



TREVOR R HOWSE

DESIGN SPECIFICATION

NCC 2019 VOLUME 1 (AMDT 1) & ACCESSIBILITY



PREPARED FOR

Macquarie Health Corporation

REGARDING

Longueville Private Hospital

BUILDING REGULATIONS • FIRE SAFETY ENGINEERING • LEGAL SERVICES

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TREVOR R HOWSE PTY LIMITED ABN 76 160 779 000

Report Register

The following report register documents the development and issue of this report and project as undertaken by this office, in accordance with the *Quality Assurance* policy of Trevor R Howse Pty Limited.

Our Ref.	Issue No.	Remarks	Issue Date
J23032	1	Design Specification completed and issued to client	25.3.2023

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Summary & Recommendations

1.1 General

This “Design Specification – NCC 2019 Volume 1 (Amdt 1)” has been prepared at the request of Macquarie Health Corporation.

It relates to the proposed **Works Package** associated with the undertaking of alterations and additions to the existing Longueville Private Hospital building, as is located at 43-47 Kenneth Street, Longueville.

More specifically, the proposed activities involve demolition of existing sections of the building and external workshop; construction of new lower ground, ground and first floor sections; provision of new hydrotherapy pool and ward areas; and associated works.

Figure 1.1.1 – existing aerial photo



1.2 Project Summary

The purpose of this Design Specification is to –

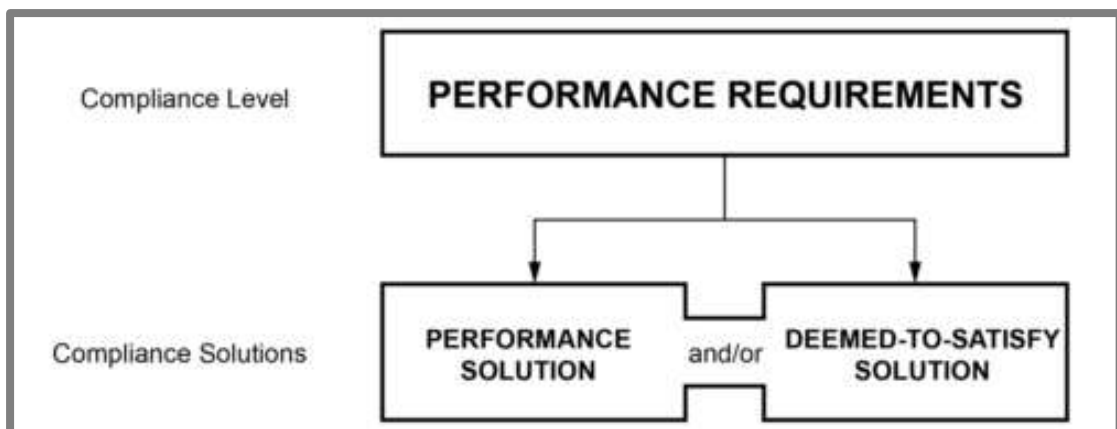
- Identify those *primary* requirements of the National Construction Code 2019 Volume 1, Amendment 1 (“**NCC 2019**”) applicable to the proposed building work; and
- Form part of the overall package of approved Building Permit documentation against which the works shall be undertaken, and inspected and certified at completion.

In reviewing the content of this report, it is highlighted that Compliance Structure of the National Construction Code is as depicted in figure 1.1.2 below.

As this excerpt from the NCC 2019 illustrates, a proposed design **must** comply with the applicable performance requirements.

It is a common misconception that a proposed design must comply with the deemed-to-satisfy provisions in the Code. The deemed-to-satisfy provisions are simply but one method of complying with the applicable performance requirements.

Figure 1.1.2 – NCC Compliance Structure



1.3 Recommendations

The content of Section 4 of this report below identifies the primary NCC 2019 requirements applicable to the proposed design. Each of these requirements need be implemented within the proposed works.

Figure 2.1.2 – proposed ground floor

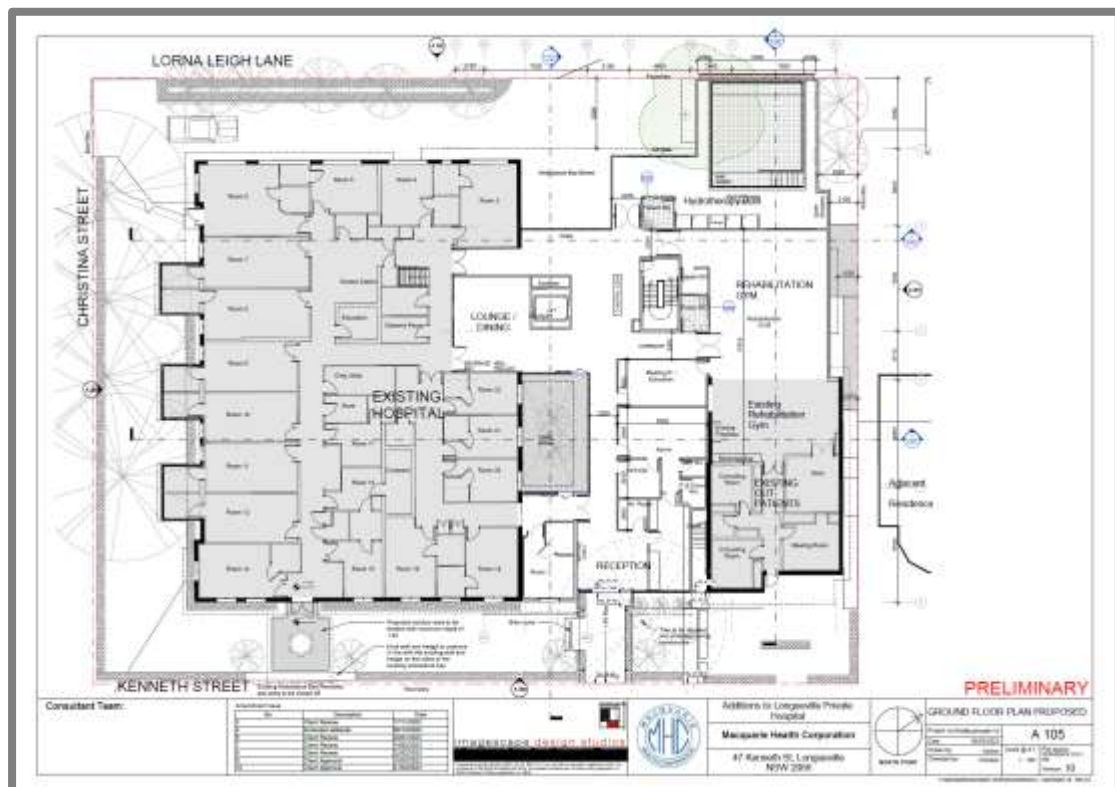
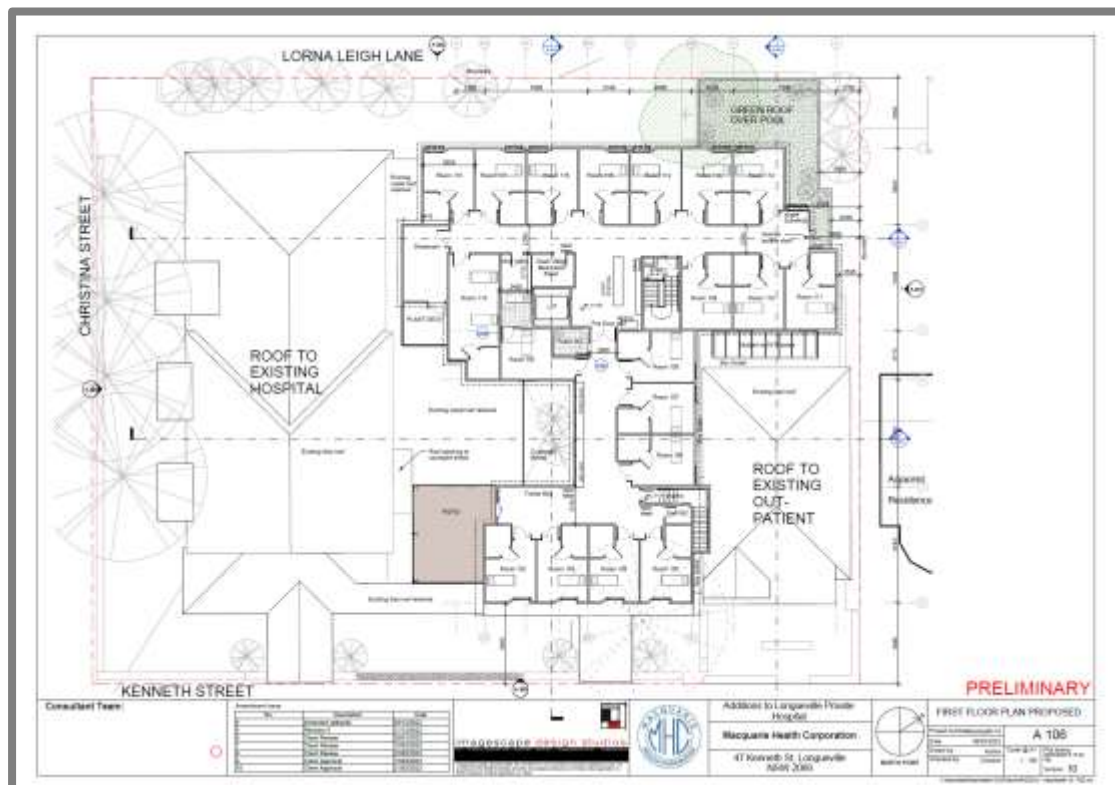


Figure 2.1.3 – proposed first floor



2.2 Specification Purpose

The purpose of this Design Specification is to –

- Identify those *primary* requirements of the NCC 2019 applicable to the proposed building work; and
- Form part of the overall package of approved Building Permit documentation against which the works shall be undertaken, and inspected and certified at completion.

2.3 Specification Basis

The content of this Specification ONLY reflects and relies upon –

- NCC 2019 including the New South Wales variations;
- DRAFT Annual fire safety statement for 2023 (undated – issue pending rectification of defects);
- The design detail depicted in the following architectural plans prepared by Imagescape Design Studios –

Numbered	Titled	Dated
A050	Site plan existing	21.3.2023
A051	Site plan proposed	21.3.2023
A100	Lower ground floor plan existing	21.3.2023
A101	Ground floor plan existing	21.3.2023
A104	Lower ground floor plan proposed	21.3.2023
A105	Ground floor plan proposed	21.3.2023
A106	First floor proposed	21.3.2023
A111	Lower ground fire strategy plan	21.3.2023
A112	Ground floor fire strategy plan	21.3.2023
A113	First floor fire strategy plan	21.3.2023
A300	Elevations – east	21.3.2023
A301	Elevations – north	21.3.2023
A302	Elevations – west	21.3.2023
A303	Elevations – south	21.3.2023
A400	Sections – sheet 1	21.3.2023
A401	Sections – sheet 2	21.3.2023

2.4 Exclusions

This Specification should also not be construed to infer that an assessment for compliance with the following has been undertaken –

- Structural design documentation;
- Mechanical, Hydraulic and Electrical services design documentation;
- The operational capacity / compliance of building services;
- The requirements of service providers (i.e. Telstra, Sydney Water, AGL);
- The requirements of the Work Cover Authority;
- The Disability Discrimination Act (DDA) & Premises Standard 2010; and
- Existing elements of the site, including (but not limited to) buildings and external areas.

2.5 Limitations

It is conveyed that this Specification does not relieve any other party, including but not limited to architect, structural engineer, services consultant, authorities, and builder, from their responsibility to ensure the design and construction of the proposed works complies with the relevant Codes and Standards.

Additionally, while this Specification has been prepared to identify the *primary* prescriptive provisions of the NCC 2019 applicable to the proposed design, it has NOT been compiled to document every individual detail (requirement) of those prescriptive provisions.

For more detailed information in respect of the design requirements of any prescriptive provisions listed (or not listed) in this Specification, project stakeholders must consult with our office or the relevant reference in the NCC 2019.

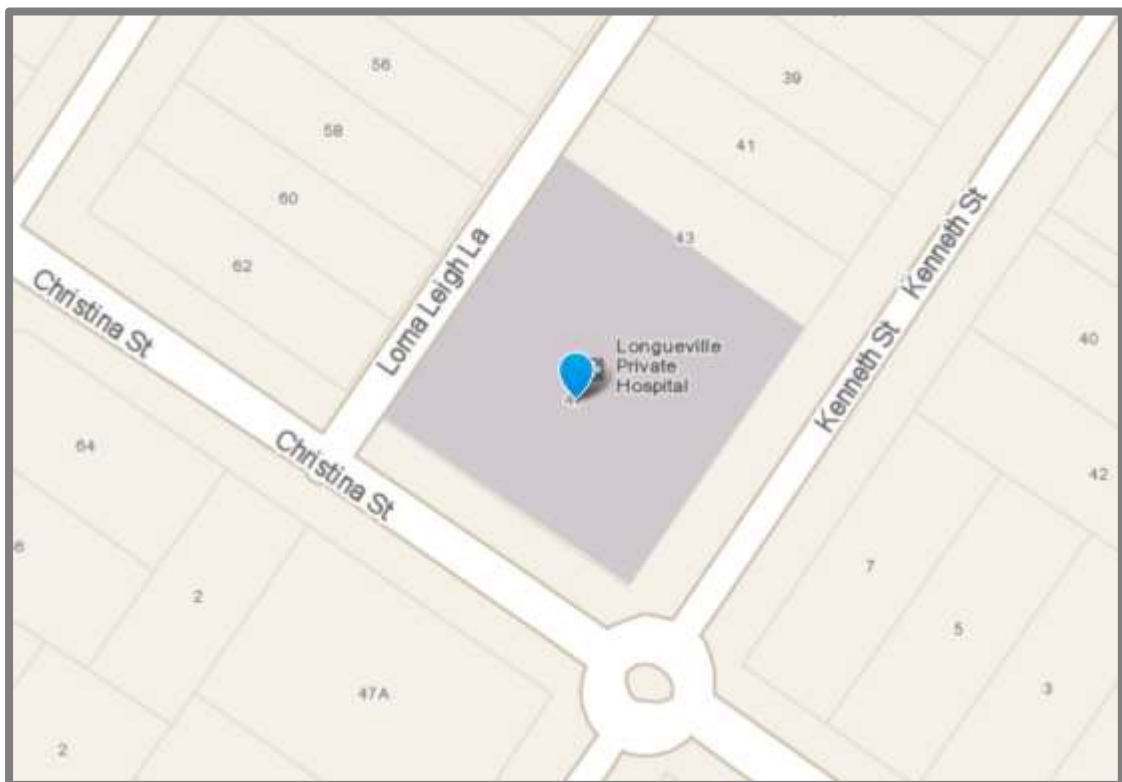
Building Description

3.1 General

The overall site is located at 43-47 Kenneth Street, Longueville, and is bounded by–

- Christina Street to the south
- Lorna Leigh Lane to the west
- Kenneth Street to the east
- Adjoining properties to the north

Figure 3.2.1 – Locality plan



For the purposes of the NCC 2019, the building is described within items 3.2 – 3.6 below.

3.2 Rise in Storeys

The existing building has a rise in storeys of two (2).

The proposed works will cause the building to have a rise in storeys of three (3).

3.3 Building Classification

The existing building contains a single classification, namely –

- Class 9a – health care facility

The proposed works do not change the classification.

3.4 Effective Height

The existing building has an effective height of approximately 2.6-metres (RL 47.70 – 45.10 = 2.6-metres).

The proposed works shall increase the effective height to approximately 4.9-metres (RL 51.00 – 45.10 = 4.9-metres).

3.5 Type of Construction

Based upon the rise in storeys and building classification, the proposed works are subject to the fire rating requirements associated with Type A Construction.

3.6 General Floor Area Limitations

The proposed buildings are restricted to the following floor area and volume limitations for individual fire compartments –

- Class 9a (non-patient care)

–	Floor area	–	5,000 m ²
–	Volume	–	30,000 m ³

- Class 9a (patient care)

(a) *Fire compartments*

–	Floor area	–	2,000 m ²
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(b) *Ward areas*

1. Where the floor area of a ward exceeds 1,000 m², it must be divided into areas not greater than 1,000 m² by 60/60/60 fire rated walls and construction.

2. Where the floor area of a ward exceeds 500 m², it must be divided into areas not greater than 500 m² by smoke proof walls and construction.
3. Where the floor area of a ward is less than 1,000 m², any smoke proof walls and construction must have a 60/60/60 FRL.

(c) *Treatment areas*

Treatment areas must be divided into areas not greater than 1,000 m² by smoke proof walls and construction.

(d) *Ancillary use areas*

Ancillary use areas located within a patient care area containing equipment or materials that are a high potential fire hazard must be separated from the sole-occupancy units by Spec. C2.5 compliant smoke proof walls.

Ancillary areas include, but are not limited to –

1. A kitchen and related food preparation areas having a combined floor area of more than 30 m².
2. A room containing a hyperbaric facility (pressure chamber).
3. Storage rooms greater than 10 m² used predominately for the storage of administrative records.
4. A laundry, where items of equipment are of a type that are potential fire sources.

3.7 Fire Safety Schedule

Table 3.7.1 below provides a copy of the Fire Safety Schedule associated with the *existing* building (as derived from the DRAFT Annual Fire Safety Statement provided by the client) and the *proposed* building works (utilizing the provisions / comments contained Section 4 of this report).

Table 3.7.1 – Fire safety schedule

Fire Safety System	Status (*)	Performance Standard
Automatic fail-safe devices	E	Ordinance 70, Part 21 AS 1670.1-1995
Automatic fire detection & alarm system	E	BCA Specification E2.2a AS 1670.1-1995
	P	NCC 2019 Amdt 1, Table E2.2a NCC 2019 Amdt 1, Spec. E2.2a AS 1670.1-2018

Fire Safety System	Status (*)	Performance Standard
Emergency lighting	E	Ordinance 70, Part 55.12 (part) BCA Clause E4.2, E4.4 (part) AS 2293.1-1995 (part) AS 2293.1-2005 (part)
	P	NCC 2019 Amdt 1, Clause E4.2, E4.4 AS 2293.1-2018
Evacuation diagrams	E	AS 3745-2010
EWIS	P	NCC 2019 Amdt 1, Clause E4.9 AS 1670.4-2018
Exit signs	E	Ordinance 70, Part 24.29 (part) BCA Clause E4.5, E4.6, E4.8 (part) AS 2293.1-1995 (part) AS 2293.1-2005 (part)
	P	NCC 2019 Amdt 1, Clause E4.5, E4.6, E4.8 AS 2293.1-2018
Fire blankets	E	AS 2444-2001
Fire doors	E	Ordinance 70, Part 22.6 AS CA57
	P	NCC 2019 Amdt 1, C2.12, C3.5, C3.8
Fire hose reels	E	Ordinance 70, Part 27.3 AS CA18
	P	NCC 2019 Amdt 1, Clause E1.4 AS 2441-2005
Fire hydrant system	P	NCC 2019 Amdt 1, Clause E1.3 AS 2419.1-2005
Fire seals	E	Ordinance 70, Part 22.13 AS A30-1958
	P	NCC 2019 Amdt 1, Clause C3.12, C3.15, C3.16 AS 1530.4-2014

Fire Safety System	Status ^(*)	Performance Standard
Lightweight construction	E	Ordinance 70, Part 16.11(10), 17.3
	P	NCC 2019 Amdt 1, Clause C1.8, C2.5 NCC 2019 Amdt 1, Spec. C1.8 AS 1530.4-2014
Mechanical air handling system		
• Automatic air pressurisation	P	NCC 2019 Amdt 1, Table E2.2a NCC 2019 Amdt 1, Spec. E2.2a
• Automatic shutdown of air handling	P	NCC 2019 Amdt 1, Clause E2.2
• Zone pressurisation system	P	NCC 2019 Amdt 1, Table E2.2a AS 1668.1-2015
Portable fire extinguishers	E	BCA Clause E1.6 AS 2444-2001
	N	NCC 2019 Amdt 1, Clause E1.6 AS 2444-2001
Smoke doors	E	Ordinance 70, Part 21.3
Warning & operational signage	E	BCA Clause D2.23
	P	NCC 2019 Amdt 1, Clause D2.23, E3.3
Wall-wetting sprinklers	P	NCC 2019 Amdt 1, Clause C3.3, C3.4, D1.7

^(*) Fire safety measure is "EXISTING" (E), "PROPOSED" (P), or "TO BE MODIFIED" (M)

NCC 2019 – Specification

4.1 General

The following prescriptive provisions of NCC 2019 are applicable to the proposed building works.

In each instance, the *primary* requirements of these prescriptive provisions are highlighted in the comments provided below.

As these comments are not necessarily exhaustive, for more detailed design information, the corresponding clause reference in NCC 2019 should be consulted by the project team / stakeholders.

4.2 Section B – Structure

- **Clause B1.2 – Determination of individual actions**

The proposed works are to be designed and constructed in accordance with –

- (a) AS/NZS 1170.1-2002
- (b) AS/NZS 1170.2-2011
- (c) AS 1170.4-2007

- **Clause B1.4 – Determination of structural resistance of materials and forms of construction**

The proposed works are to be designed and constructed in accordance with –

- (a) Masonry – AS 3700-2011
- (b) Concrete – AS 3600-2009
- (c) Steel – AS 4100-1998
- (d) Glazing – AS 1288-2006 & AS 2047-2014
- (e) Metal roofing – AS 1562.1-2018

- **Clause B1.5 – Structural software**

Any software used in the design of structural elements of the building is to comply with the ABCB Protocol of Structural Software.

4.3 Section C – Fire Resistance

- Clause C1.1 – Type of Construction required
Specification C1.1 – Fire resisting construction

The proposed works are to be designed and constructed in accordance with the requirements of Specification C1.1 and for Type A Construction.

This includes, inter alia, the following features –

- (a) Support of another part provisions of clause 2.2 of Specification C1.1.
- (b) The provision of fire rated lintels as per clause 2.3 of Specification C1.1.
- (c) Enclosure of shaft provisions of clause 2.7 of Specification C1.1.
- (d) External walls (inc. any columns incorporated therein)

The following fire ratings must be achieved for load bearing and non-load bearing elements, having regard to their distance to a fire source feature.

	Load bearing	Non-load bearing
< 1.5-metres	120/120/120	– /120/120
1.5-metres < 3-metres	120/90/90	– /90/90
3-metres or more	120/60/30	– / – / –

- (e) Common walls and firewalls

120/120/120

- (f) Internal walls

	Load bearing	Non-load bearing
Fire resisting lift and stair shafts	120/120/120	– /120/120
Ventilating, pipe, garbage, and the like shafts not used for the discharge of hot products of combustion	120/120/120	– /90/90

- (g) Other load bearing internal walls and columns

120/ – / –

- (h) Floors

120/120/120

- (i) Roofs

Non-combustible roof covering, as the building has a rise in storeys of only three (3).

- **Clause C1.8 – lightweight construction**

Specification C1.8 – structural tests for lightweight construction

Any fire rated element using lightweight construction (i.e. firewall) must be designed and constructed in accordance with Clause and Specification C1.8.

- **Clause C1.9 – Non-combustible building elements**

The following building elements and their components must be of non-combustible construction –

- (a) External walls and common walls, including all components incorporated therein including the façade covering, framing and insulation.
- (b) The flooring and floor framing of lift pits.
- (c) Fire resisting non-load bearing internal walls.
- (d) Enclosing shaft walls to ventilating, pipe, garbage and the like shafts.

Having regard to this, particular attention is drawn to the elevation and section plans which depict the installation of aluminum cladding to the external walls.

Any such external wall cladding, and any sarking, insulation or other materials therein, need be selected carefully to ensure that all have test certificates verifying their non-combustibility status.

- **Clause C1.10 – Fire hazard properties**

Specification C1.10 – Fire hazard properties

- (a) Any new floor linings and floor coverings must have –
 - A maximum smoke development rate of 750 percent-minutes
 - A critical radiant heat flux not less than 4.5 kW/m² in patient care areas
 - A critical radiant heat flux not less than 2.2 kW/m² in non-patient care areas
- (b) Any new wall or ceiling linings must –
 - Have a smoke growth rate index not more than 100 or an average specific extinction area less than 250 kg/m²
 - In fire isolated exits – be Group 1 for both walls and ceilings
 - In public corridors – be Group 1 for both walls and ceilings
 - In specific areas – be Group 1 or 2 for both walls and ceilings
 - In other areas – be Group 1, 2 or 3 for both walls and ceilings
- (c) Air handling duct work must be installed to AS 4254 Parts 1 and 2;

- (d) Lift cars –
 - Floor linings and coverings must have a critical radiant heat flux not less than 2.2 kW/m²
 - Wall and ceiling lining materials must be Group 1 or 2
- (e) Other materials of construction must have a spread of flame index not more than 9, and a smoke developed index not more than 8 if the spread of flame index exceeds 5.

- **Clause C1.14 – Ancillary elements**

Only the following ancillary elements may be affixed to an external wall required to be non-combustible –

- (a) A non-combustible element
- (b) Gutter, downpipe or other plumbing fixture or fitting
- (c) Flashing
- (d) Grate or grille not more than 2 m² in area, and associated with a building service
- (e) Electrical switch, socket outlet, cover plate or the like
- (f) Light fitting
- (g) A required sign (**NB:** required means required to satisfy the DTS or performance provisions of NCC 2019)
- (h) A sign other than one provided under (a) or (g) that –
 - (i) Achieves a group number of 1 or 2; and
 - (ii) Does not extend beyond 1 storey; and
 - (iii) Does not extend beyond 1 fire compartment; and
 - (iv) Is separated vertically from other signs permitted by (h) by at least 2 storeys.
- (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that –
 - (i) Meets the relevant requirements of NCC 2019 Specification C1.10, table 4, as an internal element; and
 - (ii) Serves a storey –
 - A. At ground level; or
 - B. Immediately above a storey at ground level; and
 - (iii) Does not serve an exit, where it could render the exits unusable in a fire.

- (j) A part of a security, intercom or announcement system
- (k) Wiring
- (l) Paint, lacquer or a similar finish
- (m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k) above

- **Clause C2.2 – General floor area and volume limitations**
Clause C2.5 – Class 9a and 9c buildings
Specification C2.5

The following floor area limitations apply to health-care design under this provision of NCC 2019, noting that the proposed works creates additional floor area–

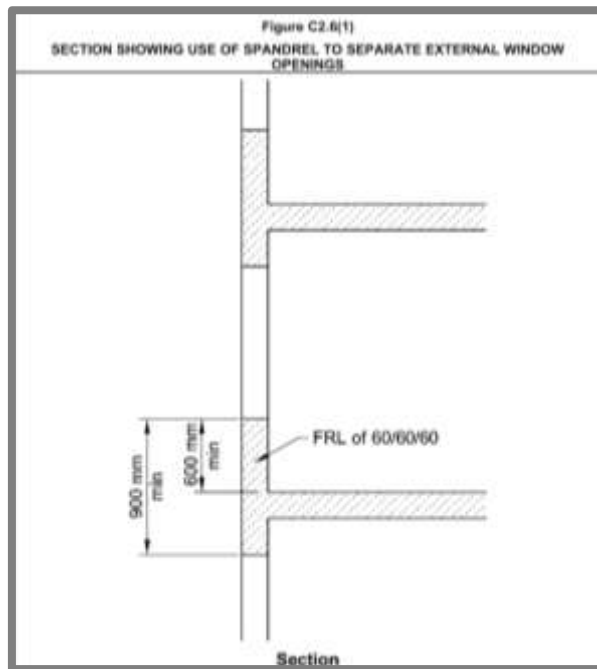
- (a) The floor area of fire compartments in patient care areas must not exceed 2000 m²
- (b) The floor area of ward areas must be divided into areas not exceeding 1000 m² with 1-hour fire rated walls
- (c) The floor area of ward areas must be divided into areas not exceeding 500 m² with Specification C2.5 complying smoke proof walls
- (d) Where the floor area of a ward area is between 500-1000 m², the smoke walls referred to in item (c) above need be upgraded to achieve a 1-hour fire rating also
- (e) The floor area of treatment areas must be divided into areas not exceeding 1000 m² with Specification C2.5 complying smoke proof walls
- (f) Openings in fire rated and smoke proof walls must be protected in accordance with Specification C2.5 and Part C3 of the BCA

Having regard to this, the various fire strategy floor plans listed in item 2.3 of this report above identify the floor area of individual compartments.

Each of the new compartments (as distinct from the existing ground floor hospital space) are labelled as being compliant with these limitations.

- **Clause C2.6 – Vertical separation of openings in external walls**

Noting that the existing building is not sprinkler protected, and it is understood that no sprinkler system is proposed, openings in the external walls located one above another need be provided with 1-hour fire rated horizontal projections or vertical spandrels (see below example of spandrels).

Figure C2.6.1 – Clause C2.6 compliant vertical spandrel detail

- **Clause C2.7 – Separation of fire walls**

Refer Clauses C1.1 and C2.5 above, and Clauses C3.5 and C3.7 below.

- **Clause C2.12 – separation of equipment**

The following equipment need be separated from the remainder of the building in 120/120/120 fire rated construction, with doorway openings fitted with - /120/30 fire rated door sets –

- (a) Lift motor rooms and lift control panels
- (b) Central smoke control plant
- (c) Boilers
- (d) A battery or batteries installed in the building that have a voltage exceeding 12 volts and a capacity of 200 kWh or more
- (e) Fire services pump room

- **Clause C3.2 – protection of openings in external walls**

Confirmation is required that the proposed openings in the external wall of the hydrotherapy pool facing Lorna Leigh Lane are more than 6-meters from the far side of the laneway.

Where less than 6-metres, such openings need be fitted with Clause C3.4 compliant opening protectives.

- **Clause C3.3 – Separation of external walls and associated openings in different fire compartments**

The line of firewall separation through the ground floor is intended to wrap around the open courtyard between compartments G1 and G2.

The various glazed openings in the perimeter of the open courtyard represent openings in the external walls of different fire compartments that need be fitted with Clause C3.4 compliant opening protectives.

Angle between walls	Minimum Distance
0° (walls opposite)	6 metres
More than 0° to 45°	5 metres
More than 45° to 90°	4 metres
More than 90° to 135°	3 metres
More than 135° to less than 180°	2 metres
180° or more	Nil

- **Clause C3.4 – acceptable methods of protection**

- (a) Windows –

1. External wall-wetting sprinklers over permanently fixed or automatic closing windows; or
2. – /60/ – fire rated windows that are permanently fixed or automatic closing and comply with Specification C3.4; or
3. – /60/ – automatic closing fire shutters and comply with Specification C3.4

- (b) Doors –

1. Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or
2. – /60/30 fire doors that are self-closing or automatic closing

- (c) Other openings –

1. Internal or external wall-wetting sprinklers as appropriate (except to voids); or
2. Construction having an FRL not less than – /60/ –

- **Clause C3.5 – Doorways in firewalls**
Clause C3.7 – Protection of doorways in horizontal exits

As expressed within Clauses C1.1 and C2.5 above, the doorway openings in 2-hour fire rated walls must be fitted with self-closing or automatic closing door sets having a fire rating not less than – /120/30.

Where the door leafs are to be automatic closing, such must be connected to (and ultimately activated by) –

- (a) The proposed automatic sprinkler system and any other fire detection system present within the building; and
- (b) AS 1670.1 compliant smoke detector units installed either side, and not more than 1.5-meters from, the doorway openings.

- **Clause C3.8 – openings in fire-isolated exits**

The doorway openings to the fire-isolated stair shafts must be fitted with door sets having an FRL of – /60/30 and be self-closing.

- **Clause C3.9 – service penetrations in fire-isolated exits**

The fire isolated exits must not be penetrated by services other than wiring for lighting, mechanical ducting for air pressurization, or fire service water supply pipes.

- **Clause C3.10 – openings in fire rated lift shafts**

- (a) The doorway openings to the lift shafts must be fitted with AS 1735.11 compliant landing doors, that have an FRL not less than - /60/-, and are set to remain in the closed position except when receiving or discharging persons.
- (b) A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than – /60/60 if it exceeds 35 000 mm² in area.

- Clause C3.12 – openings in floors and ceilings
- Clause C3.15 – openings for service installations
- Clause C3.16 – construction joints

Where any service penetrations are to be created through the existing fire rated walls construction joints between fire rated elements, and penetrations in fire rated elements, are to be installed in accordance with these particular provisions of the BCA and fire sealed (as applicable) with –

- (a) AS 1530.4-2005 and AS 4072.1-2005 compliant fire stopping materials; and
- (b) AS 1668.1-2015 compliant fire rated dampers.

It is proposed that the following particular products, or equivalents thereto, be employed –

(a) Electrical penetrations

1. Promat Fire Mastic – Promaseal (fire rated to 240-minutes)
2. Promat – Pillows (fire rated to 240-minutes)

(b) UPVC penetrations

Promat – Promaseal CFC Conduit Collars (fire rated up to 240-minutes)

(c) Metal pipe penetrations

Promat Fire Mastic – Promaseal (fire rated to 240-minutes)

(d) Mechanical penetrations

1. Trafalgar – Wombat Intumescent Fire Damper (ceiling)
2. Trafalgar – Wombat Intumescent Fire Damper (fire door)
3. Trafalgar – Wombat Intumescent Fire Damper (floor)
4. Trafalgar – Wombat Intumescent Fire Damper (wall)

All fire dampers are fire rated to 240-minutes.

(e) Construction joints

Promat Fire Mastic – Promaseal (fire rated to 240-minutes)

4.4 Section D – Access & Egress

- **Clause D1.2 – Number of exits required**

The proposed design maintains access to a minimum of two (2) exits for all occupants of the affected parts.

- **Clause D1.3 – When fire-isolated exits are required**

As both of the proposed stairways shall be contained within / serving patient care areas, such must be designed and constructed as fire-isolated exits.

Refer also Clause C1.1 above, and Clause D1.7 below.

- **Clause D1.4 – Exit travel distances**

(a) The occupant travel distance in the patient care areas must not be more than –

1. 12-metres from a point of choice between at least 2 exits; and
2. Not more than 30-metres overall to one of those exits.

(b) The occupant travel distance in all other non-patient care areas must not be more than –

1. 20-metres to a single; or
2. 20-metres to a point of choice between multiple exits, and 40-metres overall to one of those exits.

Having regard to the above, particular attention is drawn to the following –

- (a) The dead-end travel distance in the ground floor hydrotherapy pool area exceeds 12-metres.
- (b) Clarification is required as to the continued availability of egress out of the building and to Kenneth Street via the existing ambulance entry, as plan A105 appears to indicate that such shall be closed off.
- (c) Areas shall exist within the first floor that have a dead-end travel distance exceeding 12-metres to an exit or point of choice between exits.

For items (a) and (c) above, it is considered that a performance solution (at the construction certificate stage of the approvals process) could support the current design.

- **Clause D1.5 – distance between alternative exits**

- (a) Alternative exits must not be less than 9-metres apart.
- (b) Alternative exits must not be located more than 45-metres apart.

- **Clause D1.6 – Dimensions of exits and paths of travel to exits**

The proposed works are to be designed and constructed in accordance with the following –

- (a) The unobstructed height of doorway openings must not be less than 1980-mm
- (b) Accessways must have a minimum unobstructed width of 1000-mm, except where the transportation of beds will normally occur in which case a clear width not less than 1800-mm is required.
- (c) Doorway openings from new ward rooms where opening to a corridor less than 2200-mm in clear width must have a clear opening not less than 1200-mm wide.
- (d) Doorway openings from new ward rooms where opening to a corridor more than 2200-mm in clear width must have a clear opening not less than 1070-mm wide.
- (e) Further to items (c) and (d) above, the operable leaf of a double leaf door set must have a clear width not less than 800-mm.
- (f) The clear width of horizontal exit must not be less than 1200-mm.

- **Clause D1.7 – Travel via fire-isolated exits**

- (a) The proposed fire stairs must discharge directly to the roadway, and not have their attached fire-isolated passageways interconnected.
- (b) Where fire stairs discharge into a space within the building –
 - 1. That is used for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter;
 - 2. From which unimpeded travel not more than 20-metres long is available to a road or open space.
- (c) Only the following areas must be permitted to open directly into the fire-isolated stairways and their associated passageways –
 - 1. A public corridor, public lobby or the like; or
 - 2. An SOU occupying the entire storey; or
 - 3. A sanitary compartment, airlock or the like.
- (d) Where accessways between the discharge of a fire-isolated exit and the roadway necessitate passing within 6-meters of openings in the external wall of the same building, such openings must be fitted internally with Clause C3.4 compliant opening protectives.

Having regard to the above, particular attention is drawn to the following –

- (a) Stair 1 shall discharge into a covered area in the lower ground floor.
(It is considered that a performance solution (at the construction certificate stage of the approvals process) could support the current design).
- (b) Discharge from stair 1 necessitates passing openings in the external wall that will require internal Clause C3.4 compliant protection.

- **Clause D1.10 – Discharge from exits**

- (a) Each exit from each building must be directly to connected to the roadway by a ramp not exceeding 1:8; a stairway; or a combination thereof.
- (b) Where exits are capable of being obstructed by vehicles or the like, bollard protection must be installed.

- **Clause D1.11 – Horizontal exits**

Horizontal exits must have a clear space on the side of the firewall to which occupants are evacuating, to accommodate the total number of persons served by the horizontal exit, of not less than –

- (a) 2.5 m² per patient; and
- (b) 0.5 m² per person otherwise.

- **Clause D1.17 – Access to lift pits**

Access to the lift pit must be provided as per NCC 2019 Vol. 1 Clause D1.17.

- **Clause D2.2 – fire isolated stairways and ramps**

The fire-isolated stairway must be constructed of non-combustible material, and be designed such that local failure will not cause damage to the shaft.

- **Clause D2.7 – Installations in exits and paths of travel**

EDB's and communication boards are to be enclosed in non-combustible construction and smoke sealed from the remainder of the building.

- **Clause D2.13 – Treads and risers**

The new stairways are to have the following characteristics –

- (a) Riser dimension of 115-190-mm;
- (b) Going dimension of 250-350-mm;
- (c) Consistent riser and going dimensions through each flight;
- (d) Tread surfaces or nosing strips that have a slip resistance classification (as per AS 4856) of P3 for dry and P4 for wet;
- (e) Nosings that have a 50-75-mm wide strip of minimum 30% reflective difference (in colour) to the adjoining surfaces;
- (f) Not incorporate any winders in lieu of landings.

- **Clause D2.14 – Landings**

The new landings are to have the following characteristics –

- (a) Surfaces that have a slip resistance classification (as per AS 4856) of P3 for dry and P4 for wet;
- (b) A gradient not steeper than 1:50;
- (c) A depth not less than 750-mm;
- (d) Capable of accommodating the movement of a stretcher not less than 2000-mm long and 600-mm wide, or the landings at 180° changes in direction have a clear width not less than 1600-mm and length not less than 2700-mm.

- **Clause D2.15 – thresholds**

- (a) The threshold of doorways within the building shall not contain a step or change in level.
- (b) Where exiting from an area of the building accessible to people with a disability, the threshold of a doorway opening to a road or open space shall not contain a step or change in level unless it is provided with an AS 1428.1-2009 compliant threshold ramp or step ramp.
- (c) Where exiting from an area of the building NOT accessible to people with a disability, the threshold of a doorway opening to a road or open space shall not contain a step or change in level exceeding 190-mm.

- **Clause D2.16 – balustrades**

Balustrades must be designed and constructed in accordance with the following –

- (a) Achieve a height not less than 865-mm above stair nosings, and 1000-mm otherwise (i.e. landings, horizontal surfaces);
- (b) Other than fire-isolated stairways used only for emergency purposes, not contain openings greater than 125-mm;
- (c) For fire-isolated stairways used only for emergency purposes, not contain openings between rails more than 460-mm, and include a bottom rail not more than 150-mm above the stair nosings;
- (d) Where the drop to the ground / surface / floor below exceeds 4-metres, the balustrade must not contain any horizontal or near horizontal elements in the zone of 150-760-mm above the floor that could facilitate climbing.

- **Clause D2.17 – Handrails**

Handrails to the proposed stairways must be designed and constructed in accordance with the following –

- (a) Be located on at least one (1) side of each flight / ramp length.
- (b) Be continuous through each stair flight / ramp length.
- (c) Notwithstanding item (a) above, comply with Clause 11 of AS 1428.1-2009 for stairways in areas of the building required to be accessible to people with a disability (other than fire-isolated stairways used solely for emergency purposes).
- (d) Comply with Clause 12 of AS 1428.1-2009 for exit stairways serving areas required to be accessible.
- (e) Be located along at least one side of every corridor / passageway or the like used by patients, and be fixed not less than 50-mm clear of the wall and continuous for their full length (as practicable).

- **Clause D2.21 – Latching devices**

All doorways accessible to the occupants are to be designed so that persons can evacuate there-through without the use of a key, using lever handle devices –

- (a) located 900-1100-mm above the floor;
- (b) having a clearance between the door handle and the door leaf of between 35-45-mm;
- (c) that would not cause the grip of a user to slip therefrom.

If fitted with a fail-safe device which *automatically* unlocks the door, such must be connected to the activation of any sprinkler system complying with Specification E1.5 or smoke, or any other detector system deemed suitable in accordance with AS 1670.1 installed throughout the building

- **Clause D2.23 – signs on doors**

Signage need be provided to the following doors –

- (a) Both sides of the proposed horizontal exit doors and smoke doors;
- (b) Doorway openings in fire-isolated exits, on the side seeking egress;
- (c) Doorway openings discharging from fire-isolated exits, on the outside face.

The signage need state –

- (a) Automatic closing door leafs –
FIRE SAFETY DOOR – DO NOT OBSTRUCT
- (b) Self-closing door leafs –
FIRE SAFETY DOOR – DO NOT OBSTRUCT – DO NOT HOLD OPEN

- **Clause D3.1 – General building access requirements**

AS 1428.1-2009 compliant access for people with a disability must be provided to the following –

- (a) To and within all areas normally used by the occupants, unless otherwise exempted by Clause D3.4.

For information purposes – the proposed hydrotherapy pool does not have a sufficient perimeter length to require mandatory access for people with a disability under Clause D3.1.

Refer also Clause D3.3 below.

- **Clause D3.2 – Access to buildings**

AS 1428.1-2009 compliant access for people with a disability must be provided –

- (a) From the main points of pedestrian entry at the allotment boundary;
- (b) From any required accessible car parking space.

It is noted that the proposed design provides pedestrian access into the site via Kenneth Street, with a second access point at lower ground floor level adjacent to the accessible car parking space.

- **Clause D3.3 – Parts of buildings to be accessible**

AS 1428.1-2009 compliant access for people with a disability is to be provided to and within all parts identified in Clause D3.1 and D3.2 above.

This necessitates the provision, inter alia, of the following characteristics –

- (a) An unobstructed opening width to all new doorways, of not less than 850-mm.
- (b) Floor surfaces, including changes in level, must be AS 1428.1-2009 compliant in terms of being non-slip.
- (c) Door hardware must be installed as per AS 1428.1-2009 (i.e. located between 900-1100-mm above the floor, have a gap between the back of the handle and the face of the door leaf of 35-45-mm).
- (d) AS 1428.1-2009 compliant turning spaces within 2-metres of dead-ends in accessways, where it is not possible to continue along the accessway.
- (e) All doorways must have a minimum luminance contrast of 30% provided between either the –
 - 1. door leaf and door jamb;
 - 2. door leaf and adjacent wall;
 - 3. architrave and wall;
 - 4. door leaf and architrave; or
 - 5. door jamb and adjacent wall.

The minimum width of the area of luminance contrast must not be less than 50-mm.

- (f) All doorways must be provided with AS 1428.1-2009 compliant circulation space to both sides of the opening.
- (g) Power operated doors must be operated by automatic sensor or push button controls installed as per clause 13.5.3 and 13.5.4 of AS 1428.1-2009.

Such manual controls must be –

1. located on the continuous accessible path of travel
 2. no closer than 500 mm from an internal corner
 3. between 1000 mm to 2000 mm from the hinged door leaf in any position or clear of a surface-mounted sliding door in the open position.
- (h) Stairways must comply with Clause 11 of AS 1428.1-2009.
- (i) Circulation space at doorway openings must have a gradient and crossfall not steeper than 1:40.

Having regard to the above, particular attention is drawn to the following –

- (a) The proposed doorway opening in the ground floor reception area, between the office and the IT rooms (separating the reception and admin), is not provided with 530-mm latch side circulation.

This will necessitate either modification of the design or the installation of a all-mounted accessible door handle device on both sides of the opening.

- (b) One of the change rooms within the ground floor pool area need be designed to accommodate a wheelchair user, or the accessible toilet be designated for such a purpose.

NB: Whilst not forming part of this assessment, the Premises Standard will mosyt likely require, at the construction certificate stage of the approvals process, some upgrade of existing areas of the building.

- **Clause D3.5 – Accessible car parking**

The proposed accessible car pakring space to be provided in the lower ground floor need be designed and constructed in accordance with AS 2890.6.

- **Clause D3.6 – Signage**

- (a) The door leaf to accessible sanitary facility(ies) must be provided with BCA Specification D3.6 compliant tactile and braille signage incorporating the International Symbol of Access (see below example).



- (b) The door leaves to ambulant sanitary facilities in the ground floor must be provided with BCA Specification D3.6 compliant tactile and braille signage incorporating the International Symbol of Access.
- (c) The exit doors from each level of the building, must be provided with BCA Specification D3.6 compliant signage stating "EXIT" and "LEVEL" followed by the floor level number or floor level descriptor (see below example).



- **Clause D3.8 – Tactile indicators**

Where the proposed stairways are intended to be used for general movement and not simply fire evacuation purposes, AS 1428.4.1-2009 compliant tactile indicators need be provided to –

- (a) The top and bottom of stairways, and intermediate landings where AS 1428.1-2009 compliant handrails are not continuous through the landings

- **Clause D3.12 – glazing on an accessway**

All frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1-2009.

Markings must be solid, non-transparent and contrasting, and must extend the full width of the glazing panel(s).

The contrasting line shall be not less than 75 mm wide and shall extend across the full width of the glazing panel.

The lower edge of the contrasting line shall be located between 900 mm and 1000 mm above the plane of the finished floor level.

4.5 Section E – Services & Equipment

- **Clause E1.3 – Fire hydrants**

All parts of the building must continue to be provided with coverage from the fire hydrant service.

- **Clause E1.4 – Fire hose reels**

All parts of the building must be provided with coverage from the fire hose reel service.

- **Clause E1.6 – portable fire extinguishers**

AS 2444 compliant portable fire extinguishers must be provided throughout to cover –

- (a) Class A and E fire risks.

- **Clause E2.2a – General provisions**

- (a) Any air handling system must be arranged such it is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1

- (b) A smoke detection system must be installed in accordance with clause 6 of Specification E2.2a to operate any AS/NZS 1668.1 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.

- (c) The proposed fire-isolated stairways must be provided with AS 1668.1 compliant stair pressurisation.

- (d) The building must be provided with an AS 1668.1 compliant zone pressurisation system.

- (e) The building must be provided with an AS 1670.1 compliant fire detection system.

- **Clause E3.1 – Lift installations**

Specification E3.1 – Lift installations

The new internal passenger lift must be designed and constructed in accordance with NCC 2019 Specification E3.1.

- **Clause E3.3 – Warning against use of lifts in fire**

The new internal passenger lift must be provided with signage at each call button stating "DO NOT USE LIFTS IF THERE IS A FIRE" in either 10-mm high capital letters or 8-mm high lowercase letters.

- **Clause E3.4 – Emergency lifts**

The proposed lift must be designed and constructed as an emergency lift. This requires, inter alia –

- (a) The provision of a 2-hour fire rated lift shaft
- (b) Minimum car depth of 2280-mm
- (c) Minimum car width of 1600-mm
- (d) Minimum car floor to ceiling height of 2300-mm
- (e) Minimum car door height of 2100-mm
- (f) Minimum car door width of 1300-mm
- (g) Connection to any stand-by power system in the building

NB: The aforementioned minimum dimensions are measured clear of all obstructions.

- **Clause E3.5 – Landings**

Any new internal passenger lift must have access and egress to and from lift well landings in accordance with the *Deemed-to-Satisfy Provisions* of Section D.

- **Clause E3.6 – Passenger lifts**

- (a) The new internal passenger lift must be electric passenger lift type, and not rely on a constant pressure device for its operation (i.e. push button, turnkey); and
- (b) The new internal passenger lift must must contain the following design features –
 1. AS 1735.12-1999 compliant handrails; and
 2. AS 1735.12-1999 compliant passenger protection system; and
 3. AS 1735.12-1999 compliant control buttons; and
 4. AS 1735.12-1999 compliant lighting; and
 5. Emergency hands-free communication.

- Clause E4.2 – Emergency lighting
Clause E4.4 – Design and operation of emergency lighting

The building must be provided with AS 2293.1-2018 compliant emergency lighting throughout.

- Clause E4.5 – Exit signs
Clause E4.6 – Direction signs
Clause E4.8 – Design and operation of exit signs

The building must be provided with AS 2293.1-2018 compliant exit signage throughout.

- Clause E4.9 – Emergency warning & intercommunication system

The building must be provided with an AS 1670.4-2018 compliant EWIS throughout.

4.6 Section F – Health & Amenity

- **Clause F1.1 – Stormwater drainage**

The proposed building must be provided with AS/NZS 3500.3 compliant stormwater drainage

- **Clause F1.4 – External above ground membranes**

Water proofing membranes for above ground use in the proposed building are to be AS 4654.1 and 2 compliant.

- **Clause F1.6 – Sarking**

Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.

- **Clause F1.7 – Water proofing of wet areas**

The proposed wet areas must be water proofed in accordance with AS 3740-2010.

- **Clause F1.10 – Damp proofing of floors on ground**

AS 2870 compliant damp proofing is to be provided to the slab on ground.

- **Clause F1.13 – Glazed assemblies**

Refer Clause B1.4 above

- **Clause F2.3 – Facilities in Class 3 to 9 buildings**

- (a) The proposed design includes a kitchen space within the lower ground floor.
- (b) The proposed design includes a laundry space within the lower ground floor.
- (c) One shower for each 8 patients or part thereof.
- (d) One island type plunge bath in both the ground and first floors.
- (e) Each patient room is depicted as having a space for a bathroom, which needs to contain, as a minimum, a water closet and wash basin.

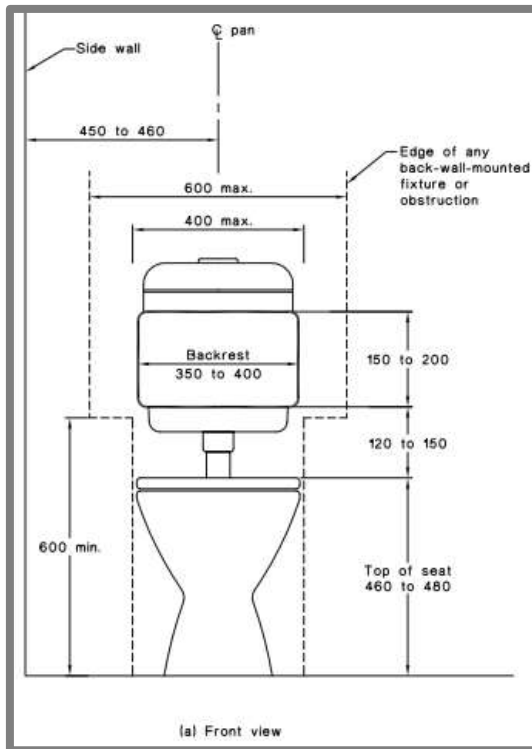
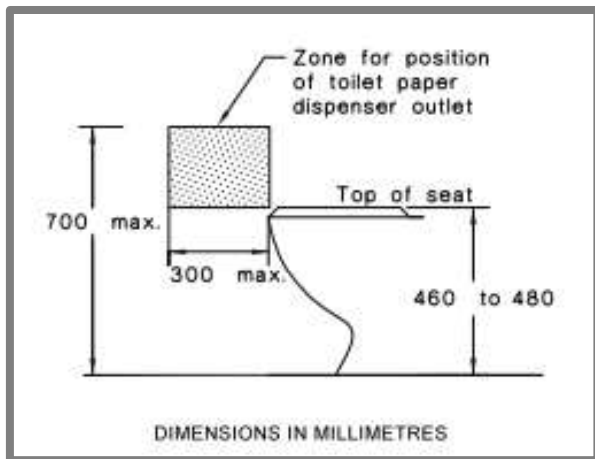
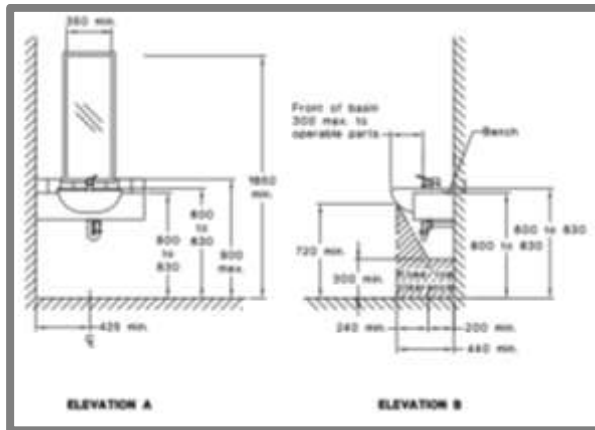
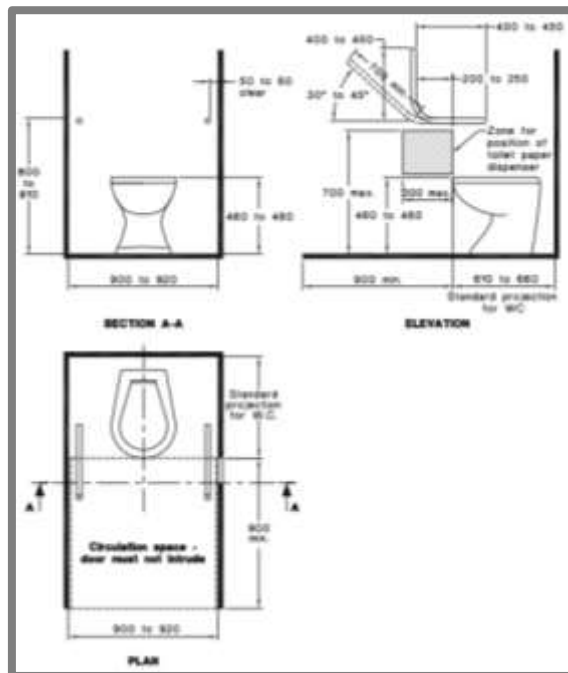


Figure F2.4.2 – Ambulant sanitary facilities

Having regard to the above, particular attention is drawn to the following –

- (a) The soap dispenser in the accessible toilet layouts need be relocated so as to not be within 500-mm of a wall junction.
- **Clause F2.8 – waste management**
Slop hoppers need to be provided / available on the ground and first floors.
- **Clause F3.1 – height of rooms and other spaces**
 - (a) The ceiling height within patient care areas must not be less than 2400-mm
 - (b) The ceiling height in all other areas must not be less than 2400-mm
- **Clause F4.1 – Provision of natural light**
Clause F4.2 – Method and extent of natural lighting
Clause F4.3 – Natural light borrowed from an adjoining room

Natural light must be provided to all rooms used for sleeping purposes (i.e. first floor), via windows or other light transmitting devices that have a light transmitting area not less than 10% of the floor area of the room served

- **Clause F4.4 – Artificial lighting**

Artificial lighting throughout the proposed building is to be designed and constructed in accordance with AS/NZS 1680.0-2009.

- **Clause F4.5 – ventilation of rooms**

Mechanical ventilation systems in the building are to be designed and constructed in accordance with AS 1668.2-2012.

4.7 Section G – Ancillary Provisions

- **Clause G1.1 – Swimming pools**

The water recirculation system to the swimming pool must be designed and installed to AS 1926.3.

- **Clause G6.1 – Application of part**

The proposed design shall contain occupiable outdoor areas on the first floor (i.e. plant deck; possible patio).

- **Clause G6.2 – Fire hazard properties**

The fire hazard property requirements expressed within Clause / Specification C1.10 of this report above apply equally to the proposed occupiable outdoor areas.

- **Clause G6.4 – Provision for escape**
Clause G6.5 – Construction of exits

The egress provisions within item 4.4 of this report above apply equally to the proposed occupiable outdoor areas.

- **Clause G6.6 – Fire-fighting equipment**

The fire-fighting and equipment provisions within item 4.5 of this report above apply equally to the proposed occupiable outdoor areas.

- **Clause G6.8 – Visibility in an emergency, exit signs and warning systems**

The emergency lighting, exit signs and warning equipment provisions within item 4.5 of this report above apply equally to the proposed occupiable outdoor areas.

- **Clause G6.9 – Light and ventilation**

The artificial lighting requirements expressed within Clause F4.4 of this report above apply equally to the proposed occupiable outdoor areas.

4.8 Section H – Special-Use Buildings

No provisions applicable to the proposed Works Package.

4.9 Section J – Energy Efficiency

- **Clause J1.3 – Roof and ceiling construction**

- (a) The roof / ceiling in the envelope of 'conditioned space' parts of each building must have a Total R-Value not less than 3.7 in the downward direction of heat flow.
- (b) The solar absorptance of the upper surface of the roofs must not be more than 0.45.

- **Clause J1.5 – Walls and glazing**

- (a) The Total System U-Value of wall-glazing construction in the envelope of a conditioned space must not be more than U2.0
- (b) Wall components in the wall-glazing construction in the envelope of a conditioned space must achieve a minimum Total R-Value of 1.4.
- (c) The solar admittance of externally facing wall-glazing construction in the envelope of a conditioned space must not be greater than –

1. Eastern aspect	–	0.10
2. Northern aspect	–	0.10
3. Southern aspect	–	0.10
4. Western aspect	–	0.10

- **Clause J3.4 – Windows and doors**

- (a) New windows must be designed and installed in accordance with AS 2047-1999
- (b) New doorway openings, where forming part of the envelope of a conditioned space, must be designed and constructed to be self-closing and incorporate a draft protection device at the base of the leaf and all other edges fitted with a foam or rubber compression strip.

- **Clause J3.5 – Exhaust fans**

Exhaust fans need be fitted with self-closing dampers where penetrating the envelope of the building.

- **Clause J3.6 – Construction of roofs, walls and floors**

The design and construction of new portions of roof, wall and floors, here forming part of the envelope of a conditioned space, are to minimize air leakage from the building envelope.

- **Part J5 – Air-conditioning and ventilation systems**

Any proposed air-conditioning system must be designed and installed in accordance with the requirements of Clauses J5.2 to J5.12 of NCC 2019, Vol. 1.

- **Part J6 – Artificial Lighting & Power**

All proposed artificial lighting and power systems must be designed and installed in accordance with the requirements of Clauses J6.2 to J6.8 of NCC 2019, Vol. 1.

- **Clause J7.2 – Heated water supply**

Any heated water supply for food preparation and sanitary purposes is to be designed and constructed in accordance with Part B2 of NCC Volume 3 (Plumbing Code of Australia).

- **Clause J8.3 – Facilities for energy monitoring**

- (a) The building is to incorporate the facility to record the consumption of electricity and gas.
- (b) The building is to incorporate the facility to individually record the energy consumption of –
 - 1. Air conditioning plant; and
 - 2. Artificial lighting; and
 - 3. Appliance power; and
 - 4. Central hot water supply; and
 - 5. Other ancillary plant.