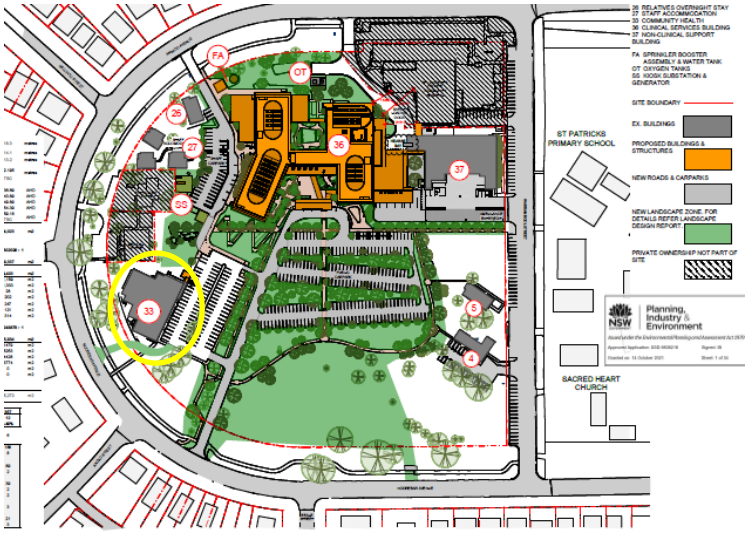
BCA DESIGN REPORT – REF REVIEW

To:	ADCO		
Attention:	Kelsey Godwin-Smith	Project #	220004
Email:	kelseyg@adcoconstruct.com.au	Date:	30 August 2022
From:	David Martin	Pages:	24
Subject:	REF Design – STAGE 2 Community Health Building Alterations (CHB) [Building 33] - Griffith Base Hospital (GrBH) – Revision 1		

Blackett Maguire + Goldsmith have been engaged by ADCO to review the Architectural Plans 130565-DJRD-AR-DWG-B33 Dated 11.03.2021, prepared by DJRD, and provide a NCC/BCA Assessment Report to facilitate the REF application of the CHB [Building 33] alterations development associated with the Griffith Base Hospital redevelopment.

The main works SSDA Site plan is contained below which identifies the of Building 33:



This BCA assessment report relates to the light refurbishment associated with the CHB [Building 33] as highlighted in red below:

Address Suite 2.01, 22-36 Mountain St Ultimo
Postal PO Box 167 Broadway NSW 2007
Contact Ph: 02 9211 7777 Fax: 02 9211 7774

Proposed Development:–

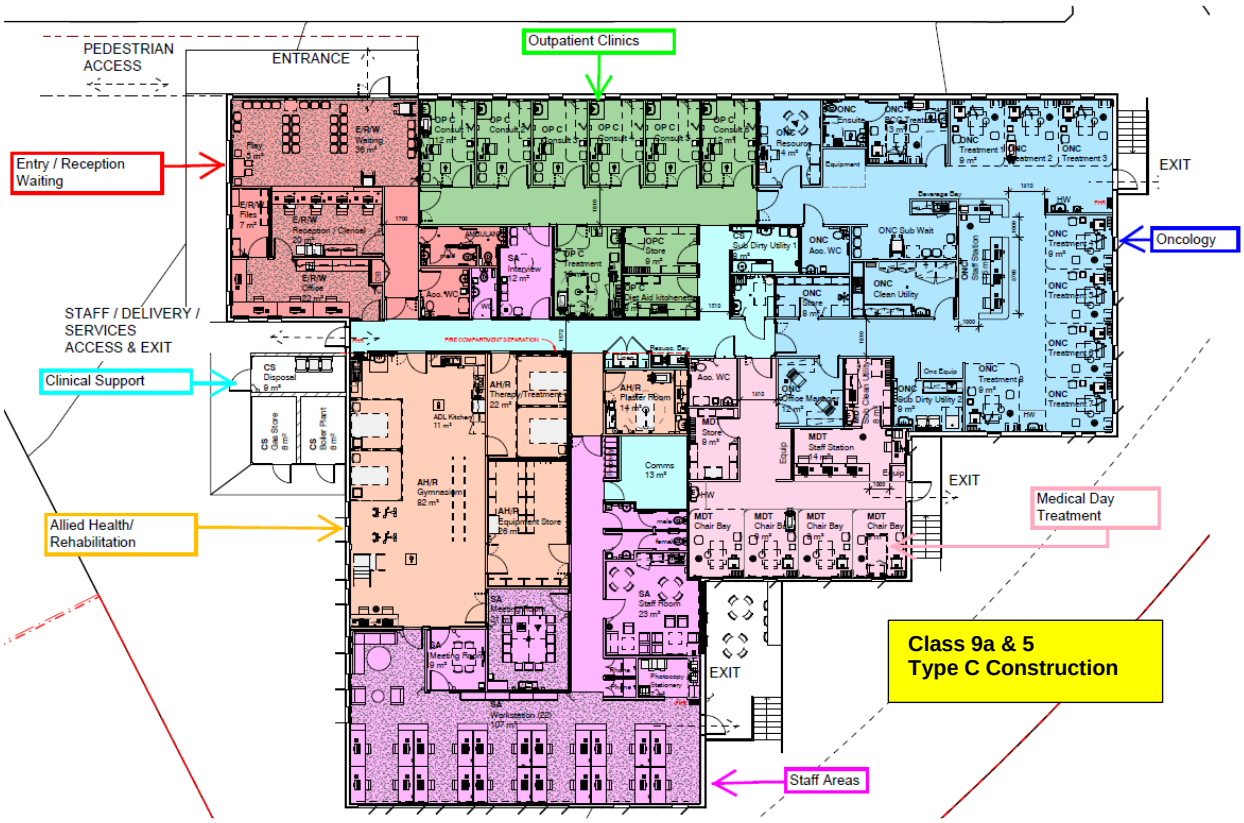
Specifically the refurbishment works within CHB [Building 33] relate to minor internal removal and fit out works including:

- Conversion of Ambulatory Care Hub to Community Health Facility;
- Removal of internal floor finishes;
- Modification of the existing oncology chair bay area into community health interview rooms;
- Alterations to a treatment room and waiting room;
- Alterations to a meeting area within the open office;
- Removal of a portion of the existing covered walkway;
- Install three new entry signs that indicate 'Community Health'; and
- Soffit and landscaping enhancements.

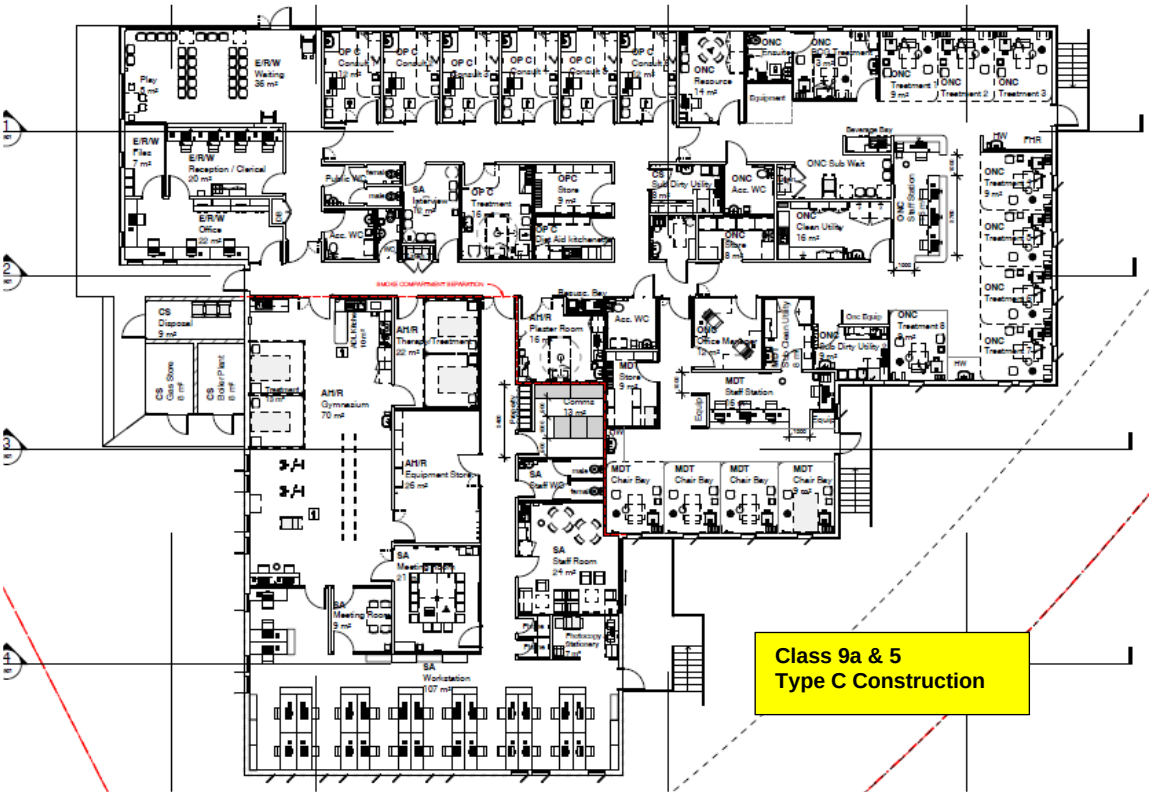
Building Characteristics:–

The proposed CHB Stage 2 alterations works are classified in accordance with BCA 2019 (Amdt 1) as follows:-

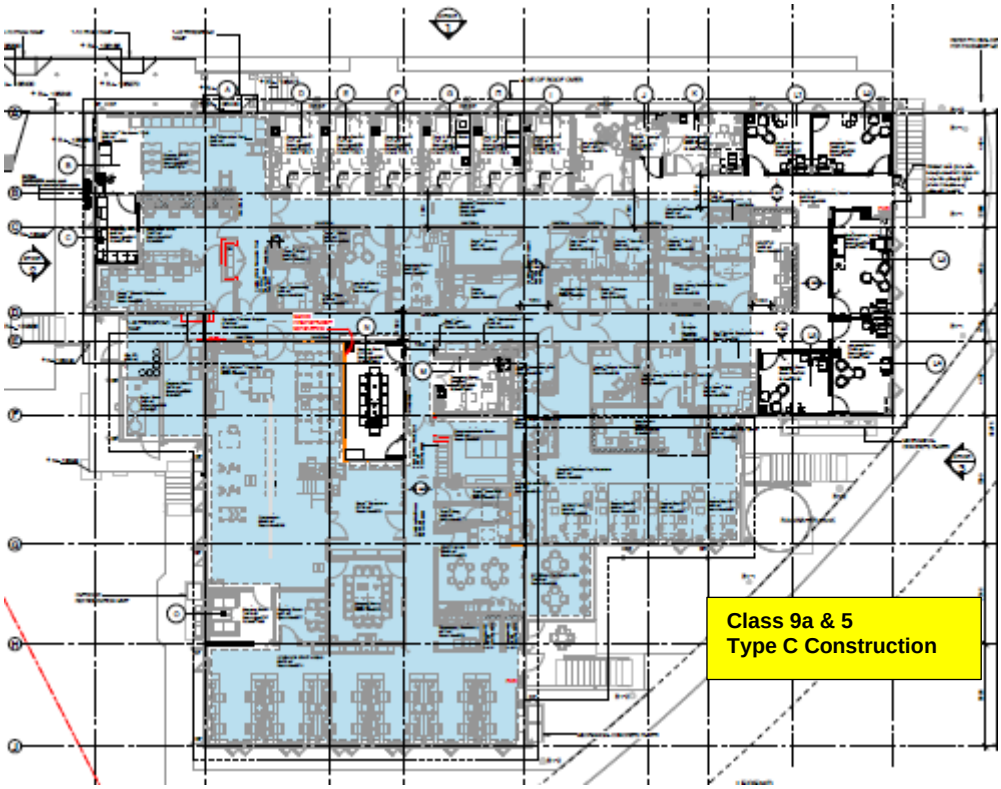
- Classification – Class 9a (Patient Care / Treatment Areas) & 5 (Admin/Staff Areas)
- Rise in storeys of 1
- Effective height <12m
- Type C Construction
- Total Floor Area – Circa 1,120m²
- Importance Level 3/4 (TBC by NER Structural Engineer)



Intended Uses CHB [Building 33]



Existing CHB [Building 33]

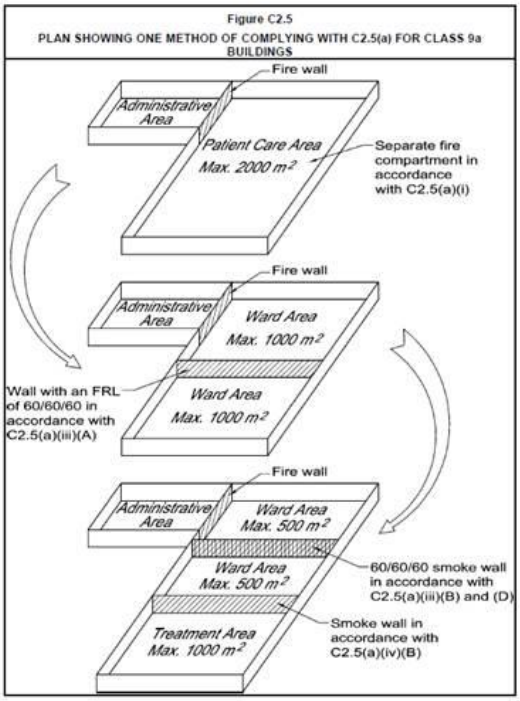


Proposed CHB [Building 33]

Fire Compartmentation Strategy:-

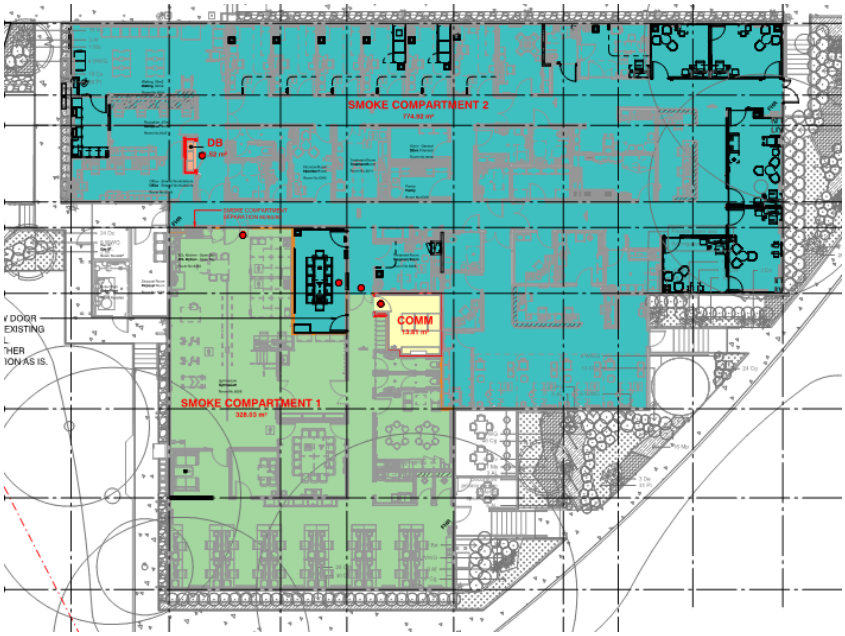
In accordance with the requirements of Clause C2.5 of the BCA 2019 (Amdt 1), the following compartmentation requirements are to be achieved for the Class 9a clinical use areas:

- Patient care areas must be divided into *Fire Compartments* not exceeding 2,000m^2, and
- Ward areas –
  - Where the floor area exceeds 1,000m^2, must be divided into floor areas not more than 1,000m^2 by walls with an FRL of not less than 60/60/60, and
  - Where the floor area exceeds 500m^2, must be divided into floor areas not more than 500m^2 by Smoke Proof Walls complying with Specification C2.5 of the BCA 2019 (Amdt 1).
- Treatment areas –
  - Where the floor area exceeds 1,000m^2, must be divided into floor areas not more than 1,000m^2 by Smoke Proof Walls complying with Specification C2.5 of the BCA 2019 (Amdt 1), and
  - Where the floor area is not more than 1,000m^2, must be separated from the remainder of the patient care area by Smoke Proof Walls complying with Specification C2.5 of the BCA 2019 (Amdt 1).



The compartmentation strategy will focus on location of fire (and smoke) walls to maintain appropriate compartment sizes to all patient care areas / treatment areas.

Details of existing and new compartment sizes (smoke & fire) are currently noted on the drawings. See comments below:-



CHB Compartmentation - 60/60/60 FRL smoke wall as shown above to be maintained.

In relation to existing compartment walls within the CHB, it will be necessary for the walls to be replaced to the degree necessary where immediately bounding the proposed zone of the works. Compliance is to be maintained with regards to the new works and their impact on existing penetrations, integrity of doors and door seals and statutory sign to doors etc.

The proposed new CHB will not less than 6m from other buildings and not less than 3m from the side boundary of the site. The open link walkways that connect the buildings will consist of non-combustible construction and will not contribute to compartmentation areas nor be considered as a connection between buildings for the purposes of BCA 2019 (Amdt 1).

Compartment Walls. Walls required to have an FRL or be smoke proof are by to be of non-combustible construction (i.e. not timber frame), and must 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.

Compartment Doors. Unless forming part of a smoke hazard management system, the fire/smoke doors are to be provided with a reservoir directly above of minimum 400mm in height. This is a design coordination issue between the ceiling heights and the door heights. Not less than 400mm reservoir will be required over all new and modified fire and smoke doors.

Fire and smoke doors in each fire and smoke wall (provided for compartmentation purposes) are to swing in the direction of egress. We note a number of doors swing against the required direction of egress for reason of functionality – these doors are to be re-documented to demonstrate pivot swing doors or addressed under a Fire Engineered Solution.

Services Penetrations. Penetration of services through fire rated walls and or smoke proof walls are to be suitably treated to maintain the integrity of the compartment. Penetration of mechanical ductwork in particular through walls that are required to be fire rated and smoke proof (combined) in various patient care areas (i.e. wards and treatment), must be combined fire and smoke dampers provided at the point of each penetration.

Ancillary Areas
The construction of any ancillary use areas located within the patient care areas and containing equipment or materials that are a high potential fire hazard (such as kitchens >30m2, hyperbaric facility, storage of medical records >10m2 or laundry with gas fire dryers), must be separated from the patient care area by construction achieving an FRL of not less than 60/60/60 and doors having an FRL of not less than -/60/30.

Fire Ratings and Separation:-

The CHB will need to comply with the BCA 2019 (Amdt 1) with respect to Type C Construction. According to the architectural plans no roof structure will penetrate through fire rated smoke wall in the absence of a Fire Engineered Performance Solution.

Any of the following equipment must be fire rated with a fire resistance level of 120/120/120 and any doorway to have an FRL of not less than --/120/30:

- Emergency generators used to sustain emergency equipment operating in the emergency mode.
- Boilers where the water is boiled to greater than 100 degrees Celsius.
- Battery or batteries having a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. This may occur in a Comms room also.

Egress Strategy:-

The key objectives for the egress strategy will include:-

- Achieve compliant travel distances synonymous with patient care areas i.e. typically 12m to a point of choice of two exits; and 30m to one of the nearest two available exits; and no more than 45m between alternative exits,
- Ensure egress and staff circulation stairways are provided to the degree necessary.

The unobstructed height throughout an exit or a path of travel to an exit must not be less than 2.0 metres, except for doorways which may be reduced to not less than 1.98m.

In addition, the unobstructed width of any new exit or a path of travel to an exit must not be less than 1.2 metre except where patients are normally transported in beds within treatment and ward areas in which case a minimum the minimum corridor and passageway widths which is required is 1.8m.

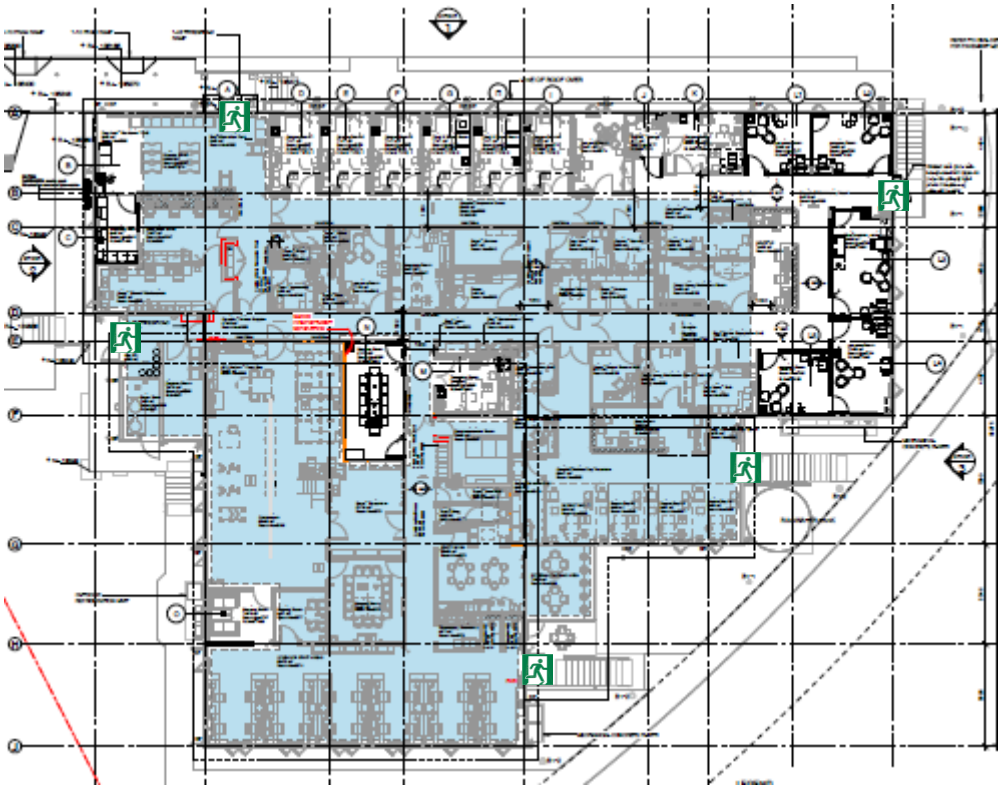
The unobstructed width of new doors throughout the patient care areas where patients are normally transported in beds are as follows:

a) Doorways leading to or from a corridor with a corridor width of less than 2.2m must not be less than 1,200mm, or
b) Doorways leading to or from a corridor with a corridor width greater than 2.2m must not be less than 1,070mm.

Horizontal exit fire doors are to achieve a clear unobstructed width of 1,250mm. Where a single door is provided as a horizontal exit, it will need to achieve the clear unobstructed width of 1,250mm.

All external egress paths are to achieve not less than 1,200mm clear width.

Egress is generally compliant throughout the respective buildings – exits are noted as below:-



Within the CHB a number of the compartment doors swing against egress direction and will need to be addressed in the FER.

Noting the ACH facility will not generally facilitate movement of patients on stretchers / beds as the primarily means of patient circulation, it will not be necessary for the corridors to be designed at minimum 1.8m clear width. We can accommodate the corridors being reduced to **min 1.2m clear width** (measured between handrails / walls). We do note however the LHD has requested that most corridors in patient areas achieve 1,800mm clear width.

Notwithstanding the above, all corridors and door circulations are designed to facilitate circulation in accordance with AS1428.1. This will include min 510mm to latch sides of all accessible doors, corridors to have min clear circulation **width of 1.210m (based on 900mm clear width doors)**, all doorways to have min clear unobstructed width not less than 900mm, doorways to be contrast colours as per AS1428.

Floor finishes for all buildings to be compliance with AS4586 - we will require a pendulum test to any existing floor finishes that are to be re-used.

Handrails are to be provided along at least one side of all corridors in the patient care areas, and along either side of a stairway or ramp 2m wide or more.

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.
Sliding doors are not permitted to be located within patient care areas.
The use of internal sliding doors will be addressed in the FER.

Any electrical meters, distribution boards or ducts, central communications distribution boards or equipment or electrical motors located within the corridors are to be smoke sealed and enclosed within non-combustible construction with any penetrations smoke sealed.
Gas and other fuel services must not be located within a required exit.
Note that an opening to any chute that or duct that is to convey hot products or combustion from a boiler incinerator, fireplace or the like must not be located in any part of a required exit or any corridor, hallway, lobby or the like leading to a required exit.

Fire Safety Systems:-

The following essential fire safety measures will be required in the buildings:-

Statutory Fire Safety Measure	Design / Installation Standard	Existing	New / Altered
COMMUNITY HEALTH BUILDING (BUILDING 33) (FORMERLY KNOWN AS THE AMBULATORY CARE HUB)			
Alarm Signalling Equipment (via existing main FIP)	AS 1670.3 – 2004	✓	
Automatic Fail-Safe Devices	BCA Clause D2.21	✓	
Automatic Fire Detection & Alarm System	Existing: BCA Spec. E2.2a AS 1670.1 – 2015 & Fire Engineering Report No. SY180432 Rev R1.0 prepared by Warringtonfire dated 2 August 2019 Proposed: BCA Spec. E2.2a & AS 1670.1 – 2018	✓	
Emergency Lighting	BCA Clause E4.4 AS 2293.1 – 2005	✓	
Emergency Evacuation Plan	Existing: AS 3745 – 2002 Proposed: AS 3745 – 2010	✓	✓
Exit Signs	Existing: BCA Clauses E4.5, E4.6 & E4.8 AS 2293.1 – 2005 Proposed: BCA Clauses E4.5, E4.6 & E4.8 AS 2293.1 – 2018	✓	✓
Fire Dampers	BCA Clause C3.15 AS/NZS 1668.1 – 2015 & AS 1682.1 & 2 – 2015	✓	
Fire Doors.	BCA Clause C2.12, C2.13, C3.5, C3.7, C3.8 AS 1905.1 – 2005	✓	
Fire Hose Reels	BCA Clause E1.4 AS 2441 – 2005 & Fire Engineering Report No. SY180432 Rev R1.0 prepared by Warringtonfire dated 2 August 2019	✓	
Fire Hydrant Systems	BCA Clause E1.3 AS 2419.1 - 2005	✓	
Fire Seals	Existing: BCA Clause C3.15 AS 1530.4 – 2005 & AS 4072.1 – 2005 Manufactures Specifications Proposed: BCA Clause C3.15 AS 1530.4 – 2014 & AS 4072.1 – 2005 Manufactures Specifications	✓	✓
Fire Resisting Construction	BCA Section C & Fire Engineering Report No. SY180432 Rev R1.0 prepared by Warringtonfire dated 2 August 2019	✓	✓
Lightweight Construction	BCA Clause C1.8, AS 1530.4 – 2014 & Fire Engineering Report No. SY180432 Rev R1.0 prepared by Warringtonfire dated 2 August 2019	✓	✓
Manual Call Points	BCA Section E	✓	
Mechanical Air Handling Systems (automatic shutdown)	BCA Clause E2.2 AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012	✓	✓
Paths of Travel	Existing: EP & A Regulation Clause 186 Proposed: EP&A (DC&FS) Reg. 2021 Clause 109	✓	✓

Statutory Fire Safety Measure	Design / Installation Standard	Existing	New / Altered
Portable Fire Extinguishers	BCA Clause E1.6 AS 2444 – 2001 & Fire Engineering Report No. SY180432 Rev R1.0 prepared by Warringtonfire dated 2 August 2019	✓	
Required Exit Doors (power operated)	BCA Clause D2.19(d)	✓	
Smoke Dampers	AS/NZS 1668.1 – 2015 & AS 1682.1 & 2 – 2015	✓	
Smoke Seals	BCA Spec. C3.4	✓	
Sound System & Intercom System for Emergency Purposes	BCA Clause E4.9 AS 1670.4 - 2015	✓	
Warning & Operational signs	BCA Clause D2.23. Section 183 of the EP & A Regulations 2000, AS1905.1 – 2005	✓	

COMMUNITY HEALTH BUILDING (BUILDING 33) (FORMERLY KNOWN AS THE AMBULATORY CARE HUB)

Summary of Existing Fire Engineered Performance Solutions
Fire Engineering Report No. SY180432 Rev 1.0 dated 2 August 2019 prepared by Warringtonfire

Performance Solution	Standard of Performance	Existing	New / Altered
1. A number of smoke doors within the ACH swing against the direction of egress	DP2 & DP4	✓	

Fire Safety Measures – General Requirements:-

Fire Hydrants

A Fire Hydrant System will be required to be installed to serve the Buildings in accordance with AS 2419.1 – 2005.

Hydrant Locations

Required external hydrants are required to be set back a minimum distance of 10m from the external walls of the CHB.

Fire Hydrant Booster

A fire hydrant booster is required to be located in accordance with the following:

- In a location that is readily accessible to FRNSW.
- In a location where the booster is operable by a fire brigade pumping applicable located within 8m on an appropriate hard stand area.
- If remote from the building, at the boundary of the site and within sight of the main entrance.
- Adjacent to the principal vehicular access to the site.
- Located not less than 10m from the external wall of the building.
- In a location not less than 10m from any high voltage main electrical distribution equipment such as transformers and distributions etc
- In a location so that the booster assembly is not obstructed or obscured by obstacles, stored goods, vehicles, vegetation etc

Details of the existing or proposed FH booster are to be provided in this regard

Fire Hose Reels

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

FHRs are to be positioned in accordance with BCA 2019 (Amdt 1), including within 4m of the required exits.

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 (other than hydrants within a fire isolated stairway). The following specific comments are noted:

- A fire hose reel need not be located adjacent to every exit or internal fire hydrant provided system coverage can be achieved.
- Where coverage cannot be achieved by locating a hose reel in accordance with the above, additional fire hose reels may be located in paths of travel to an exit in order to achieve coverage.
- Fire hose reels are not permitted to pass through fire and smoke doors separating compartments in order to provide coverage. In this instance, each fire/smoke compartment is required to be provided with a fire hose reel.

Doors to Cupboards Housing FHR's

Doors to cupboards housing fire hose reels 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 180^{o} 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.

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 located in paths of travel to an exit in order 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*

Portable Fire Extinguishers

Portable fire extinguishers are to be installed in accordance with clause E1.6 and AS 2444. This includes the provision of Class Type A & E Class Portable Fire Extinguishers throughout each floor. In accordance with Clause E1.6, Type E Extinguishers are permitted to be installed nurse and staff stations.

Powder fire extinguishers are not permitted to be installed in areas containing patient care areas throughout the building; this is supported by AS2444-2001 Cl.2.1, Appendix A & B which makes provision for the selection of PFE's and suitability of extinguishing agent

Smoke Hazard Management

In terms of the requirements for smoke hazard management throughout the building, the following key items are noted:

Mechanical Air Handling Systems

The new or modified Mechanical Air Handling Systems (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 the 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.

Automatic Fire Detection & Alarm System

New Automatic Fire Detection & Alarm Systems are required to be installed throughout the respective buildings 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.

It is necessary for the AS1670 detection system in the ACH and services building to be connected back to the main hospital FIP.

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.

Key elements of AS 1670.1 which require close attention are as follows:

- Where an area is divided into sections by walls, partitions, or storage racks reaching within 300mm 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 be have to be installed either side of the curtains.
- A clear space of at least 300mm radius, to a depth of 600mm is required to be maintained from the smoke detector.
- Detectors are required to be located a minimum distance of 400mm from supply air fans or ceiling fans.
- Detectors are required in all sanitary facilities with a floor area greater than 3.5m^2.
- Any cupboard with a floor area >3m^3 is required to be protected.
- All electrical cupboards, comms cupboards etc. irrespective of the size are required to be protected.
- Detectors are required to be installed to the void spaces/under croft areas on Levels 1 & 2 where access to the space is provided.
- Detectors are to be installed to the lift shafts, service shafts etc as required by AS 1670.1 – 2018.

  It is understood that the Automatic Fire Detection & Alarm System may be rationalised within the ceiling voids. If the detection system is not installed and spaced within the ceiling voids in accordance with AS 1670.1 – 2018, then the installation will be required to be assessed as a Fire Engineering Assessment by the appointed Fire Safety Engineer in order to address compliance with the nominated Performance Requirements of the BCA 2019 (Amdt 1).

Emergency Lighting

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

- External stairways and passageways;
- 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 120m2 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.

Exit Signs

Exit signs are to be installed throughout the building in accordance with AS 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.

Sound System and Intercom System for Emergency Purposes

New Sound System and Intercom System for Emergency Purposes (SSISEP) are required to be installed throughout the CHB buildings in accordance with AS 1670.4 - 2018.

It is noted that all external areas from which an occupant is required to re-enter the building (e.g. courtyards, balconies, terraces etc.) are also required to be provided with compliant SSISEP speakers.

If speakers associated with the SSISEP are proposed to be deleted from patient bedrooms, operating theatres and other sensitive environments where the activation of the speaker within the room may cause trauma to the to the patient, then the omission will be required to be assessed as part of a Performance Solution to be addressed by the appointed Fire Safety Engineer in order to address compliance with the nominated Performance Requirements of the BCA 2019 (Amdt 1).

Speakers will be required to be provided to all corridors and other rooms within Patient Care Areas etc. As part of any Fire Engineering Assessment, strobe lights and mimic panels may be required to be installed to nurse stations to provide additional warning to staff in the addition the provision of strobe lighting that is visible to staff within the operating theatres.

Access for Persons with Disabilities:-

Whilst the proposed new buildings and all new building works will need to comply with the accessibility requirements, the existing hospital will be assessed against the 'affected part' provisions of the Access to Premises Standard 2010. Upgrade works will be required in this regard in accordance with the Access Consultants report attached.

Access Requirements for People with Disabilities

The new works and new buildings CHB will comply with BCA Part D3 and the Access to Premises Standards 2010 in terms of access and facilities for people with disabilities.

This will in essence ensure the design satisfies the requirements of the DDA.

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

Access need not be provided to:

- 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).

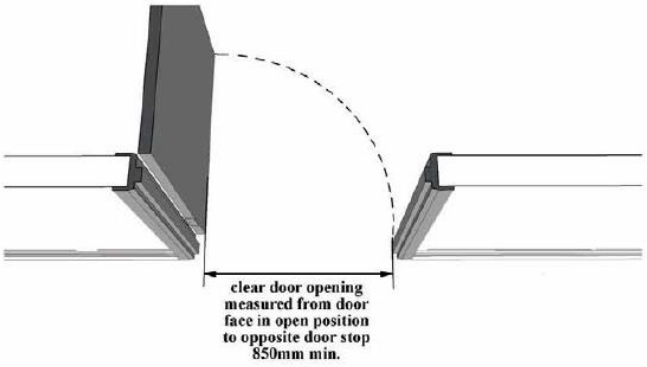
Note:-
The following comments are intended to be high level comments only as part of the Schematic Design.

Parts of Buildings to be Accessible

- Access must be provided to the main entrance of the new buildings from the street and the external car park along with adjoining buildings via compliant walkways (maximum gradient of 1:20) or ramps (maximum gradient 1:14) in accordance with AS 1428.1.

- 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 D1.6 above having regard to the clear width of doorways where patient transportation in beds is required.



Clear Unobstructed Width of Doorway

- All new doorways (internal and external) 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.

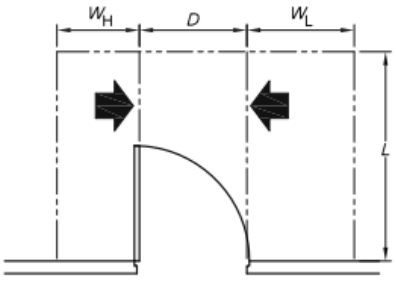
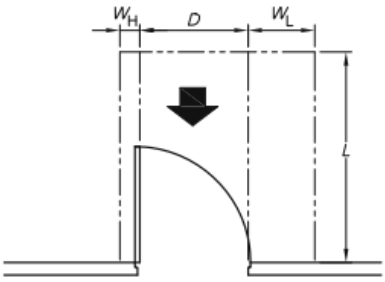
  The minimum width of the area of luminance contrast shall be 50 mm.

  Door that are not required to comply with above requirements include doorways used by clinical staff members, maintenance staff etc leading to the following rooms:

  - Dirty Utility
  - Clean Utility
  - Equipment Store Rooms
  - General Store Rooms
  - Set Up and Clear Up Rooms associated with Operating Theatres
  - Plant Rooms
  - Comms Rooms

- Circulation space is required to all doorways throughout the building that are required to be accessible in accordance with Section 13 of AS 1428.1 – 2009 (see diagrams below).

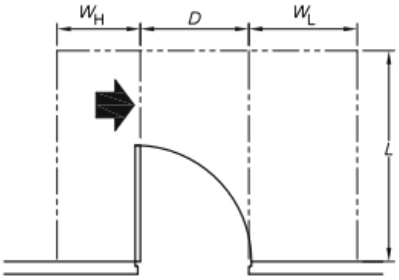
  Note: -
  A number of doorways in the current design for the CHB are not compliant with circulation requirements outlined in AS1428.1 and below. These will need to be addressed for the DD stage / Crown Certificate application (as discussed with the architect).

Swing Door Opens Towards User:	
Both Sides Approach: 	Front On Approach: 

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

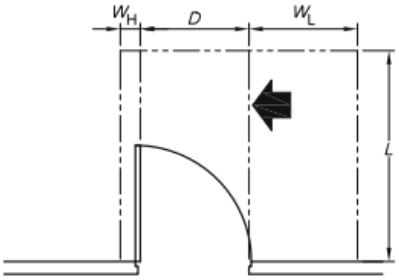
D	L	W_H	W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

Hinge Side Approach:



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

Latch Side Approach:

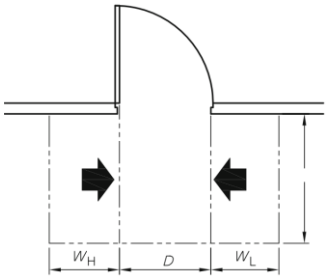


D	L	W_H	W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

Circulation Space at Swing Doors – Door Opens Toward User

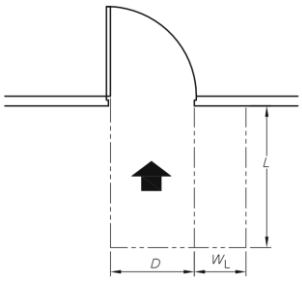
Swing Door Opens Away From User:

Both Sides Approach:



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

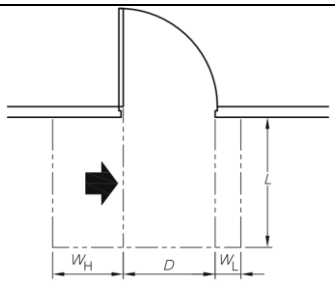
Front On Approach:



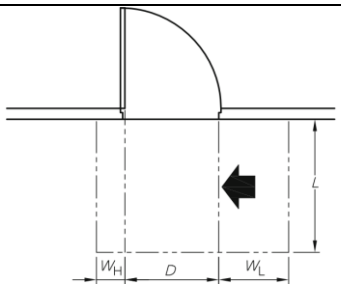
D	L	W_H	W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

Hinge Side Approach:

Latch Side Approach:



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

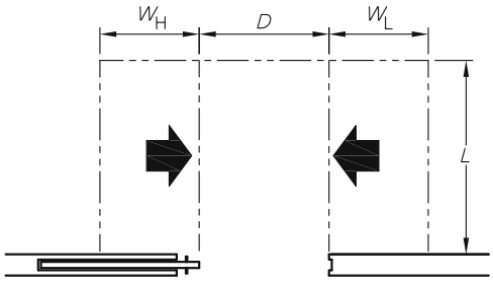


D	L	W_H	W_L
850	1240	240	660
900	1210	190	660
950	1175	140	660
1000	1155	90	660

Circulation Space at Swing Doors – Door Opens away from User

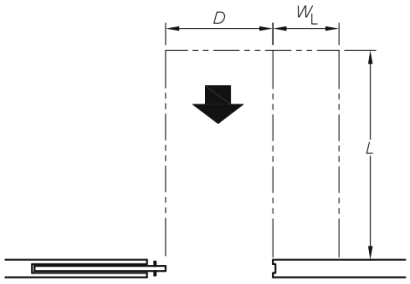
Sliding Doors Recessed In Wall:

Both Sides Approach:



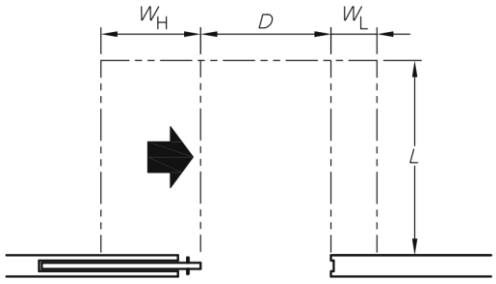
D	L	W_H	W_L
850	1280	660	660
900	1280	610	660
950	1280	560	660
1000	1280	510	660

Front On Approach:



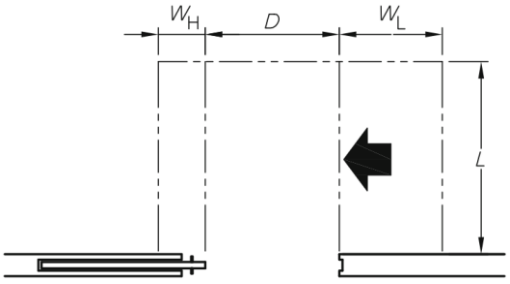
D	L	W_H	W_L
850	1450	0	530
900	1450	0	530
950	1450	0	530
1000	1450	0	530

Slide Side Approach:



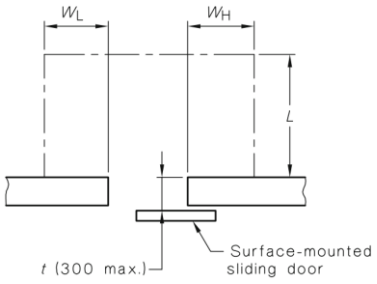
D	L	W_H	W_L
850	1280	660	395
900	1280	610	395
950	1280	560	395
1000	1280	510	395

Latch Side Approach:



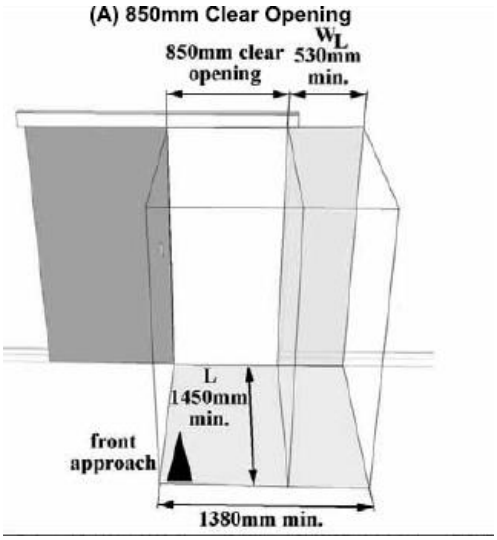
D	L	W_H	W_L
850	1230	185	660
900	1230	180	660
950	1230	180	660
1000	1230	180	660

Circulation Space at Sliding Doors – Recessed in Wall

Sliding Doors Surface Mounted		
For any side on approach:	Add dimension *t* to W_L and W_H.	
For only a front on approach:	Add dimension *t* to *L*, W_L and W_H.	

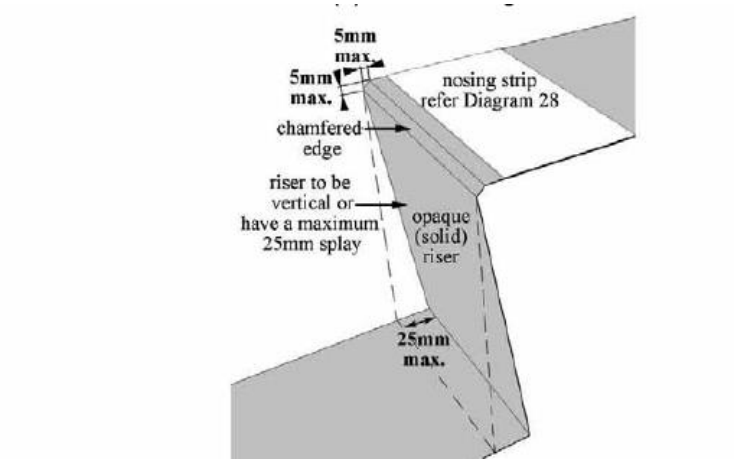
Circulation Space at Sliding Doors – Surface Mounted

The method of measurement of clear doorway openings is illustrated below:-



Circulation Space at Sliding Doors

- Stair nosing to stairways shall comply with the following diagram, which achieves a colour contrast luminance of 30% to the background (tread):

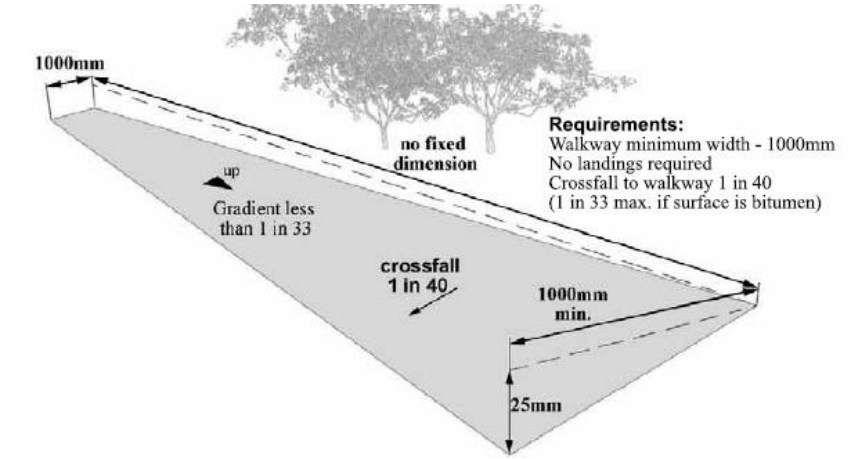


Nosing Profile

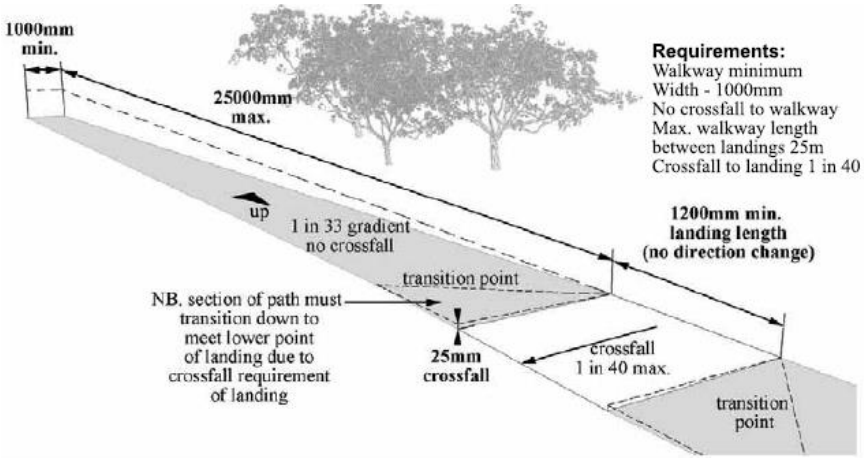
Accessible Walkways (AS1428.1 – 2009 Section 10.2):

The requirements for walkways are as follows:

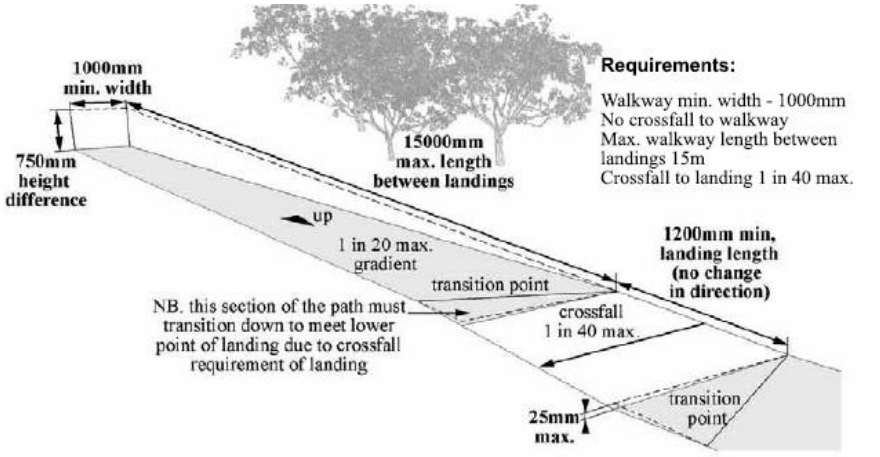
- Walkways can have a gradient up to 1:20. Anything steeper is a ramp and requires kerbs or kerb rails plus handrails to both sides.
- A walkway with a gradient less than 1 in 33 does not require landings but does require a crossfall of maximum 1 in 40 (maximum cross fall of 1 in 33 if the surface is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



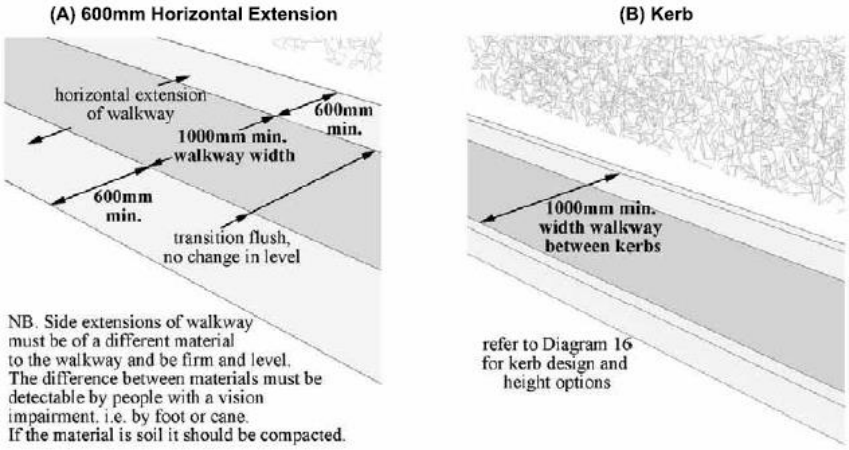
Requirements for a Walkway with a Gradient Less Than 1 in 33



Requirements for a Walkway with a 1 in 33 Gradient



Requirements for a Walkway with a 1 in 20 Gradient



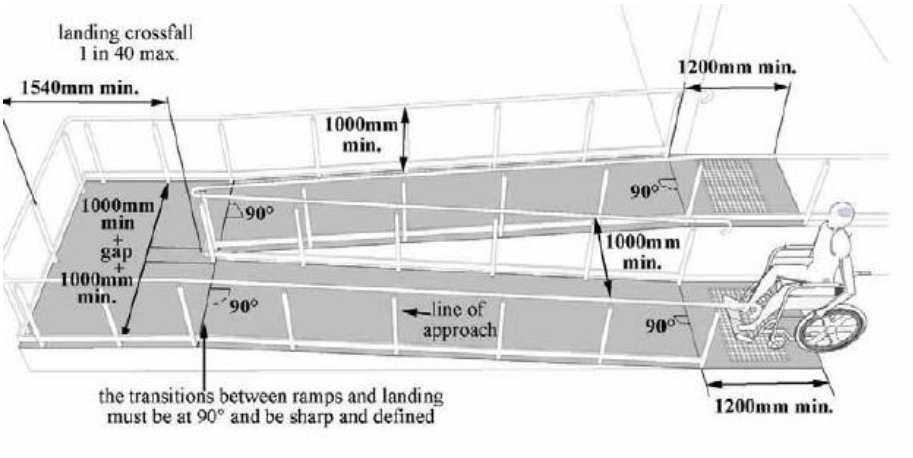
Requirements for Edges of Walkways

Accessible Ramps (AS1428.1-2009 Section 10.3):

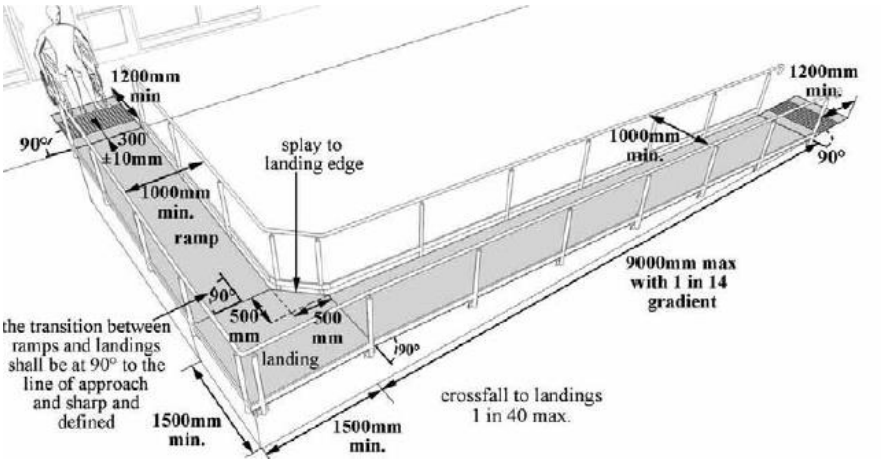
Accessible ramps are required to be designed and constructed in accordance with the following:

- The maximum gradient is to be 1:14.

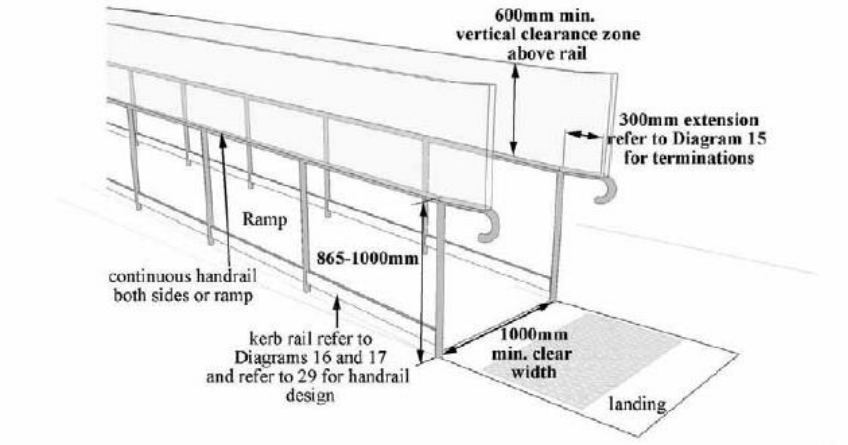
- Landings are to be provided at the top and bottom of the ramp and at intervals not exceeding 9m. The landings to the ramps are required to have a minimum width of 1200mm.
- Handrails are to be provided to both sides of the ramp. The handrails are required to be extended 300mm at both the top and bottom of the ramp.
    - The ramps are to be provided with kerb rails that comply with the following:
    - The minimum height above the finished floor shall be 65mm
    - The height of the top of the kerb or kerb rail shall not be within the range of 75mm to 150mm above the finished floor.
    - There cannot be a longitudinal gap or slot greater than 20mm in the kerb or kerb rail within the range 75mm to 150mm above the finished floor.
- Where ramps are constructed with a change in direction, the angle of approach shall create a 90° angle to the line of transition between the ramp surface and the landing surface



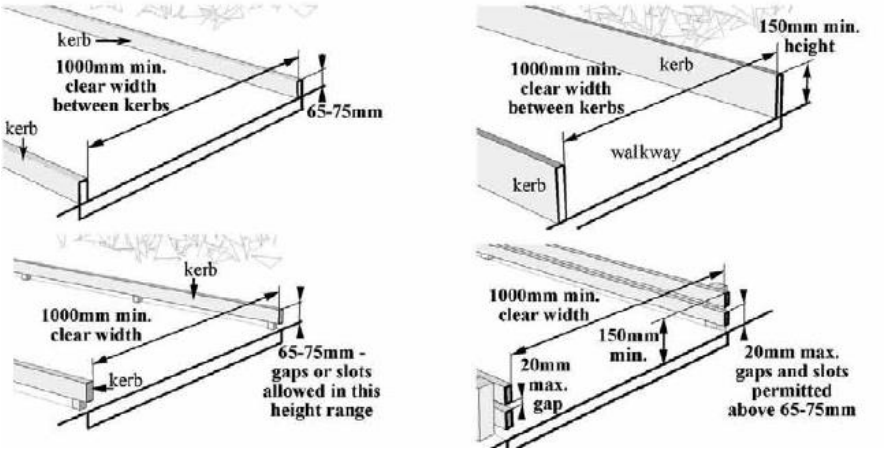
Ramp and Landing with Change in Direction of 180°



Ramp and Landing with Change of 90°



Handrail Extensions at Ramp Ending



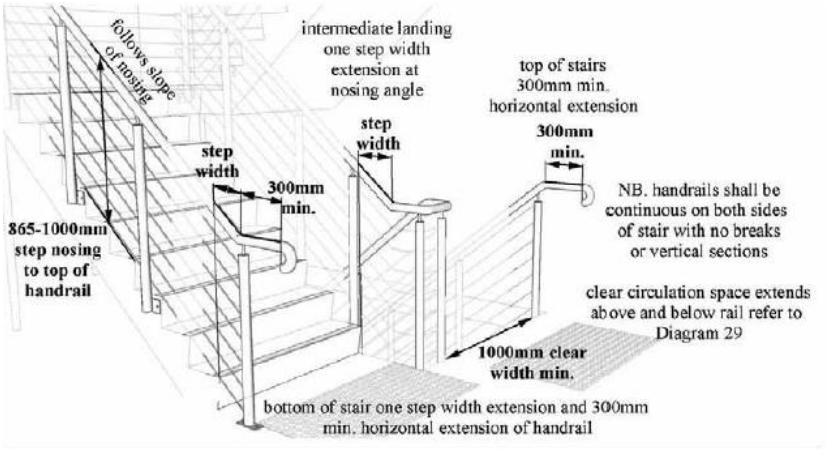
Kerb and Kerb Rail Design Options

Accessible Stairways:

All stairways are required to be designed in accordance with AS 1428.1. In this instance, the following is required:

Note:-
Egress, access and circulation stairways that are used as circulation stairways are required to be designed and constructed in accordance with the following:

- A handrail to each side of stairway.
- Handrails are required to be extended at the top and bottom of the stairway. At the bottom of the stairway, the handrails are required to extend one tread width plus 300mm from the last riser. At the top of the stairway, the handrails are required to extend 300mm from the last riser.
- Solid opaque risers.
- Contrast nosings to the stair treads.
- The handrails are to have a maximum dimension of 50mm and be spaced a minimum distance of 50mm from the wall.



Handrails to Stairways

+ Tactile ground surface indicators are technically not required to be installed within a Class 9a building, however consideration should be given to the installation of tactiles to all external stairways and ramps (including pram ramps adjoining car parks, driveways etc), main entry stairs and main circulation stairways within the building.

Accessible Fixtures & Fittings:

+ All fixtures, fittings and door hardware are to comply with Section 13.5 & Section 14 of AS1428.1-2009.

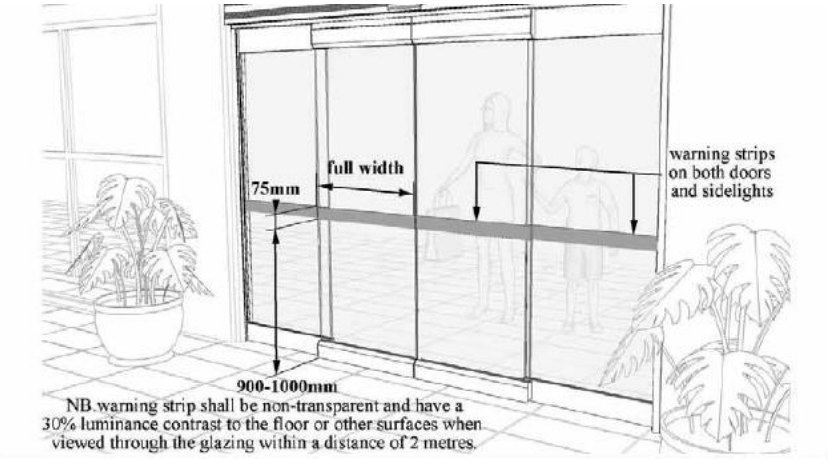
  In this instance, toggle style light switches and GPO outlets etc. should be provided within all patient care areas including within all sanitary facilities.

+ 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.

+ Where a pedestrian entrance is not accessible, then directional signage incorporating the international symbol of access or deafness must be provided to direct a person to the location of the nearest accessible pedestrian entrance.

+ On an accessway where there is no rail, handrail or transom provided to glazed walls and doors which may be mistaken as an 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:



Warning Strips to Full Height Glazing

Accessible parking spaces are to be provided to comply with AS2890.6-2009.

Future Proofing:-

Further details will be required having regard to the proposed future proofing of the building and likelihood of building extensions in the future.

Due consideration will be given to the proposed future-proofing requirements for the site from a BCA and certification perspective.

Management of Interface of Construction Works

Consultation will need to be undertaken between the appointed head contractor and BM+G along with the LHD to ensure that existing fire safety systems compliance is not compromised where proposed works outside of the new building are undertaken within existing facilities or where there are new connections/break throughs constructed.

Any staging of the redevelopment works will necessitate strategic involvement of key stakeholders including the LHD, Crown Certifier, contractor and FRNSW to coordinate and accommodate:-

- disruption of existing fire safety systems
- creation of temporary non-compliant arrangement with fire safety systems
- impact on existing egress routes and availability of exits during the works
- notification of FRNSW during various works

Health & Amenity

Facilities in Class 9 Buildings

The Class 9a facility is required to have:

- Kitchen facilities
- Laundry facilities
- A shower for each 8 patients or part thereof
- One island-type plunge bath in each storey containing Ward Areas

It is noted the required ratio of patients: showers will not be achieved in the CHB, however this will be addressed in a performance-based solution to align with LHD operational requirements.

Required Sanitary Facilities

+ BCA2019 (Amdt 1) Part F requires sanitary facilities with the Class 9a facilities as follows:-

(a) Facilities for Staff:-

User Group	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number
Male Employees	1-20	1	1	0	1-30	1
			11-25	1		
	>20	Add 1 per 20	26-50	2	>30	Add 1 per 30
			>50	Add 1 per 50		
Female Employees	1-15	1	N/A		1-30	1
	> 15	Add 1 per 15			> 30	Add 1 per 30

(b) Facilities for Patients:

User Group	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number
Male Patients	1-16	1			1-8	1
	> 16	Add 1 per 16			>8	Add 1 per 8
Female Patients	1-16	1			1-8	1
	> 16	Add 1 per 16			> 8	Add 1 per 8

The toilet facilities in each of the buildings are generally compliant. The number of staff and patient WCs in the CHB is compliant when assessed in aggregate, however based on staff –v- patients facilities, there will be need for management plan from the LHD to enable use of shared facilities on a worst case scenario.

Accessible Sanitary Facilities

Accessible sanitary facilities for use by a person with a disability are provided throughout each floor.

Note: -
In the CHB, the accessible sanitary facilities should be a mix of LH and RH installations throughout.

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, however access is required to and within the room.

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 is to allow for the following for members of the public on the Ground Floor of the building:

+ A unisex accessible sanitary facility
+ A male ambulant sanitary compartment
+ A female ambulant sanitary compartment

The design is to allow for the following for members of staff including on the Ground Floor of the building:

+ Unisex accessible sanitary facility

- Male ambulant sanitary compartment
- Female ambulant sanitary compartment

Height of Rooms

The floor to ceiling heights throughout shall comply with the following:

- in a patient care area, treatment room, clinic, waiting room, passageway, corridor or the like – 2400mm; and
- in an operating theatres or delivery rooms – 3000mm; and
- Bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room or the like must achieve a minimum height of 2.1m.

Artificial Lighting

Artificial lighting is required to be provided in accordance with AS 1680.0 - 2009.

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 2019 (Amdt 1) Part F and AS 1668.2-2012.

ESD – Section J

The energy efficiency provisions of Section J are applicable to the buildings and as such, a report will be required to be submitted prior to issue of the S109R Approval which details how compliance is being achieved for all new works.

In this regard Parts J1 - Building Fabric, J2 - External Glazing, J3 - Building Sealing and J5 - Air Conditioning and Mechanical Ventilation, Part J6 - Artificial Lighting and Power, and Part J7 - Hot water supply & Part J8 – Access for Maintenance is required to be provided.

If the proposed design will not comply with the DtS provisions of the BCA 2019 (Amdt 1), then a JV3 Assessment will be required to be undertaken to demonstrate compliance with the Performance Requirements of the BCA 2019 (Amdt 1).

Regards

David Martin
Senior Building Surveyor
Blackett Maguire + Goldsmith