



BCA Assessment Report

GenesisCare Campbelltown



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EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed GenesisCare development at Campbelltown, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 5 'Matters for Further Consideration' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	Description	BCA Provision
Performance Solutions Required		
1.	In accordance with BCA Clause D1.2(d), in a patient care area in a Class 9a building, no point on the floor must be more than 12 m from a point from which travel in different direction to 2 of the required exits is available; and the maximum distance to one of those exits must not be more than 30 m from the starting point. The ground level bunker 1 and 2 have extended travel distances of up to 20 m (in lieu of 12 m) to a point from which travel in 2 different directions is available and up to 37 m (in lieu of 30 m) to one of those exits. Accordingly, a Performance-based Alternative Solution will need to be prepared by an appropriately qualified Fire Engineer to satisfy the Performance Requirements DP4 & EP2.2.	D1.2(d) DP4 & EP2.2
2.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only
Building Code of Australia Compliance Matters to be Addressed		
1.	In accordance with BCA Part A6 (Building Classification), the classification of a building or part of a building is determined by the purpose for which it is designed, constructed, or adapted to be used. The proposed bicycle shed may be classified as one of the following building classifications: - a Class 7b (a storage-type building), or - a Class 10a (non-habitable building). For the purposes of this assessment, the bicycle shed has been considered as a Class 10a building that is likely to be constructed of light-weight construction with a metal sheet roof and wire walls and containing a minimal fire load. Accordingly, the southern external wall of the main GenesisCare building would not need to consider the Class 10a building for FRL requirements even though the bicycle shed is proposed to be located within 1.5 m of the building. If the bicycle shed was considered as a Class 7b building, the northern external wall of the bicycle shed would be required to have an FRL of 240/240/240 or '4 hours' of fire-rating and the patient care building would be required to have an FRL of 120/120/120 or '2 hours' of fire-rating.	BCA Part A6

Item	Description	BCA Provision
	In addition, the diesel generator and substation have been considered as Class 10b (non-habitable) structures which also do not require any fire-rating. Similar to the above, if the diesel generator is located within a building then the structures may need to be considered as another building classification.	
2.	A Class 9a health care building in a <i>flood hazard area</i> must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas. Certification is required to confirm that the building has been designed to comply with the relevant parts of Clauses 2.3 to 2.10 of ABCB Standard for Construction of Buildings in Flood Hazard Areas.	BCA Clause B1.6
3.	As the building is required to be of Type A construction, the external façade, external walls, commons walls and non load-bearing internal walls where they are required to be fire-resisting are required to be <i>non-combustible</i> and comply with Clause C1.9 of BCA2019 which states as follows: (a) In a building required to be of Type A or B construction, the following building elements and their components must be <i>non-combustible</i>: (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (ii) The flooring and floor framing of lift pits. (iii) Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of <i>non-combustible</i> construction in— (i) a building required to be of Type A construction; and (ii) a building required to be of Type B construction, subject to C2.10, in— (A) a Class 2, 3 or 9 building; and (B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses. (e) The following materials, may be used wherever a <i>non-combustible</i> material is required: (i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting.	BCA C1.9

Item	Description	BCA Provision
	(v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) <i>Sarking-type materials</i> that do not exceed 1 mm in thickness and have a <i>Flammability Index</i> not greater than 5. (vii) Bonded laminated materials where— (A) each lamina, including any core, is <i>non-combustible</i>; and (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.	
4.	In accordance with BCA Clause C2.5(a)(v), ancillary use areas located within a patient care area and containing equipment or materials that are a high potential fire hazard, must be separated from the remainder of the patient care area by walls with an FRL of not less than 60/60/60. The ancillary use areas include, but are not limited to, the following areas: (A) A kitchen and related food preparation areas having a combined <i>floor area</i> of more than 30 m². (B) A room containing a hyperbaric facility (pressure chamber). (C) A room used predominantly for the storage of medical records having a <i>floor area</i> of more than 10 m². (D) A laundry, where items of equipment are of the type that are potential fire sources (e.g. gas fire dryers). Accordingly, on the Ground Level of the building, the store room (over 10 m²) and dirty utility room (if contains gas fire dryers or other potential fire sources) <u>may</u> need to comply with the above requirements. Notwithstanding, if these rooms are located outside of the patient care area (identified by the pink line) which is required to have a '2 hour' fire and smoke wall compartment then they will not need to be separated by '1 hour' fire-rating.	BCA C2.5
5.	In accordance with BCA Clause C2.12(a), equipment such as a battery system having a total voltage of 12 volts or more and a storage capacity of 200kWh or more must be separated from the remainder of the building with construction complying with BCA Clause C2.12(d). Accordingly, if the proposed UPS room on the ground level of the building contains a battery system as specified above, it will need separated in accordance with the following: (d) Separating construction must have— (i) except as provided by (ii)— (A) an FRL as <i>required</i> by <i>Specification C1.1</i>, but not less than 120/120/120; and (B) any doorway protected with a <i>self-closing</i> fire door having an FRL of not less than 120/30/30; or (ii) when separating a lift <i>shaft</i> and lift motor room, an FRL not less than 120/—/—.	BCA C2.12
6.	In accordance with BCA Clause C2.13(d), where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated from non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear. BCA Clause C2.13(e) provides details of emergency equipment:	BCA C2.13

Item	Description	BCA Provision
	(e) For the purposes of (d), emergency equipment includes but is not limited to the following: (i) Fire hydrant booster pumps. (ii) Pumps for <i>automatic</i> sprinkler systems, water spray, chemical fluid suppression systems or the like. (iii) Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building. (iv) Air handling systems designed to exhaust and control the spread of fire and smoke. (v) Emergency lifts. (vi) Control and indicating equipment. (vii) Emergency warning and intercom systems. Accordingly, if the diesel generator/substation sustains the above emergency equipment they will be required to comply with the above requirements.	
7.	The Level 3 'Wellness Pavilion' is proposed to have folding doors to divide the room into various configurations. Accordingly, BCA Section D compliant doorways will need to be provided in addition to the folding doors as a permanent section of the wall to ensure that paths of travel to an exit are not obstructed when the folding walls are extended to divide the floor up.	Part D1
8.	In accordance with BCA Clause D1.2(e), in a Class 9a health-care building, at least one exit must be provided from every part of a storey which has been divided into fire compartments in accordance C2.2 or C2.5. The Level 1 patient care area which is separated by the '2 hour' fire wall required by BCA Clause C2.5(a)(i) is not connected directly to any of the fire-isolated stairways. Accordingly, BCA Clause D1.11 - horizontal exit will be required to be provided. In accordance with BCA Clause D1.11(d), horizontal exits must have a clear area on the side of the fire wall to which occupants are evacuating, to accommodate the total number of persons (calculated under D1.13) served by the horizontal exit of not less than 2.5m² per patient in a Class 9a health-care building. In addition, BCA Clause D1.11(e), where a fire compartment is provided with only two exits, and one of those exits is a horizontal exit, the clear area required above is to be of a size that accommodates all the occupants from the fire compartment being evacuated. Accordingly, to satisfy BCA Clause D1.2(e), the below horizontal exit between the patient care area and the waiting room is required to be provided. The waiting area / lobby shall provide sufficient space to accommodate 11 patients at 27.5m².	BCA D1.2 & D1.11
9.	In accordance with BCA Clause D2.14(b), landings in a stairway of a Class 9a building must comply with the following: (i) The area of any landing must be sufficient to move a stretcher, 2 m long and 600 mm wide, at a gradient not more than the gradient of the stairs, with at least one end of the stretcher on the landing while changing direction between flights; or (ii) The stair must have a change of direction of 180 degrees, and the landing a clear width of not less than 1.6 m and a clear length of not less than 2.7 m. Accordingly, the current proposed design plans indicate that there is sufficient space, however at construction certificate stage where the drawings include details such as hydrants and handrails, the clearance will	BCA D2.14

Item	Description	BCA Provision
	be required to be reviewed to determine compliance with the above requirements.	
10.	In accordance with BCA Clause D2.17(b), handrails in a Class 9a health-care building must be provided along at least one side of every passageway or corridor used by patients, and must be- (a) Fixed not less than 50 mm clear of the wall; and (b) Where practicable, continuous for their full length. Accordingly, at construction certificate stage, detailed drawings including handrails in every passageway or corridor used by patients shall be detailed to comply with the above requirements.	BCA D2.17
11.	In accordance with BCA Clause D2.22(a), doors of a fire-isolated exit must <u>not</u> be locked from the inside in a Class 9a health-care building. The requirements do not apply to a door fitted with a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and – (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation. Accordingly, as the eastern fire-isolated stairway opens directly into each Level other than Level 1 where a smoke lobby is provided, therefore upon activation of the fire alarm these doors will open removing any security available to the level. The security risk either must be accepted or a lobby be provided.	BCA D2.22
12.	In accordance with BCA Table E1.5, sprinklers are required throughout the building and in any fire compartment containing a Class 9a part used for residential care. A residential care building means ‘a Class 3, 9a or 9c building which is a place of residence where 10% or more of persons who reside there need physical assistance in conducting their daily activities and to evacuate the building during an emergency (including any aged care building or residential age care building) <u>but does not include a hospital.</u>’ BCA Table E2.2a requires that the following smoke hazard management in the building; -	BCA E1.5 & Part E2

Item	Description	BCA Provision
	A Class 9a health-care building or a Class 9c building, or a building containing a part thereof, must be provided throughout with— (a) an automatic smoke detection and alarm system complying with Specification E2.2a; and (b) automatic shutdown of any air-handling system which does not form part of a zone pressurisation system (other than individual room units with a capacity not more than 1000 L/s, systems serving critical treatment areas and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) on the activation of— (i) smoke detectors installed in accordance with (a); and (ii) any other installed fire detection and alarm system including a sprinkler system complying with Specification E1.5; and (c) in a building having a rise in storeys of more than 2 and not more than 25 m effective height (not being a Class 9c building)— (i) a zone pressurisation system between vertically separated fire compartments in accordance with AS 1668.1; or (ii) a sprinkler system complying with Specification E1.5 throughout with residential sprinkler heads in patient care areas. Notes: - Refer to Clause 2 of Specification C2.5 for the provisions for smoke dampers. - The requirement for pressurisation 'between vertically separated fire compartments' refers to fire compartments above and below each other, and does not apply to fire compartments within the same storey. Accordingly, the design does not contain any residential care areas however if this changes or the building would like to support this use in the future sprinklers complying with BCA Clause E1.5 are recommended to be installed throughout the building to also comply with the requirements of BCA Table E2.2a. In addition, if the building is provided with a Specification E1.5 sprinklers system throughout, the building will not need to comply with BCA Clause C2.6 for vertical separation of openings in external walls as identified as a possible non-compliance on the western elevation of the building. Alternatively, a zone pressurisation system may be provided, however this will not resolve any potential spandrel non-compliance.	
13.	In accordance with BCA Clause E3.2(a), a stretcher facility must be provided in at least one emergency lift required by BCA Clause E3.4. In accordance with BCA Clause E3.4, an emergency lift must be installed in Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space. In addition, BCA Clause E4.3(c), requires where two or more passenger lifts are proposed, there must be at least two (2) emergency lifts must be provided. Accordingly, two (2) emergency lifts (with one (1) accommodating a stretcher facility) must be installed in a Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space.	BCA E3.2 & E3.4
14.	In accordance with BCA Clause F2.3(g), a Class 9a health-care building must be provided with – (i) One kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and (ii) Laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary products and the like and the receipt and storage of clean linen and (iii) One shower for each 8 patients or part thereof.	BCA F2.3

Item	Description	BCA Provision
	Accordingly, a kitchen is to be provided for patients on Level 1. A plunge bath is not required as the 'day use' inpatient treatment uses of the building will not accommodate any overnight residential sleeping ward uses.	
15.	In accordance with BCA Clause F2.3(a), separate sanitary facilities for males and females must be provided in accordance with Table F2.3 given that no ward areas are proposed. Accordingly, based on the Table F2.3 review undertaken and provided below, the following numbers of persons (equal number of male and females) can be accommodated within the building based on the sanitary facilities provided: - Employees (combined all levels) – 50 total - Patients – Ground Level – 32 total - Patients - Level 1 – 64 total - Patients – Level 2 – 48 total Notwithstanding that Level 2 has been classified as a Class 5 medical centre which have nil sanitary facility requirements for out-patients. Accordingly, the sanitary facilities have been counted for out-patients in a Class 9a health care building. - Patrons – Level 3 - 200 total Note: the above populations do not consider D1.6 exit widths.	BCA F2.3
16.	In accordance with BCA Clause F2.8(a), in a Class 9a health-care building, at least one slop-hopper or other device, other than a water closet pan or urinal, must be provided – (i) On any storey containing bedrooms to facilitate emptying of containers of sewage or dirty water; and (ii) With a flushing apparatus, tap and grating. Accordingly, Level 1 of the building is provided with an ISO room, which if considered as a bedroom would be required to be provided with at least one slop-hopper.	BCA F2.8
17.	In a designated bushfire prone area, a Class 9 building that is a special fire protection purpose, must comply with the following— (a) AS 3959 except— (i) as amended by Planning for Bush Fire Protection; and (ii) for Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). Buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level; or (b) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.	BCA G5.2 NSW

Item	Description	BCA Provision
	Accordingly, verify if the building will be located within bushfire prone land and if so the above will be required to be complied with.	

Annexure D to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA.

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at the corner of Kellicar Road and Camden Road, Campbelltown.

The building development is a 4-storey patient care building consisting of a top floor 'Wellness Pavilion', a level 2 medical centre and two storeys of patient care areas and associated ancillary uses.

The site is bounded by Camden Road to the north, Kellicar Road to the south east and Narellan Road to the west.



Figure 1. Site location map (Source: Google maps)

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019 Amendment 1 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4. Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- (a) the structural adequacy or design of the building;
- (b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
- (c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- (a) the National Construction Code – Plumbing Code of Australia Volume 3
- (b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 only);
- (c) Demolition Standards not referred to by the BCA;
- (d) Work Health and Safety Act 2011;
- (e) Requirements of Australian Standards unless specifically referred to;
- (f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
- (g) Conditions of Development Consent issued by the Local Consent Authority.

1.5. Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1. Rise in Storeys (Clause C1.2)

The building has a rise in storeys of four (4).

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification – Patient care building

Class	Level	Description
9a (Note ²)	Ground level	Patient care treatment area Ancillary-use service areas
5 9a (Note ²)	Level 1	Staff areas / Consultation Rooms Patient care treatment area Ancillary-use sanitary compartments
5 (Note ¹)	Level 2	Offices / Support MRI / PET / CT rooms
9b	Level 3	Wellness Pavilion EOT sanitary and shower facilities

Note¹: Level 2 of the building has been considered as a Class 5 'medical centre' use with office and support areas. Notwithstanding, as the design develops the classification for the Level may need to be reviewed.

Note²: The patient care areas have been assessed as 'day use' inpatient treatment areas only and as such the buildings facilities will accommodate no overnight accommodation.

Table 2. Building Classification – Ancillary buildings

Class	Level	Description
10a 10b	Ground level	Bicycle Shed Diesel generator / Substation

2.3. Effective Height (Clause A1.0)

The building has an *effective height* of less than 25 metres and more than 12 metres.

The Ground Floor SSL is 68000 and the Level 3 SSL is 82200, therefore the building has an effective height of 14.2 m.

2.4. Type of Construction Required (Table C1.1)

The building is required to be of Type A Construction, the most fire-resistant.

2.5. Floor Area and Volume Limitations (Table C2.2)

The building is subject to maximum floor area and volume limits of:-

Class 5 & 9b	Maximum Floor Area	8,000 m ²
	Maximum Volume	48,000 m ³
Class 9a (except for patient care areas)	Maximum Floor Area	5,000 m ²
	Maximum Volume	30,000 m ³

2.6. Fire Compartments

The following *fire compartments* have been assumed:

- (a) Each storey of the building has been considered as its own fire compartment.
- (b) Ground Level & Level 1 of the building is divided into two (2) fire compartments between patient-care area and non patient-care areas as required for BCA Clause C2.5(a)(i) compliance.

2.7. Exits

The following points in the building have been considered as the exits:

- (a) Ground Level – via (1) a doorway directly into open space on the eastern elevation of the building, (2) the lobby doorway to an awning on the western elevation of the building and (3) the double doors exiting from the ambulance bay on the south elevation of the building.
- (b) Level 1 to 3 – via (1) the fire-isolated stairway on the north western elevation of the building and (2) the fire-isolated stairway on the east elevation of the building.
- (c) Level 1 – via a horizontal exit between the patient care area and the waiting room.

2.8. Climate Zone (Clause A1.0)

The building is located within Climate Zone 6.

2.9. Location of Fire-source features

The fire source features for the subject development are:

North: The far side of Camden Road (>6m)

South: The far side of Narrellan Road (>6m) and the (the bicycle shed (~1.5m) & substation / diesel generator (~6.5m) have not been considered as fire-source features as they have been classified as Class 10 buildings.

East: The far side of Kellicar Road (>6m)

West: The far side of Narrellan Road (>6m)

Note: The elevations have been based on the building orientation provided by the architectural plans.

3 MATTERS FOR FURTHER CONSIDERATION

3.1. General

Assessment of the Architectural design documentation against the Deemed-to Satisfy Provisions of the Building Code of Australia, 2019 (BCA) has revealed the following areas where compliance with the BCA may require further consideration and/or may involve assessment as Performance Based (Fire Engineered) *Performance Solutions*. Any *Performance Solutions* will be required to clearly indicate methodologies for achieving compliance with the relevant *Performance Requirements*.

Annexure D to this report provides a detailed assessment of the proposal against ALL relevant Deemed-to-Satisfy Provisions of the BCA.

Note: It is important that Annexure D is read in conjunction with the items below, as some matters may not have had sufficient information provided to allow a detailed assessment to be undertaken.

3.2. Dimensions and Tolerances

The BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. BCA Logic's assessment of the plans and specifications has been undertaken to ensure the minimal dimensions have been met.

The designer and builder should ensure that the minimum dimensions are met onsite and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical matters such as access for people with disabilities, stair and corridor widths and balustrade heights.

3.3. Performance Based Design – Performance Solutions

There are specific areas throughout the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters will need to be addressed in a detailed Fire Safety Engineering Report to be prepared for this development under separate cover:

Table 3. Performance Solutions

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
1.	The construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only	
2.	In accordance with BCA Clause D1.2(d), in a patient care area in a Class 9a building, no point on the floor must be more than 12 m from a point from which travel in different direction to 2 of the required exits is available; and the maximum distance to one of those exits must not be more than 30 m from the starting point. The ground level bunker 1 and 2 have extended travel distances of up to 20 m (in lieu of 12 m) to a point from which travel in 2 different directions is available and up to 37 m (in lieu of 30 m) to one of those exits.	D1.2(d)	DP4 & EP2.2

Item	Description of Performance Solution	DTS Provision	Relevant Performance Requirements
	Accordingly, a Performance-based Alternative Solution will need to be prepared by an appropriately qualified Fire Engineer to satisfy the Performance Requirements DP4 & EP2.2.		

3.4. BCA Part A6 – Building Classification

In accordance with BCA Part A6 (Building Classification), the classification of a building or part of a building is determined by the purpose for which it is designed, constructed, or adapted to be used.

The proposed bicycle shed may be classified as one of the following building classifications:

- a Class 7b (a storage-type building), or
- a Class 10a (non-habitable building).

For the purposes of this assessment, the bicycle shed has been considered as a Class 10a building that is likely to be constructed of light-weight construction with a metal sheet roof and wire walls and containing a minimal fire load.

Accordingly, the southern external wall of the main GenesisCare building would not need to consider the Class 10a building for FRL requirements even though the bicycle shed is proposed to be located within 1.5 m of the building.

If the bicycle shed was considered as a Class 7b building, the northern external wall of the bicycle shed would be required to have an FRL of 240/240/240 or '4 hours' of fire-rating and the patient care building would be required to have an FRL of 120/120/120 or '2 hours' of fire-rating.

In addition, the diesel generator and substation have been considered as Class 10b (non-habitable) structures which also do not require any fire-rating. Similar to the above, if the diesel generator is located within a building then the structures may need to be considered as another building classification.

3.5. BCA Clause B1.6 – Construction of buildings in flood hazard areas

A Class 9a health care building in a *flood hazard area* must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas. Certification is required to confirm that the building has been designed to comply with the relevant parts of Clauses 2.3 to 2.10 of ABCB Standard for Construction of Buildings in Flood Hazard Areas.

3.6. BCA Clause C1.9 – Non-combustible building elements – Façade Construction

As the building is required to be of Type A construction, the external façade, external walls, commons walls and non load-bearing internal walls where they are required to be fire-resisting are required to be *non-combustible* and comply with Clause C1.9 of BCA2019 which states as follows:

- (f) In a building required to be of Type A or B construction, the following building elements and their components must be *non-combustible*:
 - (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.
 - (ii) The flooring and floor framing of lift pits.
 - (iii) Non-loadbearing internal walls where they are required to be fire-resisting.
- (g) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of *non-combustible* construction in—

- (i) a building required to be of Type A construction; and
- (ii) a building required to be of Type B construction, subject to C2.10, in—
 - (A) a Class 2, 3 or 9 building; and
 - (B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.
- (h) A *loadbearing* internal wall and a *loadbearing fire wall*, including those that are part of a *loadbearing* shaft, must comply with Specification C1.1.
- (i) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses.
- (j) The following materials, may be used wherever a *non-combustible* material is required:
 - (i) Plasterboard.
 - (ii) Perforated gypsum lath with a normal paper finish
 - (iii) Fibrous-plaster sheet.
 - (iv) Fibre-reinforced cement sheeting.
 - (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
 - (vi) *Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5.
 - (vii) Bonded laminated materials where—
 - (A) each lamina, including any core, is *non-combustible*; and
 - (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
 - (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

Currently the external façade construction has been nominated on the plans as follows:

- > Northern elevation –No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- > Southern elevation –No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- > Eastern elevation –No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.
- > Western elevation No external wall construction nominated on plans – further assessment required as design progresses to ensure *non-combustible* wall construction complies with above.

It is also noted that this clause also prohibits the use of in situ formwork containing combustible elements including PVC lined formwork products where the PVC lining remains in place for the life of the building where proposed to be used as an external wall element, common walls, the flooring and floor framing of lift pits, services riser shafts or non-*loadbearing* internal walls required to be fire resisting.

3.7. BCA Clause C2.5 – Class 9a and 9c buildings – Ancillary use areas

In accordance with BCA Clause C2.5(a)(v), ancillary use areas located within a patient care area and containing equipment or materials that are a high potential fire hazard, must be separated from the remained of the patient care area by walls with an FRL of not less than 60/60/60. The ancillary use areas include, but are not limited to, the following areas:

- (A) A kitchen and related food preparation areas having a combined **floor area** of more than 30 m².
- (B) A room containing a hyperbaric facility (pressure chamber).
- (C) A room used predominantly for the storage of medical records having a **floor area** of more than 10 m².
- (D) A laundry, where items of equipment are of the type that are potential fire sources (e.g. gas fire dryers).

Accordingly, on the Ground Level of the building, the store room (over 10 m²) and dirty utility room (if contains gas fire dryers or other potential fire sources) may need to comply with the above requirements. Notwithstanding, if these rooms are located outside of the patient care area (identified by the pink line) which is required to have a '2 hour' fire and smoke wall compartment then they will not need to be separated by '1 hour' fire-rating.

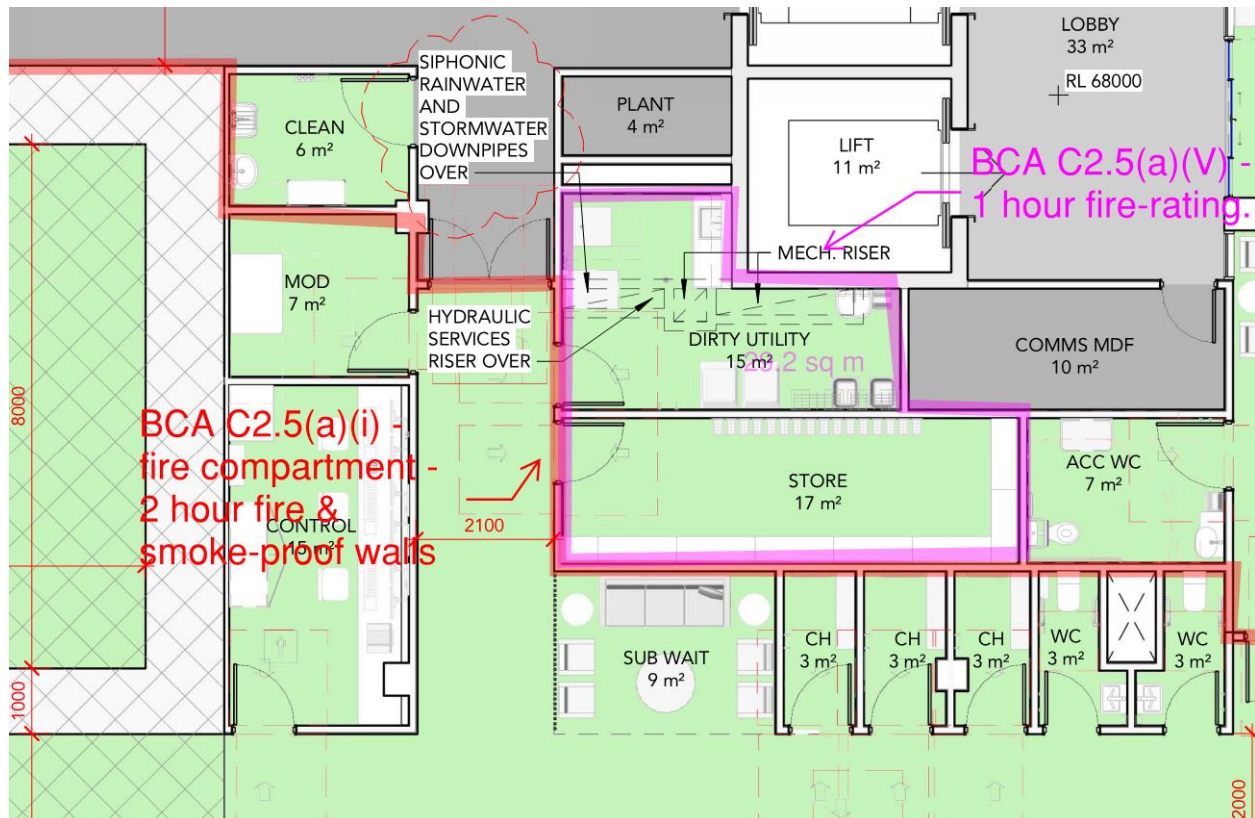


Figure 2. Ground Level ancillary-use rooms.

3.8. BCA Clause C2.12 – Separation of equipment

In accordance with BCA Clause C2.12(a), equipment such as a battery system having a total voltage of 12 volts or more and a storage capacity of 200kWh or more must be separated from the remainder of the building with construction complying with BCA Clause C2.12(d).

Accordingly, if the proposed UPS room on the ground level of the building contains a battery system as specified above, it will need separated in accordance with the following:

- (d) Separating construction must have—
 - (i) except as provided by (ii)—
 - (A) an FRL as **required** by **Specification C1.1**, but not less than 120/120/120; and
 - (B) any doorway protected with a **self-closing** fire door having an FRL of not less than –/120/30; or
 - (ii) when separating a lift **shaft** and lift motor room, an FRL not less than 120/–/–.

3.9. BCA Clause C2.13 – Electricity supply system

In accordance with BCA Clause C2.13(d), where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated from non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear. BCA Clause C2.13(e) provides details of emergency equipment:

- (e) For the purposes of (d), emergency equipment includes but is not limited to the following:
- (i) Fire hydrant booster pumps.
 - (ii) Pumps for *automatic* sprinkler systems, water spray, chemical fluid suppression systems or the like.
 - (iii) Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building.
 - (iv) Air handling systems designed to exhaust and control the spread of fire and smoke.
 - (v) Emergency lifts.
 - (vi) Control and indicating equipment.
 - (vii) Emergency warning and intercom systems.

Accordingly, if the diesel generator/substation sustains the above emergency equipment they will be required to comply with the above requirements.

3.10. BCA Part D1 – Provision for escape

The Level 3 'Wellness Pavilion' is proposed to have folding doors to divide the room into various configurations.

Accordingly, BCA Section D compliant doorways will need to be provided in addition to the folding doors as a permanent section of the wall to ensure that paths of travel to an exit are not obstructed when the folding walls are extended to divide the floor up.

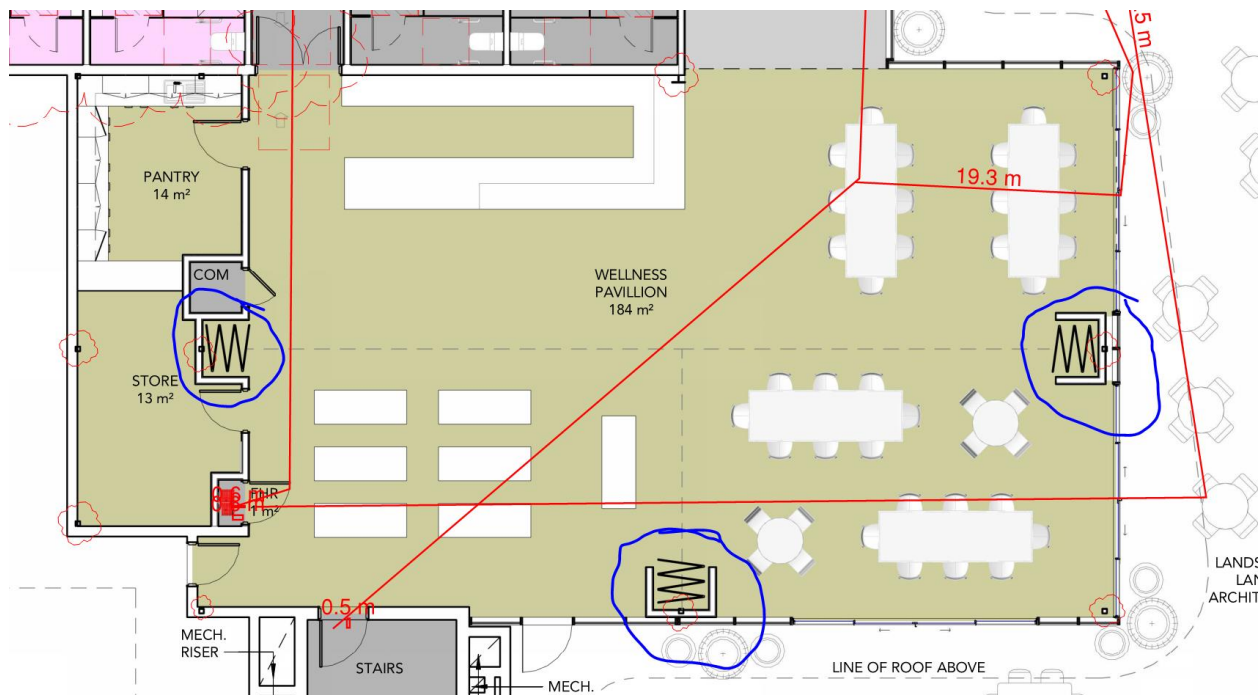


Figure 3. Level 3 'Wellness Pavilion' folding doors

3.11. BCA Clause D1.2 – Number of exits required

In accordance with BCA Clause D1.2(d), in a patient care area in a Class 9a building, no point on the floor must be more than 12 m from a point from which travel in different direction to 2 of the required exits is available; and the maximum distance to one of those exits must not be more than 30 m from the starting point.

The ground level bunker 1 and 2 have extended travel distances of up to 20 m (in lieu of 12 m) to a point from which travel in 2 different directions is available and up to 37 m (in lieu of 30 m) to one of those exits.

Accordingly, a Performance-based Alternative Solution will need to be prepared by an appropriately qualified Fire Engineer to satisfy the Performance Requirements DP4 & EP2.2.

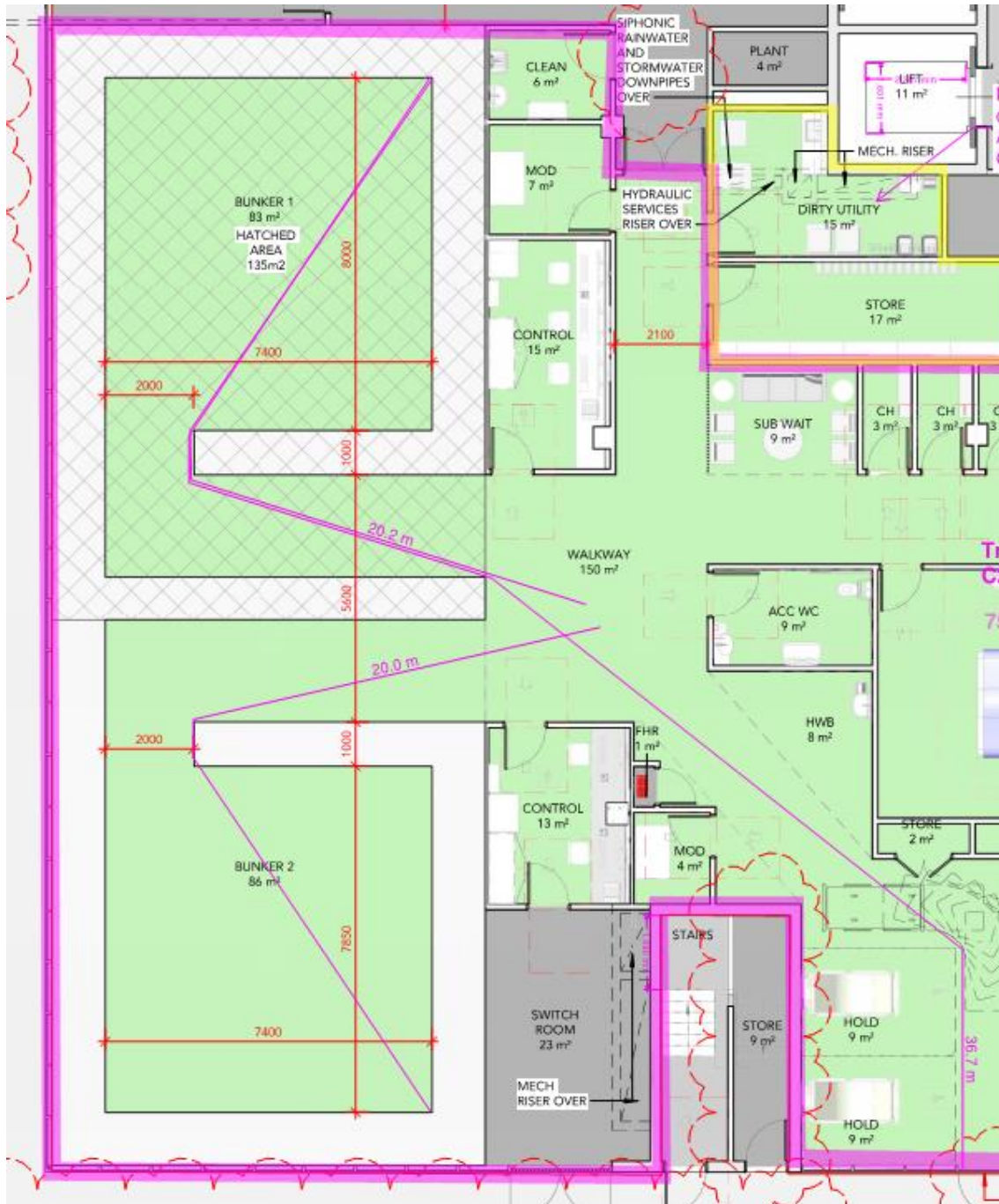


Figure 4. Travel distance to exit departure on Ground Level

3.12. BCA Clause D1.2 – Number of Exits & BCA Clause D1.11 - Horizontal exits

In accordance with BCA Clause D1.2(e), in a Class 9a health-care building, at least one exit must be provided from every part of a storey which has been divided into fire compartments in accordance C2.2 or C2.5.

The Level 1 patient care area which is separated by the '2 hour' fire wall required by BCA Clause C2.5(a)(i) is not connected directly to any of the fire-isolated stairways. Accordingly, BCA Clause D1.11 - horizontal exit will be required to be provided.

In accordance with BCA Clause D1.11(d), horizontal exits must have a clear area on the side of the fire wall to which occupants are evacuating, to accommodate the total number of persons (calculated under D1.13) served by the horizontal exit of not less than 2.5m² per patient in a Class 9a health-care building.

In addition, BCA Clause D1.11(e), where a fire compartment is provided with only two exits, and one of those exits is a horizontal exit, the clear area required above is to be of a size that accommodates all the occupants from the fire compartment being evacuated.

Accordingly, to satisfy BCA Clause D1.2(e), the below horizontal exit between the patient care area and the waiting room is required to be provided. The waiting area / lobby shall provide sufficient space to accommodate 11 patients at 27.5m².

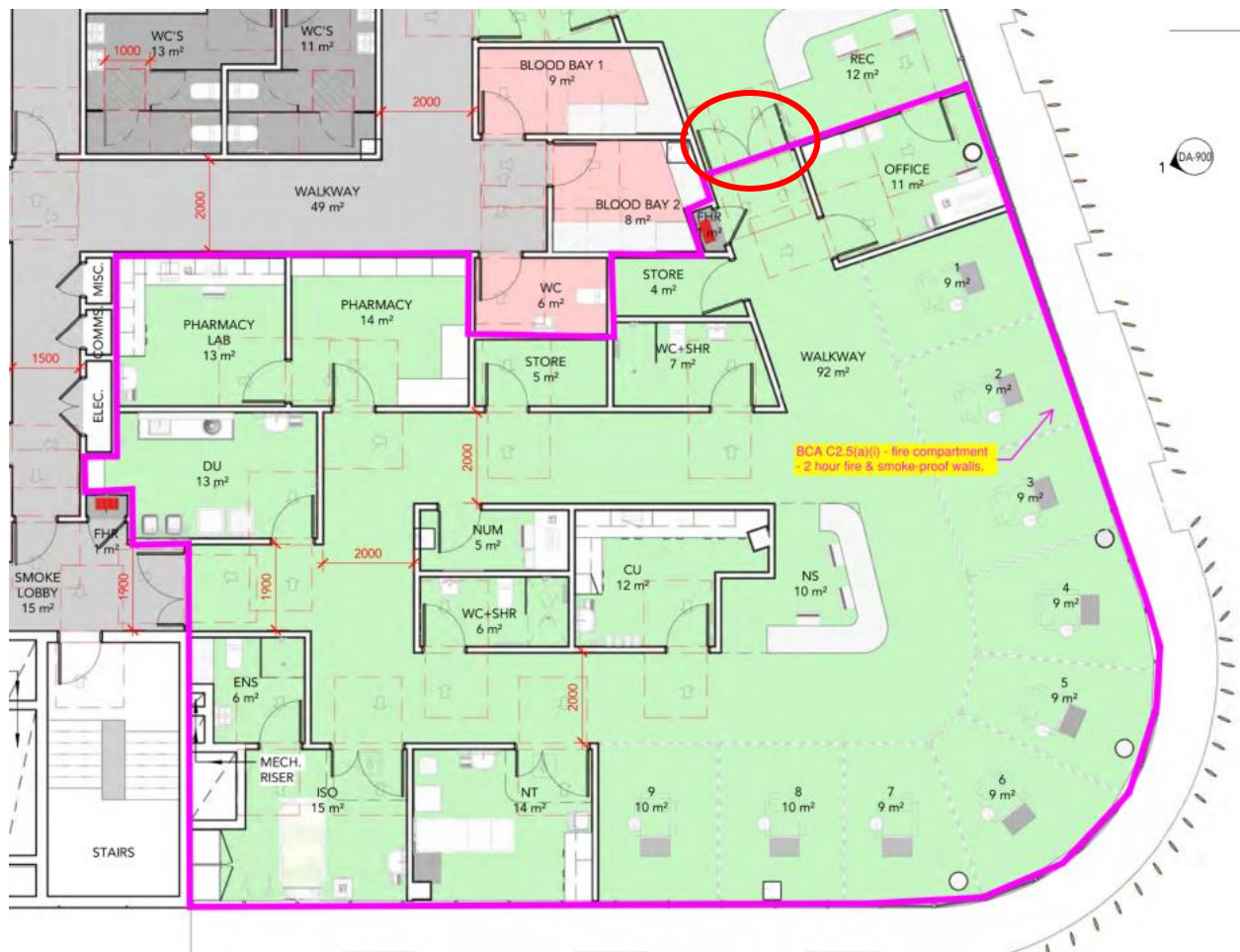


Figure 5. Level 1 horizontal exit highlighted.

3.13. BCA Clause D2.14 – Landings

In accordance with BCA Clause D2.14(b), landings in a stairway of a Class 9a building must comply with the following:

- (iii) The area of any landing must be sufficient to move a stretcher, 2 m long and 600 mm wide, at a gradient not more than the gradient of the stairs, with at least one end of the stretcher on the landing while changing direction between flights; or
- (iv) The stair must have a change of direction of 180 degrees, and the landing a clear width of not less than 1.6 m and a clear length of not less than 2.7 m.

Accordingly, the current proposed design plans indicate that there is sufficient space, however at construction certificate stage where the drawings include details such as hydrants and handrails, the clearance will be required to be reviewed to determine compliance with the above requirements.

3.14. BCA Clause D2.17 – Handrails

In accordance with BCA Clause D2.17(b), handrails in a Class 9a health-care building must be provided along at least one side of every passageway or corridor used by patients, and must be-

- (a) Fixed not less than 50 mm clear of the wall; and
- (b) Where practicable, continuous for their full length.

Accordingly, at construction certificate stage, detailed drawings including handrails in every passageway or corridor used by patients shall be detailed to comply with the above requirements.

3.15. BCA Clause D2.22 – Re-entry from fire-isolated exits

In accordance with BCA Clause D2.22(a), doors of a fire-isolated exit must not be locked from the inside in a Class 9a health-care building.

The requirements do not apply to a door fitted with a fail-safe device that automatically unlocks the door upon the activation of a fire alarm and –

- (iii) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or
- (iv) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation.

Accordingly, as the eastern fire-isolated stairway opens directly into each Level other than Level 1 where a smoke lobby is provided, therefore upon activation of the fire alarm these doors will open removing any security available to the level. The security risk either must be accepted, or a lobby be provided.

3.16. BCA Clause E1.5 – Sprinklers & BCA Part E2 - Smoke hazard management

In accordance with BCA Table E1.5, sprinklers are required throughout the building and in any fire compartment containing a Class 9a part used for residential care.

A residential care building means *‘a Class 3, 9a or 9c building which is a place of residence where 10% or more of persons who reside there need physical assistance in conducting their daily activities and to evacuate the building during an emergency (including any aged care building or residential age care building) **but does not include a hospital.**’*

BCA Table E2.2a requires that the following smoke hazard management in the building; -

A Class 9a *health-care building* or a Class 9c building, or a building containing a part thereof, must be provided throughout with—

- (a) an *automatic* smoke detection and alarm system complying with *Specification E2.2a*; and
- (b) *automatic* shutdown of any air-handling system which does not form part of a zone pressurisation system (other than individual room units with a capacity not more than 1000 L/s, systems serving critical treatment areas and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS 1668.1) on the activation of—
 - (i) smoke detectors installed in accordance with (a); and
 - (ii) any other installed fire detection and alarm system including a sprinkler system complying with *Specification E1.5*; and
- (c) in a building having a *rise in storeys* of more than 2 and not more than 25 m *effective height* (not being a Class 9c building)—
 - (i) a zone pressurisation system between vertically separated *fire compartments* in accordance with AS 1668.1; or
 - (ii) a sprinkler system complying with *Specification E1.5* throughout with residential sprinkler heads in *patient care areas*.

Notes:

1. Refer to *Clause 2 of Specification C2.5* for the provisions for smoke dampers.
2. The requirement for pressurisation 'between vertically separated *fire compartments*' refers to *fire compartments* above and below each other, and does not apply to *fire compartments* within the same *storey*.

Accordingly, the design does not contain any residential care areas however if this changes or the building would like to support this use in the future sprinklers complying with BCA Clause E1.5 are recommended to be installed throughout the building to also comply with the requirements of BCA Table E2.2a.

In addition, if the building is provided with a *Specification E1.5* sprinklers system throughout, the building will not need to comply with BCA Clause C2.6 for vertical separation of openings in external walls as identified as a possible non-compliance on the western elevation of the building. Refer to the figure overleaf which details a spandrel which is less than 900 mm in height and therefore is potentially a departure from the Deemed-to-Satisfy requirements of BCA Clause C2.6(a).

Alternatively, a zone pressurisation system may be provided, however this will not resolve any potential spandrel non-compliances.



Figure 6. Western elevation spandrel non-compliance.

3.17. BCA Clause E3.2 Stretcher facility in lifts & E3.4 – Emergency lifts

In accordance with BCA Clause E3.2(a), a stretcher facility must be provided in at least one emergency lift required by BCA Clause E3.4.

In accordance with BCA Clause E3.4, an emergency lift must be installed in Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space.

In addition, BCA Clause E4.3(c), requires where two or more passenger lifts are proposed, there must be at least two (2) emergency lifts must be provided.

Accordingly, two (2) emergency lifts (with one (1) accommodating a stretcher facility) must be installed in a Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or open space.

3.18. BCA Clause F2.3 – Facilities in Class 3 to 9 buildings

In accordance with BCA Clause F2.3(g), a Class 9a health-care building must be provided with –

- (iv) One kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and
- (v) Laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary products and the like and the receipt and storage of clean linen and
- (vi) One shower for each 8 patients or part thereof.

Accordingly, a kitchen is to be provided for patients on Level 1. A plunge bath is not required as the 'day use' inpatient treatment uses of the building will not accommodate any overnight residential sleeping ward uses.

3.19. BCA Clause F2.3 – Facilities in Class 3 to 9 buildings

In accordance with BCA Clause F2.3(a), separate sanitary facilities for males and females must be provided in accordance with Table F2.3 given that no ward areas are proposed.

Accordingly, based on the Table F2.3 review undertaken and provided below, the following numbers of persons (equal number of male and females) can be accommodated within the building based on the sanitary facilities provided:

- Employees (combined all levels) – 50 total
- Patients – Ground Level – 32 total
- Patients - Level 1 – 64 total
- Patients – Level 2 – 48 total

Notwithstanding that Level 2 has been classified as a Class 5 medical centre which have nil sanitary facility requirements for out-patients. Accordingly, the sanitary facilities have been counted for out-patients in a Class 9a health care building.

- Patrons – Level 3 - 200 total

Note: the above populations do not consider D1.6 exit widths.

Employee sanitary facilities – Ground Level to Level 3 (combined)

Employees	Closet Pan		Urinals		Washbasins	
	Number Provided	Design Occupancy	Number Provided	Design Occupancy	Number Provided	Design Occupancy
Male	1x wc (Level 1) 1x accessible (Level 3)	40	1x ambulant (Level 3)	25	1x Level 1 2x Level 3 1x Level 3 (accessible)	120
Female	1x wc (Level 1) 1x ambulant (Level 3) 1x accessible (Level 3)	45	Not applicable.		1x Level 1 2x Level 3 1x Level 3 (accessible)	120

Patient sanitary facilities – Ground Level

Patients	Closet Pan		Urinals		Washbasins	
	Number Provided	Design Occupancy	Number Provided	Design Occupancy	Number Provided	Design Occupancy
Male	1x ambulant 1x accessible	16	Nil	Nil	1x wc 1x ambulant	16
Female	1x ambulant 1x accessible	16	Not applicable.		1x wc 1x ambulant	16

Patient sanitary facilities - Level 1

Patients	Closet Pan		Urinals		Washbasins	
	Number Provided	Design Occupancy	Number Provided	Design Occupancy	Number Provided	Design Occupancy
Male	1x wc 1x ambulant 1x accessible 1x wc (patient care)	32	Nil	Nil	3x wc 1x accessible	32
Female	1x wc 1x ambulant 1x accessible 1x wc (patient care)	32	Not applicable.		3x wc 1x accessible	32

Note: Ensuite in ISO room and blood bays have not been included in the facility count.

Patient sanitary facilities - Level 2

Patients	Closet Pan		Urinals		Washbasins	
	Number Provided	Design Occupancy	Number Provided	Design Occupancy	Number Provided	Design Occupancy
Male	1x wc 1x ambulant 1x accessible 1x wc (patient care)	32	Nil	Nil	2x wc 1x accessible	24
Female	1x wc 1x ambulant 1x accessible 1x wc (patient care)	32	Not applicable.		2x wc 1x accessible	24

Patron sanitary facilities - Level 3

Patron	Closet Pan		Urinals		Washbasins	
	Number Provided	Design Occupancy	Number Provided	Design Occupancy	Number Provided	Design Occupancy
Male	1x accessible	100	1x wc 1x ambulant	100	2x wc 1x accessible	400
Female	1x wc 1x ambulant 1x accessible	100	Not applicable.		2x wc 1x accessible	350

3.20. BCA Clause F2.8 – Waste Management

In accordance with BCA Clause F2.8(a), in a Class 9a health-care building, at least one slop-hopper or other device, other than a water closet pan or urinal, must be provided –

- (iii) On any storey containing bedrooms to facilitate emptying of containers of sewage or dirty water; and
- (iv) With a flushing apparatus, tap and grating.

Accordingly, Level 1 of the building is provided with an ISO room, which if considered as a bedroom would be required to be provided with at least one slop-hopper.

3.21. BCA Clause NSW G5.2 – Protection

In a designated bushfire prone area, a Class 9 building that is a special fire protection purpose, must comply with the following—

- (c) AS 3959 except—
 - (i) as amended by Planning for Bush Fire Protection; and
 - (ii) for Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). Buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level; or
- (d) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or

the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

Accordingly, verify if the building will be located within bushfire prone land and if so the above will be required to be complied with.

4 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation is capable of complying (as outlined in Annexure D) with that Code.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 4. Architectural Plans

Architectural Plans Prepared by Team 2 Architects			
Drawing Number	Revision	Date	Title
DA-101	25	21 May 2021	Floor Plan - Ground
DA-102	20	20 May 2021	Floor Plan – Level 1
DA-103	20	20 May 2021	Floor Plan – Level 2
DA-104	21	20 May 2021	Floor Plan – Level 3
DA-105	12	20 May 2021	Roof Plan
DA-201	12	20 May 2021	Elevations – North – South
DA-202	12	20 May 2021	Elevations – West - East

ANNEXURE B ESSENTIAL SERVICES

Annexure B - Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Table 5. Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Access Panels & doors/hoppers (fire rated)	BCA2019 C3.13 (Openings in Shafts) BCA2019 Spec C3.4 AS 1905.1:2015 (Fire Resistant Doorsets)
2.	Construction Joints	BCA2019 C1.1, Spec C1.1 BCA2019 C3.16 AS 1530.4:2014 & AS 4072.1:2005
3.	Fire doors	BCA2019 C2.5 (Class 9a and 9c) BCA2019 C2.12 (Separation of Equipment) BCA2019 C3.4 (Acceptable methods of Protection) BCA2019 C3.5 (Doors in Fire Walls) BCA2019 C3.7 and D1.11 (Horizontal Exits) BCA2019 C3.8 (Openings in Fire Isolated Exits) BCA2019 C3.10 (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 Spec C3.4 AS1905.1: 2015
4.	Fire seals protecting openings in fire resisting components of the building	BCA2019 C3.15 (Openings for service installations) BCA2019 C3.16 (Construction joints) BCA2019 Spec C3.15 AS1530.4:2014 & AS4072.1-2005
5.	Fire shutters	BCA2019 C3.4 (Acceptable methods of protection) BCA2019 Spec. C3.4 AS1905.2-2005
6.	Lightweight construction > Fire Rating of Electrical Switchboards	BCA2019 C1.1, Spec. C1.1 BCA2019 C1.8, Spec C1.8

Item	Essential Fire and Other Safety Measures	Standard of Performance
	> 9a/9b – Fire Compartment <2,000m ² and Smoke Compartments <500m ²	BCA2019 C2.5 (Class 9a & 9c) BCA2019 C2.12 (Separation of Equipment) BCA2019 D2.6 (Smoke Lobby) BCA2019 D2.8 (Enclosure of Space under Stairs and ramps) BCA2019 D2.11 (Fire Isolated Passageways) AS1530.4:2014
7.	Smoke Walls	BCA2019 C2.5, Spec C2.5 (Class 9a and 9c)
8.	Smoke Lobby > 6m ²	BCA2019 D1.7 (Fire Isolated Stairs) BCA2019 D2.6 (Smoke Lobby) Clause 3 Spec C3.4
9.	Smoke Doors > Smoke Seals	BCA2019 C2.5 (Class 9a and 9c) Spec C2.5 Clause 2 of Spec C2.5 BCA2019 D2.6 (Smoke Lobby) AS1670.1:2018
General		
10.	Portable fire extinguishers	BCA2019 E1.6 AS 2444–2001
General Egress		
11.	Warning & operational signs	BCA2019 D2.23 (Signs on Fire Doors) BCA2019 D3.6 (Braille Exit Signs) (Note: E4.5 (Exit Signs)) BCA2019 E3.3 (Lift Signs)
Lifts		
12.	Access to Lift Pits > Located at lowest level or if >3m provided through an access door	BCA2019 D1.17 (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
13.	Emergency lifts	BCA2019 E3.4 AS 1735.1:2003 (Appendix A) or AS 1735.2:2001
14.	Stretcher Lifts including	BCA2019 E3.2

Item	Essential Fire and Other Safety Measures	Standard of Performance
	> Fire Service Controls > Recall Operation > Drive control switch	BCA2019 E3.7 (Fire Service Controls) BCA2019 E3.9 (Fire Service Recall Operation Switch) BCA2019 E3.10 (Lift Car Fire Service drive control switch) BCA2019 Spec E3.1 AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
15.	Automatic fail safe devices	BCA2019 D2.22 (Re-entry from fire-isolated stairs) AS1670.1:2018 (Fire)
16.	Automatic fire detection & alarm: > Clause 4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS @ 100dB(A)	BCA2019 E2.2, NSW Table E2.2a, Table 2.2b, Spec E2.2a Spec E2.2a - Clause 4 (Smoke detection system)
17.	Emergency lighting	BCA2019 E4.2, E4.4 AS/NZS 2293.1:2018
18.	Exit signs	BCA2019 E4.5 (Exit Signs) BCA2019 E4.6 (Direction Signs) BCA2019 E4.8 (Design and Operation - Exits) AS/NZS 2293.1:2018
19.	Smoke detectors & heat detectors 1. Air Pressurisation System. 2. Auto-shutdown of Air-handling System. > (Clause E2.2(b)) - Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1; > (Table E2.2a) - Any system in a <u>Class 9a health care or 9c aged care</u> building that does not operate as a smoke control system as per AS 1668.1:2015, other than: ○ individual room units with a capacity of not more than 1000 L/s; or ○ systems serving critical treatment areas; or	BCA2019 E2.2, Spec E2.2a AS 1668.1:2015

Item	Essential Fire and Other Safety Measures	Standard of Performance
	○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS/NZS 1668.1:2015; > (NSW Table E2.2b) - Any system in a <u>Class 9b</u> assembly building which does not form part of a smoke hazard management system, other than: ○ non-ducted individual room units with a capacity of not more than 1000 L/s; or ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS/NZS 1668.1:2015.	
20.	Emergency warning and intercom systems for Emergency Purposes (EWIS) > Class 9a (>1,000m² or RIS >2)	BCA2019 E4.9 AS 1670.4:2018 (EWIS)
21.	System Monitoring	BCA2019 E2.2 , Table E2.2a, Spec E2.2a AS 1670.3:2018 Monitoring Required for any: > Class 9a building >20 patients
Hydraulic Services		
22.	Automatic fire suppression systems	BCA2019 E1.5 Spec E1.5
23.	Fire hydrant systems > NSW Storz Couplings	BCA2019 E1.3, C2.12 (Separation of Equipment) AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
24.	Hose reel systems	BCA2019 E1.4 AS 2441:2005
Mechanical Services		
25.	Fire dampers	BCA2019 E2.2, Spec E2.2a BCA2019 C3.15 AS 1668.1:2015 (Amdt 1) AS 1682.1:2015 & AS 1682.2:2015
26.	1. Auto-shutdown of Air-handling System. > (Clause E2.2(b)) - Any system that recycles air from one fire compartment to another, or	BCA2019 E2.2, Table E2.2a Spec E2.2a

Item	Essential Fire and Other Safety Measures	Standard of Performance
	operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1:2015; > (Table E2.2a) - Any system in a Class 9a health care or 9c aged care building that does not operate as a smoke control system as per AS 1668.1:2015, other than: ○ individual room units with a capacity of not more than 1000 L/s; or ○ systems serving critical treatment areas; or > miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015; > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: > non-ducted individual room units with a capacity of not more than 1000 L/s; or > miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015. 2. Zone Pressurisation System. 3. Fire Isolated Exit Pressurisation System 4. Lift Shaft Pressurisation System	AS 1668.1:2015 (Amdt 1)
27.	Smoke dampers	BCA2019 C2.5 and Spec C2.5 BCA2019 E2.2, Spec E2.2a AS 1668.1:2015 (Amdt 1), AS 1682.1:2015 & AS 1682.2:2015
Notes: (An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one <i>fire compartment</i> to another <i>fire compartment</i> or operates in a manner that may unduly contribute to the spread of smoke from one <i>fire compartment</i> to another <i>fire compartment</i> must— (i) ((be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1670.1:2018; and for the purposes of this provision, each <i>sole-occupancy unit</i> in a Class 2 or 3 building is treated as a separate <i>fire compartment</i>.		

Item	Essential Fire and Other Safety Measures		Standard of Performance	
Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1:2015 serving more than one <i>fire compartment</i> (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. A smoke detection system must be installed in accordance with Clause 5 of Specification E2.2a to operate AS 1668.1:2015 systems that are provided for zone smoke control and automatic air pressurisation for fire-isolated exits.				
Performance Solutions				
	Description of Performance Solution	DTS Provision	Performance Requirements	Method of meeting performance solutions
28.	In accordance with BCA Clause D1.2(d), in a patient care area in a Class 9a building, no point on the floor must be more than 12 m from a point from which travel in different direction to 2 of the required exits is available; and the maximum distance to one of those exits must not be more than 30 m from the starting point. The ground level bunker 1 and 2 have extended travel distances of up to 20 m (in lieu of 12 m) to a point from which travel in 2 different directions is available and up to 37 m (in lieu of 30 m) to one of those exits. Accordingly, a Performance-based Alternative Solution will need to be prepared by an appropriately qualified Fire Engineer to satisfy the Performance Requirements DP4 & EP2.2.	D1.2(d)	DP4 & EP2.2	

ANNEXURE C FIRE RESISTANCE LEVELS

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type A Construction

Table 6. Type A Construction

Item	Class 5 or 9
Loadbearing External Walls (including columns and other building elements incorporated therein) - Less than 1.5m to a <i>fire- source feature</i> - 1.5 – less than 3m from a <i>fire-source feature</i> - 3m or more from a <i>fire source feature</i>	120/120/120 120/90/90 120/60/30
Non-Loadbearing External Walls - Less than 1.5m to a <i>fire-source feature</i> - 1.5 – less than 3m from a <i>fire-source feature</i> - 3m or more from a <i>fire-source feature</i>	-/120/120 -/90/90 -/-/-
External Columns - Loadbearing - Non-loadbearing	120/-/- -/-/-
Common Walls & Fire Walls	120/120/120
Stair and Lift Shafts required to be fire-resisting - Loadbearing - Non-loadbearing	120/120/120 -/120/120
Internal walls bounding sole occupancy units - Loadbearing - Non-loadbearing	120/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: - Loadbearing - Non-loadbearing	120/-/- -/-/-

Item	Class 5 or 9
Ventilating, pipe, garbage and like shafts: - Loadbearing - Non-loadbearing	120/90/90 -/90/90
Other loadbearing internal walls, beams trusses and columns	120/-/-
Floors	120/120/120
Roofs ¹	120/60/30

¹ The roof need not comply with any FRL's if sprinkler protection of the entire building is proposed.

ANNEXURE D DETAILED BCA 2019 ASSESSMENT

Annexure D – Detailed BCA 2019 Assessment

Outlined below is a detailed assessment of the design under the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) including the State variations where applicable.

All Deemed-to-Satisfy clauses that are applicable to the subject building have been referred to below, including a comment adjacent to each clause of the proposal's ability to satisfy each respective clause.

The abbreviations outlined below have been used in the following table.

N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA – Refer Annexure F	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there is not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, with further design development, compliance can readily be achievable. This item is to be read in conjunction with the BCA Specification included within Annexure F of this report.
FI	Further Information is necessary to determine the compliance potential of the building design.
PS	Performance Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

Deemed to Satisfy Clause Assessment

Table 7. Deemed to Satisfy Clause Assessment

Clause	Clause Requirements	Comment	Status
Section B: Structure			
Part B1 – Structural Provisions			
B1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
B1.1: Resistance to actions	The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions, where the most critical action has been determined in accordance with this Part	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.2: Determination of individual actions	The magnitude of actions must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.4: Determination of structural resistance of materials and forms of construction	The structural resistance of materials and forms of construction must be determined in accordance with this Clause.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.5: Structural software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software.	Structural Engineer to certify at CC stage.	CRA – Refer Annexure F
B1.6 Construction of buildings in flood hazard areas	A Class 2 or 3 building, Class 9a health care building, Class 9c aged-care building or Class 4 part of a building, in a flood hazard area (refer to Council maps) must comply the ABCB Standard for Construction of Buildings in Flood Hazard Areas.	See Part 3 of Report for details.	FI, See Part 3 of Report for details.

Section C: Fire Resistance**Part C1 – Fire Resistance and Stability**

C1.0:	Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C1.1:	Type of construction required	The building is required to be of Type A Construction. Refer to Specification C1.1 requirements at the end of this Section.		CRA – Refer Annexure F
C1.2:	Calculation of rise in storeys	The building has a rise in storeys of four (4).		Noted
C1.3:	Buildings of multiple classification	Informational	Noted	Noted
C1.4:	Mixed Types of construction	A building may be of mixed Types of construction where it is separated in accordance with C2.7 and the Type of construction is determined in accordance with C1.1 or C1.3.		CRA – Refer Annexure F
C1.5:	Two Storey Class 2, 3 or 9c buildings	A building having a rise in storeys of 2 may be of Type C construction if – (e) it is a Class 2 or 3 building or a mixture of these classes and each sole-occupancy unit has – (i) access to at least 2 exits; or (ii) its own direct access to a road or open space; or (f) it is a Class 9c building protected throughout with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 and complies with maximum compartment size specified in Table C2.2 for Type C construction.	Not applicable.	N/A

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C1.6: Class 4 Parts of building	For the Type of construction required by C1.3, a Class 4 part of a building requires the same FRL for building elements and the same construction separating the Class 4 part from the remainder of the building as a Class 2 part in the same Type of construction.	Not applicable.	N/A
C1.7: Open spectator stands and indoor sports stadium	(a) An open spectator stand or indoor sports stadium may be of Type C construction and need not comply with the other provisions of this Part if it contains not more than 1 tier of seating, is of non-combustible construction, and has only changing rooms, sanitary facilities or the like below the tiered seating. (b) In (a), one tier of seating means numerous rows of tiered seating incorporating cross-overs but within one viewing level.	Not applicable.	N/A
C1.8: Lightweight construction	Lightweight construction used in a fire-rated application is to comply with Specification C1.8.		CRA – Refer Annexure F
C1.9: Non-combustible building elements	(a) In a building required to be of Type A or B construction, the following building elements and their components must be <i>non-combustible</i>: (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (ii) The flooring and floor framing of lift pits. (iii) Non-loadbearing internal walls where they are required to be fire-resisting. (b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of <i>non-combustible</i> construction in— (i) a building required to be of Type A construction; and	See Part 3 of report for details.	CRA – Refer Annexure F, See Part 3 of report for details.

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| | <ul style="list-style-type: none"> (ii) a building required to be of Type B construction, subject to C2.10, in— <ul style="list-style-type: none"> (A) a Class 2, 3 or 9 building; and (B) Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys. (c) A loadbearing internal wall and a loadbearing <i>fire wall</i>, including those that are part of a loadbearing shaft, must comply with Specification C1.1. (d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants, termite management systems, Glass including laminated glass, thermal breaks associated with glazing systems and damp-proof courses. (e) The following materials, may be used wherever a <i>non-combustible</i> material is required: <ul style="list-style-type: none"> (i) Plasterboard. (ii) Perforated gypsum lath with a normal paper finish. (iii) Fibrous-plaster sheet. (iv) Fibre-reinforced cement sheeting. (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (vi) <i>Sarking-type materials</i> that do not exceed 1 mm in thickness and have a <i>Flammability Index</i> not greater than 5. (vii) Bonded laminated materials where— <ul style="list-style-type: none"> (A) each lamina, including any core, is <i>non-combustible</i>; and | | |
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Section C: Fire Resistance

	(B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.		
C1.10: Fire hazard properties	Fire hazard properties of internal linings, materials and assemblies must comply with C1.10 of the BCA and Specification C1.10, including floor, wall and ceiling linings, air-handling ductwork, lift cars, insulation, <i>sarking-type materials</i> and attachments, or be considered <i>non-combustible</i> .		CRA – Refer Annexure F
C1.11: Performance of external walls in fire	Concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, must comply with Specification C1.11.	Not applicable. Building has a rise in storeys of 4.	N/A
C1.12: Non-combustible materials	Clause now deleted and relocated to C1.9.		Noted
C1.13: Fire-protected timber: Concession	<i>Fire-protected timber</i> in all building classifications may be used wherever an element is required to be <i>non-combustible</i>, provided— (a) the building is— (i) a separate building; or (ii) a part of a building— (A) which only occupies part of a storey, and is separated from the remaining part by a fire wall; or		CRA – Refer Annexure F

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	(B) which is located above or below a part not containing fire-protected timber and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a fire wall for the lower storey; and (b) the building has an <i>effective height</i> of not more than 25 m; and (c) the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification E1.5; and (d) any insulation installed in the cavity of the timber building element required to have an <i>FRL</i> is <i>non-combustible</i>; and (e) cavity barriers are provided in accordance with Specification C1.13.		
C1.14: Ancillary elements	An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be <i>non-combustible</i> unless it is one of the following: (a) An ancillary element that is <i>non-combustible</i>. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing. (d) A grate or grille not more than 2 m² in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign.		CRA – Refer Annexure F

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	(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 one storey; and (iii) does not extend beyond one fire compartment; and (iv) is separated vertically from other signs permitted under (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 Table 4 of Specification C1.10 as for 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 <i>exit</i>, where it would render the <i>exit</i> unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) A paint, lacquer or a similar finish. (m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).		
Part C2 – Compartment and Separation			
C2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted

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C2.1: Application of Part	Informational - C2.2, C2.3 and C2.4 do not apply to a carpark provided with a sprinkler system complying with Specification E1.5 (other than an FPAA101D or FPAA101H system), an open-deck carpark or an open spectator stand.		Noted
C2.2: General floor area and volume limitations	The size of <i>fire compartments</i> in the building must not exceed that specified in Table C2.2.	The building is within the floor area and volume limitations.	CRA – Refer Annexure F
C2.3: Large isolated buildings	The size of a fire compartment in a building may exceed that specified in Table C2.2 where – (a) the building does not exceed 18 000 m² in floor area nor exceed 108 000m³ in volume, if – (i) the building is Class 7 or 8 and – (A) contains not more than 2 storeys; and (B) is provided with open space complying with C2.4(a) not less than 18 m wide around the building; or (ii) the building is Class 5, 6, 7, 8 or 9 and is – (iii) protected throughout with a sprinkler system complying with Specification E1.5; and (iv) provided with a perimeter vehicular access complying with C2.4(b); or (b) the building is Class 5, 6, 7, 8 or 9 and exceeds 18 000 m² in floor area or 108 000 m³ in volume, if it is – (i) protected throughout with a sprinkler system complying with Specification E1.5; and (ii) provided with a perimeter vehicular access complying with C2.4(b); or	Not applicable.	N/A

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	(c) there is more than one building on the allotment and — (i) each building complies with (a) or (b); or (ii) if the buildings are closer than 6 m to each other they are regarded as one building and collectively comply with (a) or (b).		
C2.4: Requirements for open spaces and vehicular access	(a) An open space required by C2.3 must— (i) be wholly within the allotment except that any road, river, or public place adjoining the allotment, but not the farthest 6 m of it may be included; and (ii) include vehicular access in accordance with (b); and (iii) not be used for the storage or processing of materials; and (iv) not be built upon, except for guard houses and service structures (such as electricity substations and pump houses) which may encroach upon the width of the space if they do not unduly impede fire-fighting at any part of the perimeter of the allotment or unduly add to the risk of spread of fire to any building on an adjoining allotment. (b) Vehicular access required by this Part— (i) must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and (ii) must have a minimum unobstructed width of 6 m with no part of its furthest boundary more than 18 m from the building and in no part of the 6 m	Not applicable.	N/A

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	width be built upon or used for any purpose other than vehicular or pedestrian movement; and (iii) must provide reasonable pedestrian access from the vehicular access to the building; and (iv) must have a load bearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles; and (v) must be wholly within the allotment except that a public road complying with (i), (ii), (iii) and (iv) may serve as the vehicular access or part thereof.		
C2.5: Class 9a and 9c Buildings	(a) A Class 9a health-care building must comply with the following: (i) patient care areas must be divided into fire compartments not exceeding 2000 m². (ii) A fire compartment must be separated from the remainder of the building by fire walls and— (A) in Type A construction—floors and roof or ceiling as required in Specification C1.1; and (B) in Type B construction—floors with an FRL of not less than 120/120/120 and with the openings in external walls bounding patient care areas being vertically separated in accordance with the requirements of Open link in same pageC2.6 as if the building were of Type A construction. (iii) Ward areas — (A) where the floor area exceeds 1000 m², must be divided into floor areas not more	(a) A Class 9a health-care building must comply with the following: (i) patient care areas must be divided into fire compartments not exceeding 2000 m². Each level of the building is approximately 1039 m². (ii) A fire compartment must be separated from the remainder of the building by fire walls and— (A) in Type A construction—floors and roof or ceiling as required in Specification C1.1; and Noted. (B) in Type B construction—floors with an FRL of not less than 120/120/120 and with the openings in external walls bounding patient care areas being vertically separated in accordance with the requirements of Open link in same pageC2.6 as if the building were of Type A construction. N/A (iii) Ward areas — (A) where the floor area exceeds 1000 m², must be divided into floor areas not more	CRA – Refer Annexure F, See Part 3 of Report for details.

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	than 1000 m2 by walls with an FRL of not less than 60/60/60; and (B) where the floor area exceeds 500 m2, must be divided into floor areas not more than 500 m2 by smoke-proof walls complying with Specification C2.5; and (C) where the floor area is not more than 500 m2, must be separated from the remainder of the patient care area by smoke-proof walls complying with Specification C2.5; and (D) where division of ward areas by fire-resisting walls under (i) or required, any smoke-proof wall required under (iii)(B) or (C) must have an FRL of not less than 60/60/60. (iv) Treatment areas — (A) where the floor area exceeds 1000 m2, must be divided into floor areas not more than 1000 m2 by smoke-proof walls complying with Specification C2.5; and (B) where the floor area is not more than 1000 m2, must be separated from the remainder of the patient care area by smoke-proof walls complying with Specification C2.5. (v) Ancillary use areas located within a patient care area and containing equipment or materials that are a high potential fire hazard, must be separated from the remainder of the patient care area by walls with an FRL of not less than 60/60/60. (vi) The ancillary use areas referred to in (v) include, but are not limited to, the following:	than 1000 m2 by walls with an FRL of not less than 60/60/60; and N/A (B) where the floor area exceeds 500 m2, must be divided into floor areas not more than 500 m2 by smoke-proof walls complying with Specification C2.5; and N/A (C) where the floor area is not more than 500 m2, must be separated from the remainder of the patient care area by smoke-proof walls complying with Specification C2.5; and N/A (D) where division of ward areas by fire-resisting walls under (i) or required, any smoke-proof wall required under (iii)(B) or (C) must have an FRL of not less than 60/60/60. N/A (iv) Treatment areas — (A) where the floor area exceeds 1000 m2, must be divided into floor areas not more than 1000 m2 by smoke-proof walls complying with Specification C2.5; and See plan markup. (B) where the floor area is not more than 1000 m2, must be separated from the remainder of the patient care area by smoke-proof walls complying with Specification C2.5. see plan mark-up (v) Ancillary use areas located within a patient care area and containing equipment or materials that are a high potential fire hazard, must be separated from the remainder of the patient care area by walls with an FRL of not less than 60/60/60. See plan mark-up	
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Section C: Fire Resistance

	(A) A kitchen and related food preparation areas having a combined floor area of more than 30 m². (B) A room containing a hyperbaric facility (pressure chamber). (C) A room used predominantly for the storage of medical records having a floor area of more than 10 m². (D) laundry, where items of equipment are of the type that are potential fire sources (e.g. gas fire dryers). (vii) A wall required by (v) to separate ancillary use areas from the remainder of the building must extend to the underside of— (A) the floor above; or (B) a non-combustible roof covering; or (C) a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes. (viii) Openings in walls required by (iii) and (v) to have an FRL must be protected as follows: (A) Doorways—self-closing or automatic closing –/60/30 fire doors. (B) Windows—automatic or permanently fixed closed –/60/– fire windows or –/60/– automatic fire shutters. (C) Other openings—construction having an FRL not less than –/60/–.	(vi) The ancillary use areas referred to in (v) include, but are not limited to, the following: (A) A kitchen and related food preparation areas having a combined floor area of more than 30 m². (B) A room containing a hyperbaric facility (pressure chamber). (C) A room used predominantly for the storage of medical records having a floor area of more than 10 m². (D) laundry, where items of equipment are of the type that are potential fire sources (e.g. gas fire dryers). (vii) A wall required by (v) to separate ancillary use areas from the remainder of the building must extend to the underside of— (A) the floor above; or (B) a non-combustible roof covering; or (C) a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes. (viii) Openings in walls required by (iii) and (v) to have an FRL must be protected as follows: (A) Doorways—self-closing or automatic closing –/60/30 fire doors. (B) Windows—automatic or permanently fixed closed –/60/– fire windows or –/60/– automatic fire shutters. (C) Other openings—construction having an FRL not less than –/60/–.	
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Section C: Fire Resistance

C2.6: Vertical separation of openings in external walls	Type A Construction Note: The following applies to buildings that are not provided with an AS 2118.1:2017 or AS 2118.4:2012 sprinkler system installed throughout. Where the vertical projection of an opening in an external wall falls no further than 450 mm outside an opening in the storey next below, the openings must be provided with vertical separation complying with Clause C2.6, that is: > They must be protected with a 900mm high (<i>FRL</i> 60/60/60) spandrel extending at least 600mm above the separating slab, or > They must be provided with a 1.1m horizontal projection (<i>FRL</i> 60/60/60) also extending at least 450mm either side of the openings. The above does not apply to openings within the same stairway. For the purposes of this clause, opening means that part of the external wall of a building that does not have an <i>FRL</i> of 60/60/60 or greater.	If the building is provided with Spec E1.5 sprinklers throughout, the building will not require vertical separation of openings in external walls. See Part 3 of report for details.	CRA – Refer Annexure F, see part 3 of report for details.
C2.7: Separation by fire walls	Construction - A <i>fire wall</i> must be constructed in accordance with the following: > Any openings in a <i>fire wall</i> must not reduce the <i>FRL</i> required by Specification C1.1 for the <i>fire wall</i>, except where permitted by the Deemed-to-Satisfy Provisions of Part C3. > Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or <i>sarking-type material</i>, must not pass through or cross the <i>fire wall</i> unless the required fire resisting performance of the <i>fire wall</i> is maintained.		CRA – Refer Annexure F

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Separation of buildings – A part of a building separated from the remainder of the building by a *fire wall* may be treated as a separate building for the purposes of the Deemed-to-Satisfy provisions of Sections C, D and E if it is constructed in accordance with (a) and the following:

- (i) the *fire wall* extends through all storeys and spaces in the nature of storeys that are common to that part and any adjoining part of the building.
- (ii) The *fire wall* is carried through to the underside of the roof covering.
- (iii) Where the roof of one of the adjoining parts is lower than the roof of the other part, the *fire wall* extends to the underside of—
 - (A) the covering of the higher roof, or not less than 6 m above the covering of the lower roof; or
 - (B) the lower roof if it has an *FRL* not less than that of the *fire wall* and no openings closer than 3 m to any wall above the lower roof; or
 - (C) the lower roof if its covering is *non-combustible* and the lower part has a sprinkler system complying with Specification E1.5.

Separation of fire compartments – A part of a building separated from the remainder of the building by a *fire wall* may be treated as a separate *fire compartment* if it is constructed in accordance with this clause and the *fire wall* extends to the underside of –

- > a floor having an *FRL* required for a *fire wall*; or
- > the roof covering.

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C2.8: Separation of classifications in the same storey	Where a storey has different classifications located alongside one another: > each building element in that storey must have the higher <i>FRL</i> prescribed in Specification C1.1 for that element for the classifications concerned; or > the parts must be separated in that storey by a <i>fire wall</i> having the higher <i>FRL</i> prescribed in Table 3; or > where one part is a carpark complying with Table 3.9, 4.2 or 5.2 of Specification C1.1, the parts may be separated by a <i>fire wall</i> complying with the appropriate Table.		CRA – Refer Annexure F
C2.9: Separation of classifications in different storeys	Type A Floors separating storeys of different classifications must have an <i>FRL</i> of not less than that prescribed in Specification C1.1 for the classification of the lower storey. Note: Determination of Floor <i>FRL</i>'s must also consider compliance with C2.7 whereby the floor must have the same <i>FRL</i> as the fire wall of the <i>fire compartment</i> below and D2.12 whereby roof as open space must have an <i>FRL</i> not less than 120/120/120.		CRA – Refer Annexure F
C2.10: Separation of lift shafts	Type A Passenger lifts must be separated from the remainder of the building by enclosure in a fire rated shaft achieving an <i>FRL</i> prescribed by Table 3 of Specification C1.1.		CRA – Refer Annexure F
C2.11: Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.		CRA – Refer Annexure F

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C2.12: Separation of equipment	Any of the following equipment located in the building must be separated from the remainder of the building: > lift motors and lift control panels; or > emergency generators used to sustain emergency equipment operating in the emergency mode; or > central smoke control plant; or > boilers; or > a battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. Equipment need not be separated in if the equipment comprises: > smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or > stair pressurizing equipment installed in compliance with the relevant provisions of AS 1668.1:2015; or > a lift installation without a machine room; or > equipment otherwise adequately separated from the remainder of the building. Separation must be by construction having an <i>FRL</i> as required by Specification C1.1, but not less than <i>FRL</i> 120/120/120 with openings protected by self-closing fire doors having an <i>FRL</i> of not less than –/120/30. Separation of on-site fire pumps must comply with the requirements of AS 2419.1:2005.	UPS battery room on the ground level. The diesel generator is not located within the building but remote to the south of the building. See Part 3 of Report for details.	CRA – Refer Annexure F, See Part 3 of Report for details.
C2.13: Electricity supply system	> Any electrical substation located within the building must be separated from the remainder of the building by construction having an <i>FRL</i> of not less	The substation is not located within the building but remote to the south of the building.	CRA – Refer Annexure F,

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	than 120/120/120, and doorways protected with self-closing fire doors having an <i>FRL</i> of not less than –/120/30. > A main switchboard which sustains emergency equipment operating in the emergency mode must be fire separated from any other part of the building by construction having an <i>FRL</i> of not less than 120/120/120 and have the doorway fitted with self-closing fire door having an <i>FRL</i> of not less than –/120/30. > Any electrical conductors located within the building that supply a substation or main switchboard for emergency equipment must comply with BCA clause C2.13. > Emergency equipment switchgear must be separated from non-emergency equipment switchgear by metal partitions designed to minimize the spread of a fault from the non-emergency equipment switchgear. > Emergency equipment includes but is not limited to the following: ○ fire hydrant booster pumps; ○ sprinkler pumps; ○ hose reel pumps; ○ air-handling systems designed to exhaust and control the spread of smoke; ○ emergency lifts; ○ control and indicating equipment; and ○ sound systems and intercom systems for emergency purposes.	See Part 3 of Report for details.	See Part 3 of Report for details.
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C2.14: Public corridors in Class 2 and 3 Buildings		Not applicable.	N/A
Part C3 – Protection of Openings			
C3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
C3.1: Application of Part	(a) The Deemed-to-Satisfy Provisions of this Part do not apply to– (i) Control joints, weep holes and the like in external walls of masonry construction and joints between panels in external walls of pre-cast concrete panel construction if, in all cases they are not larger than necessary for the purpose; and (ii) Non-combustible ventilators for subfloor or cavity ventilation, if each does not exceed 45 000 mm² in face area and is spaced not less than 2 m from any other ventilator in the same wall; and (iii) Openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony or verandah, colonnade, terrace, or the like; and (iv) In a carpark– (A) Service penetrations through; and (B) Openings formed by a vehicle ramp in, (aa) A floor other than a floor that separates a part not used as a carpark, providing the connected floors comply as a single fire compartment for the purposes of all other requirements of the		Noted

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	Deemed-to-Satisfy Provisions of Sections C, D and E. (b) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings in building elements required to be fire-resisting include doorways, windows (including any associated fanlight), infill panels and fixed or openable glazed areas that do not have the required FRL. (c) For the purposes of the Deemed-to-Satisfy Provisions of this Part, openings, other than those covered under (a)(iii), between building elements such as columns, beams and the like, in the plane formed at the construction edge or perimeter of the building, are deemed to be openings in an external wall.		
C3.2: Protection of openings in external walls	Openings in an external wall that is required to have an <i>FRL</i> must be protected in accordance with C3.4 if the distance between the opening and the <i>fire-source feature</i> is: > less than 3 m from a side or rear boundary; or > less than 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or > less than 6 m from another building on the allotment that is not Class 10; and if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand. Where wall-wetting sprinklers are used, they must be located externally.	Not applicable.	CRA – Refer Annexure F

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C3.3: Separation of external walls and associated openings in different fire compartments	The distance between parts of external walls and any openings within them in different <i>fire compartments</i> separated by a <i>fire wall</i> must not be less than that set out in Table C3.3, unless— (b) those parts of each wall have an <i>FRL</i> not less than 60/60/60; and (c) any openings protected in accordance with C3.4. Table C3.3 DISTANCE BETWEEN EXTERNAL WALLS AND ASSOCIATED OPENINGS IN DIFFERENT FIRE COMPARTMENTS <table><tr><th>Angle between walls</th><th>Min. Distance</th></tr><tr><td>0° (walls opposite)</td><td>6 m</td></tr><tr><td>more than 0° to 45°</td><td>5 m</td></tr><tr><td>more than 45° to 90°</td><td>4 m</td></tr><tr><td>more than 90° to 135°</td><td>3 m</td></tr><tr><td>more than 135° to less than 180°</td><td>2 m</td></tr><tr><td>180° or more</td><td>Nil</td></tr></table>	Angle between walls	Min. Distance	0° (walls opposite)	6 m	more than 0° to 45°	5 m	more than 45° to 90°	4 m	more than 90° to 135°	3 m	more than 135° to less than 180°	2 m	180° or more	Nil	Not applicable.	N/A
Angle between walls	Min. Distance																
0° (walls opposite)	6 m																
more than 0° to 45°	5 m																
more than 45° to 90°	4 m																
more than 90° to 135°	3 m																
more than 135° to less than 180°	2 m																
180° or more	Nil																
C3.4: Acceptable methods of protection	Where protection is required, openings must be protected as follows: <u>Doorways:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing; or (ii) –/60/30 fire doors that are self-closing. <u>Windows:</u> (i) Internal or external wall-wetting sprinklers as appropriate used with windows that are		CRA – Refer Annexure F														

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	automatic closing or permanently fixed in the closed position; or (ii) –60/– fire windows that are automatically closing or permanently fixed in the closed position; or (iii) –/60/– automatic closing fire shutters. <u>Other openings:</u> (i) Excluding voids – internal or external wall-wetting sprinklers; or (ii) Construction having an <i>FRL</i> not less than –/60/– Fire doors, fire windows and fire shutters must comply with BCA Specification C3.4.		
C3.5: Doorways in fire walls	Doorways in the fire walls must be protected by a self-closing fire door that achieves an <i>FRL</i> of not less than that required by Specification C1.1 for the <i>fire wall</i> except that each door must have an insulation level of at least 30.		CRA – Refer Annexure F
C3.6: Sliding fire doors	(a) If a doorway in a fire wall is fitted with a sliding fire door which is open when the building is in use— (i) it must be held open with an electromagnetic device, which when de-activated in accordance with (b) and (c), allows the door to be fully closed in not less than 20 seconds and not more than 30 seconds after release; and (ii) in the event of power failure to the door — the door must fail safe in the closed position in accordance with (i); and (iii) an audible warning device must be located near the doorway and a red flashing warning light of adequate intensity on each side of the doorway must be activated in accordance with (b) and (c); and		CRA – Refer Annexure F

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	(iv) signs must be installed on each side of the doorway located directly over the opening stating— WARNING – SLIDING FIRE DOOR in capital letters not less than 50 mm high in a colour contrasting with the background. (b) The electromagnetic device required by (a)(i) must be de-activated and the warning system activated by heat or smoke detectors, as appropriate, installed in accordance with AS 1905.1 and the relevant provisions of AS 1670.1. (c) Where any other required suitable fire alarm system, including a sprinkler system (other than a FPAA101D system) complying with Specification E1.5, is installed in the building, activation in either fire compartment separated by the fire wall must also de-activate the electromagnetic device and activate the warning system.		
C3.7: Protection of doorways in horizontal exits	A doorway that is part of a horizontal exit must be protected by a single fire door that has an FRL of not less than that required by Specification C1.1 for the fire wall except that the door must have an insulation level of at least 30, or by one of the other options in Clause C3.7.		CRA – Refer Annexure F
C3.8: Openings in fire-isolated exits	Doorways that open to fire-isolated stairways, fire-isolated passageways or fire-isolated ramps, and are not doorways opening to a road or open space, must be protected by –/60/30 fire doors that are self-closing, or automatic-closing in accordance with (ii) and (iii) of Clause C3.8. A window in an external wall of a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp must be protected in accordance with C3.4 if it is within 6 m of, and exposed to, a window or other opening in a wall of		CRA – Refer Annexure F

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	the same building, other than in the same fire-isolated enclosure.		
C3.9: Service penetrations in fire-isolated exits	The fire isolated <i>exits</i> are not to be penetrated by any services other than: > electrical wiring associated with: ○ a lighting, detection, or pressurization system serving the exit; or ○ a security, surveillance or management system serving the exit; or ○ an intercommunication system or an audible or visual alarm system in accordance with D2.22; or ○ the monitoring of hydrant or sprinkler isolating valves. > ducting associated with a pressurisation system if it; (i) is constructed of material having an <i>FRL</i> of not less than –/120/60 where it passes through any other part of the building; and (ii) does not open into any other part of the building; or > water supply pipes for fire services.		CRA – Refer Annexure F
C3.10: Openings in fire-isolated lift shafts	> Lift landing doors are required to be fire doors with an <i>FRL</i> of –/60/- that comply with AS 1735.11:1986, and be set to remain closed except when discharging or receiving, passengers, goods or vehicles. > Panels in the wall of the lift shaft must be backed by construction having an <i>FRL</i> of not less than –/60/60 if it exceeds 35 000 mm² in area.		CRA – Refer Annexure F

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C3.11: Bounding Construction: Class 2, 3 and 4 Buildings		Not applicable.	N/A
C3.12: Openings in floors and ceilings for services	Where services pass through a floor which is required to achieve an <i>FRL</i> or a ceiling required to have a <i>resistance to the incipient spread of fire</i>, the service must be enclosed within a fire resisting shaft or fire protected in accordance with Clause C3.15. Where a service passes through a floor which is required to be protected by a <i>fire-protective</i> covering, the penetration must not reduce the fire performance of the covering.		CRA – Refer Annexure F
C3.13: Openings in shafts	Openings in shafts must be protected by: (a) if it is in a sanitary compartment – a door or panel which together with its frame, is <i>non-combustible</i> or has an <i>FRL</i> of not less than –/30/30; or (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an <i>FRL</i> of not less than –/60/30; or (d) if the shaft is a garbage shaft – a door or hopper of <i>non-combustible</i> construction.		CRA – Refer Annexure F
C3.15: Openings for service installations	Where services pass through an element which is required to achieve an <i>FRL</i> (other than an external wall or roof), the service must be fire protected in accordance with BCA Clause C3.15. Note: contractors should check with PCA to confirm compliance with their proposed fire stopping method.		CRA – Refer Annexure F
C3.16: Construction joints	Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a		CRA – Refer Annexure F

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	manner identical with a prototype tested in accordance with AS 1530.4:2014 to achieve the required <i>FRL</i> .		
C3.17: Columns protected with lightweight construction to achieve an <i>FRL</i>	A column protected by lightweight construction to achieve an <i>FRL</i> which passes through a building element that is required to have an <i>FRL</i> or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required <i>FRL</i> or resistance to the incipient spread of fire.		CRA – Refer Annexure F
Specification C1.1 – Fire-Resisting Construction			
2.0: General Requirements	Informational	Noted	Noted
2.1: Exposure to fire-source features	A building element is exposed to a <i>fire-source feature</i> if any of the horizontal straight lines between that part and the <i>fire-source feature</i>, or vertical projection of the feature, is not obstructed by another part of the building that– (i) has an <i>FRL</i> of not less than 30/–/–; and (ii) is neither transparent nor translucent.		Noted
2.2: Fire protection for a support of another part	Where a part of a building required to have an <i>FRL</i> depends upon direct vertical or lateral support from another part to maintain its <i>FRL</i> , that supporting part must have an <i>FRL</i> not less than that required by other provisions of this Specification; and if located within the same <i>fire compartment</i> as the part it supports have an <i>FRL</i> in respect of structural adequacy the greater of that required for the supporting part itself and for the part it supports.		CRA – Refer Annexure F
2.3: Lintels	A lintel must have the <i>FRL</i> required for the part of the building in which it is situated unless it does not contribute to the support of a fire door, fire window or fire		CRA – Refer Annexure F

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	shutter and meets the requirements of Spec C1.1 clause 2.3 (a) & (b).		
2.4: Attachments not to impair fire-resistance	The method of attaching or installing a finish, lining, ancillary element or service installation to a building element must not reduce the fire-resistance of that element to below that required.		CRA – Refer Annexure F
2.5: General concessions	Detail any concessions that apply: > Structures on roofs > Curtain walls and panel walls Structures on roofs — A <i>non-combustible</i> structure situated on a roof need not comply with the other provisions of this Specification if it only contains— (i) lift motor equipment; or (ii) one or more of the following: (A) Hot water or other water tanks. (B) Ventilating ductwork, ventilating fans and their motors. (C) Air-conditioning chillers. (D) Window cleaning equipment. (E) Other service units that are <i>non-combustible</i> and do not contain flammable or combustible liquids or gases.		CRA – Refer Annexure F
2.6: Mezzanine floors: Concession	(a) This Clause does not apply to a Class 9b building that is a spectator stand or audience viewing area accommodating more than 100 persons as calculated according to D1.13. (b) A mezzanine and its supports need not have an FRL or be non-combustible provided—	Not applicable.	N/A

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	(i) the total floor area of all the mezzanines in the same room does not exceed 1/3 of the floor area of the room or 200 m², whichever is the lesser; and (ii) the FRL of each wall and column that supports any other part of the building within 6 m of the mezzanine is increased by the amount listed in Table 2.6.		
2.7: Enclosure of shafts	Fire-isolated shafts are required to be enclosed at the top and bottom of the shaft with fire rated construction having an <i>FRL</i> required for the walls of a non-load-bearing shaft in the same building, as per specification C1.1. This fire rating is required in two directions. The above does not apply to shafts extending beyond the roof covering, other than fire isolated stair and lift shafts and the bottom of <i>non-combustible</i> shafts laid directly on the ground.		CRA – Refer Annexure F
2.8: Carparks in Class 2 and 3 Buildings		Not applicable.	N/A
2.9: Residential Aged Care building: Concession	(c) In a Class 3 building protected with a sprinkler system complying with Specification E1.5 and used as a residential care building, any FRL criterion prescribed in Tables 3, 4 or 5— (i) for any floor and any loadbearing wall, may be reduced to 60, except any FRL criterion of 90 for an external wall must be maintained when tested from the outside; and (ii) for any non- loadbearing internal wall, need not apply if— (A) it is lined on each side with standard grade plasterboard not less than 13 mm thick or similar non-combustible material; and	Not applicable.	N/A

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	(B) it extends— (aa) to the underside of the floor next above; or (bb) to the underside of a ceiling lined with standard grade plasterboard not less than 13 mm thick or a material with at least an equivalent level of fire protection; or (cc) to the underside of a non-combustible roof covering; and (C) any insulation installed in the cavity of the wall is non-combustible; and (D) any construction joint, space or the like between the top of the wall and the floor, ceiling or roof is smoke sealed with intumescent putty or other suitable material. (d) The concession described at (a) does not apply to fire-protected timber building elements.		
3.0: Type A fire-resisting construction	Type A fire-resisting construction is applicable to the development.	Refer to part 3 clauses below for the relevant Type A Construction requirements applicable to the project.	-
3.1: Fire-resistance of building elements	> The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report. > External walls, common walls and the flooring and floor framing of lift pits must be <i>non-combustible</i>. (Note: insulation and sarking used must be <i>non-combustible</i>) > Internal walls required to be fire rated must extend to— (i) to the underside of the floor next above; or		CRA – Refer Annexure F

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- (ii) the underside of a roof complying with Table 3; or
 - (iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other combustible building elements; or
 - (iv) a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space above itself of not less than 60 minutes.
- > Load bearing internal walls (including those part of a loadbearing shaft) and fire walls must be of concrete or masonry.
 - > Non-loadbearing internal walls required to be fire rated, as well as non-load bearing lift, ventilating, pipe, garbage or similar shaft wall must be of non-combustible construction.
- Note:** This includes *non-combustible* insulation. When an insulation material is not certified as *non-combustible*, this material will need to be the subject of a Fire Engineering Assessment at the CC stage.
- > The *FRLs* specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5m of a window and are exposed through that window to a *fire-source feature*.
 - > It should also be noted that if Dintel material is to be used as an element where the BCA requires such element to be *non-combustible*, this material will need to be the subject of a Fire Engineering Assessment at the CC stage

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3.2: Concessions for floors	A floor need not comply with Table 3 if— (a) it is laid directly on the ground; or (b) in a Class 2, 3, 5 or 9 building, the space below is not a <i>storey</i>, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or (c) it is a timber stage floor in a Class 9b building laid over a floor having the <i>required FRL</i> and the space below the <i>stage</i> is not used as a dressing room, store room, or the like; or (d) it is within a <i>sole-occupancy unit</i> in a Class 2 or 3 building or Class 4 part of a building; or (e) it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the <i>required FRL</i>.		Noted
3.3: Floor Loading of Class 5 and 9b buildings: Concession	If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa— (a) the floor next above (including floor beams) may have an <i>FRL</i> of 90/90/90; or (b) the roof, if that is next above (including roof beams) may have an <i>FRL</i> of 90/60/30.		Noted
3.4: Roof superimposed on concrete slab: Concession	A roof superimposed on a concrete slab roof need not comply with Clause 3.1 as to fire-resisting construction if— (a) the superimposed roof and any construction between it and the concrete slab roof are non-combustible throughout; and (b) the concrete slab roof complies with Table 3.		CRA – Refer Annexure F

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3.5: Roof: Concession	A roof need not comply with Table 3 if its covering is <i>non-combustible</i> and the building— (a) has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 installed throughout; or (b) has a rise in storeys of 3 or less; or (c) is of Class 2 or 3; or (d) has an <i>effective height</i> of not more than 25 m and the ceiling immediately below the roof has a <i>resistance to the incipient spread of fire</i> to the roof space of not less than 60 minutes.		CRA – Refer Annexure F
3.6: Roof lights	If a roof is required to have an <i>FRL</i> or its covering is required to be <i>non-combustible</i>, roof lights or the like installed in that roof must— (a) have an aggregate area of not more than 20% of the roof surface; and (b) be not less than 3 m from— (i) any boundary of the allotment other than the boundary with a road or public place; and (ii) any part of the building which projects above the roof unless that part has the <i>FRL</i> required of a <i>fire wall</i> and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with C3.4; and (iii) any rooflight or the like in an adjoining <i>sole-occupancy unit</i> if the walls bounding the unit are required to have an <i>FRL</i>; and (iv) any rooflight or the like in an adjoining fire-separated section of the building; and (c) if a ceiling with a resistance to the incipient spread of fire is required, be installed in a way that will		CRA – Refer Annexure F

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	maintain the level of protection provided by the ceiling to the roof space.		
3.7: Internal columns and walls: Concession	For a building with an <i>effective height</i> of not more than 25 m and having a roof without an FRL in accordance with Clause 3.5, in the storey immediately below that roof, internal columns other than those referred to in Clause 3.1(f) and internal walls other than <i>fire walls</i> and shaft walls may have— (a) in a Class 2 or 3 building: FRL 60/60/60; or (b) in a Class 5, 6, 7, 8 or 9 building— (i) with rise in storeys exceeding 3: FRL 60/60/60 (ii) with rise in storeys not exceeding 3: no FRL.		CRA – Refer Annexure F
3.8: Open spectator stands and indoor sports stadiums concession		Not applicable.	N/A
3.9: Carparks		Not applicable.	N/A
3.10: Class 2 and 3 buildings Concession		Not applicable.	N/A
Specification C1.10 – Fire Hazard Properties			
1. Scope	Informational	Noted	-
2. Application	Informational	Noted	Noted
3. Floor linings and floor coverings	A floor lining or floor covering must have— (a) a <i>critical radiant flux</i> not less than that listed in Table 2; and		CRA – Refer Annexure F

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	(b) in a building not protected by a sprinkler system complying with Specification E1.5, a maximum smoke development rate of 750 percent-minutes; and (c) a <i>group number</i> complying with Clause 6(b), for any portion of the floor covering that is continued more than 150 mm up a wall.		
4. Wall and ceiling linings	(a) A wall or ceiling lining system must comply with the <i>group number</i> specified in Table 3 and for buildings not fitted with a sprinkler system complying with Specification E1.5 have— (i) a <i>smoke growth rate index</i> not more than 100; or (ii) an <i>average specific extinction area</i> less than 250 m²/kg. (b) A <i>group number</i> of a wall or ceiling lining and the <i>smoke growth rate index</i> or <i>average specific extinction area</i> must be determined in accordance with AS 5637.1:2015.		CRA – Refer Annexure F
5. Air-handling ductwork	Rigid and flexible ductwork must comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.		CRA – Refer Annexure F
6. Lift cars	Materials used as— (a) floor linings and floor coverings must have a <i>critical radiant flux</i> not less than 2.2; and (b) wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with AS 5637.1:2015.		CRA – Refer Annexure F
7. Other materials	Materials and assemblies not included in Clauses 3, 4, 5 or 6 must not exceed the indices set out in Table 4.		CRA – Refer Annexure F
Specification C2.5 – Smoke Proof Walls in Health Care and Aged Buildings			

Section C: Fire Resistance

1.	Scope	Informational	Noted	Noted
2.	Class 9a health-care buildings	Smoke-proof walls required by C2.5 in Class 9a health-care buildings must comply with the following: (a) Be non-combustible and extend to the underside of— (i) the floor above; or (ii) a non-combustible roof covering; or (iii) a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes. (b) Not incorporate any glazed areas unless the glass is safety glass as defined in AS 1288. (c) Only have doorways which are fitted with smoke doors complying with Specification C3.4. (d) Have all openings around penetrations and the junctions of the smoke-proof wall and the remainder of the building stopped with non-combustible material to prevent the free passage of smoke. (e) Incorporate smoke dampers where air-handling ducts penetrate the wall unless the duct forms part of a smoke hazard management system required to continue air movement through the duct during a fire.		CRA – Refer Annexure F
3.	Class 9c aged care buildings		Not applicable.	N/A
4.	Doorways in smoke-proof walls	A door required by C2.5 or this Specification to be smoke-proof or have an FRL, other than one that serves a fire compartment provided with a zone pressurisation system in accordance with AS 1668.1, must provide a		CRA – Refer Annexure F

Section C: Fire Resistance

	smoke reservoir by not extending within 400 mm of the underside of— (a) a roof covering; or (b) the floor above; or (c) an imperforate false ceiling that will prevent the free passage of smoke.		
Specification C3.4 – Fire Doors, Smoke Doors, Fire Window and Shutters			
1. Scope	Informational	Noted	Noted
2. Fire doors	Fire doorsets must comply with AS 1905.1:2015 and not fail by radiation through any glazed part during the period specified for integrity in the required <i>FRL</i> .		CRA – Refer Annexure F
3. Smoke doors	3.1 - Smoke doors must be constructed so that smoke will not pass from one side of the doorway to the other and, if they are glazed, there is minimal danger of a person being injured by accidentally walking into them. 3.2 – A smoke door of one or two leaves satisfies Clause 3.1 if it is constructed as follows: (a) The leaves are side-hung to swing– (i) in the direction of egress; or (ii) in both directions. (b) (i) The leaves are capable of resisting smoke at 200 degrees Celsius for 30 minutes. (ii) Solid-core leaves at least 35 mm thick satisfy (i). (c) The leaves are fitted with smoke seals. (d)		CRA – Refer Annexure F

Section C: Fire Resistance

	(i) The leaves are normally in the closed position; or (ii) (A) The leaves are closed automatically with the automatic closing operation initiated by smoke detectors, installed in accordance with the relevant provisions of AS 1670.1, located on each side of the doorway not more than 1.5m horizontal distance from the doorway; and (B) in the event of power failure to the door the leaves fail-safe in the closed position. (e) The leaves return to the fully closed position after each manual opening. (f) Any glazing incorporated in the door complies with AS 1288. (g) (i) If a glazed panel is capable of being mistaken for an unobstructed exit, the presence of the glass must be identified by opaque construction. (ii) An opaque mid-height band, mid-rail or crash bar satisfied (i).		
4. Fire shutters	Fire shutters must comply with Clause 4 of BCA Specification C3.4.		CRA – Refer Annexure F
5. Fire windows	Fire window must be identical to the prototype which achieved the required <i>FRL</i> and be installed in the same manner and in an opening that is not larger than the tested prototype.		CRA – Refer Annexure F

Section D: Access and Egress

Part D1 – Provision for Escape

D1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
D1.1: Application of Part	The Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a <i>sole-occupancy unit</i> in a Class 2 or 3 building or a Class 4 part of a building.		Noted
D1.2: Number of exits required	General > Without passing through another <i>sole-occupancy unit</i>, every occupant of a storey or part of a storey must have access to an <i>exit</i> or at least 2 <i>exits</i>, if 2 or more are required.	Any storey in a patient care area in a Class 9a health-care building requires not less than 2 exits. See Part 3 of report for details.	CRA – Refer Annexure F, See Part 3 of report for details.
D1.3: When fire-isolated stairways and ramps are required	Every <i>exit</i> stairway must be fire-isolated, except for.....	Each stairway is required to be fire-isolated.	CRA – Refer Annexure F
D1.4: Exit travel distances		See Part 3 of Report for details.	CRA – Refer Annexure F, see Part 3 of Report for details.
D1.5: Distance between alternative exits	<i>Exits</i> that are required as alternative means of egress must be— (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 <i>exits</i> is readily available from all points on the floor including lift lobby areas; and (b) not less than 9 m apart; and (c) not more than—		CRA – Refer Annexure F

Section D: Access and Egress

	(i) in a Class 2 or 3 building — 45 m apart; or (ii) in a Class 9a health-care building, if such required <i>exit</i> serves a patient care area — 45 m apart; or (iii) in all other cases — 60 m apart; and (d) located so that alternative paths of travel do not converge such that they become less than 6 m apart. Note: the distance between <i>exits</i> must be measured through the point at which travel two <i>exits</i> is available.		
D1.6: Dimensions of exits and paths of travel to exits	In a required <i>exit</i> or path of travel to an <i>exit</i>— > the unobstructed height throughout <i>exits</i> and paths of travel to <i>exits</i> must not be less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and > the unobstructed width of each <i>exit</i> or path of travel to an <i>exit</i>, except for doorways must be not less than 1m; > the unobstructed width of doorways must be not less than 750 mm, unless providing access for people with disabilities in which case the unobstructed width must be not less than 850 mm. > the required width of a stairway or ramp must be measured clear of all obstructions such as handrails. > the unobstructed width of a required <i>exit</i> must not diminish in the direction of travel to a road or open space.		CRA – Refer Annexure F

Section D: Access and Egress

D1.7: Travel via fire-isolated exits	> A doorway from a room must not open directly into a stairway that is required to be fire-isolated unless it is from – (i) a public corridor, public lobby or the like; or (ii) a <i>sole-occupancy unit</i> occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. > D1.7 (b) - Each fire-isolated stairway or fire-isolated ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway— (i) to a road or open space; or (ii) to a point— (A) in a storey or space, within the confines of the building, that is used only for pedestrian movement, car parking or the like and is open for at least 2/3 of its perimeter; and (B) from which an unimpeded path of travel, not further than 20 m, is available to a road or open space; or (iii) into a covered area that— (A) adjoins a road or open space; (B) and is open for at least 1/3 of its perimeter; and (C) has an unobstructed clear height throughout, including the perimeter openings, of not less than 3 m; and (D) provides an unimpeded path of travel from the point of discharge to the road or open space of not more than 6 m.		CRA – Refer Annexure F
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Section D: Access and Egress

	> D1.7 (c) - Where a path of travel from the point of discharge of a fire-isolated <i>exit</i> necessitates passing within 6 m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have— (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4, (iii) for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. > D1.7 (d) If more than 2 access doorways, not from a sanitary compartment or the like open to a required fire-isolated <i>exit</i> in the same storey – ○ a smoke lobby in accordance with D2.6 must be provided; or ○ the <i>exit</i> must be pressurized in accordance with AS 1668.1:2015 > A ramp must be provided at any change in level less than 600 mm in a fire-isolated passageway in a Class 9 building.		
D1.8: External stairways or ramps in lieu of fire-isolated exits		Not applicable.	N/A
D1.9: Travel by non-fire-isolated stairways or ramps		Not applicable.	N/A

Section D: Access and Egress			
D1.10: Discharge from exits	<i>Exits</i> must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the <i>exit</i>. If a required <i>exit</i> leads to open space, the path of travel to the road must have an unobstructed width of not less than 1m. min width of required <i>exit</i> if greater. If an <i>exit</i> discharges to open space that is at a different level that the public road to which it is connected, the path of travel to the road must be by a ramp or other incline not steeper than 1:8, or a BCA compliant stairway. The discharge points of alternative <i>exits</i> must be as far apart as practical		CRA – Refer Annexure F
D1.11: Horizontal exits	<i>Horizontal exits</i> must not comprise more than half of the required <i>exits</i> from any part of a storey divided by a <i>fire wall</i>.	See Part 3 of Report for details.	CRA – Refer Annexure F, See Part 3 of Report for details.
D1.12: Non-required stairways, ramps or escalators	An escalator, moving walkway or non-required non fire-isolated stairway or pedestrian ramp— (a) must not be used between storeys in— (i) a patient care area in a Class 9a health-care building; or (ii) a resident use area in a Class 9c building; and (b) may connect any number of storeys if it is— (i) in an open spectator stand or indoor sports stadium; or (ii) in a carpark or an atrium; or (iii) outside a building; or	Not applicable. All stairs are required.	N/A

Section D: Access and Egress			
	(iv) in a Class 5 or 6 building that is sprinklered throughout, where the escalator, walkway, stairway or ramp complies with Specification D1.12; and (c) except where permitted in (b) must not connect more than— (i) 3 storeys if each of those storeys is provided with a sprinkler system complying with Specification E1.5 throughout; or (ii) 2 storeys, provided that in each case, those storeys must be consecutive, and one of those storeys is situated at a level at which there is direct egress to a road or open space; and (d) except where permitted in (b) or (c), must not connect, directly or indirectly, more than 2 storeys at any level in a Class 5, 6, 7, 8 or 9 building and those storeys must be consecutive.		
D1.13: Number of persons accommodated	Informational— The number of persons accommodated in a storey, room or mezzanine must be determined within consideration to the purpose for which it is used and the layout of the floor area by— (a) calculating the sum of the numbers obtained by dividing the floor area of each part of the storey by the number of square metres per person listed in BCA Table D1.13 according to the use of that part, excluding spaces set aside for— (i) lifts, stairways, ramps and escalators, corridors, hallways, lobbies and the like; and (ii) service ducts and the like, sanitary compartments or other ancillary uses; or		Noted

Section D: Access and Egress			
	(b) reference to the seating capacity in an assembly building or room; or (c) any other suitable means of assessing its capacity. Based on floor area and Table D1.13, the population numbers are as follows:		
D1.14: Measurement of distances	Informational – The nearest part of an <i>exit</i> means in the case of— (a) a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access to them; and (b) a non-fire-isolated stairway, the nearest part of the nearest riser; and (c) a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey; and (d) a doorway opening to a road or open space, the nearest part of the doorway; and (e) a <i>horizontal exit</i>, the nearest part of the doorway.		Noted
D1.15: Method of Measurement	Informational	Noted	Noted
D1.16: Plant rooms, lift motor rooms and electricity network substations: concession	Informational – (a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100 m²; or (ii) all but one point of egress from a plant room, a lift machine room or a Class 8 electricity network substation with a floor area of not more than 200 m².		CRA – Refer Annexure F

Section D: Access and Egress			
	(b) A ladder permitted under (a)— (i) may form part of an <i>exit</i> provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) for a plant room or a Class 8 electricity network substation, must comply with AS 1657.		
D1.17: Access to lift pits	Access to the lift pit is assumed to be through the bottom landing doors as the pit is assumed to be less than 3m deep.		CRA – Refer Annexure F
D1.18: Egress from early childhood centres	(a) Every part of a Class 9b early childhood centre must be wholly within a storey that provides direct egress to a road or open space. (b) The requirements of (a) do not apply in a building with a rise in storeys of not more than 2, where the Class 9b early childhood centre is the only use in that building.	Not applicable. Not an early childhood centre	N/A
Part D2 – Construction of Exits			
D2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
D2.1: Application of Part	Informational— Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17(e), D2.21 and D2.24, the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a <i>sole-occupancy unit</i> in a Class 3 building. Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17 (e), D2.18 & D2.24, the deemed-to-satisfy Provisions of this		Noted

Section D: Access and Egress			
	Part do not apply to internal parts of the Class 2 sole-occupancy units .		
D2.2: Fire-isolated stairways and ramps	The fire isolated stairways must be constructed of <i>non-combustible</i> materials and constructed so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of the shaft.		CRA – Refer Annexure F
D2.3: Non-fire-isolated stairways and ramps	Required stairs and ramps (including landings and any supporting building elements) must be constructed according to D2.2, or only of- (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m³ at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue".	Not applicable. All stairways to be constructed as fire-isolated stairways.	N/A
D2.4: Separation of rising and descending stair flights	If a stairway serving as an <i>exit</i> is required to be fire-isolated— (a) there must be no direct connection between— (i) a flight rising from a storey below the lowest level of access to a road or open space; and (ii) a flight descending from a storey above that level; and	Not applicable. No ascending stairs to separate from descending stairs.	N/A

Section D: Access and Egress			
	(b) any construction that separates or is common to the rising and descending flights must be (i) non-combustible; and (ii) smoke proof in accordance with Clause 2 of Specification C2.5.		
D2.5: Open access ramps and balconies	Where an open access ramp or balcony is provided to meet the smoke hazard management requirements of Table E2.2a, it must— (a) have ventilation openings to the outside air which— (i) have a total unobstructed area not less than the floor area of the ramp or balcony; and (ii) are evenly distributed along the open sides of the ramp or balcony; and (b) not be enclosed on its open sides above a height of 1 m except by an open grille or the like having a free air space of not less than 75% of its area.	Not applicable.	N/A
D2.6: Smoke lobbies	A smoke lobby required by D1.7 must— (a) have a floor area not less than 6 m²; and (b) be separated from the occupied areas in the storey by walls which are impervious to smoke, and— (i) have an FRL of not less than 60/60/– (which may be fire-protective grade plasterboard, gypsum block with set plaster, face brickwork, glass blocks or glazing); and (ii) extend from slab to slab, or to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes which covers the lobby; and (iii) any construction joints between the top of the walls and the floor slab, roof or ceiling must be	Not applicable.	N/A

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	smoke sealed with intumescent putty or other suitable material; and (c) at any opening from the occupied areas, have smoke doors complying with Clause 3 of Specification C3.4 except that the smoke sensing device need only be located on the approach side of the opening; and (d) be pressurised as part of the exit if the exit is required to be pressurised under E2.2.		
D2.7: Installations in exits and paths of travel	> Access to service shafts and services other than to fire-fighting or detection equipment must not be provided from a fire-isolated stairway or fire-isolated passageway. > Gas or other fuel services must not be installed in a required <i>exit</i>. > Any electricity meters, distribution boards or ducts, or telecommunications distribution boards or equipment installed in corridors/hallways/lobbies or the like must be enclosed with <i>non-combustible</i> construction or a fire protective covering with doorways suitably sealed against smoke spread. > Electrical wiring may be installed in a fire-isolated <i>exit</i> if the wiring is associated with: ○ a lighting, detection, or pressurization system serving the <i>exit</i>; or ○ a security, surveillance or management system serving the <i>exit</i>; or ○ an intercommunication system or an audible or visual alarm system in accordance with D2.22; or ○ the monitoring of hydrant or sprinkler isolating valves.		CRA – Refer Annexure F

Section D: Access and Egress

D2.8: Enclosure of space under stairs and ramps	The space under the fire-isolated stairways within the shaft must not be enclosed to form a cupboard or similar enclosed space. The space below a required non fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless the enclosing walls and ceilings have an FRL of not less than 60/60/60 and the doorway is fitted with a self-closing –/60/30 fire door.		CRA – Refer Annexure F
D2.9: Width of stairways and ramps	Informational– A required stairway or ramp that exceeds 2 m in width is counted as having a width of only 2 m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2 m.		Noted
D2.10: Pedestrian ramps	> A ramp serving as a required <i>exit</i> must— (i) where the ramp is also serving as an accessible ramp under Part D3, be in accordance with AS 1428.1:2009; or (ii) in any other case, have a gradient not steeper than 1:8. > The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.		CRA – Refer Annexure F
D2.11: Fire-isolated passageways	The enclosing construction of a fire isolated passageway must have an FRL not less than that required for the fire isolated stair.	Not applicable. No fire-isolated passageways as part of the design.	N/A
D2.12: Roof as open space		Not applicable. No basement level as part of the design.	N/A

Section D: Access and Egress

D2.13: Goings and risers	Stairways must comply with the following: > Stairways must have not more than 18 and not less than 2 risers in each flight; > Goings must be between 240 mm and 355 mm within the residential units; > Goings must be between 250 mm and 355 mm; > Goings must be between 250 mm and 355 mm in other areas; > Risers must be between 115 mm high and 190 mm high; > The slope relationship (2 x riser dimension + going dimension) must be within the range of 550-700; > The goings and risers must be constant (uniform) throughout each flight and the dimensions of goings (G) and risers (R) are considered constant if the variation between– (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm. > Risers must not contain any openings that would permit a 125 mm sphere to pass through. > Each tread must have a non-slip finish or an adequate non-skid strip near the edge of the nosings; > Treads must be of solid construction (not mesh or perforated) if the stairway is more than 10 m high or connects more than 3 storeys.		CRA – Refer Annexure F
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Section D: Access and Egress

	> In a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30° > In the case of a required stairway, no winders in lieu of a landing > Treads must have a surface or nosing strip with a slip-resistant classification not less than that listed in Table D2.14 when tested in accordance with AS 4586-2013 Slip resistance classification of new pedestrian surface materials.																			
D2.14: Landings	Landings must be not less than 750 mm long and have either a surface with a slip-resistance classification complying with Table D2.14 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013. <table><tr><th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr><tr><th>Dry</th><th>Wet</th></tr><tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr><tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr></table>	Application	Surface Condition		Dry	Wet	Ramp steeper than 1:14	P4 or R11	P5 or R12	Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11	Tread or landing surface	P3 or R10	P4 or R11	Nosing or landing edge strip	P3	P4	Class 9a buildings have specific requirements. (b) in a Class 9a building— (i) the area of any landing must be sufficient to move a stretcher, 2 m long and 600 mm wide, at a gradient not more than the gradient of the stairs, with at least one end of the stretcher on the landing while changing direction between flights; or (ii) the stair must have a change of direction of 180°, and the landing a clear width of not less than 1.6 m and a	CRA – Refer Annexure F
Application	Surface Condition																			
	Dry	Wet																		
Ramp steeper than 1:14	P4 or R11	P5 or R12																		
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11																		
Tread or landing surface	P3 or R10	P4 or R11																		
Nosing or landing edge strip	P3	P4																		
D2.15: Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless—		CRA – Refer Annexure F																	

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	(a) in a building required to be accessible, the doorway– (i) opens to a road or open space; and (ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1:2009; or (b) in other cases– (i) the doorway opens to a road or open space, external stair landing or external balcony; and (ii) the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.		
D2.16: Barriers to prevent falls	Balustrades must be provided to stairs and balconies, driveway ramps etc where there is a fall of more than 1m. Balustrades must comply with the following: <u>Balustrade minimum heights</u> > 865 mm above stair nosings; > 865 mm above landings to a stair where the barrier is provided along the inside edge of the landing and does not exceed 500 mm in length; and > 1 m in all other locations. <u>Balustrade openings – fire-isolated stairs</u> > maximum openings of 300 mm; or > where rails are used– ○ a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the landing, balcony or the like; and		CRA – Refer Annexure F

Section D: Access and Egress

	○ the opening between rails must not be more than 460 mm <u>Balustrade openings – other than fire-isolated stairs</u> > A 125 mm sphere must not be able to pass through any opening and for stairways, the 125 mm is measured above the nosing line of the stair treads. <u>Climbability – other than fire-isolated stairs</u> For floors more than 4m above the surface beneath, the balustrade must not incorporate any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that could facilitate climbing.		
D2.17: Handrails	Handrails to stairways must: > be located along at least one side of the ramp or flight (a flight being 2 or more risers); and > located along each side if the total width of the stairway or ramp is 2m or more; and > be fixed at a height of not less than 865 mm above the nosings of the stair treads and the floor surface of the ramp, landing, or the like; and > be continuous between stair flight landings and have no obstruction that will break a hand-hold. > be constructed to comply with clause 12 of AS 1428.1:2009 (including handrails to the fire stairs). > Handrails in common areas (other than fire stairs) must also accord with D3.3. <u>Clause 12 of AS 1428.1:2009</u> A required <i>exit</i> (fire isolated or non-fire isolated) serving an area required to be accessible must be fitted with handrails in accordance with Clause 12 of AS 1428.1:2009.	Class 9a health-care buildings have additional requirements. See Part 3 of report for details.	CRA – Refer Annexure F, See Part 3 of report for details.

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The handrail shall follow the angle of the nosings and be consistent height through the stair flight and any landings with no vertical sections at the landing. Compliance can be achieved via offset risers at the bottom of the flight in accordance with Figure 28 in AS 1428.1:2009 or with larger landings to accommodate required handrail extensions.

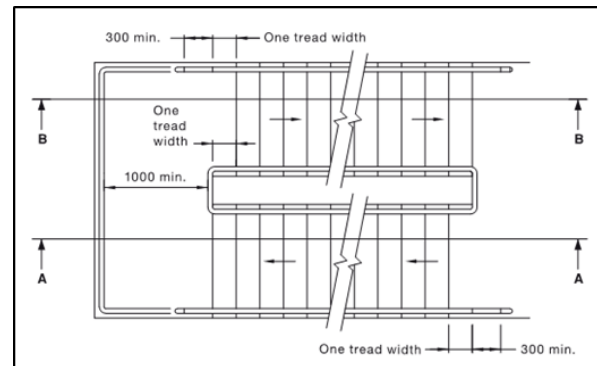


Figure 28 in AS 1428.1:2009

D2.18: Fixed platforms, walkways stairways and ladders	Plant areas may be accessed via stairs and ladders compliant with AS 1657:2018.		CRA – Refer Annexure F
D2.19: Doorways and doors	> Sliding doors serving as <i>exit</i> doors must be openable manually under a force of not more than 110N. > <i>Exit</i> doors that are power operated must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source and if leading to road or open space, open automatically if there is a power failure or on the activation of a fire or smoke alarm anywhere in the <i>fire compartment</i> served by the door.	Swing doors have been provided throughout other than the main entrance doorway.	CRA – Refer Annexure F

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	> A power operated door in a path of travel to a required <i>exit</i> must be able to be opened manually under a force of not more than 110 N if there is a malfunction of the power source.		
D2.20: Swinging doors	Swinging doors in a required <i>exit</i> must not encroach– (i) at any part of its swing by more than 500 mm on the required 1m width of the <i>exit</i> and (ii) when fully open, by more than 100 mm on the required 1m <i>exit</i> width; and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door. A swinging door in a required <i>exit</i> must swing in the direction of egress unless– > it serves a building or part with a floor area not more than 200 m², it is the only required <i>exit</i> from the building or part and it is fitted with a device for holding it in the open position; or > it serves a sanitary compartment or airlock (in which case it may swing in either direction).	Swinging doors have been provided throughout the building other than the main entrance doorway.	CRA – Refer Annexure F
D2.21: Operation of latch	All doors in a required <i>exit</i> or forming part of a required <i>exit</i> AND doors in a path of travel to a required <i>exit</i> must be readily openable without a key from the side that faces a person seeking egress, by– (iii) a single hand downward action or pushing action on a single device which is located between 900mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3 – (A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and		CRA – Refer Annexure F

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	(B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm; or (iv) a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. (v) where the latch operation device referred to in (ii) is not located on the door leaf itself— (A) manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (aa) not less than 500 mm from an internal corner; and (bb) for a hinged door, between 1 m and 2 m from the door leaf in any position; and (cc) for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position. (B) braille and tactile signage complying with Clause 3 and 6 of Specification D3.6 must identify the latch operation device. The above requirements do not apply to a door that – (i) serves only or is within a <i>sole-occupancy unit</i> in a Class 2 building; or (ii) serves a <i>sole-occupancy unit</i> in a Class 5, 6, 7 or 8 building with a floor area not more than 200m²; or (iii) are fitted with a fail-safe device which automatically unlocks the door upon the activation of an AS 1670.1 detection system		
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Section D: Access and Egress

	installed throughout the building and is readily openable when unlocked. All doors in a required <i>exit</i> or forming part of a required <i>exit</i> AND doors in a path of travel to a required <i>exit</i> must be readily openable— (i) without a key from the side that faces a person seeking egress; and (ii) by a single hand pushing action on a single device such as a panic bar located between 900mm and 1.2 m from the floor; and (iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf; and (iv) where the door is a door in a path of travel providing re-entry to the building from a balcony terrace or the like, it may be fitted with key-operated fastenings only, the tongues of which must be locked in the retracted position whenever the building is occupied by the public, so the door can yield to pressure.		
D2.22: Re-entry from fire-isolated exits	Doors of the fire-isolated <i>exits</i> must not be locked from the inside unless the door is fitted with a fail-safe device which automatically unlocks the door upon the activation of a fire alarm and – (i) on at least every fourth storey, the doors are not able to be locked and a sign is fixed on such doors stating that re-entry is available; or (ii) an intercommunication system, or an audible or visual alarm system, operated from within the enclosure is provided near the doors and a sign is fixed adjacent to such doors explaining its purpose and method of operation.	See Part 3 of Report for details.	CRA – Refer Annexure F, See Part 3 of Report for details.

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D2.23: Signs on doors	Signage in accordance with this clause is to be located on all fire and smoke doors stating "Fire Safety Door, Do Not Obstruct, Do Not Keep Open" and the discharge door from the fire isolated stairways are to state "Fire Safety Door – Do Not Obstruct" in capital letters not less than 20mm in height. Note: Fire signage in accordance with clause 183 of the Environmental Planning and Assessment Regulation 2000 is also required.		CRA – Refer Annexure F
D2.24: Protection of openable windows		Not applicable.	N/A
D2.25: Timber stairways: concession	(a) Notwithstanding D2.2(a), timber treads, risers, landings and associated supporting framework which— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m³ at a moisture content of 12%, may be used within a required fire-isolated stairway or fire-isolated passageway constructed from fire-protected timber in accordance with C1.13 subject to— (iii) the building being protected throughout by a sprinkler system (other than a FPAA101D system) complying with Specification E1.5 which extends to within the fire-isolated enclosure; and (iv) fire protection being provided to the underside of stair flights and landings located immediately above a landing level which— (A) is at or near the level of egress; or (B) provides direct access to a carpark.		CRA – Refer Annexure F

Section D: Access and Egress

	(b) Fire protection required by (a) must be not less than one layer of 13 mm fire-protective grade plasterboard fixed in accordance with the system requirements for a fire-protective covering.		
Part D3 – Access for People with A Disability			
See report prepared by BCA Logic referenced 112924-Access-r1.			

Section E: Services and Equipment**Part E1 – Fire Fighting Equipment**

E1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E1.3: Fire hydrants	As the building has a floor area greater than 500 m2, a fire hydrant system complying with AS 2419.1:2005 must be provided to serve the building. Details should be provided showing: > Hydrant booster assembly location. The booster location must comply with the following: ○ be within 8m of a hardstand for fire brigade appliance; ○ be within sight of the main entry; > Assuming it is attached to the building, be separated from the building by construction achieving FRL 90/90/90 for 2m either side of and 3m above the upper hose connections > Hydrant pump room location (if a pumpset is required). An internal pump room must have a door opening to a road or open space or egress to open space via a fire-isolated exit;		CRA – Refer Annexure F

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	> Internal hydrants in each fire-isolated exit at each storey providing coverage to all parts of the building. For internal fire hydrant coverage, all points on the floor must be covered by a 10m hose stream, issuing from 30 m hose length, extending not less than 1m into the room.		
E1.4: Fire hose reels	A fire hose reel system complying with BCA clause E1.4 and AS 2441:2005 must be provided to the building (excluding Classes 2, 3, 4, 5, 8 and 9c). All points on a floor shall be within reach of a 4 m hose stream issuing from a nozzle at the end of the hose laid on floor. The hose length shall not exceed 36 m. Fire hose reels must be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors, except— (i) doorways in walls referred to in C2.5(a)(v) in a Class 9a building and C2.5(b)(iv) in a Class 9c building, separating ancillary use areas of high potential fire hazard; and (ii) doorways in walls referred to in C2.12 or C2.13 separating equipment or electrical supply systems; and (iii) doorway openings to shafts referred to in C3.13.		CRA – Refer Annexure F
E1.5: Sprinklers			CRA – Refer Annexure F
E1.6: Portable fire extinguishers	Portable fire extinguishers must be provided in accordance with clause E1.6 & Table E1.6 of the BCA and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444:2001.		CRA – Refer Annexure F

Section E: Services and Equipment

E1.8: Fire control centres	> The building must be provided with a fire control centre facility in accordance with BCA Specification E1.8. > The fire control centre must be located so that egress from any part of its floor to a public road or open space does not involve changes in level which in aggregate exceed 300 mm.	Not applicable. The building does not have a total floor area of more than 18000m ² .	N/A
E1.9: Fire precautions during construction	Informational– > During construction, not less than one portable fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required / temporary exit; and > After the building has reach an <i>effective height</i> of 12m, the required fire hydrants and fire hose reels must be operational on all floor / roof covered storeys, except for the 2 uppermost storeys; and all required booster connections must be installed.		Noted
E1.10: Provision for special hazards	Suitable additional provisions must be made if special problems of firefighting could arise because of the nature or quantity of stored materials or the location of the building in relation to a water supply.	Not applicable.	N/A
Part E2 – Smoke Hazard Management			
E2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E2.1: Application of Part	Informational	Noted	Noted

Section E: Services and Equipment

E2.2: General requirements (including Tables E2.2a and E2.2b)	General smoke hazard management requirements An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one <i>fire compartment</i> to another <i>fire compartment</i> or operates in a manner that may unduly contribute to the spread of smoke from one <i>fire compartment</i> to another <i>fire compartment</i> (such as lobby air supply) must— (i) be designed and installed to operate as a smoke control system in accordance with AS 1668.1:2015; or (ii) (A) incorporate smoke dampers where the air-handling ducts penetrate any elements separating the <i>fire compartments</i> served; and (B) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 7.5 of AS 1668.1:2015; and for the purposes of this provision, each <i>sole-occupancy unit</i> in a Class 2 or 3 building is treated as a separate <i>fire compartment</i>. Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1:2015 serving more than one <i>fire compartment</i> (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard. A smoke detection system must be installed in accordance with Clause 6 of Specification E2.2a to operate AS1668.1:2015 systems that are provided for	See Part 3 of Report for details.	CRA – Refer Annexure F, See Part 3 of Report for details
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Section E: Services and Equipment

	zone pressurisation and automatic air pressurisation for fire-isolated exits. Class 9a health care > Table E2.2a) - Any system in a Class 9a health care or 9c aged care building that does not operate as a smoke control system as per AS/NZS 1668.1:2015, other than: ○ individual room units with a capacity of not more than 1000 L/s; or ○ systems serving critical treatment areas; or ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.		
E2.3: Provisions for special hazards	Additional smoke hazard management measures may be necessary due to the— (a) special characteristics of the building; or (b) special function or use of the building; or (c) special type or quantity of materials stored, displayed or used in a building; or (d) special mix of classifications within a building or fire compartment, which are not addressed in Tables E2.2a and E2.2b		CRA – Refer Annexure F
Part E3 – Lift Installations			
E3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E3.1: Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1		CRA – Refer Annexure F

Section E: Services and Equipment

E3.2: Stretcher facility in lifts	A stretcher facility must be provided to an emergency lift required by E3.4. A stretcher facility must be provided to passenger lifts installed to serve any storey above an <i>effective height</i> of 12 m. A stretcher facility must accommodate a raised stretcher with a patient lying on it horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above floor level.	Stretcher lifts are required as the building has an effective height of over 12m. See Part 3 for details.	CRA – Refer Annexure F, See Part 3 for details.
E3.3: Warning against use of lifts in fire	Warning signs indicating “DO NOT USE LIFTS IF THERE IS A FIRE” shall be displayed near every call button for a passenger lift or group of lifts throughout a building as per E3.3.		CRA – Refer Annexure F
E3.4: Emergency lifts		Two (2) emergency lifts must be installed in a Class 9a building in which patient care areas are located at a level that does not have direct egress to a road or pen space. See Part 3 for details.	CRA – Refer Annexure F See Part 3 for details.
E3.5: Landings	Access and egress to and from lift-well landings must comply with the Deemed-to-Satisfy Provisions of Section D.		CRA – Refer Annexure F
E3.6: Passenger lifts	In an accessible building, every passenger lift must be one of the types specified in Table E3.6a, have accessible features in accordance with Table E3.6b, and not rely on a constant pressure device for its operation if the lift car is fully enclosed.		CRA – Refer Annexure F
E3.7: Fire service controls	The lifts serving any storey above an <i>effective height</i> of 12 m must be provided with: (a) A fire service recall control switch complying with E3.9 for—		CRA – Refer Annexure F

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	(i) a group of lifts; or (ii) a single lift not in a group that serves the storey. (b) A lift car fire service drive control switch complying with E3.10 for every lift.		
E3.8: Aged care buildings	Where residents in a Class 9c residential care building are on levels which do not have direct access to a road or open space, the building must be provided with either— (a) at least one lift to accommodate a stretcher in accordance with E3.2(b); or (b) a ramp in accordance with AS 1428.1, and the lift or ramp must discharge at a level providing direct access to a road or open space.	Not applicable.	N/A
E3.9: Fire service recall switch	The fire service control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.		CRA – Refer Annexure F
E3.10: Lift car service drive control switch	The lift car service drive control switch required by E3.7, is to comply with this clause. Lift services design to confirm compliance at CC stage.		CRA – Refer Annexure F
Part E4 – Visibility In An Emergency, Exit Signs And Warning Systems			
E4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
E4.2: Emergency lighting requirements	An emergency lighting system must be installed throughout the building in accordance with Clause E4.2 of the BCA and AS/NZS 2293.1:2018.		CRA – Refer Annexure F
E4.3: Measurement of distance	Informational	Noted	Noted

Section E: Services and Equipment

E4.4:	Design and operation of emergency lighting	The emergency lighting system must comply with AS/NZS 2293.1:2018.		CRA – Refer Annexure F
E4.5:	Exit signs	<i>Exits</i> signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary.		CRA – Refer Annexure F
E4.6:	Direction signs	Where an <i>exit</i> is not readily apparent, directional signage is to be installed indicating the direction of egress.		CRA – Refer Annexure F
E4.7:	Class 2 and 3 buildings and Class 4 Parts: Exemptions	Informational	Noted	Noted
E4.8:	Design and operation of exit signs	<i>Exit</i> signs must comply with AS/NZS 2293.1:2018 and be clearly visible at all times when the building is occupied.		CRA – Refer Annexure F
E4.9:	Emergency warning and intercom systems	An Emergency warning and intercom system complying where applicable with AS 1670.4:2018 must be installed within the building.		CRA – Refer Annexure F

Section F: Health and Amenity**Part F1 – Damp and Weatherproofing**

F1.0:	Deemed-to-Satisfy Provisions	<i>Performance Requirement</i> FP1.4, for the prevention of the penetration of water through external walls, must be complied with. There are no Deemed-to-Satisfy Provisions for this <i>Performance Requirement</i> in respect of external walls. The assessment contained within this report does not include an assessment against Performance Provision FP1.4.		PS Required
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F1.1:	Stormwater drainage	Stormwater drainage to comply with AS/NZS 3500.3:2018.		CRA – Refer Annexure F
F1.4:	External above ground membranes	Waterproofing membranes for external above ground use to comply with AS 4654 Parts 1 and 2:2012.		CRA – Refer Annexure F
F1.5:	Roof coverings	Roof coverings are to comply with BCA Clause F1.5.		CRA – Refer Annexure F
F1.6:	Sarking	<i>Sarking-type materials</i> used for weatherproofing must comply with AS/NZS 4200 Part 1 and 2:2017.		CRA – Refer Annexure F
F1.7:	Water proofing of wet areas in buildings	Wet areas must be constructed in accordance with AS 3740:2010 and F1.7 of the BCA.		CRA – Refer Annexure F
F1.9:	Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.		CRA – Refer Annexure F
F1.10:	Damp-proofing of floors on the ground	If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870:2011 (N/A to areas that do not require weatherproofing – refer specific clause exemptions).		CRA – Refer Annexure F
F1.11:	Provision of floor wastes	In Class 2 or 3 buildings or Class 4 part of a building, a bathroom or laundry is to have a floor waste where the floor is graded to the floor waste to permit the drainage of water.		CRA – Refer Annexure F
F1.12:	Sub-floor ventilation			CRA – Refer Annexure F

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F1.13: Glazed Assemblies	Glazed assemblies are to comply with AS 2047:2014 and AS 1288:2006.		CRA – Refer Annexure F
Part F2 – Sanitary and Other Facilities			
F2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F2.1: Facilities in residential buildings (including Table F2.1)	Each SOU must be provided with sanitary facilities; a kitchen sink; facility for the preparation and cooking of food; a bath or shower; a closet pan; wash basin; laundry wash tub and space for a washing machine and dryer.		CRA – Refer Annexure F
F2.2: Calculation of number of occupants and facilities	Informational – (a) The number of persons accommodated must be calculated according to D1.13 if it cannot be more accurately determined by other means (b) Unless the premises are used predominantly by one sex, sanitary facilities must be provided on the basis of equal numbers of males and females (c) In calculating the number of sanitary facilities to be provided under F2.1 and F2.3, a unisex facility required for people with a disability may be counted once for each sex (d) For the purpose of this Part, a unisex facility comprises one closet pan, one washbasin and means for the disposal of sanitary towels		CRA – Refer Annexure F
F2.3: Facilities in Class 3 to 9 buildings (including Table F2.3)	(a) Except where permitted by (b), (c), (f), F2.4(a) and F2.4(b), separate sanitary facilities for males and females must be provided for Class 3, 5, 6, 7, 8 or 9 buildings in accordance with Table F2.3.	See Part 3 of report for details.	CRA – Refer Annexure F, see Part 3 of report for details.

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| | <ul style="list-style-type: none"> (b) If not more than 10 people are employed, a unisex facility may be provided instead of separate facilities for each sex. (c) If the majority of employees are one sex, not more than 2 employees of the other sex may share toilet facilities if the facilities are separated by means of walls, partitions and doors to afford privacy. (d) Employees and the public may share the same facilities in a Class 6 and 9b building (other than a school or early childhood centre) provided the number of facilities provided is not less than the total number of facilities required for employees plus those required for the public. (e) Adequate means of disposal of sanitary towels must be provided in sanitary facilities for use by females. (f) Separate sanitary facilities for males and females need not be provided for patients in a ward area of a Class 9a building. (g) A Class 9a health-care building must be provided with – <ul style="list-style-type: none"> (i) one kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and (ii) laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing, sanitary towels and the like and the receipt and storage of clean linen; and (iii) one shower for each 8 patients or part thereof; and (iv) one island-type plunge bath in each storey containing a ward area | | |
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Section F: Health and Amenity			
F2.4: Accessible sanitary facilities (including Table F2.4)	See Access Report prepared by BCA Logic and referenced 112924-Access-r1		
F2.5: Construction of sanitary compartments	(a) Other than in an early childhood centre, sanitary compartments must have doors and partitions that separate adjacent compartments and extend— (i) from floor level to the ceiling in the case of a unisex facility; or (ii) to a height of not less than 1.5 m above the floor if primary school children are the principal users; or (iii) 1.8 m above the floor in all other cases. (b) The door to a fully enclosed sanitary compartment must— (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F2.5, between the closet pan within the sanitary compartment and the doorway.		CRA – Refer Annexure F
F2.6: Interpretation: urinals and washbasins	Informational— (a) A urinal may be— (i) an individual stall or wall-hung urinal; or (ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— (i) an individual basin; or		Noted

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	(ii) a part of a hand washing trough served by a single water tap.		
F2.8: Waste Management	Class 9a (a) In a Class 9a health-care building, at least one slop-hopper or other device, other than a water closet pan or urinal, must be provided— (i) on any storey containing ward areas or bedrooms to facilitate emptying of containers of sewage or dirty water; and (ii) with a flushing apparatus, tap and grating.	See Part 3 of Report for details.	CRA – Refer Annexure F, see Part 3 of Report for details.
F2.9: Accessible adult change facilities		Not applicable.	N/A
Part F3 – Room Heights			
F3.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F3.1: Height of rooms and other spaces	(a) The height of rooms and other spaces must be not less than— (b) in a Class 5 building— (i) except as allowed in (ii) and (f) — 2.4 m; and (ii) a corridor, passageway, or the like — 2.1 m; and (c) in a Class 9a health-care building— (i) a patient care area — 2.4 m; and (ii) an operating theatre or delivery room — 3 m; and (iii) a treatment room, clinic, waiting room, passageway, corridor, or the like — 2.4 m; and (iv) in any building—		CRA – Refer Annexure F

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	(v) a bathroom, shower room, sanitary compartment, airlock, tea preparation room, pantry, store room, garage, car parking area, or the like — 2.1 m; and (A) a commercial kitchen — 2.4 m; and (B) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.		
Part F4 – Light and Ventilation			
F4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F4.1: Provision of natural light	Class 9a Natural light must be provided to all rooms used for sleeping purposes.	Not applicable. No rooms used for sleeping purposes.	N/A
F4.2: Methods and extent of natural lighting	(a) Natural light must be provided by: (i) Windows: (A) with an aggregate light transmitting area of not less than 10% the floor area of the room; and (B) that are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (ii) Rooflights, that: (A) have an aggregate light transmitting area of not less than 3% the floor area of the room; or		CRA – Refer Annexure F

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	(iii) a proportional combination of windows and roof lights required by (i) and (ii). (b) A required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must be not less than a horizontal distance from that boundary or wall that is the greater of – (c) 1m; and (d) 50% of the square root of the exterior height of the wall in which the window is located, measured from its sill.		
F4.3: Natural light borrowed from adjoining room	(a) Natural light to a room in a Class 2 building or Class 4 part of a building or in a sole-occupancy unit of a Class 3 building, may come through one or more glazed panels or openings from an adjoining room (including an enclosed verandah) if— (i) both rooms are within the same sole-occupancy unit or the enclosed verandah is on common property; and (ii) the glazed panels or openings have an aggregate light transmitting area of not less than 10% of the floor area of the room to which it provides light; and (iii) the adjoining room has— (A) windows , excluding roof lights, that— (aa) have an aggregate light transmitting area of not less than 10% of the combined floor areas of both rooms; and (bb) are open to the sky or face a court or other space open to the sky or		CRA – Refer Annexure F

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	an open verandah, carport or the like; or (B) roof lights , that— (aa) have an aggregate light transmitting area of not less than 3% of the combined floor areas of both rooms; and (bb) are open to the sky; or (C) a proportional combination of windows and roof lights required by (A) and (B). (b) The areas specified in (a)(ii) and (a)(iii) may be reduced as appropriate if direct natural light is provided from another source.		
F4.4: Artificial Lighting	Lighting to all areas is to comply with AS/NZS 1680.0:2009.		CRA – Refer Annexure F
F4.5: Ventilation of rooms	All rooms to be provided with Clause F4.6 compliant natural ventilation OR a mechanical ventilation or air-conditioning system complying with AS 1668.2:2012.		CRA – Refer Annexure F
F4.6: Natural ventilation	(a) Natural ventilation provided in accordance with F4.5(a) must consist of permanent openings, windows, doors or other devices which can be opened— (i) with an aggregate opening or openable size not less than 5% of the floor area of the room required to be ventilated; and (ii) open to— (A) a suitably sized court, or space open to the sky; or (B) an open verandah, carport, or the like; or		CRA – Refer Annexure F

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	(C) an adjoining room in accordance with F4.7.		
F4.7: Ventilation borrowed from adjoining room	Ventilation may be 'borrowed' from adjoining rooms in some instances in accordance with this clause.		CRA – Refer Annexure F
F4.8: Restriction on position of water closets and urinals	Sanitary compartments must not open directly into a – > kitchen or pantry > public dining room or restaurant > dormitory in a Class 3 building > room used for public assembly (which is not an early childhood centre, primary school or open spectator stand) > workplace normally occupied by more than one person.		CRA – Refer Annexure F
F4.9: Airlocks	If sanitary compartments are prohibited from opening directly to another room: > access must be by an airlock, hallway or other room with a floor area of not less than 1.1m² and fitted with self-closing doors at all access doorways; or > the sanitary compartments must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.		CRA – Refer Annexure F
F4.11: Carparks	Every storey of a carpark (except an open deck carpark) must have: > a system of mechanical ventilation complying with AS 1668.2:2012; or > a system of natural ventilation complying with Section 4 of AS 1668.4:2012.	Not applicable.	N/A

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F4.12: Kitchen local exhaust ventilation	Any commercial kitchen must be provided with a kitchen exhaust hood complying with AS 1668.1:2015 and AS 1668.2:2012 where: > any cooking apparatus has: ○ a total maximum electrical power input exceeding 8 kW; or ○ a total gas power input exceeding 29 MJ/h; or > the total maximum power input to more than one apparatus exceeds: ○ 0.5 kW electrical power; or ○ 1.8 MJ gas, Per m2 of floor area of the room or enclosure.		CRA – Refer Annexure F
Part F5 – Sound Transmission and Insulation			
F5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
F5.1: Application of Part	Informational– The Deemed-to-Satisfy Provisions of this Part apply to Class 2 and 3 buildings and Class 9c buildings.	Not applicable.	N/A
Part F6 – Condensation Management			
F6.0: Deemed-to-satisfy provisions	Informational	Noted	Noted
F6.1: Application of Part	Informational	Noted	Noted

Section F: Health and Amenity			
F6.2	Pliable building membrane	Where a pliable building membrane is installed in an external wall it shall comply with AS/NZS 4200.1:2017 and installed in accordance with AS 4200.2:2017.	CRA – Refer Annexure F
F6.3:	Flow rate and discharge of exhaust systems	(a) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of— (i) 25 L/s for a bathroom or sanitary compartment; and (ii) 40 L/s for a kitchen or laundry. (b) Exhaust from a kitchen must be discharged directly or via a shaft or duct to outdoor air. (c) Exhaust from a bathroom, sanitary compartment, or laundry must be discharged— (i) directly or via a shaft or duct to outdoor air; or (ii) to a roof space that is ventilated in accordance with F6.4	CRA – Refer Annexure F
F6.4:	Ventilation of roof spaces	(a) Where an exhaust system covered by F6.3 discharges directly or via a shaft or duct into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings. (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is greater than 22°, or 1/150 of the respective ceiling area if the roof pitch is less than or equal to 22°. (c) 30% of the total unobstructed area required by (b) must be located more than 900 mm below the ridge or highest point of the roof space, measured vertically, with the remaining required area provided by eave vents.	CRA – Refer Annexure F

Section G: Ancillary Provisions

Part G1 – Minor Structures and Components

G1.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G1.1: Swimming pools	Swimming pools and spa pools are to be provided with safety fencing compliant with AS1926. Parts 1 and 2; and, as required by the Swimming Pools Act 1992 and the Swimming Pools Regulation 2018. A water recirculation system in a swimming pool or spa pool must comply with AS 1926.3:2010.	Not applicable.	N/A
G1.2: Refrigerated chambers, strong-rooms and vaults	(a) A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must have— (i) a door which is capable of being opened by hand from inside without a key; and (ii) internal lighting controlled only by a switch which is located adjacent to the entrance doorway inside the chamber, strongroom or vault; and (iii) an indicator lamp positioned outside the chamber, strongroom or vault which is illuminated when the interior lights required by (a)(ii) are switched on; and (iv) an alarm that is— (A) located outside but controllable only from within the chamber, strongroom or vault; and (B) able to achieve a sound pressure level outside the chamber, strongroom or vault of 90 dB(A) when measured 3 m from the sounding device. (b) A door required by (a)(i) in a refrigerated or cooling chamber must have a doorway with a clear width of		CRA – Refer Annexure F

Section G: Ancillary Provisions			
	not less than 600 mm and a clear height not less than 1.5 m.		
G1.3: Outdoor play spaces	The outdoor play space must be enclosed on all sides with a barrier which complies with AS 1926.1:2012 to restrict the children from exiting the premises. The above requirements do not apply to a wall, including doors and windows, which form part of the Class 9b early childhood centre.	Not applicable.	N/A
NSW G1.101: Provision for cleaning windows	A safe manner for cleaning of windows located 3 or more storeys above ground level must be provided, and compliance is achieved where: > the windows can be cleaned wholly from within the building; or > via a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.		CRA – Refer Annexure F
Part G2 – Boilers, Pressure Vessels, Heating Appliances, Fireplaces, Chimneys and Flues			
G2.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G2.2: Installation of Appliances	The installation of a stove, heater or similar appliance in a building must comply with: > Domestic solid-fuel burning appliances — Installation: AS/NZS 2918:2018. > For boilers and pressure vessels: Specification G2.2		CRA – Refer Annexure F
G2.3: Open Fireplaces		Not applicable.	N/A

Section G: Ancillary Provisions			
G2.4: Incinerator Rooms	(a) If an incinerator is installed in a building, any hopper giving access to a charging chute must be— (i) Open link in same page non-combustible ; and (ii) gas-tight when closed; and (iii) designed to return to the closed position after use; and (iv) not attached to a chute that connects directly to a flue unless the hopper is located in the open air; and (v) not located in a required exit. (b) A room containing an incinerator must be separated from other parts of the building by construction with an FRL of not less than 60/60/60.		CRA – Refer Annexure F
Part G3 – Atrium Construction			
G3.1: Atriums Affected by the Part	This Part does not apply to an atrium which— (a) connects only 2 storeys; or (b) connects only 3 storeys if— (i) each storey is provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5 throughout; and (ii) one of those storeys is situated at a level at which there is direct egress to a road or open space.	Not applicable.	N/A
Part G4 – Construction in Alpine Areas			
G4.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G4.1: Application of Part	Informational	Noted	Noted

Section G: Ancillary Provisions

Part G5 – Construction in Bushfire Prone Areas

G5.0: Deemed-to-Satisfy Provisions	Informational	Noted	Noted
G5.1: Application of Part	Informational	Noted	Noted
NSW G5.2: Protection	In a designated bushfire prone area, a Class 2 building, a Class 3 building, a Class 4 part of a building or a Class 9 building that is a special fire protection purpose or a Class 10a building or deck associated with such a building or part, must comply with the following— (c) AS 3959 except— (i) as amended by Planning for Bush Fire Protection; and (ii) for Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). Buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level; or (d) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or (e) the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.		CRA – Refer Annexure F
Part G6 – Occupiable Outdoor Areas			

Section G: Ancillary Provisions

G6.1: Application of part	(a) The Deemed-to-Satisfy Provisions of this Part apply to buildings containing an occupiable outdoor area in addition to the other Deemed-to-Satisfy Provisions of the BCA. (b) The Deemed-to-Satisfy Provisions of this Part take precedence where there is a difference to the Deemed-to-Satisfy Provisions of Sections C, D, E, F and G. (c) Except for G6.2, the Deemed-to-Satisfy Provisions of this Part do not apply to – (i) an occupiable outdoor area of a <i>sole-occupancy unit</i> in a Class 2 or 3 building, Class 9c building or Class 4 part of a building; or (ii) an occupiable outdoor area with an area less than 10m².	The Level 3 external rooftop area will be required to comply with this clause.	Noted
G6.2: Fire hazard properties	(a) Subject to (b), a lining material or assembly in an occupiable outdoor area must comply with C1.10 as for an internal element. (b) The following fire hazard properties of a lining, material or assembly in an occupiable outdoor area are not required to comply with C1.10: (i) <i>Average specific extinction area.</i> (ii) <i>Smoke-Developed Index.</i> (iii) <i>Smoke development rate.</i> (iv) <i>Smoke growth rate index (SMOGR_{RC}).</i>		CRA – Refer Annexure F
G6.3: Fire Separation	For the purposes of the Deemed-to-Satisfy Provisions of C2.7, C2.8 and C2.9, a reference to a storey includes an occupiable outdoor area, however a <i>fire wall</i> cannot be used to separate an occupiable outdoor area into different <i>fire compartments</i> .		CRA – Refer Annexure F

Section G: Ancillary Provisions

G6.4: Provision for escape	For the purposes of the Deemed-to-Satisfy Provisions of Part D1, a reference to a storey or room includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.5: Construction of exits	For the purposes of the Deemed-to-Satisfy Provisions of Part D2, a reference to a storey or room includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.6: Fire fighting equipment	Except for Clause 7(b)(i) of Specification E1.5, for the purposes of the Deemed-to-Satisfy Provisions of Part E1, a reference to a storey includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.7: Lift installations	For the purposes of the Deemed-to-Satisfy Provisions of Part E3, a reference to a storey includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.8: Visibility in an emergency, exit signs and warning systems	For the purposes of the Deemed-to-Satisfy Provisions of Part E4, a reference to a storey includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.9: Light and ventilation	For the purposes of the Deemed-to-Satisfy Provisions of F4.4, F4.8 and F4.9, a reference to a room includes an occupiable outdoor area.		CRA – Refer Annexure F
G6.10: Fire orders	For the purposes of the Deemed-to-Satisfy Provisions of G4.9, a reference to a storey includes an occupiable outdoor area.		CRA – Refer Annexure F

Section I: Maintenance**Part I1 – Equipment and Safety Installations**

Section I: Maintenance

This Part has been deleted in BCA2019.

Section J: Energy Efficiency

Detailed Energy efficiency requirements must refer to BASIX certificate and/or Section J Report.

ANNEXURE E DEFINITIONS

Annexure E - Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m²) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

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

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

- (a) the exterior of the building; or
- (b) a non-conditioned space including—
 - (i) the floor of a rooftop plant room, lift-machine room or the like; and
 - (ii) the floor above a carpark or warehouse; and
 - (iii) the common wall with a carpark, warehouse or the like.

Exit

Exit means –

- (a) Any, or any combination of the following if they provide egress to a road or open space—
 - (i) An internal or external stairway.
 - (ii) A ramp.
 - (iii) A fire-isolated passageway.
 - (iv) A doorway opening to a road or open space.
 - (v) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

- (a) the total space of a building; or
- (b) when referred to in—
 - (i) the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

- (ii) the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

- (a) structural adequacy; and
- (b) integrity; and
- (c) insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

Fire-source feature

- (a) the far boundary of a road, river, lake or the like adjoining the allotment; or
- (b) a side or rear boundary of the allotment; or
- (c) an external wall of another building on the allotment which is not a Class 10 building

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Horizontal exit

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

Loadbearing

Intended to resist vertical forces additional to those due to its own weight.

Non-combustible

Non-combustible means—

- (a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
- (b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Occupiable outdoor area

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

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

Open space

Open space means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Performance Requirement

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

Sarking-type material

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke developed index

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

- (a) a dwelling; or
- (b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
- (c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
- (d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

ANNEXURE F BCA COMPLIANCE SPECIFICATION

Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
3. Building elements must be non-combustible in accordance with C1.9 of BCA2019.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.
5. Any fire-protected timber proposed will comply with Clause C1.13 of BCA2019.
6. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.
7. The 9a building will be separated in accordance with Clause C2.5 of BCA2019.
8. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C2.6 of BCA2019 if sprinkler protection is not proposed. It is noted that no spandrel separation is required in the stairway or to a void.
9. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.
10. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.
11. Equipment will be separated in accordance with Clause C2.12 of BCA2019.
12. The electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.
13. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.
14. Doorways in horizontal exits will be protected in accordance with Clause C3.7 of BCA2019.
15. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C3.8 of BCA2019.
16. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C3.9 of BCA2019.
17. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.
18. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.

19. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.
20. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.
21. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non-loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.
22. All attachments to the external façade of the building will be fixed in a way that does not affect the fire resistance of that element in accordance with Clause 2.4 of Specification C1.1 of BCA2019.
23. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2019.
24. Smoke-proof walls and doorways required in the health care or aged care building will be in accordance with Specification C2.5 of BCA2019.
25. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.
26. Smoke doors will be constructed so smoke will not pass from one side of the doorway to the other in accordance with Specification C3.4 of BCA2019.
27. The number of exits provided to the building will be in accordance with Clause D1.2 of BCA2019.
28. The required exits will be fire-isolated in accordance with Clause D1.3 of BCA2019.
29. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019.
30. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 45m apart in the patient care areas in the health-care building or 60m, in accordance with Clause D1.5 of BCA2019.
31. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.
32. The fire-isolated exits will be in accordance with Clause D1.7 of BCA2019.
33. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.
34. Horizontal exits will be in accordance with Clause D1.11 of BCA2019.
35. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D1.16 of BCA2019.
36. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
37. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D2.2 of BCA2019.
38. The smoke lobby to the fire-isolated exit will be constructed in accordance with Clause D2.6 of BCA2019.
39. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.

40. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
41. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
42. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.
43. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
44. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
45. Re-entry doors from the fire-isolated exits will be in accordance with Clause D2.22 of BCA2019.
46. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.
47. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.
48. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
49. The roof covering will be in accordance with Clause F1.5 of BCA2019.
50. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
51. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019 and AS 3740:2010.
52. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
53. All glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
54. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2019.
55. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2019.
56. A slop-hopper will be provided in accordance with Clause F2.8 of BCA2019.
57. Ceiling heights to the building will be in accordance with Clause F3.1 of BCA2019.
58. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2019.
59. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.
60. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
61. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.
62. Boliers and pressure vessels shall be installed in accordance with Specification G2.2 of BCA2019.
63. The building is within a bushfire prone area therefore will be in accordance with Part G5 of BCA2019. (Note: See NSW G5.2 Variation below)

64. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
65. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
66. Glazing will be in accordance with Part J1 of BCA2019.
67. Building sealing will be in accordance with Part J3 of BCA2019.
68. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

69. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.
70. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
71. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
72. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4.9 of BCA2019.
73. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
74. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
75. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

Hydraulic Services Design Certification:

76. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018
77. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
78. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019 and AS 2441:2005.
79. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and appropriate part(s) of AS 2118.
80. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.
81. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.

Mechanical Services Design Certification:

82. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
83. Stair pressurisation will be installed in the building in accordance with Table E2.2a of BCA2019 and AS 1668.1:2015.
84. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
85. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019

86. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

87. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 as follows:
- a. Dead and Live Loads – AS/NZS 1170.1:2002
 - b. Wind Loads – AS/NZS 1170.2:2011
 - c. Earthquake actions – AS 1170.4:2007
 - d. Masonry – AS 3700:2018
 - e. Concrete Construction – AS 3600:2018
 - f. Steel Construction AS 4100:1998
 - g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
 - h. Timber Construction – AS 1720.1:2010
 - i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
88. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 3 for a building of Type A Construction.
89. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.
90. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
91. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019 to reinstate the FRL of the element concerned.
92. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D2.2 of BCA2019 for the fire isolated stairs.

Lift Services Design Certification:

93. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3.2 of BCA2019 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.
94. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.
95. An emergency lift will be provided in the building in accordance with Clause E3.4 of BCA2019.
96. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3.9.
97. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3.10.
98. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.
99. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.

NSW Specification Design Certificate:

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100. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10, NSW Clause C1.10, Specification C1.10 and NSW Specification C1.10 of BCA2019.
 101. The building will be separated in accordance with Clause C2.5, and NSW Clause C2.5(b)&(h) of BCA2019.
 102. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 and NSW Clause D2.21(c)&(d) of BCA2019.
 103. The building is within a bushfire prone area therefore will be in accordance with Part G5, and NSW Part G5.1 & G5.2 of BCA2019.
 104. Insulation will be in accordance with AS/NZS 4859.1:2018 and will be installed as required by NSW Part J1 of BCA2019.
 105. A smoke detection and alarm systems will be installed throughout the building in accordance with Table E2.2a, NSW Table E2.2a and NSW Specification E2.2a of BCA2019.
 106. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5(b) of BCA2019 and AS 1668.2:2012.