and Overflow Protection**
F2D2 & F2D3	*Wet Area Construction* Building elements in the bathroom or shower room, a slop hopper or sink compartment, a laundry or sanitary compartment is required: + Be water resistant or waterproof in accordance with Specification 26 (Specification 26 of NCC 2022); and + Be constructed in accordance with AS 3740 *Floor Wastes* Where a floor waste is installed- + The minimum continuous fall of a floor plane to the waste must be 1:80; and + The maximum continuous fall of a floor plane to the waste must be 1:50 *Urinal Construction* Where a slab or stall type urinal is installed –

	+ The floor surface of the room containing the urinal must be an impervious material; and
	  ▲ Where no step is installed, must –
	  - Be graded to the urinal for a distance of 1.5 m from the urinal channel; and
	  - Have the remainder of the floor graded to a floor waste; and
	  ▲ Where a step is installed –
	  - The step must have an impervious surface and be graded to the urinal channel; and
	  - The floor behind the step must be graded toa floor waste; and
	+ The junction between the floor surface and the urinal channel must be impervious.
	Where a wall hung urinal is installed –
	+ The wall must be surfaced with impervious material extending from the floor to the top of the urinal and not less than 225 mm on each side of the urinal; and
	+ The floor must be surfaced with an impervious material and be graded to a floor waste.
	In a room with timber or steel-framed walls and containing a urinal –
	+ The wall must be surfaced with an impervious material extending from the floor to not less than 100 mm above the floor surface; and
	The junction of the floor surface and the wall surface must be impervious

Part F3	**Roof and Wall Cladding**
F3D2	**Roof Coverings:** A roof covering is required to comply with one of the following in accordance with NCC 2022 as part of a DTS Solution: + Roof tiles complying with AS 2049 and fixed in accordance with AS 2050; or + Metal sheet roofing complying with AS 1562.1; or + Plastic sheet roofing designed and installed in accordance with AS 1562.3; or + Terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597. + An external waterproofing membrane consisting of materials complying with AS 4654.1 and designed and installed in accordance with AS 4654.2 If the proposed roof covering is not designed in accordance with one of the above, then a Performance Solution will be required to be prepared to demonstrate compliance with Performance Requirement F3P1 with regards to adequate weatherproofing. Verification is required from BVN as to whether any new roof coverings are proposed as part of the refurbishment works.
F3D3	**Sarking:** Sarking-type material used for weatherproofing of roofs and walls is required to comply with AS/NZS 4200.1 and AS 4200.2. Verification is required from BVN as to whether any sarking is proposed to be installed within external walls as part of the refurbishment works.
F3D5	**Wall Cladding:**

Wall cladding is required to comply with one of the following in accordance with NCC 2022 as part of a DTS Solution:

- Masonry, including masonry veneer, unreinforced and reinforced masonry in accordance with AS 3700
- Autoclaved aerated concrete in accordance with AS 5146.3
- Metal cladding in accordance with AS 1562.1

If the proposed wall cladding is not designed in accordance with one of the above, then a Performance Solution will be required to be prepared to demonstrate compliance with Performance Requirement F3P1 with regards to adequate weatherproofing.

Verification is required from BVN as to whether any new wall cladding is proposed as part of the refurbishment works.

Part F4 Sanitary and Other Facilities

Part F4

Sanitary Facilities:

Sanitary facilities must be provided to comply with the requirements of F4D2 and F4D4 as applicable for the subject part for both staff and patients.

The following facilities are also required to be provided:

- one kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and
- laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary products and the like and the receipt and storage of clean linen; and
- one shower for each 8 patients or part thereof; and
- one island-type plunge bath in each storey containing a ward area.

Island-Type Plunge Bath in Storeys Containing Ward Areas

The DTS Provisions of the BCA require that within ward areas of a hospital, one (1) island type plunge bath is required to be provided.

If an island-type plunge bath is not proposed to be provided with ward areas due to the clinical requirements of the LHD, then omission of the island type plunge bath will be required to be assessed as part of a Performance Solution to be prepared by the Architect or independent BCA Consultant.

Any proposed Performance Solution will require written consent from the LHD.

Ratio of Showers in Treatment Areas

A ratio of 1:8 showers is required to be provided for patients within patient care areas.

The Schematic Architectural Drawings indicate the provision of a shower associated with each patient bedroom.

+ Required Sanitary Facilities for Staff						
Occupancy Class as per F4D4						
	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number

Male Staff	1 – 20 > 20	1 Add 1 per 20	1 11 – 25 26 – 50 > 50	0 1 2 Add 1 per 50	1 – 30 > 30	1 Add 1 per 30
Female Staff	1 – 15 > 15	1 Add 1 per 15	-	-	1 – 30 > 30	1 Add 1 per 30

Having regard to the proposed design, the following requires verification in relation to the provision of sanitary facilities for staff:

+ Total staff numbers within the proposed palliative care unit at any one time
+ Verification as to whether the proposed accessible sanitary facility will be available for use by both staff and patients / public.

+ Required Sanitary Facilities for Patients

Occupancy Class as per F4D4

	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number
Male Patients	1 – 16 > 16	2 Add 1 per 8			1 –8 > 8	1 Add 1 per 30
Female Patients	1 – 16 > 16	2 Add 1 per 16	-	-	1 – 8 >8	1 Add 1 per 8

The Schematic Design Architectural Documentation indicates an adequate provision of sanitary facilities for patients based on the provision of ensuites.

Having regard to the proposed design, the following requires verification:

+ Total staff numbers within the proposed palliative care unit at any one time
+ Is the proposed accessible sanitary facility available for use by both staff and patients / public.

4D5

Accessible Sanitary Facilities:

Facilities for a person with a disability must be provided in accordance with the following:

+ Accessible sanitary facilities for use by a person with a disability are required to be provided on each floor adjacent to a bank of male and female sanitary facilities.
+ Where more than 1 bank of sanitary compartments containing male and female sanitary compartments is provided on a level, an accessible unisex facility must be provided at not less than 50% of those banks.

  Note: -

  Ensuites associated with beds in Ward Areas are not required to be accessible wc's in accordance with AS 1428.1.

+ 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.
+ The design should allow for the following for patients / members of the public on each level of the building having regard to the size and layout of each floor:
  - A suitable number of unisex accessible sanitary facilities distributed throughout the floor so that all patients / members of the public have access to

- A suitable number of unisex ambulant sanitary compartments distributed throughout the floor.

+ The design is to allow adequate provision of accessible sanitary facilities for members of staff on each level of the building have regard to the size and layout of each floor:
  - A suitable number of unisex accessible sanitary facilities distributed throughout the floor.
  - A suitable number of unisex ambulant sanitary compartment available for staff use.

The below figures indicate the required provision of accessible sanitary facilities for a person with a disability within the refurbishment area:

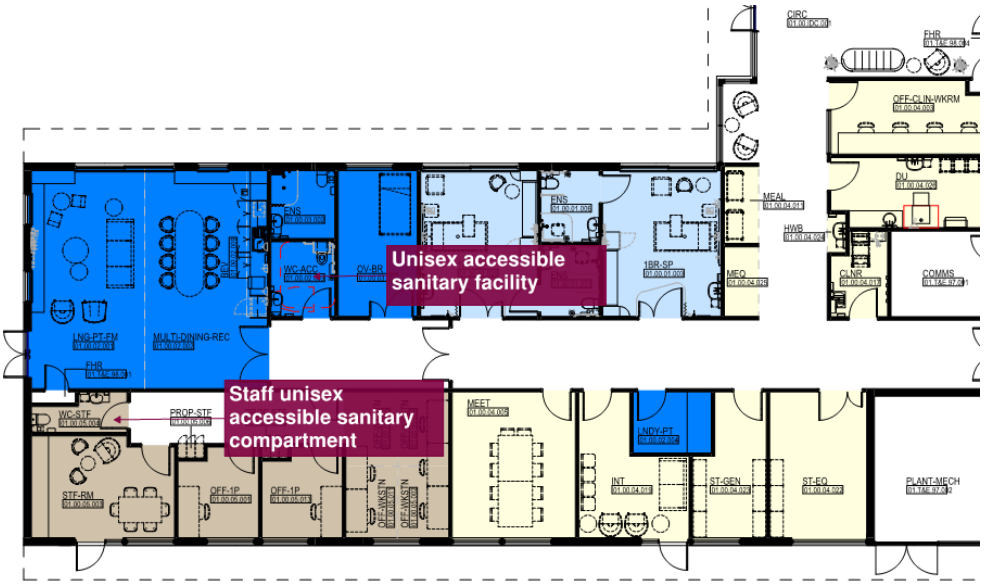


Figure No. 35: Required sanitary facilities for a person with a disability

Provision of Unisex Ambulant Sanitary Compartment

Ambulant Sanitary Compartments are required to be provided separately for males and females and unlike Unisex Accessible Sanitary Facilities receive no concession for the provision of unisex facilities.

The provision of a unisex ambulant sanitary compartment in lieu of separate facilities for males and females throughout the building will be required to be assessed as part of a Performance Solution to be prepared by an independent Access Consultant.

Accessible Sanitary Facilities

The unisex accessible sanitary facility to be provided is required to be designed spatially in accordance with the following figures:

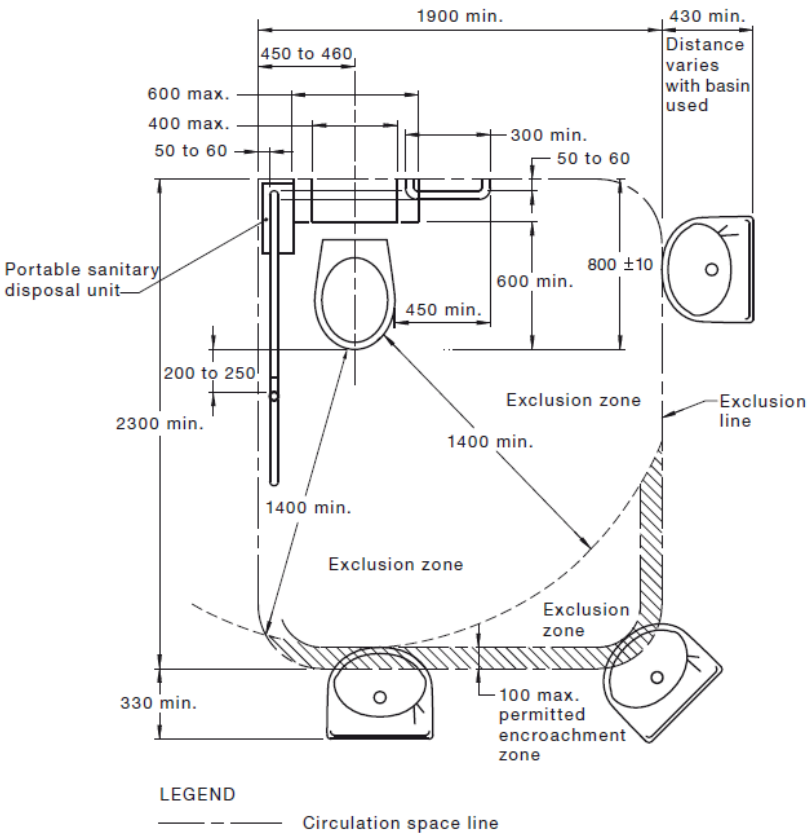


Figure No. 36: Circulation space required within the accessible sanitary facility.

Clearances around the water closet are to be in accordance with the figure below:

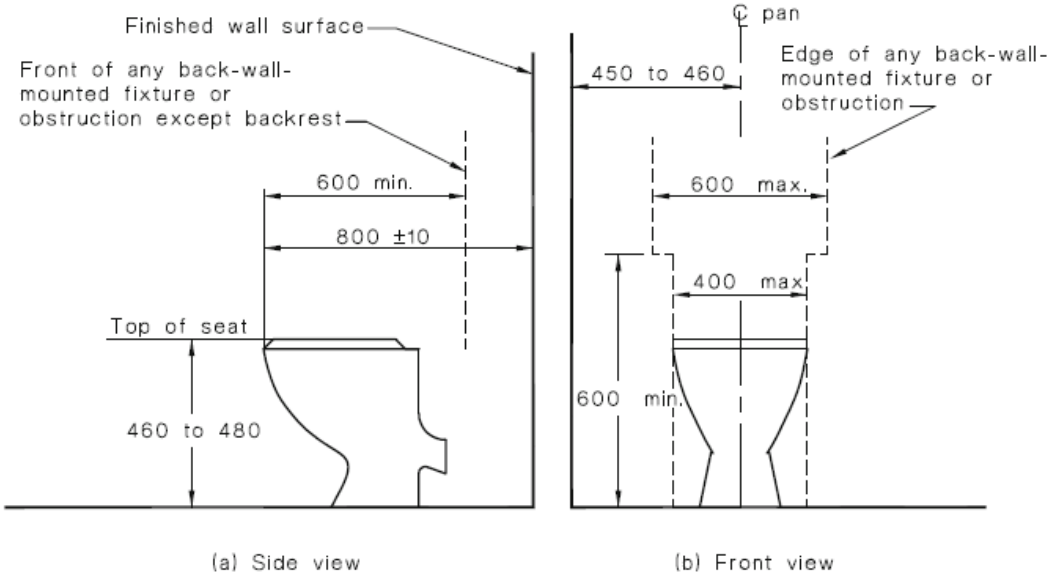


Figure No. 37: Required clearances around the water closet.

Basins are permitted to encroach within the circulation space of doorways as detailed within the following Figure:

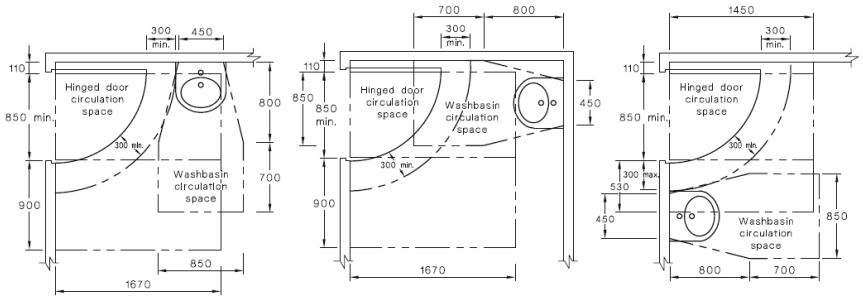


Figure No. 38: Allowable encroachment of a washbasin into the hinged door circulation space

The following specific items are required to be installed within the unisex accessible sanitary facility:

- Rocker action and toggle switches are required to be installed which have a minimum dimension of 30 mm x 30 mm. Push-pad switches are to have a minimum dimension of 25mm in diameter.
- General purpose outlets are to be located between 600 mm to 1100 mm above FFL and not less than 500 mm from any internal corner.
- The outlet for the toilet paper dispenser is to be in accordance with the following figure. The toilet paper cannot encroach upon the clearance space required around the grabrail.

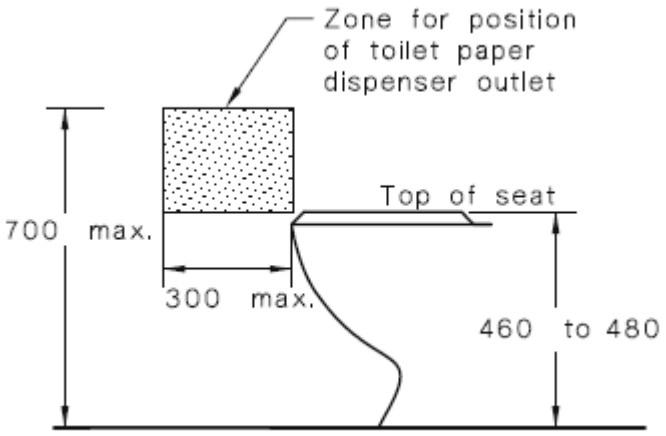


Figure No. 39: Required zone for toilet paper dispenser.

Shelf space is required to be provided adjacent to the washbasin in accordance with the one of the following:

- As a vanity top at a height of 800 mm to 830 mm and a minimum width of 120 mm and a depth of 300 mm to 400 mm without encroaching into any circulation space.
- As a separate fixture –
  - Within any circulation space at a height of 900 mm to 1000mm with a width of 120 mm to 150 mm and length of 300 mm to 400 mmm; and
  - External to all circulation spaces at a height of 790 mm to 1000 mm with a minimum width of 120 mm and a minimum length of 400 mm.
  - Where provided, Soap dispensers, towel dispensers, hand dryers and similar fittings are required to be operable by one hand and are to be installed with the height of their operative component or outlet not less than 900 mm and not more than 1100 mm above FFL and no closer than 500 mm from an internal corner.

- A coat hook is to be provided at a height between 1200 mm to 1350 mm above FFL and not less than 500 mm from an internal corner.

Ambulant Sanitary Compartments

The ambulant sanitary compartments are required to be designed spatially in accordance with the following Figures:

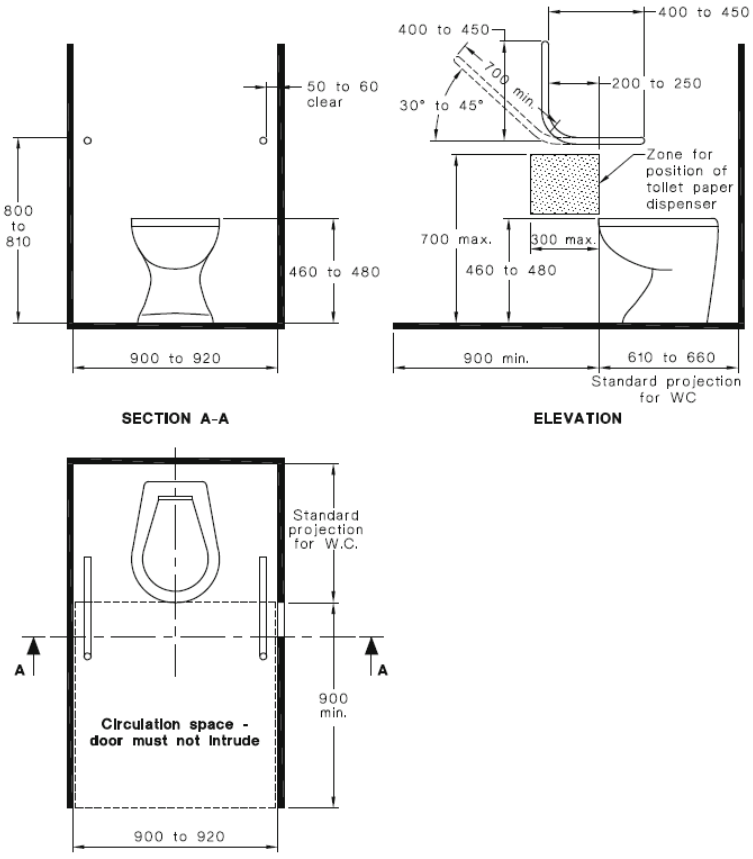


Figure No. 40: Layout requirements for ambulant sanitary compartments

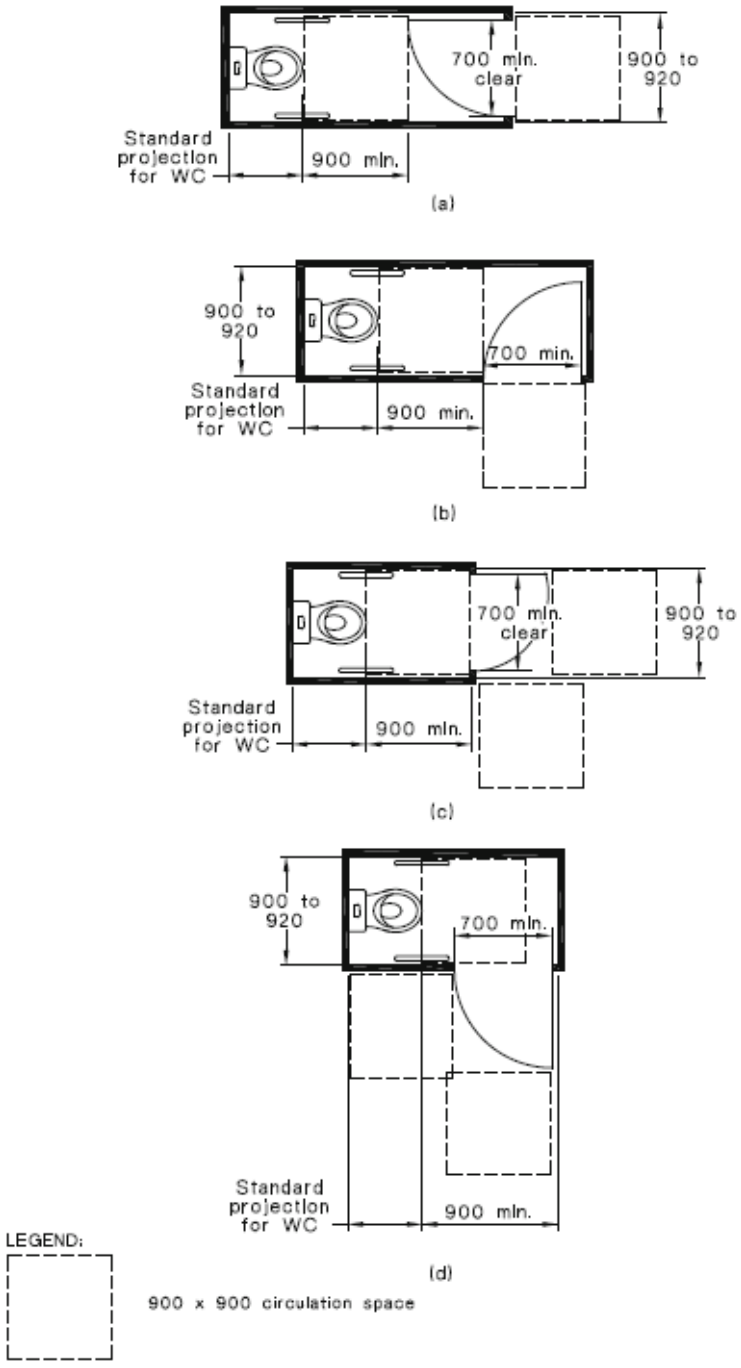


Figure No. 41: Options for doorways leading to ambulant sanitary compartments.

F4D8

Construction of Sanitary Compartments:

The door to a fully enclosed sanitary compartment is required to: -

- Open outwards; or
- Slide; or
- Be readily removable from the outside of the sanitary compartment i.e., removable hinges.

Unless there is a clear space of at least 1200 mm measured in accordance with the below figure, between the closet pan within the sanitary compartment and the doorway.

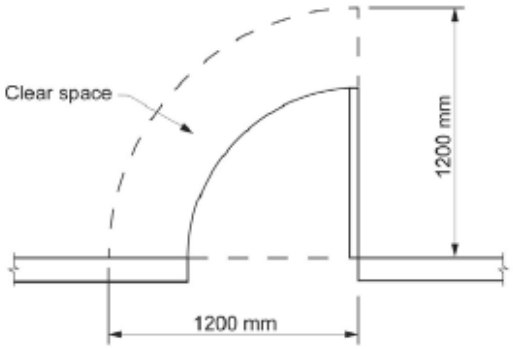


Figure No. 42: Minimum distance required between doorway and pan in a fully enclosed sanitary compartment.

F4D11 **Waste Management:**

In class 9a areas at least one slop hopper or other device must be provided on any storey containing ward areas or bedrooms and must have a flushing apparatus, tap and grating.

Part F5 Room Heights

F5D2 **Height of Rooms and Other Spaces:**

The minimum ceiling heights required throughout the refurbishment areas are as follows –

- a patient care area – 2400 mm;
- a treatment room, clinic, waiting room, passageway, corridor, or the like – 2400 mm;
- Staff rooms, meeting rooms or the like – 2400 m; and
- Bathrooms, sanitary compartments, tea preparations rooms, pantries, storerooms or the like – 2100 mmm.

Part F6 Light and Ventilation

F6D2 **Provision of Natural Lighting:**

Natural lighting must be provided to all rooms used for sleeping purposes within ward areas in accordance with Clause F6D2. Natural light is also required to be provided to the Overnight Bedroom.

Required natural light must be provided by:

- windows, excluding roof lights, that—
  - have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and
  - are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or
- roof lights, that—
  - have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 3% of the floor area of the room; and
  - are open to the sky; or
- a proportional combination of windows and roof lights required by (a) and (b).

F6D5 **Artificial Lighting:**

	Artificial lighting is required to be provided in accordance with AS 1680.0 - 2009. Artificial lighting is required to be provided to all stairways, passageways and ramps. If natural light of a standard equivalent to that required by Clause F6D3 is not available, and the periods of occupant or use of the room or space will create undue hazard to occupants seeking egress in an emergency then artificial lighting is required to 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.
F6D6	**Ventilation of Rooms:** The building is required to be ventilated by either natural or mechanical ventilation in accordance with the DTS Provisions of the BCA and AS 1668.2.

3.7 Section J – Energy Efficiency

Part J	**Energy Efficiency:** The new building works are subject to compliance with the Energy Efficiency Provisions of BCA 2022 Section J relating to (as applicable): + J1: Energy Efficiency Performance Requirements + J2: Energy Efficiency + J4: Building Fabric + J5: Building Sealing + J6: Air-Conditioning and Ventilation + J7: Artificial Lighting and Power + J8: Heated Water Supply and Swimming Pool and Spa Pool Plant + J9: Energy Monitoring and On-Site Distributed Energy Resources Existing building elements i.e., existing external walls and existing glazing that are not being modified are not required to be upgraded to comply with current day requirements.

3.8 Section G – Ancillary Provisions

Part G5	**Construction in Bushfire Prone Areas**
G5D2	**Application of Part:** The Deemed-to-Satisfy Provision of Part G5 apply in a designated bushfire prone area. A designated bushfire prone area is defined as: *Land that:* *(a) Has been designated under legislation; or*

	(b) Has been identified under an environmental planning instrument, development control plan or in the course of processing and determining a development application. *As land that can support a bushfire or is likely to be subject to bushfire attack* It is understood that the property does not meet the definition as detailed above as thus Clause G5D2 is not applicable to the development. Formal written advice confirming the above is required to be submitted by the appointed Bushfire Consultant and Planner for the project.
Part G6	**Occupiable Outdoor Areas**
G6D1	**Application of Part:** The Deemed-to-Satisfy Provision of Part G6 apply to an occupiable outdoor area. An occupiable outdoor area is defined as: A space on a roof, balcony or similar part of a building – *(a) That is open to the sky; and* *(b) Which access is provided, other than access only for maintenance; and* *(c) That is not open space or directly connected with open space* From a review of the Schematic Design Report prepared by BVN, the outdoor terrace appear to be connected directly with open space, however this will require confirmation from BVN as the design proceeds to ensure that the terrace areas are not required to be assessed as occupiable outdoor areas.

3.9 Matters Recommended for Upgrade - General

The following general upgrades are recommended:

- Where existing fire and / or smoke walls are relied upon as part of the new works, any existing deficiencies (service / structural penetrations, inadequate protection of openings for doorways, exposure, etc.) are to be rectified as part of the works. This includes the provision of new fire and smoke seals to doorways.
- Where new fire hydrants / fire hose reels are required to be provided to achieve coverage, they must comply with AS 2419.1 - 2021 and AS 2441 - 2005 respectively.
- Pressures and flows of fire hydrants / fire hose reels serving the areas of new works are to achieve compliance with AS 2419.1 - 2021 and AS 2441 - 2005 respectively.
- Relevant services consultants to advise on existing system deficiencies that need to be considered for upgrade as part of these works such as issues with mechanical ventilation, dry fire, electrical services, hydraulic services etc.
- Where new dry fire services are installed, they are to comply with current version BCA 2022 / AS requirements. The fire services designer is to review existing systems to ensure there is capacity to accommodate any new zones or the like.
- Any area undergoing refurbishment is to be provided with automatic shutdown of air-handling systems (excluding non-ducted systems not exceeding 1000L/s) on activation of smoke detector and sprinkler head.
- Which regards to building structure, the following upgrade expectations are noted:
  - Any new works must not reduce the capacity of the existing structure,

- The structural capacity of the existing building must be appropriate to its new use, and
- The existing building must be structurally adequate to accommodate the new works.
- Consideration may be given to compliance with AS 3826-1998 - Strengthening existing buildings for earthquake for any required remedial works to the existing building where appropriate.

Notwithstanding any of the above, all new works must comply.

4.0 Conclusion

This report contains an assessment of the referenced Architectural Schematic Design Documentation for the proposed delivery 12 palliative care beds for Wyong Hospital within footprint of the existing hospital linking the Palliative care unit to surrounding departments at Pacific Highway, Hamlyn Terrace NSW against the deemed-to-satisfy provisions of the Building Code of Australia 2022.

Further reviews will be undertaken by BM+G as the design progresses to Schematic Design to ensure that the development can comply with the requirements of the Building Code of Australia.

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)

Table 6: Fire-Resisting Construction – Type C Construction

TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS				
+ Building Element	+ Class of Building - FRL: (in minutes) Structural adequacy/integrity/insulation			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL – (Including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is:				
For loadbearing parts:				
Less than 1.5m	90/90/90	90/90/90	90/90/90	90/90/90
1.5 to less than 3m	–/–/–	60/60/60	60/60/60	60/60/60
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN - Not incorporated in an external wall				
Less than 1.5m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3m	–/–/–	60/–/–	60/–/–	60/–/–
3m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS	90/90/90	90/90/90	90/90/90	90/90/90
INTERNAL WALLS				
Bounding public corridors, public lobbies and the like:	60/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units:	60/60/60	–/–/–	–/–/–	–/–/–

Bounding a stair if required to be rated:	60/60/60	60/60/60	60/60/60	60/60/60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

Notes:

1. New external walls that are located 1.5m or more from an allotment boundary / fire source feature require no FRL's.
2. Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must typically achieve the same FRL. Where that part is also required to be non-combustible, the supporting part must also be non-combustible.
3. An external wall required to have an FRL is only required from the outside.
4. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification 6.
5. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
6. No structural elements are permitted to pass through fire-rated walls.